April 21, 2017  
12:00pm – 6:00pm

Location: GuideWell Innovation Center  
6555 Sanger Road  
Orlando, FL 32827

Teleconference: 877-309-2071  
Access Code: 784-519-174

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00 – 12:05</td>
<td>Roll Call, Welcome &amp; Introductions</td>
<td>Chair Senior</td>
</tr>
<tr>
<td>12:05 - 12:10</td>
<td>Review &amp; Approval of March Minutes</td>
<td>Chair Senior</td>
</tr>
<tr>
<td>12:10 – 12:20</td>
<td>Welcome and Opening Remarks</td>
<td>Guidewell Innovation Center</td>
</tr>
<tr>
<td>12:20 – 1:30</td>
<td>Panel Discussion</td>
<td></td>
</tr>
<tr>
<td>1:30 – 1:45</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>1:45 - 2:00</td>
<td>U.S. Army Medcom</td>
<td>Col. Danny Jaghab</td>
</tr>
<tr>
<td>2:00 - 3:00</td>
<td>Center for Connected Health Policy</td>
<td>Mario Gutierrez</td>
</tr>
<tr>
<td>3:00 – 3:15</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>3:15 – 4:15</td>
<td>American Telehealth Association</td>
<td>Latoya Thomas</td>
</tr>
<tr>
<td>4:15 - 4:45</td>
<td>Public Comment</td>
<td>Chair Senior</td>
</tr>
<tr>
<td>4:45 – 5:45</td>
<td>Member Discussion &amp; Next Steps</td>
<td>Council Members</td>
</tr>
<tr>
<td>5:45 – 6:00</td>
<td>Wrap Up &amp; Closing</td>
<td>Chair Senior</td>
</tr>
</tbody>
</table>

Meeting Materials and Information will be available at: www.AHCA.myflorida.com/Telehealth

Additional comments and information may also be sent to: Telehealth@ahca.myflorida.com
**Reference Materials:**
1. March Minutes
2. DOH Teledental Information Sheet
3. School Health - FERPA vs. HIPPA
4. Dept. of Justice Telehealth Guide
5. US Army Virtual Health Information Sheet
6. Mario Gutierrez Bio
7. Latoya Thomas Bio

**Follow Up Documents from March Meeting:**
8. Category Suggestions for Report
9. List of Telehealth Definitions
10. State Licensure Regulatory Board Compacts
11. Chart of Florida Regulations that reference Telehealth/Telemedicine (language provided)
12. Chart of Petition for Declaratory Statement Final Orders (final orders provided)
13. Minutes Joint BOM/BOOM Telehealth Minutes

**Other Reference Material:**
14. Information on National Quality Forum submitted by Anne Burdick
15. Report from Altarum Institute & CHRONIC Care Act Senate Finance Committee Staff Analysis submitted by Mike Smith
17. USGAO report on Telehealth in Medicare
Welcome and Opening Remarks

Chair Senior called the meeting to order at 1:00 p.m. Due to technical difficulties connecting members attending virtually, the meeting was paused for 15 minutes.

Roll Call

Chair Senior welcomed the group and directed Ms. Nikole Helvey to call the roll. A quorum was present.

Review and Approval of the Minutes

Dr. Anne Burdick noted that a statement attributed to her on page three, paragraph six of the minutes, was not her comment. No other member noted it being their comment, and it was stricken from the record. A motion was made to approve the minutes as amended; the motion was seconded and carried unanimously.

Welcome and Opening Remarks

Ms. Lauren Faison, Regional Development, Population Health, & Telehealth Coordinator, Tallahassee Memorial Healthcare welcomed the Council and introduced Mark O’Brien, President and Chief Executive Officer, Tallahassee Memorial Healthcare, and Dr. Dean Watson, Chief Medical Officer, Tallahassee Memorial Healthcare. Mr. O’Brien highlighted the need for telehealth for the treatment of patients living in rural Florida. He shared his belief that technology will allow for the treatment of patients where they are located and eventually in their
homes. He noted the starting place for this type of care begins with connecting rural hospitals to larger or regional health systems. Dr. Watson shared information on the current services Tallahassee Memorial Healthcare offers via telehealth. He noted a need to reimbursement changes to cover telehealth services. He acknowledged the Council for their work and noted he looked forward to their report.

**Department of Health - Physician Workforce Statistics**

Steven Chapman, PhD, Director, Division of Public Health Statistics and Performance Management, shared information on trends in Florida’s physician workforce. He provided information on expected population growth versus expected growth in physician licensure. He highlighted physician specialty areas with anticipated surplus and deficits. The current extrapolation indicate a shortage in several provider specialty types with a specific impact in urban and rural areas of Florida. The largest current specialty deficit is in psychiatry, with anticipation it will remain in a deficit into the future. Dr. Chapman shared initiatives Florida was promoting or implementing to strengthen the current physician workforce, including expansion of graduate medical education programs, community paramedicine programs, and telehealth.

Ms. Stynchula asked if information on broadband coverage in physician shortage areas was available. Dr. Chapman advised he was not knowledgeable in the area of broadband coverage. Ms. Helvey noted that staff would look into obtaining this information for the Council.

Ms. Miller suggested it might be beneficial to consider nurse practitioner and physician assistant data segments when looking into primary care needs for patients.

Mr. Smith asked for additional on the data related to health provider shortage areas (HPSA) in Florida. Dr. Chapman clarified that HPSAs include facilities, geographical areas, and underserved population areas. He share there are 600 HPSAs in Florida; half of those are correctional facilities and the other half are made-up of the other two categories.

Mr. Manzie asked Dr. Chapman for more information on the paramedicine program. Dr. Chapman shared that he was aware of trials in rural areas being implemented, but did not have specific details. Dr. Landry shared information about the trial paramedicine program established in the panhandle of Florida.

**Department of Health – Medical Quality Assurance**

Claudia Kemp, J.D., Executive Director, Florida Board of Medicine, shared information on laws and policy related to licensure and standards of care for health care practitioners in Florida, specifically as it relates to physicians. She commented on the numerous definitions for telehealth, including those in telecommunication and Children’s Medical Services regulations. She also noted House Bill 7011 as current legislation, which has a telehealth definition. Ms. Kemp highlighted information on how other states are handling regulatory issues related to telehealth.

She shared that in her research, it appears some states are offering specialty licensure or participating in a licensure compact to simplify the licensure process for those providing telemedicine. She noted that most medical practice statues clarify the location of the patient is the determinant in where a physician should be licensed.
Ms. Kemp advised the Board of Nursing had responded to a petition for declaratory state from a nurse practitioner in Ohio regarding the use of telehealth technology. She stated the Board of Nursing advised they could provide treatment to Florida patients via telehealth.

Dr. Landry requested clarification on the details of the Board of Nursing Petition for Declaratory Statement. Mr. Stanton noted the nurse practitioner was in his employ at Cleveland Clinic and noted the petition response acknowledged the nurse practitioner could provide care to Florida patients via telehealth because the supervising physician and nurse practitioner both hold a license in Florida and in Ohio. Mr. Manzie requested staff to provide a copy of the petition for declaratory statement and response to the Council members.

Ms. Gross questioned if Ms. Kemp knew why the Senate has not brought forward a companion Bill to House Bill 7011. Ms. Kemp noted any response would be speculative. Dr. Burdick requested staff to resend the Council members a copy of House Bill 7011.

Mr. Stanton questioned whether the medical boards needed more information to implement standards around telehealth. Ms. Kemp advised the Boards of Medicine and Osteopathic Medicine have recently established a joint committee to look at any needed telehealth regulations. She shared the committee would be holding its first meeting in April.

Ms. Miller asked if the Board of Medicine has an opinion on the Federation of State Medical Board’s licensure compact. Ms. Kemp indicated the compact would be a discussion topic for the joint committee. She also shared the board’s position of the need for physicians to be licensed in the state they are treating patients.

Ms. Stynchula requested clarification on whether physicians have to obtain a license in each state to practice if they are participating in the compact. Ms. Kemp clarified the process.

Dr. Burdick asked about the joint committee goals. Ms. Kemp noted that the goals would be part of the initial discussion in April. Dr. Burdick suggested the members of the joint committee be aware of the Council’s work.

Panel Discussion

Janet Dubois, ARNP, Florida Nurse Practitioner Network, shared information on ARNPs and telehealth. She highlighted concerns with physician shortages and the need to overcome telehealth barriers in order to meet health care needs. She noted the FNPNs stance that there is no need for additional licensure laws or requirements to implement telehealth since a standard of care provision already exists. Ms. Dubois shared concerns with location restrictions for reimbursement, such as video conferencing, as a barrier to practice. Another area of restriction identified by Ms. DuBois is the requirement for a nurse practitioners supervising physician to be a Medicaid provider in order for the nurse practitioner to be a Medicaid provider. She noted a lack of reimbursement by health plans for these services with limited exception. Ms. Dubois also noted the need for a standard definition of telehealth.

Ms. Miller shared that Wellcare does provide reimbursement to nurse practitioners as a Medicaid Managed Care plan.

Mr. Smith requested Ms. DuBois share information on how Arizona has implemented telehealth, since she has practiced in that state. Ms. DuBois noted that Arizona did not require nurse
practitioner to have a protocol with a physician, which removes some of the restrictions noted previously.

Mr. Manzie commented on general confusion within healthcare as to whether nurse practitioners could treat using telehealth.

Stan Whitaker, ARNP, Florida ARNP Association, reiterated the statements by Ms. Dubois; noting the importance of telehealth for rural areas in Florida. He expressed support for the use and insurance reimbursement for both live video telehealth and store and forward technologies.

Ms. Gross remarked that nurse practitioners could provide telehealth services in rural areas. Mr. Whittaker noted the financial limitations in many rural areas to implement a telehealth platform.

Grace Bryan, PA, Florida Association of Physician Assistants, shared how Mayo Clinic utilizes telehealth to treat patients. She advised that her unit provides anywhere from one-three telehealth consults for stroke each day. She noted concern with coverage for these telehealth services.

Ms. Gross questioned whether insurers covered the tele-stroke services provided by her facility. Ms. Bryan noted that Medicare provisions focused on coverage for rural areas, but not urban.

Break 3:17 – 3:27 p.m.

Panel Discussion

Mary Thomas, JD, Florida Medical Association, emphasized the support of telehealth by their membership. She stressed key points related to telehealth that should be addressed are the need for physicians to be licensed in Florida and reimbursement should be the same as in-person treatment. Ms. Thomas also shared the need for a consistent definition for telehealth, which would be encompassing of all health care practitioners.

Ms. Thomas highlighted reimbursement for telehealth services as a barrier to expansion. She noted that physicians could not afford to implement telehealth if they could not expect compensation for treating patients through technology. She suggested providing incentives as a mechanism for expanding the use of telehealth. Ms. Thomas added that the FMA does not see licensure as a barrier to telehealth and supports the Board of Medicine’s telehealth rule.

Ms. Miller asked if the FMA has a stance on the Federation of State Medical Board (FSMB) licensure compact. Ms. Thomas advised they recently voted support of the licensure compact as long as participation in the compact is optional for physicians.

Ronald Knaus, DO, Florida Osteopathic Medical Association (FOMA), informed the Council that he is a retired private practice physician, currently practicing part-time for the US Department of Veterans Affairs (VA), providing psychiatric evaluations across the state. Dr. Knaus expressed the need of telehealth expansion, especially in the area of psychiatry, where there is a shortage of providers. He expressed a general need for the use of telehealth to treat patients in rural and urban areas where physician do not practice, due to low earning potential, increased costs to practice, and an aging population.

Dr. Knaus added that FOMA believed physicians practicing in Florida should be licensed.
Mr. Manzie asked why Dr. Knaus was not using telehealth to provide patient evaluation. Dr. Knaus explained the consulting organization he works with is currently working to implement a telehealth platform.

Mr. Smith noted the VA’s requirement for practitioners to hold a license in one state in order to work in their facilities anywhere in the United States. He questioned why states would not want to adopt that philosophy. Dr. Knaus shared that private practice and working within the restrictions of the VA were vastly different and not comparable.

Michael Jackson, BPharm, Florida Pharmacy Association, noted telehealth has been around for a very long time. He also noted the FPA’s January 2016 journal dedicated to the topic of telehealth.

Mr. Jackson noted the security of health information sharing platforms, interoperability of systems for patient record sharing, and reimbursement for telepharmacy services, as areas of importance. He shared the potential for collaborative care using telehealth to reduce medication errors and adverse reactions.

Mr. Jackson also suggested the Board of Pharmacy rules were outdated and needed revisions to include current practice models. He shared the Board of Pharmacy was looking at rules that touch on telehealth; however, in order to implement specific rules, legislative changes were needed.

Mr. Manzie asked what limitations were in place for implementation of telepharmacy. Mr. Jackson identified the expense of implementing the initial infrastructure, internet connectivity, and physician comfort in working with pharmacists in this capacity.

Ms. Gross asked if medication therapy management is reimbursable when offered via telehealth. Mr. Jackson noted reimbursement was plan specific.

Public Comment

Dr. Carolyn Stimel, PhD, Florida Psychological Association - Dr. Stimel explained the confusion among health care professionals on the legal ability for them to provide treatment with telehealth technology. She shared there have been declaratory statements submitted to the Board of Psychology related to the use of telehealth. Dr. Stimel noted the lack of statutory language for the Board of Psychology to develop rules related to telehealth. She also noted a national group is looking at the development of a licensure compact.

Anna Baznik, CEO, IMPOWER – Ms. Baznik reiterated prior comments that telehealth is not a service; it is a modality for providing health care. She highlighted the importance of telehealth as a modality for providing behavioral health treatment given the current shortage and future expected shortage of psychiatrists.

Mr. Smith asked how her organization had overcome the barriers shared by others. Ms. Baznik noted she would be providing a presentation at the May Council meeting would provide more in-depth details at that time.

Member Discussion & Next Steps

Chair Senior asked Ms. Helvey to provide a review of upcoming meetings. Ms. Helvey shared that the April meeting will be in Orlando at the Guidewell Innovation Center. She noted the
speakers would be providing information on the use of telehealth in public facilities – including schools, correctional facilities, and the county health departments. Ms. Helvey also shared that the May meeting will be in Miami at the County Health Department. She informed the Council that the focus would be on practitioner use of telehealth and speaker topics would include information from pediatricians, neurologists, speech pathologists and audiologists, and behavioral health practitioners.

Dr. Burdick asked staff to invite Latoya Thomas with the American Telehealth Association to present at the April meeting rather than some of the other presenters.

Ms. Miller asked staff to invite someone with the Center for Medicaid/Medicare Services (CMS) to present at an upcoming meeting. Mr. Stanton noted he would assist staff in finding an appropriate contact within CMS.

After much discussion, the Council determined a need to begin the structural development of their report. Mr. Manzie moved to determine the feasibility of extending the April meeting by a few hours and to hold full day meetings in May and June. The motion was seconded and carried unanimously.

Dr. Philip suggested the report include timelines to establish realistic expectation. Dr. Burdick noted the need to review existing laws from other states. Mr. Smith recommended defining the term telehealth. Dr. Landry provided four high level categories as a potential foundation for the report discussion.

**Adjournment**

There being no further discussion, the Telehealth Advisory Council adjourned at 5:00 p.m.
Interested Parties Present:

Sabrina Gallo, Greenberg-Traurig; Jason Winn, Florida Osteopathic Medical Association; Ronald Knaus, DO, Florida Osteopathic Medical Association; Adam Chesler, Cardinal Health; Anna Baznik, IMPOWER; Janet DuBois, Florida Nurse Practitioner Network; Grace Bryan, Florida Association of Physician Assistants; Steven Chapman, Department of Health; Stan Whittaker, Florida Association of Nurse Practitioners; Michael Jackson, Florida Pharmacy Association; Carolyn Stimal, Florida Psychological Association; Allison Wiman, Florida TaxWatch; Geoffrey Becker, Medtronic; Megan Weiland, AHCA; Layne Smith, Mayo Clinic; Glenn Thomas, Florida Association of Nurse Anesthetists; Mike Nuccio, Florida Academy of Physician Assistants; Add in virtual attendees.
Teledentistry

Florida Department of Health Nassau County

Our Mission is to protect, promote & improve the health of all people in Florida through integrated state, county & community efforts. Our Vision is to be the healthiest State in the Nation

Linkage to Increase Oral Health Access

Current Services: New patient & recall exams, emergency exams using intraoral camera in conjunction with digital Xrays.

Presenter: Dental Hygienist in Hilliard to Dentist in Yulee.

Benefit to Client—saves travel (42 mi roundtrip), convenience of combined exam with hygiene appointment, decreased wait time.

Patients enjoy the “new technology” and per Dr. Gupton, the Dental Director, “in some ways, the exam is superior to in-person due to the magnification allowing better visualization”.

HISTORY

Initial equipment purchased through HRSA Rural Health Outreach Grant in 2005 & FDOH pilot grant. Project began in 2007.

OUTCOMES:

Teledental Exam vs DiagnoDent Study for Board of Dentistry in 2007-8 found high magnification & diagnostic accuracy. Clients (patients & parents) were very satisfied on survey responses. Since program implementation in 2007, over 1500 exams provided. Reimbursement under place of service modifier being implemented for Medicaid and MMAs.
### Analysis between Family Education Rights and Privacy Act (FERPA) and the Health Insurance Portability and Accountability Act (HIPAA)

<table>
<thead>
<tr>
<th>Topic</th>
<th>FERPA/Part C</th>
<th>HIPAA</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Notice</td>
<td>Notice must be given to parents regarding their rights under the law, including their right to consent to disclosures of personally identifying information except where otherwise allowed without consent; their right to inspect, review and copy records; their right to request amendment of the records; how “directory information” may be disclosed; and the process for filing a complaint</td>
<td>Notice must be given to patients regarding their rights under the law, including how their health/medical information may be used and disclosed with and without their consent; how they can access their health information; and the process for filing a complaint about inaccurate records or improper disclosure</td>
<td>In some cases, FERPA contains more stringent privacy protections than HIPAA contains, or has provisions that conflict with HIPAA. For example, the notice required by HIPAA would not adequately inform a family of their privacy rights under FERPA, and in those cases following HIPAA may cause a violation of FERPA standard</td>
</tr>
<tr>
<td>2) Consent</td>
<td>Requires consent for disclosure of personally identifiable information EXCEPTIONS: ..School [program] officials within the agency or institution who have a legitimate educational [program] interest ..Certain governmental agencies and/or officials for purposes of program audit or enforcement ..Research purposes if certain criteria met ..Accrediting organizations ..Subpoena ..Health or safety emergency ..Directory information can almost always be disclosed</td>
<td>Requires consent for release of “protected” personal health information EXCEPTIONS: ..Records can be released to parties that need them in order to: • Carry out treatment functions – provide and coordinate the treatment, medication and/or services patient requires • Carry out payment functions • Carry out certain operations relating to administration, quality assurance, and other functions</td>
<td></td>
</tr>
<tr>
<td>3) Other provisions</td>
<td>Right to inspect and review records. Process for requesting correction or amendment of records. Program must maintain record of each request for access to records and disclosure to parties (except for parents, school officials, or parties who have written consent of the parents, or those just receiving directory information). Provision for a hearing if family’s initial request to amend is denied. Right to federal complaint process (U.S. Department of Education) if believe the law is being violated.</td>
<td>Right to access and copy records. Process for correcting or amending records. (Make request to entity privacy officer. May be denied.) Right to receive an accounting of disclosures made for purposes other than treatment, payment or health care operations. Subject to certain exceptions. Right to request additional restrictions on use and disclosures of information. Provider not required to agree with restrictions. Right to complain to the covered entity privacy officer or to the U.S. Secretary of Health and Human Services regarding a complaint that the law was violated.</td>
<td></td>
</tr>
</tbody>
</table>

November 2008
Contents

I. Introduction ........................................................................................................................................ 1

II. Overview of FERPA .......................................................................................................................... 1

III. Overview of HIPAA ......................................................................................................................... 2

IV. Where FERPA and HIPAA May Intersect ...................................................................................... 3

V. Frequently Asked Questions and Answers ....................................................................................... 3

1. Does the HIPAA Privacy Rule apply to an elementary or secondary school?
2. How does FERPA apply to health records on students maintained by elementary or secondary schools?
3. Does FERPA or HIPAA apply to elementary or secondary school student health records maintained by a health care provider that is not employed by a school?
4. Are there circumstances in which the HIPAA Privacy Rule might apply to an elementary or secondary school?
5. Where the HIPAA Privacy Rule applies, does it allow a health care provider to disclose protected health information (PHI) about a troubled teen to the parents of the teen?
6. Where the HIPAA Privacy Rule applies, does it allow a health care provider to disclose protected health information (PHI) about a student to a school nurse or physician?
7. Does FERPA or HIPAA apply to records on students at health clinics run by postsecondary institutions?
8. Under FERPA, may an eligible student inspect and review his or her “treatment records”?
9. Under FERPA, may an eligible student’s treatment records be shared with parties other than treating professionals?
10. Under what circumstances does FERPA permit an eligible student’s treatment records to be disclosed to a third-party health care provider for treatment?
11. Are all student records maintained by a health clinic run by a postsecondary institution considered “treatment records” under FERPA?
12. Does FERPA or HIPAA apply to records on students who are patients at a university hospital?
13. Where the HIPAA Privacy Rule applies, does it permit a health care provider to disclose protected health information (PHI) about a patient to law enforcement, family members, or others if the provider believes the patient presents a serious danger to self or others?
14. Does FERPA permit a postsecondary institution to disclose a student’s treatment records or education records to law enforcement, the student’s parents, or others if the institution believes the student presents a serious danger to self or others?
15. Are the health records of an individual who is both a student and an employee of a university at which the person receives health care subject to the privacy provisions of FERPA or those of HIPAA?
16. Can a postsecondary institution be a “hybrid entity” under the HIPAA Privacy Rule?

VI. Conclusion ........................................................................................................................................ 11
I. Introduction

The purpose of this guidance is to explain the relationship between the Family Educational Rights and Privacy Act (FERPA) and the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule, and to address apparent confusion on the part of school administrators, health care professionals, and others as to how these two laws apply to records maintained on students. It also addresses certain disclosures that are allowed without consent or authorization under both laws, especially those related to health and safety emergency situations. While this guidance seeks to answer many questions that school officials and others have had about the intersection of these federal laws, ongoing discussions may cause more issues to emerge. Contact information for submitting additional questions or suggestions for purposes of informing future guidance is provided at the end of this document. The Departments of Education and Health and Human Services are committed to a continuing dialogue with school officials and other professionals on these important matters affecting the safety and security of our nation’s schools.

II. Overview of FERPA

FERPA is a Federal law that protects the privacy of students’ “education records.” (See 20 U.S.C. § 1232g; 34 CFR Part 99). FERPA applies to educational agencies and institutions that receive funds under any program administered by the U.S. Department of Education. This includes virtually all public schools and school districts and most private and public postsecondary institutions, including medical and other professional schools. If an educational agency or institution receives funds under one or more of these programs, FERPA applies to the recipient as a whole, including each of its components, such as a department within a university. See 34 CFR § 99.1(d).

Private and religious schools at the elementary and secondary level generally do not receive funds from the Department of Education and are, therefore, not subject to FERPA. Note that a private school is not made subject to FERPA just because its students and teachers receive services from a local school district or State educational agency that receives funds from the Department. The school itself must receive funds from a program administered by the Department to be subject to FERPA. For example, if a school district places a student with a disability in a private school that is acting on behalf of the school district with regard to providing services to that student, the records of that student are subject to FERPA, but not the records of the other students in the private school. In such cases, the school district remains responsible for complying with FERPA with respect to the education records of the student placed at the private school.

An educational agency or institution subject to FERPA may not have a policy or practice of disclosing the education records of students, or personally identifiable information from education records, without a parent or eligible student’s written consent. See 34 CFR § 99.30. FERPA contains several exceptions to this general consent rule. See 34 CFR § 99.31. An “eligible student” is a student who is at least 18 years of age or who attends a postsecondary institution at any age. See 34 CFR §§ 99.3 and 99.5(a). Under FERPA, parents and eligible students have the right to inspect and review the student’s education records and to seek to have them amended in certain circumstances. See 34 CFR §§ 99.10 – 99.12 and §§ 99.20 – 99.22.

The term “education records” is broadly defined to mean those records that are: (1) directly related to a student, and (2) maintained by an educational agency or institution or by a party acting for the
agency or institution. See 34 CFR § 99.3. At the elementary or secondary level, a student’s health records, including immunization records, maintained by an educational agency or institution subject to FERPA, as well as records maintained by a school nurse, are “education records” subject to FERPA. In addition, records that schools maintain on special education students, including records on services provided to students under the Individuals with Disabilities Education Act (IDEA), are “education records” under FERPA. This is because these records are (1) directly related to a student, (2) maintained by the school or a party acting for the school, and (3) not excluded from the definition of “education records.”

At postsecondary institutions, medical and psychological treatment records of eligible students are excluded from the definition of “education records” if they are made, maintained, and used only in connection with treatment of the student and disclosed only to individuals providing the treatment. See 34 CFR § 99.3 “Education records.” These records are commonly called “treatment records.” An eligible student’s treatment records may be disclosed for purposes other than the student’s treatment, provided the records are disclosed under one of the exceptions to written consent under 34 CFR § 99.31(a) or with the student’s written consent under 34 CFR § 99.30. If a school discloses an eligible student’s treatment records for purposes other than treatment, the records are no longer excluded from the definition of “education records” and are subject to all other FERPA requirements.

The FERPA regulations and other helpful information can be found at: http://www.ed.gov/policy/gen/guid/fpco/index.html.

III. Overview of HIPAA

Congress enacted HIPAA in 1996 to, among other things, improve the efficiency and effectiveness of the health care system through the establishment of national standards and requirements for electronic health care transactions and to protect the privacy and security of individually identifiable health information. Collectively, these are known as HIPAA’s Administrative Simplification provisions, and the U.S. Department of Health and Human Services has issued a suite of rules, including a privacy rule, to implement these provisions. Entities subject to the HIPAA Administrative Simplification Rules (see 45 CFR Parts 160, 162, and 164), known as “covered entities,” are health plans, health care clearinghouses, and health care providers that transmit health information in electronic form in connection with covered transactions. See 45 CFR § 160.103. “Health care providers” include institutional providers of health or medical services, such as hospitals, as well as non-institutional providers, such as physicians, dentists, and other practitioners, along with any other person or organization that furnishes, bills, or is paid for health care in the normal course of business. Covered transactions are those for which the U.S. Department of Health and Human Services has adopted a standard, such as health care claims submitted to a health plan. See 45 CFR § 160.103 (definitions of “health care provider” and “transaction”) and 45 CFR Part 162, Subparts K–R.

The HIPAA Privacy Rule requires covered entities to protect individuals’ health records and other identifiable health information by requiring appropriate safeguards to protect privacy, and setting limits and conditions on the uses and disclosures that may be made of such information without patient authorization. The rule also gives patients rights over their health information, including rights to examine and obtain a copy of their health records, and to request corrections.
IV. Where FERPA and HIPAA May Intersect

When a school provides health care to students in the normal course of business, such as through its health clinic, it is also a “health care provider” as defined by HIPAA. If a school also conducts any covered transactions electronically in connection with that health care, it is then a covered entity under HIPAA. As a covered entity, the school must comply with the HIPAA Administrative Simplification Rules for Transactions and Code Sets and Identifiers with respect to its transactions. However, many schools, even those that are HIPAA covered entities, are not required to comply with the HIPAA Privacy Rule because the only health records maintained by the school are “education records” or “treatment records” of eligible students under FERPA, both of which are excluded from coverage under the HIPAA Privacy Rule. See the exception at paragraph (2)(i) and (2)(ii) to what is considered “protected health information” (PHI) at 45 CFR § 160.103. In addition, the exception for records covered by FERPA applies both to the HIPAA Privacy Rule, as well as to the HIPAA Security Rule, because the Security Rule applies to a subset of information covered by the Privacy Rule (i.e., electronic PHI). Information on the HIPAA Privacy Rule is available at: http://www.hhs.gov/ocr/hipaa/. Information on the other HIPAA Administrative Simplification Rules is available at: http://www.cms.hhs.gov/HIPAAgeninfo/.

V. Frequently Asked Questions and Answers

1. Does the HIPAA Privacy Rule apply to an elementary or secondary school?

Generally, no. In most cases, the HIPAA Privacy Rule does not apply to an elementary or secondary school because the school either: (1) is not a HIPAA covered entity or (2) is a HIPAA covered entity but maintains health information only on students in records that are by definition “education records” under FERPA and, therefore, is not subject to the HIPAA Privacy Rule.

- **The school is not a HIPAA covered entity.** The HIPAA Privacy Rule only applies to health plans, health care clearinghouses, and those health care providers that transmit health information electronically in connection with certain administrative and financial transactions (“covered transactions”). See 45 CFR § 160.102. Covered transactions are those for which the U.S. Department of Health and Human Services has adopted a standard, such as health care claims submitted to a health plan. See the definition of “transaction” at 45 CFR § 160.103 and 45 CFR Part 162, Subparts K–R. Thus, even though a school employs school nurses, physicians, psychologists, or other health care providers, the school is not generally a HIPAA covered entity because the providers do not engage in any of the covered transactions, such as billing a health plan electronically for their services. It is expected that most elementary and secondary schools fall into this category.

- **The school is a HIPAA covered entity but does not have “protected health information.”** Where a school does employ a health care provider that conducts one or more covered transactions electronically, such as electronically transmitting health care claims to a health plan for payment, the school is a HIPAA covered entity and must comply with the HIPAA Transactions and Code Sets and Identifier Rules with respect to such transactions. However, even in this case, many schools would not be required to comply with the HIPAA Privacy Rule because the school maintains health information only in student health records that are “education records” under FERPA and, thus, not “protected health information” under
HIPAA. Because student health information in education records is protected by FERPA, the HIPAA Privacy Rule excludes such information from its coverage. See the exception at paragraph (2)(i) to the definition of “protected health information” in the HIPAA Privacy Rule at 45 CFR § 160.103. For example, if a public high school employs a health care provider that bills Medicaid electronically for services provided to a student under the IDEA, the school is a HIPAA covered entity and would be subject to the HIPAA requirements concerning transactions. However, if the school’s provider maintains health information only in what are education records under FERPA, the school is not required to comply with the HIPAA Privacy Rule. Rather, the school would have to comply with FERPA’s privacy requirements with respect to its education records, including the requirement to obtain parental consent (34 CFR § 99.30) in order to disclose to Medicaid billing information about a service provided to a student.

2. How does FERPA apply to health records on students maintained by elementary or secondary schools?

At the elementary or secondary school level, students’ immunization and other health records that are maintained by a school district or individual school, including a school-operated health clinic, that receives funds under any program administered by the U.S. Department of Education are “education records” subject to FERPA, including health and medical records maintained by a school nurse who is employed by or under contract with a school or school district. Some schools may receive a grant from a foundation or government agency to hire a nurse. Notwithstanding the source of the funding, if the nurse is hired as a school official (or contractor), the records maintained by the nurse or clinic are “education records” subject to FERPA.

Parents have a right under FERPA to inspect and review these health and medical records because they are “education records” under FERPA. See 34 CFR §§ 99.10 – 99.12. In addition, these records may not be shared with third parties without written parental consent unless the disclosure meets one of the exceptions to FERPA’s general consent requirement. For instance, one of these exceptions allows schools to disclose a student’s health and medical information and other “education records” to teachers and other school officials, without written consent, if these school officials have “legitimate educational interests” in accordance with school policy. See 34 CFR § 99.31(a)(1). Another exception permits the disclosure of education records, without consent, to appropriate parties in connection with an emergency, if knowledge of the information is necessary to protect the health or safety of the student or other individuals. See 34 CFR §§ 99.31(a)(10) and 99.36.

3. Does FERPA or HIPAA apply to elementary or secondary school student health records maintained by a health care provider that is not employed by a school?

If a person or entity acting on behalf of a school subject to FERPA, such as a school nurse that provides services to students under contract with or otherwise under the direct control of the school, maintains student health records, these records are education records under FERPA, just as they would be if the school maintained the records directly. This is the case regardless of whether the health care is provided to students on school grounds or off-site. As education records, the information is protected under FERPA and not HIPAA.
Some outside parties provide services directly to students and are not employed by, under contract to, or otherwise acting on behalf of the school. In these circumstances, these records are not “education records” subject to FERPA, even if the services are provided on school grounds, because the party creating and maintaining the records is not acting on behalf of the school. For example, the records created by a public health nurse who provides immunization or other health services to students on school grounds or otherwise in connection with school activities but who is not acting on behalf of the school would not be “education records” under FERPA. In such situations, a school that wishes to disclose to this outside party health care provider any personally identifiable information from education records would have to comply with FERPA and obtain parental consent. See 34 CFR § 99.30.

With respect to HIPAA, even where student health records maintained by a health care provider are not education records protected by FERPA, the HIPAA Privacy Rule would apply to such records only if the provider conducts one or more of the HIPAA transactions electronically, e.g., billing a health plan electronically for his or her services, making the provider a HIPAA covered entity.

4. Are there circumstances in which the HIPAA Privacy Rule might apply to an elementary or secondary school?

There are some circumstances in which an elementary or secondary school would be subject to the HIPAA Privacy Rule, such as where the school is a HIPAA covered entity and is not subject to FERPA. As explained previously, most private schools at the elementary and secondary school levels typically do not receive funding from the U.S. Department of Education and, therefore, are not subject to FERPA.

A school that is not subject to FERPA and is a HIPAA covered entity must comply with the HIPAA Privacy Rule with respect to any individually identifiable health information it has about students and others to whom it provides health care. For example, if a private elementary school that is not subject to FERPA employs a physician who bills a health plan electronically for the care provided to students (making the school a HIPAA covered entity), the school is required to comply with the HIPAA Privacy Rule with respect to the individually identifiable health information of its patients. The only exception would be where the school, despite not being subject to FERPA, has education records on one or more students to whom it provides services on behalf of a school or school district that is subject to FERPA. In this exceptional case, the education records of only those publicly-placed students held by the private school would be subject to FERPA, while the remaining student health records would be subject to the HIPAA Privacy Rule.

5. Where the HIPAA Privacy Rule applies, does it allow a health care provider to disclose protected health information (PHI) about a troubled teen to the parents of the teen?

In most cases, yes. If the teen is a minor, the HIPAA Privacy Rule generally allows a covered entity to disclose PHI about the child to the child’s parent, as the minor child’s personal representative, when the disclosure is not inconsistent with state or other law. For more detailed information, see 45 CFR § 164.502(g) and the fact sheet regarding personal representatives at: http://www.hhs.gov/ocr/hipaa/guidelines/personalrepresentatives.pdf. In some cases, such as when a minor may receive treatment without a parent’s consent under applicable law, the parents are not treated as the minor’s personal representative. See 45 CFR § 164.502(g)(3). In such cases where
the parent is not the personal representative of the teen, other HIPAA Privacy Rule provisions may allow the disclosure of PHI about the teen to the parent. For example, if a provider believes the teen presents a serious danger to self or others, the HIPAA Privacy Rule permits a covered entity to disclose PHI to a parent or other person(s) if the covered entity has a good faith belief that: (1) the disclosure is necessary to prevent or lessen the threat and (2) the parent or other person(s) is reasonably able to prevent or lessen the threat. The disclosure also must be consistent with applicable law and standards of ethical conduct. See 45 CFR § 164.512(j)(1)(i).

In addition, the Privacy Rule permits covered entities to share information that is directly relevant to the involvement of a family member in the patient’s health care or payment for care if, when given the opportunity, the patient does not object to the disclosure. Even when the patient is not present or it is impracticable, because of emergency circumstances or the patient’s incapacity, for the covered entity to ask the patient about discussing his or her care or payment with a family member, a covered entity may share this information with the family member when, in exercising professional judgment, it determines that doing so would be in the best interest of the patient. See 45 CFR § 164.510(b).

6. Where the HIPAA Privacy Rule applies, does it allow a health care provider to disclose protected health information (PHI) about a student to a school nurse or physician?

Yes. The HIPAA Privacy Rule allows covered health care providers to disclose PHI about students to school nurses, physicians, or other health care providers for treatment purposes, without the authorization of the student or student’s parent. For example, a student’s primary care physician may discuss the student’s medication and other health care needs with a school nurse who will administer the student’s medication and provide care to the student while the student is at school.

7. Does FERPA or HIPAA apply to records on students at health clinics run by postsecondary institutions?

FERPA applies to most public and private postsecondary institutions and, thus, to the records on students at the campus health clinics of such institutions. These records will be either education records or treatment records under FERPA, both of which are excluded from coverage under the HIPAA Privacy Rule, even if the school is a HIPAA covered entity. See the exceptions at paragraphs (2)(i) and (2)(ii) to the definition of “protected health information” at 45 CFR § 160.103.

The term “education records” is broadly defined under FERPA to mean those records that are: (1) directly related to a student and (2) maintained by an educational agency or institution or by a party acting for the agency or institution. See 34 CFR § 99.3, “Education records.”

“Treatment records” under FERPA, as they are commonly called, are:

records on a student who is eighteen years of age or older, or is attending an institution of postsecondary education, which are made or maintained by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional acting in his professional or paraprofessional capacity, or assisting in that capacity, and which are made, maintained, or used only in connection with the provision of treatment to the student, and are not available to anyone other than persons providing such treatment, except that such records
can be personally reviewed by a physician or other appropriate professional of the student’s choice.

See 20 U.S.C. § 1232g(a)(4)(B)(iv); 34 CFR § 99.3, “Education records.” For example, treatment records would include health or medical records that a university psychologist maintains only in connection with the provision of treatment to an eligible student, and health or medical records that the campus health center or clinic maintains only in connection with the provision of treatment to an eligible student. (Treatment records also would include health or medical records on an eligible student in high school if the records otherwise meet the above definition.)

“Treatment records” are excluded from the definition of “education records” under FERPA. However, it is important to note, that a school may disclose an eligible student’s treatment records for purposes other than the student’s treatment provided that the records are disclosed under one of the exceptions to written consent under 34 CFR § 99.31(a) or with the student’s written consent under 34 CFR § 99.30. If a school discloses an eligible student’s treatment records for purposes other than treatment, the treatment records are no longer excluded from the definition of “education records” and are subject to all other FERPA requirements, including the right of the eligible student to inspect and review the records.

While the health records of students at postsecondary institutions may be subject to FERPA, if the institution is a HIPAA covered entity and provides health care to nonstudents, the individually identifiable health information of the clinic’s nonstudent patients is subject to the HIPAA Privacy Rule. Thus, for example, postsecondary institutions that are subject to both HIPAA and FERPA and that operate clinics open to staff, or the public, or both (including family members of students) are required to comply with FERPA with respect to the health records of their student patients, and with the HIPAA Privacy Rule with respect to the health records of their nonstudent patients.

8. **Under FERPA, may an eligible student inspect and review his or her “treatment records”?**

Under FERPA, treatment records, by definition, are not available to anyone other than professionals providing treatment to the student, or to physicians or other appropriate professionals of the student’s choice. However, this does not prevent an educational institution from allowing a student to inspect and review such records. If the institution chooses to do so, though, such records are no longer excluded from the definition of “education records” and are subject to all other FERPA requirements.

9. **Under FERPA, may an eligible student’s treatment records be shared with parties other than treating professionals?**

As explained previously, treatment records, by definition, are not available to anyone other than professionals providing treatment to the student, or to physicians or other appropriate professionals of the student’s choice. However, this does not prevent an educational institution from using or disclosing these records for other purposes or with other parties. If the institution chooses to do so, a disclosure may be made to any party with a prior written consent from the eligible student (see 34 CFR § 99.30) or under any of the disclosures permitted without consent in 34 CFR § 99.31 of FERPA.
For example, a university physician treating an eligible student might determine that treatment records should be disclosed to the student’s parents. This disclosure may be made if the eligible student is claimed as a dependent for federal income tax purposes (see 34 CFR § 99.31(a)(8)). If the eligible student is not claimed as a dependent, the disclosure may be made to parents, as well as other appropriate parties, if the disclosure is in connection with a health or safety emergency. See 34 CFR §§ 99.31(a)(10) and 99.36. Once the records are disclosed under one of the exceptions to FERPA’s general consent requirement, the treatment records are no longer excluded from the definition of “education records” and are subject to all other FERPA requirements as “education records” under FERPA.

10. Under what circumstances does FERPA permit an eligible student’s treatment records to be disclosed to a third-party health care provider for treatment?

An eligible student’s treatment records may be shared with health care professionals who are providing treatment to the student, including health care professionals who are not part of or not acting on behalf of the educational institution (i.e., third-party health care provider), as long as the information is being disclosed only for the purpose of providing treatment to the student. In addition, an eligible student’s treatment records may be disclosed to a third-party health care provider when the student has requested that his or her records be “reviewed by a physician or other appropriate professional of the student’s choice.” See 20 U.S.C. § 1232g(a)(4)(B)(iv). In either of these situations, if the treatment records are disclosed to a third-party health care provider that is a HIPAA covered entity, the records would become subject to the HIPAA Privacy Rule. The records at the educational institution continue to be treatment records under FERPA, so long as the records are only disclosed by the institution for treatment purposes to a health care provider or to the student’s physician or other appropriate professional requested by the student.

If the disclosure is for purposes other than treatment, an eligible student’s treatment record only may be disclosed to a third party as an “education record,” that is, with the prior written consent of the eligible student or if one of the exceptions to FERPA’s general consent requirement is met. See 34 CFR § 99.31. For example, if a university is served with a court order requiring the disclosure of the mental health records of a student maintained as treatment records at the campus clinic, the university may disclose the records to comply with the court order in accordance with the provisions of § 99.31(a)(9) of the FERPA regulations. However, the mental health records that the university disclosed for non-treatment purposes are no longer excluded from the definition of “education records” and are subject to all other FERPA requirements as “education records” under FERPA.

11. Are all student records maintained by a health clinic run by a postsecondary institution considered “treatment records” under FERPA?

Not all records on eligible students that are maintained by a college- or university-run health clinic are treatment records under FERPA because many such records are not made, maintained, or used only in connection with the treatment of a student. For example, billing records that a college- or university-run health clinic maintains on a student are “education records” under FERPA, the disclosure of which would require prior written consent from the eligible student unless an exception applies. See 34 CFR § 99.30. In addition, records relating to treatment that are shared with persons other than professionals providing treatment to the student are “education records” under FERPA. Thus, to the extent a health clinic has shared a student’s treatment information with
persons and for purposes other than for treatment, such information is an “education record,” not a treatment record under FERPA.

12. Does FERPA or HIPAA apply to records on students who are patients at a university hospital?

Patient records maintained by a hospital affiliated with a university that is subject to FERPA are not typically “education records” or “treatment records” under FERPA because university hospitals generally do not provide health care services to students on behalf of the educational institution. Rather, these hospitals provide such services without regard to the person’s status as a student and not on behalf of a university. Thus, assuming the hospital is a HIPAA covered entity, these records are subject to all of the HIPAA rules, including the HIPAA Privacy Rule. However, in a situation where a hospital does run the student health clinic on behalf of a university, the clinic records on students would be subject to FERPA, either as “education records” or “treatment records,” and not subject to the HIPAA Privacy Rule.

13. Where the HIPAA Privacy Rule applies, does it permit a health care provider to disclose protected health information (PHI) about a patient to law enforcement, family members, or others if the provider believes the patient presents a serious danger to self or others?

The HIPAA Privacy Rule permits a covered entity to disclose PHI, including psychotherapy notes, when the covered entity has a good faith belief that the disclosure: (1) is necessary to prevent or lessen a serious and imminent threat to the health or safety of the patient or others and (2) is to a person(s) reasonably able to prevent or lessen the threat. This may include, depending on the circumstances, disclosure to law enforcement, family members, the target of the threat, or others who the covered entity has a good faith belief can mitigate the threat. The disclosure also must be consistent with applicable law and standards of ethical conduct. See 45 CFR § 164.512(j)(1)(i).

For example, consistent with other law and ethical standards, a mental health provider whose teenage patient has made a credible threat to inflict serious and imminent bodily harm on one or more fellow students may alert law enforcement, a parent or other family member, school administrators or campus police, or others the provider believes may be able to prevent or lessen the chance of harm. In such cases, the covered entity is presumed to have acted in good faith where its belief is based upon the covered entity’s actual knowledge (i.e., based on the covered entity’s own interaction with the patient) or in reliance on a credible representation by a person with apparent knowledge or authority (i.e., based on a credible report from a family member or other person). See 45 CFR § 164.512(j)(4).

For threats or concerns that do not rise to the level of “serious and imminent,” other HIPAA Privacy Rule provisions may apply to permit the disclosure of PHI. For example, covered entities generally may disclose PHI about a minor child to the minor’s personal representative (e.g., a parent or legal guardian), consistent with state or other laws. See 45 CFR § 164.502(b).

14. Does FERPA permit a postsecondary institution to disclose a student’s treatment records or education records to law enforcement, the student’s parents, or others if the institution believes the student presents a serious danger to self or others?
An eligible student’s education records and treatment records (which are considered education records if used or made available for any purpose other than the eligible student’s treatment) may be disclosed, without consent, if the disclosure meets one of the exceptions to FERPA’s general consent rule. See 34 CFR § 99.31. One of the permitted disclosures is to appropriate parties, which may include law enforcement or parents of a student, in connection with an emergency if knowledge of the information is necessary to protect the health or safety of the student or other individuals. See 34 CFR §§ 99.31(a)(10) and 99.36.

There are other exceptions that apply to disclosing information to parents of eligible students that are discussed on the “Safe Schools & FERPA” Web page, as well as other information that should be helpful to school officials, at:


15. Are the health records of an individual who is both a student and an employee of a university at which the person receives health care subject to the privacy provisions of FERPA or those of HIPAA?

The individual’s health records would be considered “education records” protected under FERPA and, thus, excluded from coverage under the HIPAA Privacy Rule. FERPA defines “education records” as records that are directly related to a student and maintained by an educational agency or institution or by a party acting for the agency or institution. 34 CFR § 99.3 (“education records”). While FERPA excludes from this definition certain records relating to employees of the educational institution, to fall within this exclusion, such records must, among other things, relate exclusively to the individual in his or her capacity as an employee, such as records that were created in connection with health services that are available only to employees. Thus, the health or medical records that are maintained by a university as part of its provision of health care to a student who is also an employee of a university are covered by FERPA and not the HIPAA Privacy Rule.

16. Can a postsecondary institution be a “hybrid entity” under the HIPAA Privacy Rule?

Yes. A postsecondary institution that is a HIPAA covered entity may have health information to which the Privacy Rule may apply not only in the health records of nonstudents in the health clinic, but also in records maintained by other components of the institution that are not education records or treatment records under FERPA, such as in a law enforcement unit or research department. In such cases, the institution, as a HIPAA covered entity, has the option of becoming a “hybrid entity” and, thus, having the HIPAA Privacy Rule apply only to its health care unit. The school can achieve hybrid entity status by designating the health unit as its “health care component.” As a hybrid entity, any individually identifiable health information maintained by other components of the university (i.e., outside of the health care component), such as a law enforcement unit, or a research department, would not be subject to the HIPAA Privacy Rule, notwithstanding that these components of the institution might maintain records that are not “education records” or treatment records under FERPA.

To become a hybrid entity, the covered entity must designate and include in its health care component all components that would meet the definition of a covered entity if those components were separate legal entities. (A covered entity may have more than one health care component.) However, the hybrid entity is not permitted to include in its health care component other types of components that do not perform the covered functions of the covered entity or components that do
not perform support activities for the components performing covered functions. That is, components that do not perform health plan, health care provider, or health care clearinghouse functions and components that do not perform activities in support of these functions (as would a business associate of a separate legal entity) may not be included in a health care component. Within the hybrid entity, most of the HIPAA Privacy Rule requirements apply only to the health care component, although the hybrid entity retains certain oversight, compliance, and enforcement obligations. See 45 CFR § 164.105 of the Privacy Rule for more information.

VI. Conclusion

The HIPAA Privacy Rule specifically excludes from its coverage those records that are protected by FERPA. When making determinations as to whether personally identifiable information from student health records maintained by the educational agency or institution may be disclosed, school officials at institutions subject to FERPA should refer to FERPA and its requirements. While the educational agency or institution has the responsibility to make the initial, case-by-case determination of whether a disclosure meets the requirements of FERPA, the Department of Education’s Family Policy Compliance Office is available to offer technical assistance to school officials in making such determinations.

For quick, informal responses to routine questions about FERPA, school officials may e-mail the Department at FERPA@ed.gov. For more formal technical assistance on the information provided in this guidance in particular or FERPA in general, please contact the Family Policy Compliance Office at the following address:

Family Policy Compliance Office
U.S. Department of Education
400 Maryland Ave. S.W.
Washington, D.C. 20202-8520


For more information on the HIPAA Privacy Rule, please visit the Department of Health and Human Services’ HIPAA Privacy Rule Web site at: http://www.hhs.gov/ocr/hipaa/. The Web site offers a wide range of helpful information about the HIPAA Privacy Rule, including the full text of the Privacy Rule, a HIPAA Privacy Rule summary, over 200 frequently asked questions, and both consumer and covered entity fact sheets.

In addition, if you would like to submit additional questions not covered by this guidance document or suggestions for purposes of informing future guidance, please send an e-mail to OCRPrivacy@hhs.gov and FERPA@ed.gov.
Implementing Telemedicine in Correctional Facilities

U.S. Department of Justice–U.S. Department of Defense

Joint Program Steering Group Report

Peter L. Nacci, Ph.D.
National Institute of Justice

C. Allan Turner, D.P.A.
National Institute of Justice

Ronald J. Waldron, Ph.D.
System Planning Corporation

Eddie Broyles
Space and Naval Warfare Systems Command (SPAWAR)

May 2002
NCJ 190310
This program was supported under award number 98–IJ–CX–A014 to Tracor, Inc., by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. Findings and conclusions of the research reported here are those of the authors and do not reflect the official position or policies of the U.S. Department of Justice.

Reference herein to any specific commercial products, processes, or services by trade name, trademark, or manufacturer, or otherwise does not constitute or imply its endorsement, recommendation, or favoring by the United States Government.

The National Institute of Justice is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, the Bureau of Justice Statistics, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime.
## CONTENTS

### Executive Summary
- Planning .................................................. 2
- Implementing the Plan .................................. 2
- Evaluating Needs ......................................... 2
- Determining Cost-Benefit ............................... 3

### Introduction
- Purpose ..................................................... 6
- Background ................................................. 6
- Demonstration Project ..................................... 6
- Results ...................................................... 7
- Conclusions ................................................. 8

### Implementation Decision and Planning
- Implementation Decision Process .................... 10
- Implementation Planning Process ..................... 12

### Technology Evaluation

### Cost Estimation Model

### Appendixes
- A. Areas of Inquiry for the Medical Requirements Analysis ......................... 23
- B. Telemedicine Review and Implementation ............................................. 27
- C. Telemedicine Cost-Benefit Model ....................................................... 35
- D. Medical Requirements Analysis Worksheet ........................................... 53
- E. Medical Requirements Analysis—Clinic Survey Form ............................. 55
- F. Position Description—Telemedicine Coordinator .................................... 59
- G. Developing Telemedicine Procedures ................................................... 63
- H. Glossary of Telemedicine Terms ......................................................... 65
An experiment in the late 1990s and an independent evaluation of the experiment determined that providing long-distance health care to inmates is feasible through a system called telemedicine. Telemedicine uses telecommunications equipment that allows health care providers to see and diagnose inmates in prisons located far from health care providers’ offices. The experiment showed that prisons could improve inmate health care by providing remote access to more medical specialists while reducing prisoner transport costs and related security management costs.

The National Institute of Justice (NIJ) and Bureau of Prisons, U.S. Department of Justice; and the U.S. Department of Defense cooperated in the experiment. Several Federal prisons with different missions and security levels were connected via a telemedicine network. One of the Federal prisons was a medical center. A Veterans’ Administration hospital in Lexington, Kentucky, was also part of the network.

An independent evaluation of the experiment showed that telemedicine could play an important role in delivering quality health care in correctional systems. The costs and benefits vary according to the type and nature of institution requirements, but the costs of telemedicine equipment are continuing to decline. NIJ published a report of the evaluation in 1999 (McDonald, Douglas C., et al., Telemedicine Can Reduce Correctional Health Care Costs: An Evaluation of a Prison Telemedicine Network, Washington, DC: U.S. Department of Justice, National Institute of Justice, March 1999, NCJ 175040).

The success of the telemedicine demonstration project led to the decision to use the information from that study to develop a manual on implementing correctional telemedicine. The information in this manual can be used by correctional administrators who are evaluating whether telemedicine is an acceptable approach to providing medical care in their facility.

**Planning**

The first section guides the reader through the decision process. A medical requirements analysis must be conducted to determine the services currently provided. The satisfaction of the inmates with the current health care services should be evaluated. Alternatives must be evaluated. If telemedicine is selected, an action plan must be developed.

**Implementing the Plan**

Implementing the plan requires stating the medical requirements in terms of telemedicine. One must know how the telemedicine system will be used in the facility. The performance requirements of the telemedicine system should be determined after careful analysis of state-of-the-art technology. Communications requirements must be determined, then evaluated based on the needs of the facility. Plans for facility requirements and necessary modifications must be made and implemented. Personnel must be recruited and trained for the telemedicine operation.

**Evaluating Needs**

The technology of telemedicine is unique and must be carefully evaluated and implemented. The hardware, software, and system features that are most cost effective must be identified and implemented. A variety of communication options are available, and these also must be evaluated for cost and capability based on the services to be provided. Space must be identified and, if necessary, modified to meet the needs of telemedicine. Through a careful and thorough planning and contracting process, a successful suite of telemedicine equipment and space can be acquired and installed.
Determining Cost-Benefit

In the final analysis, cost is an important factor. It has been demonstrated that telemedicine can improve services, but in view of the limited funding often provided to correctional facilities, a full cost evaluation should be completed. To further assist in the implementation of telemedicine in corrections, the appendixes contain tools useful for evaluating and planning the costs of a telemedicine program.
Introduction
**Purpose**

This report provides a model for estimating the relative costs of telemedicine—the provision of health care over a distance using telecommunications technology—under varying conditions in a correctional setting. With the information tools provided in this document, the correctional administrator will be able to determine if telemedicine is a cost-effective option. Information in this report is based on a study of the cost-effectiveness of telemedicine in a correctional system. The companion report, *Telemedicine Can Reduce Correctional Health Care Costs*, should also be consulted for information on estimating the cost of telemedicine. Much of the information included in this report is based on the findings of the March 1999 study. The report is available online at http://www.ncjrs.org/telemedicine/toc.html.

**Background**

Telemedicine has been under development in the United States for nearly 40 years. In the 1970s and 1980s, the number of telemedicine programs in the United States, Australia, and Canada increased. However, the technologies were expensive, and the programs were often canceled when project funding ceased. Recent technological improvements in equipment and telecommunications have made telemedicine more affordable. As a result, various telemedicine programs are being implemented in the United States and around the world.

Telemedicine is most useful in situations where physical barriers hinder contact between patients and health care providers. Thus it has great potential for use in correctional institutions. Although many U.S. prisons maintain quality health care programs, they usually have only a small number of physicians on staff, and many institutions have only limited access to outside medical specialists. When specialized medical care is required and available, prisoners must be transported outside the secure perimeter of the prison to external medical facilities. Telemedicine allows authorities to improve health care by providing access to more medical specialists, while reducing prisoner transport and related security management costs.

**Demonstration Project**

In 1994 the U.S. Department of Justice and U.S. Department of Defense signed a Memorandum of Understanding to establish a Joint Program Steering Group (JPSG). The JPSG manages technology development and application programs to enhance the effectiveness of the participants in fulfilling assigned missions. The telemedicine demonstration project, a 3-year effort that concluded at the end of 1998, was part of the JPSG’s Biomedical Technology Program. Figure 1 presents the top-level organization of the project.

**Objectives.** The demonstration project was designed to assess the effect of a correctional telemedicine network in terms of improved prisoner access to specialty health care, lowered security risks, and more reasonable health care costs. Secondary objectives were to identify the practical issues encountered when designing, implementing, and integrating a telemedicine system into an actual prison health care environment and to derive a cost model and develop an informational tool to use when determining the suitability of telemedicine in other applications.

**Description and design of the demonstration.** The JPSG wanted the project to objectively assess the effectiveness of telemedicine in a prison environment and determine the effect on cost, security, and overall access to health care. The project
included installing a telemedicine network to provide remote medical consultation and electronic medical data transfer. The institutions selected for the demonstration—the U.S. Penitentiary (USP) in Lewisburg and USP–Allenwood (including prisoners from the Federal Correctional Institution (FCI) in Allenwood)—are high-security facilities located in rural Pennsylvania that incarcerate large, aging, long-term inmate populations requiring access to a wide variety of specialized medical care. Both prisons employed consultants to deliver these services in their health care programs. The third site was the Federal Medical Center (FMC) in Lexington, Kentucky, an urban, referral medical center for both medium- and low-security inmates. Both FMC–Lexington and the Veterans’ Administration Medical Center (VAMC) in Lexington provided hub site telemedical consultation services for the demonstration. FMC–Lexington was also a remote site because it obtained services from the VAMC. The locations of the facilities used in the demonstration are shown in figure 2.

**Telemedicine demonstration system.** The telemedicine equipment leased for the project included a PC-based computer workstation with required software, an interactive videoconferencing system with multiple cameras, compatible medical peripheral devices (such as an electronic stethoscope and a micro/intraoral camera), and telecommunications equipment. The various systems were linked via a telecommunications network. A generic telemedicine system is shown in figure 3.

**Results**

The demonstration showed that telemedicine could play an important role in a quality correctional health care delivery system. The costs and benefits of telemedicine will vary with the type and nature of institution requirements. Based on data from the study, the cost-benefit analysis concluded that a telemedicine consultation would cost an average of $71, compared with $173 for a conventional (face-to-face) health care consultation—a savings of nearly 60 percent. The costs of telemedicine equipment are continuing to decline due to advances in technology, so the costs of telemedicine consultations should also continue to drop.
Implementing Telemedicine in Correctional Facilities

Communications can be one of the most bothersome and expensive aspects of telemedicine operations. Sufficient telecommunications bandwidth is key to the success of telemedicine, and available resources will vary significantly from site to site. In this project, bandwidth on demand was found to be the best technical solution for an operational system and the most economical.

Well-defined participant roles and missions, agreed to in advance, are an integral part of a telemedicine program, and training participants is essential. Up-front training and continuing education should address the specific needs of all participants.

Conclusions

This project demonstrated convincingly that telemedicine can be established within a prison environment and can be widely embraced by officials and prisoners. Telemedicine was adopted quickly and used frequently in several medical specialty areas. Telemedicine consultations were effective substitutes for in-person consultations in some specialties, particularly psychiatry. Telemedicine also improved some indicators of the quality of care available for prisoners, including the time between referral and actual consultation, the availability of different medical specialists, and access to doctors with more experience in treating prisoners.

Savings from such a program are most likely to result when in-prison consultations by outside contract doctors are replaced by telemedicine consultations. Savings from averted trips to nearby medical facilities are more modest.

An ideal or model telemedicine system—one with all the “bells and whistles”—is not necessary to realize significant cost savings. A simple video teleconferencing system with a close-up camera is adequate for many telemedicine consultations (for dermatology, for example). Document cameras are nice, but a fax machine will usually serve just as well. Electronic stethoscopes were found to be expensive, not often used, and not universally accepted by doctors. Store-and-forward (see appendix H, p. 71) is good technology, but it was not evaluated in this study since personal consultation on interactive video was readily available.

The full report, Telemedicine Can Reduce Correctional Health Care Costs: An Evaluation of a Prison Telemedicine Network, demonstrated that correctional agencies can add telemedicine to their medical programs and expect health care costs to decrease.
The effectiveness of telemedicine as a means of providing health care to a prison population was established in the pilot project. However, each institution, be it a prison or another isolated patient facility, has unique problems and requirements and must determine whether telemedicine can be used effectively in its particular situation. This section discusses the process of deciding whether to implement a telemedicine program in a particular institution. To assist in completing this section, appendix A describes what data and information need to be collected and analyzed. Appendix B contains a list of implementation questions and considerations. Appendix H contains a glossary of terms that will be useful in evaluating telemedicine options.

Implementation Decision Process

Generally, telemedicine is most effective under the following conditions:

- The medical services requirements cannot be effectively met within the facility because—
  - The cost for onsite medical specialists is high.
  - Medical specialists are not available when needed.
  - The small number of requests for specialists does not warrant a contract for outside services.

- The cost to transport patients to outside medical services is very high because—
  - Security requirements demand additional security officers and vehicles.
  - Staff overtime is required for most outside trips.
  - Medical services are distant from the facility.

- Other benefits will accrue from implementing telemedicine, including—
  - Improved safety to security personnel by avoiding the outside transport of high-risk inmates or other detainees.
  - Improved safety to community and medical staff because detainees remain in the institution.
  - Improved quality of medical care.
  - Shorter waiting lists.
  - Improved response time to inmates’ medical needs.

To address these and other related issues, a coordinating committee or a decision support group should be assembled to help conduct the review process. This group should include not only policymakers and decisionmakers, but also those who are familiar with the patient population and those medical staff who might be involved in implementing the project. Once the committee is assembled, it can use a simplified decision matrix (figure 4) to evaluate the need for telemedicine capabilities.

Step 1: Conduct a medical requirements analysis.
A survey should be conducted in conjunction with other information gathering to determine whether change is required within a facility. If change is indicated, this information will help in designing optimal solutions and evaluating the cost of these options. The following issues should be addressed:

- Evaluate target population demographics:
  - Numbers.
  - Age.
  - Sex.
  - Security threat.
  - Other unusual situations.
Review facility health care statistics:
- Daily caseload of facility staff.
- Consultations required or desired.
- Transfers to outside facilities.
- Other factors.

Evaluate consultation statistics:
- Types (if any).
- Frequency (emergency, routine).
- Waiting time.
- Location, availability, and qualification of consultants (bilingual?).
- Time required for consultation.
- Average cost for visit (internal or external).
- Supplemental costs (such as security, transportation, etc.).

Step 2: Evaluate level of health care satisfaction within the target population. Besides routine client surveys and health care statistics, indicators of satisfaction or dissatisfaction with the current state of health care within a facility can be gauged in several ways. Health care dissatisfaction may be indicated by—

- Grievances filed.
- Inmate complaints to prison administrators, politicians, and media.
- Inmate refusals of medical treatment by prison medical staff.
- Legal cases.
- Surveys of inmate health satisfaction.

Decision: Is change indicated? Any evident problems should be evaluated to determine whether more specialist help is required or if basic medical services need to be augmented. If the information indicates that a change in health care procedures is necessary or desirable, alternative solutions should be evaluated.
Step 3: Review alternate solutions. The data available from the medical requirements analysis (step 1) will indicate the scope of support required. If telemedicine is being considered, the availability and concentration of a cadre of medical specialty providers legally authorized to practice within the facility are important to consider. These providers should be identified and a close working relationship established to help build the program. Other resources that should be identified in order to project a budget and collect sufficient information to complete a cost-benefit analysis include facilities, staff, and equipment.

A preliminary cost–benefit analysis should be conducted prior to undertaking the telemedicine program (or any other solution) to provide necessary information to support requests for budget and program assistance. Through interaction with the medical staff of the health care provider at the hub organization, the facility staff can use data collected in the medical requirements analysis to develop top-level system specifications for vendor surveys of telemedicine hardware and telecommunications interconnects. Cost information can be derived from these surveys. Completing the short form for the cost–benefit analysis (found in appendix C; online at http://www.ojp.usdoj.gov/nij/pubs-sum/190310.htm) may provide sufficient information for preliminary decisionmaking.

Decision: Select telemedicine? Telemedicine is not intended to replace in-facility medical care, but it may supplement in-facility care as needed. If specialist help is indicated, other factors concerning the availability of that help should be evaluated, such as the location and availability of medical specialty support. Other important considerations are the legal, political, and human factor implications of implementing telemedicine in an institution.

Step 4: Develop and implement action plan and milestones. Once the telemedicine program is approved, an action plan and milestones can be prepared. These documents identify the many actions required to implement a successful telemedicine program. Although the schedule is important, several other elements should be addressed, including the types of resources required to complete the action, detailed funding sources for the implementation, and the identity of responsible offices and individuals. It is important that the responsible parties recognize and agree to what is expected of them.

The milestones identified for the project are the significant steps along the path to implementation. For example, preparing the site within the facility where the telemedicine consultations are to take place may consist of several different activities—such as carpentry, electrical work, and environmental control—all of which have scheduled completion dates. Although completing each activity is important, the milestone is the completion of the entire facility to permit installation of the telemedicine hardware. The components of a detailed action plan with milestones are contained in the next section.

Implementation Planning Process

Once the decision has been made to proceed with telemedicine, a carefully orchestrated implementation process is important. With thoughtful planning and attention to detail, a facility should be able to acquire, install, and place in service a telemedicine system without significant problems. The planning described in this section is intended to help develop the action plan and milestones for implementing the program. The interrelationships of the planning tasks are illustrated in figure 5. Unless otherwise
noted, these steps are applicable to either hub or remote site planning. Each task in the process is described below. (Some of the detailed surveys may have been completed during the decision process described in the preceding section.)

**Define medical requirements.** The medical specialties to be provided with telemedicine must be defined before the telemedicine system can be configured. The medical diagnostic needs should have been determined in the medical requirements analysis (step 1 of the implementation decision process described above). The telemedicine system should be configured to meet all current requirements and should allow graceful expansion (adding or modifying system components, rather than replacing them) to accommodate anticipated needs. Appendixes D and E will be helpful in determining medical requirements.

**Define telemedicine system usage.** Nonmedical aspects of telemedicine must also be defined before the telemedicine system performance can be established. For example, should the system be portable so it can be operated from multiple locations within the institution? Does it have to interface with or store and transfer medical records? Is store-and-forward capability of video, audio, or data needed? Will the system be used for training? These features may cost money, and additional costs must be justified. Some features, however, may save money.

**Define telemedicine system performance requirements.** Defining performance requirements is probably the most important step in implementing a telemedicine system. If this assessment is not accurate, the system that is ultimately acquired may fail to meet actual needs or may have costly features and capabilities that are not used.

Follow these general principles:

- Acquire the latest proven technology. Do not buy obsolete goods or become a beta test site for unproven products.
- Make sure training and technical support are adequate—both will be needed.
Do not acquire a system unless it meets all applicable industry standards, especially those relating to communications compatibility.

Once the basic performance requirements have been defined, the telemedicine system can be configured to provide optimum support. Initially, it should be configured to meet only those requirements (medical specialties) that are most frequently used. Once this baseline system configuration has been established and all associated costs have been defined, it is important to verify equipment needs versus medical needs. The cost-benefit model (see appendix C) can be used to compute the total costs, benefits, and payback period. The procedure should then be repeated for the less frequently used medical specialties, and the cost-benefit recomputed.

Define communications requirements. Defining the communications technology required to provide satisfactory telemedicine system performance at the lowest available cost can be challenging. During the useful life of the system, the communications costs will far exceed the system acquisition costs. The communications requirements depend on the bandwidth needed for each medical specialty and the system utilization time (minutes per month) for each specialty. This utilization pattern can then be evaluated for each communications protocol (-switched 56, ISDN, DSL, frame relay, TCP/IP, etc.; see the glossary in appendix H for an explanation of these and other terms). Once this information has been collected, the communications costs can be reviewed with communications services providers.

A different pricing strategy is generally used for the various communications protocols. In addition, the communications services providers may have different pricing strategies, such as discount plans and package deals. The communications costs generally are based on line usage (number of lines times total minutes per line times cost per minute), or a fixed monthly fee plus line usage, or a fixed monthly fee for a prescribed number of data packets. Because of the different pricing schemes, the communications utilization pattern must be accurately defined to ensure that the least expensive communications protocol has been selected.

Define facility requirements and modifications. The facility modifications that a telemedicine system requires can range from modest to extensive, depending on conditions at the institution. The following descriptions should help planners define the tasks and costs involved in preparing a facility for telemedicine.

- System location. Ideally, the telemedicine system should be installed near the health care clinic. The system must be readily accessible both to medical personnel (to save time, especially for accessing medical records and supplies) and to inmates (to save time and costs for inmate movement). Figure 6 depicts possible telemedicine equipment locations.

- Communications requirements. Generally, placing the telemedicine room near the telephone demarcation room reduces both equipment and installation costs for communications services. Separating them by great distances can be costly for some communications technologies because of the special equipment needed. (The equipment and communications providers can help determine whether special equipment is needed.) The telemedicine room must be equipped with a telephone in order to set up videoconferences and perform any necessary troubleshooting. A fax machine should be available in the room or nearby.

- Space requirements. The telemedicine room must be large enough to accommodate the telemedicine system (allowing adequate
viewing distances for cameras and displays) and the personnel who operate it. If the telemedicine room is used for training, additional seating space will be needed. The lighting and HVAC systems of a typical office building should be adequate for telemedicine. In some cases, especially if the floors are not carpeted, acoustic abatement (sound absorption) will be needed. Unless the existing electrical power service is both clean and reliable, a power-line conditioner should be installed to protect the telemedicine equipment from damage caused by power irregularities. The telemedicine room must also be equipped with the furniture, fixtures, and equipment found in a typical doctor’s examination room (examination table, sink, x-ray view box, chairs and tables, and various medical supplies).

Prepare telemedicine acquisition documents and facility modification documents. The documents needed depend on the institution’s administrative procedures and the implementation or acquisition method chosen. If the major tasks are being subcontracted, a telemedicine system performance specification and statement of work, a drawing package for the facility modification subcontractor, and (probably) drawings and performance specifications for the communication equipment installer will be needed. If the telemedicine system is being implemented by in-house staff, purchase orders must be prepared for each vendor that will be supplying equipment, material, and services.

Select communications services provider. The communications services provider that meets the previously defined requirements at the lowest cost should be selected. To reduce costs, this should be a competitive process.

Acquire and install communications equipment, acquire telemedicine system and equipment, and modify facility. After all modifications and installations are complete, the telemedicine system

---

Figure 6. Telemedicine Room

- Telemedicine hardware rack
- Telephone
- X-ray viewer
- Patient bed
- Sink
- Fax machine
- Scanner
- Visual presenter
- 20” monitor
- Room camera
- Closed-circuit security camera
- Camera with tripod
is ready for integration and performance evaluation testing. Complex systems integrating many different components from various manufacturers should be fully integrated at the telemedicine vendor’s facility before delivery. This integration testing should reveal most problems at the vendor’s facility (where they are easily correctable), rather than at the facility in which the telemedicine system will be implemented (where they are difficult to correct), and should ensure that the equipment meets all requirements. Both the hub and remote systems should be tested using the communications method selected for each, and all performance requirements should be tested under the most realistic conditions achievable. These steps may not be necessary for straightforward installations of what is basically video teleconferencing equipment.

Integrate telemedicine system. After all equipment is installed, the system must be fully integrated and evaluated. All performance parameters should be verified, and all problems should be corrected before the system is accepted. It is extremely important that all integration testing be performed accurately and completely.

Train personnel. All personnel who will operate or maintain the telemedicine system should be thoroughly trained. All users should be able to perform basic operations and troubleshooting; separate personnel are not required for these tasks. Because the medical procedures for conducting telemedicine consultation differ from those used in conventional medicine, training must also encompass these tasks. The demonstration project found that a telemedicine coordinator was essential to the success of the project. Appendix F contains a position description of a telemedicine coordinator.

Operator training is minimal due to the simplicity of the system. Depending on the telemedicine system chosen, the system may be operated in one of two ways:

- With a keyboard or mouse and an on-screen user interface that leads the operator through the required steps.
- With a remote control device (similar to a television remote control) that allows the operator to proceed through the required steps using on-screen cues.

System maintenance training is also minimal because of the self-diagnostic capabilities of the telemedicine system. Most maintenance problems are displayed to the operator. In addition, most systems allow the equipment manufacturer to perform remote diagnostics by dialing into a modem attached to the system and performing additional testing. The failed item can then be exchanged with a replacement item sent by the vendor (assuming the institution has a maintenance agreement with the vendor).

Operators who will use the system for telemedicine consultations require the most intensive training. This training should be planned well in advance of the needed date. Hub personnel and remote site personnel will need different training.

Start telemedicine operations. Once all the previous steps have been successfully completed, the telemedicine system should reliably support all telemedicine needs. Appendix G contains guidance on how to develop procedures for conducting a telemedicine consult.
Technology Evaluation
This section discusses some important issues to consider when selecting a suite of telemedicine equipment that meets the requirements already described. The equipment selection process translates the telemedicine technical performance requirements into hardware and software requirements. The information presented here should be useful in making informed decisions when evaluating and selecting the technological capabilities of a telemedicine system. The intent is to provide guidance in the process, rather than to define the latest telemedicine technology (which is constantly evolving and would soon be obsolete).

By now, the steps described under “Implementation Decision Process” should be completed. This information is needed to identify performance requirements for telemedicine, communications, and facilities. It also helps identify the equipment for which relevant technology information should be reviewed and evaluated.

The technology evaluation process consists of three steps:

1. Determine the required hardware, software, and system features that are most cost effective.

2. Determine the system features needed for making upgrades, expanding performance, or changing requirements.

3. Conduct surveys of hardware, software, and system providers to identify the sources of telemedicine products and the equipment and services offered by each.

The extent to which the implementing organization participates in the technology evaluation process will depend largely on the means chosen to acquire a telemedicine capability:

- If a systems integrator is being used, the integrator should conduct the technology evaluations. In fact, the integrator should maintain current information on the status of each supplier of telemedicine equipment and services and should be able to recommend a system that provides optimum performance to meet requirements and stays within budget.

- If the major telemedicine project tasks are being subcontracted, all potential subcontractors should provide the technology evaluation status of the products they are proposing. Information should be obtained from several candidates so that a variety of equipment from different manufacturers can be compared.

- If all tasks are being performed in-house, each supplier of telemedicine products should be contacted to acquire the technology evaluation data. With an array of manufacturers, products, and technologies to choose from, the system can be configured using the best combination of products and technologies to meet the facility’s needs and budget.

More and more institutions are opting for a telemedicine system that is nothing more than a videoconferencing system mounted on top of a monitor, with one specialty camera. Several manufacturers offer videoconferencing systems of this type. Another option is to modify videoconferencing systems for telemedicine applications. The modifications usually involve expanding the interface to accommodate additional cameras and medical devices. These added features may be considered third-party equipment, for which the system vendor does not provide technical or maintenance support and for which no performance guarantees are made. Unless separate agreements have been made with the suppliers of third-party equipment, the implementing
institution will likely be responsible for the design, performance, and support of such equipment.

Additional guidance for each technology evaluation area is provided below.

**System functions.** The telemedicine system should be designed to meet only those medical requirements that are currently needed or that will be needed in the future. However, providing room for upgrades to software and hardware through module replacement can minimize future obsolescence. The telemedicine system must be easy to operate and simple to maintain. All users must be trained to use and maintain the system. If the system is configured properly, user training should require no more than one session of 2 to 4 hours.

**Communications.** Most innovations in telemedicine technology are occurring in communications. This is also the part of the system that will incur the most cost over its useful life. The communications protocol selected now may not be the most cost-effective solution in the future. Therefore, the cost-benefit analysis should include the option of upgrading communications at a later date.

**Computers.** Although the versatility and operating speed of computers continue to improve, these improvements should not require constant upgrades to the telemedicine system. The computer should be upgraded only to address additions to system performance requirements or changes to communications protocols. These upgrades can usually be accomplished by adding or replacing modules. Generally, telemedicine systems that do not incorporate medical records or store-and-forward technology will not require a computer.

**CODEC.** The technology used to transmit telemedicine data is called an analog-to-digital coder/decoder (CODEC). The CODEC should meet all current standards, especially those relating to communications compatibility. Failure to meet all standards could result in incompatibility with other telemedicine systems.

The requirements for a facility’s interface between data terminal equipment and data communications equipment (RS–232) should be carefully evaluated. If possible, the data ports on the CODEC should be used for signal and data transmissions. The signals or data are thus transmitted as “in-band” signals and do not require additional communications channels (as opposed to transmitting them “out of band” using separate communications channels). This feature can significantly lower communications costs.

Technological advances have enabled telemedicine equipment designers to incorporate the CODEC and a small video camera into one small, relatively inexpensive unit that sits on top of a video monitor. For many telemedicine programs, this design is adequate to capture many telemedical consultations for considerably less than the cost of a conventional CODEC.

**Displays.** Telemedicine users consider the display (monitor) to be the most important piece of equipment, because that device provides the visual image viewed by the medical practitioner. The resolution of the display must be adequate for clinical needs, but a larger viewing screen is not necessarily better. The medical users of the system should be consulted before making a final selection. Provisions must be made for maintenance (calibration of colors and alignment) to prevent degradation of display quality. A quality television with a standard high-resolution connector (S-video) is often adequate for telemedicine.
**Cameras.** The types of cameras needed and their capabilities depend on the medical specialties selected for the system. As with displays, cameras should be selected only after consulting with the medical users of the telemedicine systems. Early systems relied heavily on an expensive “three-chip” camera for adequate video quality. Modern single-chip cameras are much more economical and can provide excellent video quality.

**Peripheral medical devices.** No specific guidance is provided for selecting peripheral medical devices. The specialty services to be provided to the inmates will determine the peripheral devices needed. The medical staff should be consulted before purchasing this equipment.

**Maintenance.** Unless the implementing institution has personnel with extensive electronic technical skills, maintenance support should be arranged through system suppliers. The implementers are not likely to experience enough malfunctions to maintain proficiency in system troubleshooting and repair.
A cost estimation model has been designed to help determine the benefits of applying telemedicine in a particular institution. This model was specifically developed to estimate the costs and benefits of using telemedicine in a prison environment. The results of applying a similar model are discussed in detail in the demonstration project final report. The model described here (and presented in appendix C; online at http://www.ojp.usdoj.gov/nij/pubs-sum/190310.htm) differs somewhat from the one developed for the demonstration project. Although it follows the computational methods described in the demonstration project report, this version is more straightforward and eliminates the mathematical complexities associated with processing large databases.

The cost-benefit model presented in appendix C is in two forms—simplified and detailed. The simplified model is provided for situations where budgetary estimates are desired or where detailed cost data are not available and must be estimated. The detailed model is presented as a series of eight linked Microsoft® Excel spreadsheets. It allows entry of detailed cost data and should be satisfactory for calculating the costs and benefits of most telemedicine projects. The detailed model can also be tailored to the needs of a particular institution.

The cost-benefit model facilitates comparing the cost of telemedicine acquisition and operation with that of conventional health care. The detailed model allows the following:

- Estimating the cost of any facility modifications that may be needed for telemedicine installation.
- Estimating acquisition costs of the telemedicine system, network and communications equipment, and telemedicine room fixtures.
- Estimating training costs.
- Estimating the cost to operate and maintain the telemedicine system.
- Estimating the cost to provide medical personnel to conduct the medical consultations.
- Estimating the medical cost savings that accrue by replacing conventional medical care with telemedicine.
- Estimating the transportation cost savings that accrue by replacing conventional medical care with telemedicine.
- Calculating the annual cost savings that accrue from telemedicine acquisition and operation, the period required for the savings to pay back the telemedicine acquisition cost, and the annual savings that continue to accrue after payback of telemedicine acquisition cost.
Appendix A

Areas of Inquiry for the Medical Requirements Analysis
This appendix provides sample areas of inquiry useful in conducting a medical requirements analysis. The analysis is useful in defining the clinical and health care requirements of an institution to ensure a good fit between the telemedicine system design and end-user needs.

The methodology for the analysis includes interviews with medical and administrative staff to identify the medical consultative and diagnostic requirements for each specialty area and to gain familiarity with the medical operations and prisoner-patient issues. Surveys can be administered and statistics compiled on the volume and frequency of internal and external medical consultations (i.e., visits to the prisons by medical consultants and trips to local medical facilities, respectively) and numbers of prisoners on waiting lists. From these statistics, the telemedicine opportunities, clinic requirements, and other telemedicine capabilities (e.g., mode of interaction, type of information that would be transferred during a consultation, resolution requirements, medical peripheral devices) can be determined. The analysis also shows the areas with the greatest medical needs.

The medical requirements analysis is important for two reasons. First, it helps ensure that the technology system procured will suit the medical needs of the organization. Second, it educates the staff on telemedicine, helps develop a rapport between the project team and telemedicine site staff, and fosters local site support for the program.

**Prison Demographics**

- Location.
  - Environment.
  - Security level.

- Prison population.
  - Total number.
  - Population statistics.
    - Age.
    - Gender.

- Prison health clinic statistics.
  - Daily case load (average).
  - Daily case load.
    - Percent handled by in-house medical staff.
    - Percent handled by outside consultants.
  - Specialty areas (specify).
    - Percent handled by in-house medical staff.
    - Percent handled by outside consultants.
  - Case types (specify).
    - Percent handled by in-house medical staff.
    - Percent handled by outside consultants.
  - Consultations.
    - Percent handled by in-house medical staff.
    - Percent handled by outside consultants.
  - Percent transferred to medical centers for consultations.

- Medical staff.
  - Positions.
  - Required credentials or training levels.
  - Organizational structure.

**Onsite Biomedical Technology and Capabilities**

List existing features.
Medical Applications: Statistics

- External consultations (the inmate must leave the facility).
  - Outpatient (local).
    - Specialty area.
    - Type cases.
    - Routine versus emergency—percent of total external consultations.
    - Frequency of consultations (in clinics and on-demand).
    - Location of consultations.
    - Costs of consultations.
    - Percent of total consultations appropriate for telemedicine.
    - Time required per consultation (average).
    - Data required.
    - Static or dynamic images, textual.
    - Source of data (x-ray, EKG strip, etc.).
    - Frequency of data production and transmission.
    - Frequency of data recalled for later use.
    - Format of data for presentation (color, hard copy, etc.).
    - Response time for data transmission.
    - Equipment used during consultation.
    - Number of prisoners on waiting list.
    - Factors causing waiting list.
    - Total number of outpatient consultations.
    - Total estimated hours.
    - Medical operational procedures for consultations.
  - Inpatient (local).
    - Specialty area.
    - Type cases.
    - Routine versus emergency—percent of total external consultations.
    - Frequency of consultations (in clinics and on-demand).
    - Location of consultations.
    - Costs of consultations.
    - Percent of total consultations appropriate for telemedicine.
    - Time required per consultation (average).
    - Data required.
    - Static or dynamic images, textual.
    - Source of data (x-ray, EKG strip, etc.).
    - Frequency of data production and transmission.
    - Frequency of data recalled for later use.
    - Format of data for presentation (color, hard copy, etc.).
    - Response time for data transmission.
    - Equipment used during consultation.
    - Number of prisoners on waiting list.
    - Factors causing waiting list.
    - Total number of inpatient consultations.
    - Total estimated hours.
    - Medical operational procedures for consultations.

- Internal consultations (in prison).
  - Specialty area.
  - Type cases.
  - Routine versus emergency—percent of total internal consultations.
  - Frequency of consultations (in clinics and on-demand).
  - Location of consultations.
  - Costs of consultations.
  - Percent of total consultations appropriate for telemedicine.
  - Time required per consultation (average).
  - Data required.
Implementing Telemedicine in Correctional Facilities

- Static or dynamic images, textual.
- Source of data (x-ray, EKG strip, etc.).
- Frequency of data production and transmission.
- Frequency of data recalled for later use.
- Format of data for presentation (color, hard copy, etc.).
- Response time for data transmission.
- Equipment used during consultation.
- Number of prisoners on waiting list.
- Factors causing waiting list.
- Total number of internal consultations.
- Total estimated hours.
- Medical operational procedures for consultations.

- Relocations to outside medical centers (Transfers: The inmate must be removed from the facility for treatment, and he/she may be transferred for an indefinite stay at another prison hospital with broader health care capabilities, or he/she may be transferred to a private hospital.).
- Frequency of transfers in each specialty area.
- Medical costs.
- Transportation costs.
- Administrative and overhead costs.
- Percent of total consultations appropriate for telemedicine.
This appendix provides a list of considerations to review before implementing a telemedicine program. The list has been developed in coordination with the implementation planning process described in the main section of this report.

The appendix is intended to give guidance in considering those factors involved in implementing a telemedicine program. In this sense, it is a reminder to consider and evaluate all technical, performance, and cost areas so the institution can acquire the telemedicine system that best meets its needs. Thus, this list duplicates some information found in other parts of the report.

Implementing a telemedicine system is usually an iterative process. As you proceed through the required steps, you will need to reevaluate prior steps to ensure that the decisions made are still the best choices. You may determine that previous choices must be changed and the succeeding steps repeated.

**Can Telemedicine Satisfy Your Institutional Requirements?**

- Can telemedicine save money? This is often the most difficult question to answer in advance. The cost-benefit analysis conducted for the telemedicine demonstration project† clearly shows that telemedicine can save money for facilities similar to the demonstration project. Completing the cost-benefit model in appendix C will help answer this question for your facility.

- Can telemedicine provide better health care? If access to health care is limited because of a remote location, limited availability of nearby health services, excessive costs of local health care, security concerns, or contractual or administrative restrictions, telemedicine can often be especially beneficial. Telemedicine usually provides more accessible medical care where local conditions restrict access to physicians or medical facilities.

- Can telemedicine reduce liability? If telemedicine is used correctly, it may reduce medical liability by making medical services more readily available and by fully documenting (through audio or video recording) the medical consultations of sensitive cases.

- How will telemedicine affect inmate management?

- Which organizations (departments) should be involved in implementing and using telemedicine?

- What resources are available for implementing telemedicine (resources within your facility that have sufficient time to devote to telemedicine acquisition)?
  - Management.
  - Contractual.
  - Financial.
  - Technical.

- Based on the resources available, which acquisition method should be used?
  - Contract the tasks to a full-service organization.
  - Manage the project, but subcontract major tasks.
  - Perform the acquisition and installation tasks using in-house resources.

- What type of contract (or interagency agreements) will be required to establish the remote-hub working relationships?

---

Appendix B: Telemedicine Review and Implementation

- Who schedules consultations? What are the logistics of scheduling consultations, resolving schedule conflicts, and handling emergencies?
- How will cost invoicing and reimbursement be managed?

**Define Medical Requirements**

- Which medical specialties and subspecialties are required to meet current health care needs?
- Can telemedicine serve the medical diagnostic requirements for the specialties and subspecialties needed?
- Will the telemedicine system use rate be sufficient to justify its acquisition (i.e., how many consultations per specialty per month would be conducted using telemedicine)?
- Remote-site issues: Where will the hub site be located? Can it support our health care needs at the required utilization rate? What are the individual (or per hour) consultation costs for each medical specialty?
- Hub-site issues: Will we be working with one or many remote sites? Will there be enough (or too many) requests for consultations for each specialty?

**Define Telemedicine System Usage (Both Medical and Nonmedical Applications)**

- In addition to medical consultations, what will the telemedicine system be used for?
  - Training of inmates or staff.
  - Medical training and recertification of health services personnel.
  - Arraignment.
  - Judicial proceedings.
  - Video conferences (prison staff).
  - Attorney-inmate conferences.
- From how many locations within the facility must the telemedicine system be accessible?
  - One (fixed system location).
  - More than one (portable system or multiple systems).
- Will the telemedicine system be integrated (initially or in the future) with our local area network or wide area network, or should it be separate?
- Will the telemedicine system be used to generate, transfer, or maintain medical records or administrative data?
- Will the telemedicine system be integrated with medical or administrative systems?
- Will remote (not located in the telemedicine room) consoles be needed to view the consultations or examine records?
- Should the telemedicine system have a store-and-forward capability, or should the consultations be interactive? If the former, which store-and-forward capabilities are needed?
  - High-definition video still images.
  - Video clips.
  - Audio clips.
  - VCR recordings.
  - Data files (medical or administrative records).
  - Storage devices (type and capacity).
- Should the telemedicine system incorporate radiology?
Define Telemedicine System Performance Requirements

This task translates the medical and other system usage requirements into performance requirements for the telemedicine system. If you are employing a full-service contractor or are subcontracting the major implementation tasks, the contractor should help you prepare a performance specification for a telemedicine system that is appropriate for your needs. If you are performing all tasks in house, you must determine the performance requirements for the hardware and software that you need. This is not as difficult as it may seem, because several vendors sell videoconferencing or telemedicine systems that are already integrated and may meet most of your needs. You may have to add third-party equipment to complete your system.

Once you know the telemedicine system performance requirements, you can research which available products meet your needs. Use the Internet and trade magazines to locate vendors offering the products and services. You can often download the necessary technical, availability, and cost data from the Internet. Otherwise, contact the vendor directly for the necessary information.

Now you are ready to configure the telemedicine system that best meets your needs and budget from the array of available products and services.

Define Communications Requirements

Based on the information developed thus far, you should know the types of medical consultations to be performed each month, the estimated time (minutes per month) online with each medical specialty, and the communications bandwidth necessary for each specialty. Now you need to determine which communications protocols are available at your location. Consider the following (see glossary at appendix H for details):

- Switched 56.
- Integrated services digital network (ISDN).
- Digital subscriber line (DSL).
- Asynchronous transfer mode (ATM).
- Frame relay.
- Transmission control protocol (TCP)/Internet protocol (IP).

Your selection of communications protocols may be limited because—

- An existing protocol must be used at your facility.
- You must match the protocol used by a remote site.
- The desired protocol may not be available at your location.

When selecting the communications protocol, you must consider any unusual conditions that may exist at your facility. Since most communications services providers will terminate the communications lines in the telephone demarcation room, your proximity to the demarcation room may influence your selection of protocols. Carefully evaluate communications performance if the telemedicine system must be operated from multiple locations or if the distance from the telemedicine room to the demarcation room requires the electrical signals to be converted and transmitted over a fiber-optic cable.
Define Facility Requirements and Needed Modifications

Facility modifications can range from none to extensive. Usually, older facilities require more extensive modifications than newer ones.

- Location considerations.
  - Near communications facilities.
  - Near medical records.
  - Easily accessible by medical staff.
  - Conveniently located for patients (if remote site).
  - In a quiet area without background noise.
  - Security can be maintained and not compromised.

- Configuration considerations.
  - Room shape allows proper placement of equipment and fixtures.
  - For jails and prisons, inmate examination area allows egress route for medical personnel.
  - Space is available for auxiliary seating if equipment or room is used for training, videoconferences, or visitors.
  - Ingress and egress do not require patients to cross over cables or interfere with camera views and do not allow them to tamper with equipment.
  - For jails or prisons, doors are not lockable from inside. (Doors should be locked when the telemedicine system is not in use.)

- Lighting.
  - Adequate lighting, evenly distributed, without glare or shadows.
  - Variable light intensity (desirable—not required).

- Acoustics: Most rooms require some type of acoustic treatment for good audio performance. There should be no distracting background noises. This is critical when using electronic stethoscopes (at both hub and remote sites). Confidential medical discussions should not be audible outside the telemedicine room. Treating acoustic problems generally proceeds in the following order:
  - Carpet the floor.
  - Insulate the ceiling, especially if a suspended ceiling is used.
  - Insulate the walls.
  - Install sound absorption on the walls.

- Electrical.
  - 110-volt, 15-ampere service is adequate for most systems.
  - An uninterruptible power supply (UPS) is not normally required, but is highly desirable. If your facility experiences frequent power outages, voltage drops or surges, or spikes on the power line, a UPS is essential.

- HVAC: The temperature and environmental controls of a typical office building are satisfactory. Additional HVAC may be needed for training or videoconference equipment.

Prepare Telemedicine Acquisition Documents

The specific acquisition documents needed will depend on your administrative procedures and the acquisition method chosen.

- Administrative documents.
- Contracts, subcontracts, purchase orders.
- Statements of work.
- System performance specifications.
- Technical specifications for equipment.
- Testing procedures, both factory acceptance and onsite acceptance.
- Maintenance and support agreements.
- Shipping instructions.
Prepare Facility Modification Documents

If facility modifications are required (and especially if they are to be subcontracted), all modifications should be described in documents that are standard to building practices in your area for the building trades involved. As a rule, the documentation formats established by the American Institute of Architects should be followed.

Most facilities require approval of the facility manager before any modifications are permitted. After the facility is modified, the building drawings and specifications should be updated to the “as-built” conditions:

- Building or modification permit (if required by local code or regulations).
- Drawings or specifications (for each building trade to be subcontracted).
- Inspection records.

Select Communications Services Provider

Sometimes selection of the communications services provider is controlled by conditions outside the telemedicine project:

- Your organization already has a service agreement with a particular provider.
- Operation with the hub (or remote) site restricts your choices.
- Other users of the communications services may affect your decision.

Unless there is some overriding reason to the contrary, the communications services provider should be selected based on lowest cost. However, lowest cost is sometimes difficult to determine, because each service provider has different cost structures. If available, your expected communications utilization pattern should form the basis for cost comparisons.

Acquire and Install Communications and Telemedicine System Equipment; Modify the Facility

All these tasks should be accomplished on the basis of documents developed earlier. You will need to maintain cost and schedule control during this period to avoid exceeding your budget or missing deadlines.

Integrate the Telemedicine System

Your telemedicine system should be integrated twice: first at the system integrator’s facility (or at your facility if you are integrating the system) and again after the system is installed. This step assumes that you are acquiring both hub and remote systems.

The systems should be fully integrated and all performance parameters verified while the systems are at the same location. System performance can be verified and problems resolved more efficiently and with a smaller technical staff if all parties can witness the performance of both the hub and remote systems. If possible, during testing at the system integrator’s facility, use the same communications methods and protocols that will be used for the final installation, even to the extent of transmitting the signals outside your facility in a loopback configuration.
After the hub and remote systems have been installed onsite, the integration tests previously performed should be repeated. (The difficulty of resolving any remaining problems will quickly illustrate the value of the previous integration testing.) If the integration testing is performed thoroughly and all problems are corrected, you should not experience any major technical problems when operating your telemedicine system.

**Train Personnel**

Conduct training in accordance with training plans. If possible, training should be conducted onsite, using the actual telemedicine system implemented for your program. All personnel using telemedicine for the first time should be permitted an additional period of hands-on operation to thoroughly familiarize themselves with their new tasks.

**Start Telemedicine Operations**

Congratulations! You have now completed the telemedicine acquisition process. You will probably be surprised how quickly everyone adapts to telemedicine and takes advantage of all the benefits it provides.
The cost-benefit model presented in this appendix allows you to calculate the cost of acquiring a telemedicine system, the fiscal savings you can expect from using such a system, and other cost-benefit values. Two models are provided: a simplified model for initial cost evaluation and budget planning and a detailed model for calculating more precise and comprehensive costs based on estimates received from material providers, equipment suppliers, and subcontractors; telemedicine system operating costs; and financial savings that accrue from using telemedicine. The simplified cost estimation model is a single page, whereas the detailed model is eight pages. (In electronic form, these pages are linked spreadsheets.)

The cost models used in this report were developed using Microsoft® Excel; however, other commercial spreadsheets would be suitable for this purpose. Electronic copies of the spreadsheets used in this report are available online at http://www.ojp.usdoj.gov/nij/pubs-sum/190310.htm. The embedded formulas in the electronic copies are not detailed in this summary. The reader is strongly encouraged to download electronic copies of the model spreadsheets and become familiar with the formulas.

In both models, highlighted cells have been protected and do not permit data entry (without password), to prevent inadvertent alteration of the model. These cells either require no data entry or contain equations. Results will be presented in the highlighted cells when sufficient data have been entered in the nonhighlighted cells to allow the models to complete the calculations. Provisions have not been made in the models for accumulating total medical costs within an institution for either telemedicine or conventional health care. The following types of information should not be entered into the models: costs common to both telemedicine and conventional health care (e.g., medical records update and maintenance) and costs for those conventional medical practices not addressed by telemedicine (e.g., invasive medical procedures).

**Simplified Cost Estimation Model**

The Simplified Cost Estimation Model is presented in figure C–1. The model is divided into the following categories and subcategories.

- **Costs incurred by telemedicine.**
  - Capital cost.
  - Operating cost.
  - Medical personnel cost.

- **Costs avoided by telemedicine.**
  - Medical personnel cost.
  - Patient escort and transportation cost.

- **Other telemedicine system uses.**

- **Telemedicine costs and benefits.**

**Costs incurred by telemedicine**

These are costs for acquiring and placing in service all capital assets, the cost of operating and maintaining the telemedicine system, and the cost of medical services.

**Capital cost.** The total cost of each capital asset is to be entered in the cells provided. Suggested values for the service life of each asset have been entered; however, you can change these if desired by overwriting the cell values. The model will calculate the total capital cost, as well as the cost per year. Straight-line depreciation, without salvage value, is assumed.

**Installation.** Enter the cost of all modifications and improvements needed to prepare the facility telemedicine room. Some facilities may require
### Appendix C: Telemedicine Cost-Benefit Model

**Figure C–1. Simplified Cost Estimation Model**

<table>
<thead>
<tr>
<th>Capital Cost</th>
<th>Life (yr)</th>
<th>Total Cost</th>
<th>Cost/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telemedicine System</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network/Communications Equipment</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telemedicine Room Fixtures</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Capital Cost</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating Cost</th>
<th>Hrs/Mo</th>
<th>$/Month</th>
<th>Cost/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telemedicine System Operation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance/Support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Operating Cost</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medical Personnel Cost</th>
<th>Min/Consult</th>
<th>Consults/Yr</th>
<th>$/Consult</th>
<th>Cost/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychiatry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermatology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orthopedics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Medical Personnel Cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Total Cost Incurred**       |           |            |           |

**Costs Avoided by Telemedicine**

<table>
<thead>
<tr>
<th>Medical Personnel Cost</th>
<th>Consults/Yr</th>
<th>$/Consult</th>
<th>Cost/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Consultations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Consultations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Center Consultations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Medical Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Medical Personnel Cost</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Patient Escort/Transport Cost</th>
<th>Escorts/Yr</th>
<th>$/Escort</th>
<th>Cost/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Consultation—Escort Labor/Other Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Consultation—Escort Labor/Other Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Consultation—Transport Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Center—Escort Labor/Other Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Center—Transport Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Patient Escort/Transport Cost</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Total Cost Avoided by Telemedicine** | | | |

*continued...*
Implementing Telemedicine in Correctional Facilities

...continued from page 37

no changes, while others may require extensive changes. (Refer to the worksheet in the detailed cost model for an explanation or breakdown of costs if more information is needed.)

- **Telemedicine system.** Enter the acquisition cost of the telemedicine system, assuming that it is purchased and installed as an integrated system. Otherwise, enter the total cost of all equipment, plus the labor cost of integration. Include the cost of installing and testing the telemedicine system.

- **Network/communications equipment.** Enter the cost of any equipment required to connect your telemedicine system with your communications services provider. Examples of equipment in this category include inverse multiplexers, fiber-optic converters, and communication cables.

- **Telemedicine room fixtures.** Enter the cost of everything needed in the telemedicine room, except the telemedicine system itself. Examples include table, chairs, telephone, fax machine, and file cabinet.

- **Training.** Enter the cost of training operations and maintenance personnel as well as medical staff. As a rule, the telemedicine system supplier provides training on operating and maintaining the equipment. Training may also be required for medical personnel who present the patient (inmate) to the physician during the telemedicine consultation. The training considered here is the one-time initial training for starting the telemedicine project; as such, it is a capital cost. Training conducted in the future, as part of the day-to-day operations, would be an operating cost.

**Operating cost.** The operating cost includes all expenses associated with running the telemedicine system.

- **Telemedicine system operation.** Enter the cost per month of maintaining the telemedicine room (but not the telemedicine system). Note: The hours per month of telemedicine system operation, which is not used in the calculations, will be automatically computed and is the same as the hours per month of communications.
Appendix C: Telemedicine Cost-Benefit Model

- **Communications.** Enter the cost of all communications unique to the telemedicine system. (Refer to the telemedicine operating cost spreadsheet in the detailed model for an example of the types of costs to include.) The hours per month of communications is calculated based on the minutes per consultation and the number of consultations entered in the medical personnel cost section (see below). It is for information purposes only and is not used in calculating the communications cost.

- **Maintenance/support.** Enter all costs associated with maintaining the telemedicine system in good working order. This includes labor for troubleshooting and repair, spare parts, and any items needed for periodic maintenance. If you purchase a maintenance contract, enter the cost of the contract.

**Medical personnel cost.** The cost of the medical staff involved with telemedicine is entered in this section. The cost entered must be carefully considered to achieve an accurate comparison with the cost of conventional care. For each medical specialty to be practiced using telemedicine, enter the number of consultations per year and the cost per consultation. Also, enter the time (in minutes) that each consultation is expected to take.

Once you have entered all the information requested above, the model will calculate the total cost per year incurred by telemedicine.

**Costs avoided by telemedicine**

**Medical personnel cost.** Enter the cost of medical staff that would have been incurred in the absence of telemedicine. This cost may be either for staff salary or for payment of medical fees to contract service providers. For each type of consultation shown, enter the number of consultations per year that telemedicine replaced and the cost of each consultation. The cost per consultation includes both the physician’s cost and the cost of any other staff members needed to accompany or assist the physician.

**Internal consultations.** Enter the cost of medical consultations for which, in the absence of telemedicine, a physician would have provided medical care within the institution.

**External consultations.** Enter the cost of treatments patients would have received at a nearby medical facility in the absence of telemedicine.

**Medical center consultations.** Enter the cost of treatments patients would have received at a medical center located a considerable distance from the institution. Remember that in such cases, the patient usually remains at the medical center, perhaps for an extended period of time.

**Patient escort and transport cost.** Enter the cost that would have been incurred in escorting and transporting a patient, either inside or outside the institution, for medical care. The labor costs include all institution staff involved in the escort or transport. The transport costs include all nonlabor costs that would have been incurred in the escort or transport. Enter cost data for the internal, external, and medical center consultations. Note that the information to be entered here is the number of escorts or transports avoided, which is not the same as the number of medical consultations.

**Other telemedicine system uses**

If the telemedicine system is to be used for purposes other than providing medical services, an appropriate credit should be made against the telemedicine system capital and support cost. Based on the hours per month of other uses, the model will calculate the cost per year for the other uses and for the cost savings to be credited to telemedicine.

**Telemedicine costs and benefits**

Once you have entered all the information requested above, the model will calculate the costs and
## Implementing Telemedicine in Correctional Facilities

### Figure C–2a. Detailed Cost Estimation Model—Telemedicine Cost-Benefit Summary

<table>
<thead>
<tr>
<th>COSTS INCURRED BY TELEMEDICINE</th>
<th>CAPITAL COST</th>
<th>LIFE (yr)</th>
<th>TOTAL COST</th>
<th>COST/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telemedicine System</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network/Communications Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telemedicine Room Fixtures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Capital Cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPERATING COST</th>
<th>HRS/MO</th>
<th>$/MONTH</th>
<th>COST/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telemedicine System Operation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance/Support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Operating Cost</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MEDICAL PERSONNEL COST</th>
<th>MIN/CON (Avg)</th>
<th>CONSULTS/YR</th>
<th>$/CONSULT (Avg)</th>
<th>COST/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychiatry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermatology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orthopedics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Medical Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Medical Personnel Cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Total Cost Incurred by Telemedicine** | |

<table>
<thead>
<tr>
<th>COSTS AVOIDED BY TELEMEDICINE</th>
<th>MEDICAL PERSONNEL COST</th>
<th>CONSULTS/YR</th>
<th>$/CONSULT(Avg)</th>
<th>COST/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Consultations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Consultations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Center Consultations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Medical Personnel Cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PATIENT ESCORT/TRANSPORT COST</th>
<th>ESCORTS/YR</th>
<th>$/ESCORT</th>
<th>COST/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Consultation—Escort Labor/Other Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Consultation—Escort Labor/Other Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Consultation—Transport Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Center—Escort Labor/Other Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Center—Transport Cost</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Patient Escort/Transport Cost</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Total Cost Avoided by Telemedicine** | |

continued . . .
benefits, as well as other information that may be useful when considering telemedicine acquisition.

**Detailed Cost Estimation Model**

The concept for the detailed cost estimation model is the same as that for the simplified model. The model is organized with the summary sheet listed first and the more detailed sheets following, as shown in figures C–2a through C–2h. Entry of data proceeds from the last sheet forward. This format was chosen to allow management to review the results starting at the top and working toward the more detailed information.

**Telemedicine cost-benefit summary**

The Telemedicine Cost-Benefit Summary (figure C–2a) is identical to that used for the simplified cost estimation model. However, in this case, all information is calculated from data entered on the detail sheets. Only the hours per month for other uses of the telemedicine system (as described previously) need to be entered.

**Capital cost**

The Capital Costs sheet (figure C–2b) can be used alone or in conjunction with the Telemedicine Installation Worksheet (figure C–2g) or the Telemedicine Equipment Worksheet (figure C–2h) or both. If you are using the electronic version, data entered on either of these worksheets will automatically be transferred to the Capital Costs sheet. The worksheet calculates the amortization (depreciation) of all capital assets. Straight-line depreciation is used; however, if another method is desired, Excel offers several alternative means of calculating depreciation.

**Telemedicine operating costs**

The Telemedicine Operating Costs sheet (figure C–2c) is used to accumulate all costs to operate and maintain the telemedicine system, except for the cost of medical personnel.
### Figure C–2b. Detailed Cost Estimation Model—Capital Costs

<table>
<thead>
<tr>
<th>COST CATEGORY</th>
<th>LABOR</th>
<th>EQUIP/MTRL</th>
<th>OTHER</th>
<th>TOTAL</th>
<th>AMORTIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HOURS</td>
<td>RATE</td>
<td>COST</td>
<td>COST</td>
<td>SHIP</td>
</tr>
<tr>
<td><strong>INSTALLATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From Telemed Install Worksheet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Installation Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TELEMEDICINE SYSTEM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From Telemed Equip Worksheet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Telemedicine System Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NETWORK/COMM EQUIP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From Telemed Equip Worksheet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Network/Comm Eq Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TELEMEDICINE ROOM FIXTURES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From Telemed Equip Worksheet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total TM Room Fixtures Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*continued . . .*


## Cost-Benefit Model

### Labor Equipment Material Amortization

<table>
<thead>
<tr>
<th>COST CATEGORY</th>
<th>LABOR</th>
<th>EQUIP/MTRL</th>
<th>OTHER</th>
<th>TOTAL</th>
<th>AMORTIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HOURS</td>
<td>RATE</td>
<td>COST</td>
<td>SHIP</td>
<td>LIFE</td>
</tr>
<tr>
<td>TRAINING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telemedicine Operation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telemedicine Maintenance/Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop Training Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Training Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total of Capital Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

... continued from page 42
## Figure C–2c. Detailed Cost Estimation Model—Telemedicine Operating Costs

<table>
<thead>
<tr>
<th>LABOR</th>
<th>EQUIP/MTRL/SUPPLIES</th>
<th>OTHER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOURS/MO</td>
<td>RATE ($/hr)</td>
<td>COST ($/yr)</td>
<td>COST ($/yr)</td>
</tr>
<tr>
<td><strong>Personnel</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Medical Supplies</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Office Supplies</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total System Operating Cost</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMMUNICATIONS COST</th>
<th>COST</th>
<th>MINUTES/ MONTH</th>
<th>EQUIP/MTRL/SUPPLIES</th>
<th>OTHER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>($/Month)</td>
<td>($/Minute)</td>
<td>COST ($/yr)</td>
<td>SHIP ($/yr)</td>
<td>COST ($/yr)</td>
<td>COST ($/yr)</td>
</tr>
<tr>
<td>Data/Video Communications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modern</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fax</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-mail/Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pager</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Communications Cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*continued...*
Appendix C: Telemedicine Cost-Benefit Model

... continued from page 44

<table>
<thead>
<tr>
<th>MAINTENANCE/SUPPORT COSTS</th>
<th>LABOR</th>
<th>EQUIP/MTRL/SUPPLIES</th>
<th>OTHER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HOURS/MO</td>
<td>RATE ($/hr)</td>
<td>COST ($/yr)</td>
<td>COST ($/yr)</td>
</tr>
<tr>
<td>Support Subcontract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance/Support Labor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spare Parts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Support Equip/Material</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Maintenance Support Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Operating Cost/Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Figure C–2d. Detailed Cost Estimation Model—Medical Personnel Costs

<table>
<thead>
<tr>
<th>MAINTENANCE/SUPPORT COSTS (List by Medical Specialty)</th>
<th>CONSULT (MINUTES)</th>
<th>CONSULT-COST/HOUR $/hr</th>
<th>CONSULT-COST/CONSULT CONSULT/YR</th>
<th>OTHER COST ($/yr)</th>
<th>TOTAL COST ($/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychiatry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Psychiatry Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermatology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Dermatology Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orthopedics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Orthopedics Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Specialties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Other Specialties Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Medical Personnel Cost/Year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure C–2e. Detailed Cost Estimation Model—Medical Costs Avoided by Telemedicine

<table>
<thead>
<tr>
<th>MEDICAL PERSONNEL (List by Medical Specialty)</th>
<th>CONSULT (MINUTES)</th>
<th>CONSULT-COST/HOUR $/hr</th>
<th>CONSULT-COST/CONSULT $/CONSULT</th>
<th>CONSULT-COST/CONSULT YR $/CONSULT YR</th>
<th>OTHER COST ($/yr)</th>
<th>TOTAL COST ($/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Consultations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Internal Consultations Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local External Consultations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total External Consultations Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Center Consultations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Medical Center Consultations Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Medical Cost/Yr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Implementing Telemedicine in Correctional Facilities

### Figure C–2f. Detailed Cost Estimation Model—Medical Escort and Transport Costs Avoided

<table>
<thead>
<tr>
<th>COST CATEGORY</th>
<th>LABOR COST/TRANSPORT or ESCORT</th>
<th>TRANSP $ ($/Trans)</th>
<th>OTHER $/ TRANSP-ESC</th>
<th>TRANSP ESCORT/YR</th>
<th>TOTAL COST ($/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTERNAL CONSULTATIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Internal Consults Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LOCAL EXTERNAL CONSULTATIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Escort Vehicle Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport Vehicle Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulance Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total External Consults Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MEDICAL CENTER CONSULTATIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Personnel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Escort Vehicle Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulance Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charter Airlight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial Airline</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Medical Center Consultations Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Escort/Transport Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Figure C–2g. Detailed Cost Estimation Model—Telemedicine Installation Worksheet

<table>
<thead>
<tr>
<th>COST CATEGORY</th>
<th>LABOR</th>
<th>MATERIAL</th>
<th>OTHER COST</th>
<th>TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HOURS</td>
<td>RATE</td>
<td>COST</td>
<td>COST</td>
</tr>
<tr>
<td>System Integrator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masonry/Plaster/Drywall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plumbing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Painting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other—Carpet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Installation Cost**
### Figure C–2h. Detailed Cost Estimation Model—Telemedicine Equipment Worksheet

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>MANUFACTURER</th>
<th>PART NUMBER</th>
<th>QTY</th>
<th>UNIT COST</th>
<th>ITEM COSTS</th>
<th>SHIP COST</th>
<th>TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telemedicine System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CODEC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cameras</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Devices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consoles/Cabinets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Telemedicine System Cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*continued.*
Appendix C: Telemedicine Cost-Benefit Model

Telemedicine system operating cost. This is the cost of the supplies and personnel services needed to operate the telemedicine room. To maintain accurate cost information for calculating costs and benefits, a consistent approach should be followed for cost entry here and on the Medical Costs Avoided by Telemedicine sheet (figure C–2e). Either one of the following approaches is satisfactory:

- Enter all costs for maintaining the telemedicine room. On the Medical Costs Avoided by Telemedicine sheet, enter in the Other Cost column the savings that accrue by replacing conventional care with telemedicine.
- Enter only those costs that are unique to telemedicine.

Communications cost. Space is provided in figure C–2c to enter all communications costs. However, the comments made above for cost entry also apply here. The data and video communications cost should be calculated accurately because it will be the largest operating cost item. Depending on the communications protocol you are using and your service provider, your data and video communications cost could be based on rate per minute per line, rate per minute for your selected bandwidth, rate per data packet (with or without a fixed monthly cost), or some combination of these rates. The model includes a contingency factor of 20 percent for estimating the cost of communications.

Maintenance and support costs. This is the cost for maintaining the telemedicine and communications equipment. If you have a fixed-cost support subcontract, enter the cost of that contract in the Other Cost column (figure C–2c). If you are providing maintenance, enter your labor, parts, and other support costs in the spaces provided.

Medical personnel costs
The Medical Personnel Costs sheet (figure C–2d) is used to calculate the cost for all personnel who provide medical services. Medical personnel should be listed by their specialty. Provisions are made for entering cost data for consultations where the cost

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>MANUFACTURER</th>
<th>PART NUMBER</th>
<th>QTY</th>
<th>UNIT COST</th>
<th>ITEM COST</th>
<th>SHIP COST</th>
<th>TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Network/Comm Equip Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telemedicine Room Fixtures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Telemedicine Room Fixtures Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Telemedicine Equipment Cost/Yr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Implementing Telemedicine in Correctional Facilities

is determined either on an hourly basis or on a per-consultation basis. The Consult (Minutes) column must be filled in for both cost methods. Note that the total consultation minutes per year are calculated for each physician on the basis of the Consult (Minutes) column entry. The total consultation time for all physicians is used to calculate communications costs.

**Medical costs avoided by telemedicine**

Theoretically, for each consultation performed through telemedicine, the cost of a conventional consultation should be avoided. You should review medical records for the past year and determine which patients could have been cared for through telemedicine. This will form the basis for establishing the number of telemedicine consultations that would have occurred over the same time period, as well as the number of internal, local external, and medical center consultations that could have been avoided through telemedicine. The medical specialties involved and your cost to provide these specialty services should be entered in the appropriate locations.

One of the most difficult tasks will be to establish an accurate count of external and medical center consultations avoided through telemedicine. If telemedicine provides better access to medical services or access to medical specialties that were otherwise not available, you may find that the more immediate treatments enabled by telemedicine reduce the incidents requiring transport of a patient for outside medical services. (Review the findings of the telemedicine demonstration project at http://www.ncjrs.org/telemedicine/toc.html for guidance.)

**Medical escort and transport costs avoided**

The Medical Escort and Transport Costs Avoided sheet (figure C–2f) is used to calculate the cost avoided because patients treated through telemedicine did not require escort or transport. The cost categories list personnel normally involved in escorting or transporting patients. For external and medical center consultations, provisions are made to enter the cost to provide the transportation.

For internal medical consultations, escort costs may be avoided if the escort provided is part of the routine movement of inmates. For external and medical center consultations, enter the cost for planning, preparing paperwork, coordinating with the outside facility, and transporting the patient; travel time to and from the destination, time spent at the destination, and time for closing the incident; and all transportation costs.

**Telemedicine installation worksheet**

The Telemedicine Installation Worksheet (figure C–2g) provides additional space for entering cost data for installing the telemedicine system. No entries are required on this worksheet if all installation costs were entered on the Capital Costs sheet. Cost information entered on the Telemedicine Installation Worksheet will be automatically transferred to the Capital Costs sheet if you are using the electronic version.

**Telemedicine equipment worksheet**

The Telemedicine Equipment Worksheet (figure C–2h) provides additional space for entering cost data for procuring the telemedicine equipment. No entries are required on this worksheet if all equipment costs were entered on the Capital Costs sheet. Cost information entered on the Telemedicine Equipment Worksheet will be automatically transferred to the Capital Costs sheet if you are using the electronic version.
**Medical Requirements Analysis**

Construct a form or worksheet to collect the information outlined below. Information should be gathered for external outpatient consultation, external inpatient consultation, and internal consultation. This information should be gathered for each subspecialty, such as dermatology, orthopedics, or cardiology.

- The number of routine consultations.
- The number of emergency consultations.
- Frequency of consultations (patients seen per month).
- Locations consultations are conducted.
- Monthly costs.
- Number of consultations appropriate for telemedicine (case examples).
- Time required for consultations.
- Total monthly time required for consultations.
- Type of data used.
  - Static or dynamic images, textual.
  - Source of data (x-ray, EKG strip, etc.).
  - How often will data be produced?
  - How often will data be recalled for later use?
  - How often will data be communicated to a remote location?
  - How many locations?
  - Expectations of data (image quality, annotations).
  - Format of data for presentation (color, printed, viewed).
  - Response time for data (prison-telecom-hospital).
- Equipment used for consultations.
- Number of inmates on waiting list.
- Factors causing wait list.
- Current practices and procedures for medical consultation.
Appendix E

Medical Requirements Analysis—Clinic Survey Form
Medical Requirements Analysis—Clinic Survey Form

For planning purposes, responses to the following questions should be gathered from the clinics.

A. What telemedicine clinics would you like to see scheduled at your facility? Please specify any other clinics that are not listed below:

<table>
<thead>
<tr>
<th>SPECIALTY REQUIRED</th>
<th>FREQUENCY OF CLINIC (WEEKLY, MONTHLY, ETC.)</th>
<th>NO. OF PATIENTS PER CLINIC</th>
<th>WEEKDAY CHOICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Psychiatry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Dermatology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Orthopedics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Podiatry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Cardiology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. What specialty areas would you like to have available for nonclinic consultations (nonemergency)?

1.

2.

3.

4.

5.

6.

7.

8.
Appendix E: Medical Requirements Analysis—Clinic Survey Form

C. How quickly would you need to have the nonclinic consultations (nonemergency)?

All specialty areas have the same response time, _____ business days.

or

The maximum response time varies by specialty area, as follows:

<table>
<thead>
<tr>
<th>SPECIALTY AREA</th>
<th>MAXIMUM RESPONSE TIME FOR SCHEDULING CONSULTATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
</tr>
</tbody>
</table>

D. What turnaround time is required for teleradiology consultations for plain films?

__________________ business days.

Initially, would a faxed consultation report meet your needs? _____ Yes _____ No

How soon should the hardcopy consultation report follow? _____ business days.

E. Is the number of plain films you indicated equal to the number of monthly teleradiology consultations, or is the number of monthly consultations less than this number? In other words, how many monthly teleradiology consultations do you project and how many monthly films do you project?

__________________ monthly teleradiology consultations.          __________________ monthly films.

F. Other comments:

_________________________________________________________________________________

_________________________________________________________________________________

_________________________________________________________________________________

_________________________________________________________________________________

_________________________________________________________________________________
Appendix F

Position Description—
Telemedicine Coordinator
Introduction

The incumbent serves as the telemedicine coordinator at a prison remote telemedicine site. Services are coordinated in collaboration with the off-site telemedicine consultant and the prison staff. The telemedicine coordinator is primarily responsible for coordinating telemedicine operations and medical consultations and for providing training and assistance for the prison medical staff.

Major Duties

■ Serves as the telemedicine coordinator at a remote prison telemedicine site.

■ Coordinates and schedules subspecialty consultations (clinic and nonclinic) for inmate medical care with the telemedicine consultants. Operates telemedicine equipment during telemedicine consultations (as appropriate) and helps the presenter use the telemedicine equipment during the telemedicine consultation.

■ Assembles patient consultation forms and medical records for faxing or mailing to telemedicine consultant before the scheduled subspecialty clinics. Reviews information in advance to ensure completeness and legibility.

■ Collects and reports required patient evaluation data on a timely basis.

■ Ensures telemedicine equipment is fully operational and maintained and is properly set up and tested before scheduled consultations.

■ Maintains stock of supplies and ensures security of the exam room and equipment.

■ Provides reports and status updates as required.

■ Provides input for developing telemedicine policy and procedure.

■ Teaches other health care personnel to operate and maintain the telemedicine equipment.

■ Works responsibly and cooperatively with entire telemedicine team.

■ Ensures patients’ privacy and confidentiality.

■ Performs related duties as required, but accepts only those duties that are commensurate with educational preparation, training, experience, and licensing laws.

■ Adheres to all infection-control policies and procedures.

■ Is subject to prison security background check, which is to include urinalysis drug screen.

Knowledge Required

■ Working knowledge of medical theory, clinical practice and patient care, and medical terminology.

■ Working knowledge of the use of computers, associated software applications, office equipment, and medical equipment (e.g., stethoscope).

■ Excellent interpersonal skills.

■ Ability to understand medical records and accurately extract and enter patient data from patient encounters.

■ Familiarity with prison custody, safety, and security regulations; health service policies and procedures; and inmate behavior.

■ Ability to train other health care staff to operate and maintain the telemedicine equipment.

■ Knowledgeable in the legal and ethical aspects of correctional medicine.
Supervisory Controls

The position is supervised by the head of Health Services. However, the incumbent performs effectively and independently. The incumbent will have the ability to set priorities, to be organized, and to determine when to seek appropriate assistance. The prison warden will have ultimate authority and responsibility for all telemedicine activities and efforts at the prison remote site. The incumbent will be guided by the needs of the prison in all tasks performed.

Physical Demands

This position may require long periods of standing or sitting. The incumbent is required to lift and move supplies and to use specific medical equipment. The incumbent must be able to function under stressful circumstances and be capable of coping with complex or rapidly changing situations.

Work Environment

The incumbent works in a hazardous-duty environment in a correctional setting. In addition, this individual is subject to all exposures common to the health care setting, including infectious and communicable diseases, irritant chemicals, and electrical hazards. The incumbent does not provide direct patient care.
A successful telemedicine consult requires the consultant physician or other health care provider to be thoroughly prepared. Before the consult, the originating provider should review and collect information relevant to the consultation. The health care provider should have established procedures for collecting information for telemedicine consultations.

This publication does not identify and develop procedures for all specialty requirements. Rather it presents guidance on how to develop procedures that can be used to conduct telemedicine consultations.

Any procedures developed must be consistent with acceptable medical practices. Competent medical personnel must review the procedures on a regular basis.

Procedures should be developed for various medical specialties that require different information and different preparation. A cardiology consult may require information on recent stress tests, for example, while a dermatology clinic may require the results of specified lab tests. Procedures for dermatology consults can be established by asking the consulting dermatologist for the information necessary to conduct a telemedicine consult. With guidance from the consulting dermatologist, a written procedure can be designed to be used during a dermatology consult. The same process can be used to create procedures for other medical specialties.

Any information the provider would have available for an in-office patient should be provided to the telemedicine consultant. The patient’s medical record and any relevant tests or laboratory results must be available. In some cases, this information must be transmitted to the consulting physician before the consult.

State medical boards may be able to provide information on State laws and regulations pertaining to telemedicine. The boards of specific medical specialties may also be helpful, as may other correctional agencies that have established telemedicine programs. For example, the Federal prison system has an established telemedicine program and procedures for conducting telemedicine consults. For copies of its procedures, contact—

Assistant Director
Health Services Division
Federal Bureau of Prisons
320 First Street N.W.
Washington, DC 20534
http://www.bop.gov

Other contacts that may be helpful in developing procedures for conducting a telemedicine consult include—

National Commission on Correctional Health Care
1300 West Belmont Avenue
Chicago, IL 60651
http://www.ncchc.org

American Telemedicine Association
910 17th Street N.W.
Suite 314
Washington, DC 20006
http://www.atmeda.org
ACR-NEMA. American College of Radiology and National Equipment Manufacturers Association. These organizations have jointly developed standards for teleradiology practice. For computed tomography (CT), magnetic resonance imaging (MRI), ultrasound, nuclear medicine, and digital fluoroscopy, images must be scanned at a resolution of 500 pixels x 500 lines at a depth of 8 bits (256 gray scale) or better; for diagnostic x-rays, 2,000 pixels x 2,000 lines (“2k by 2k”) at 12 bits (4,096 gray scale).

ADSL. Asymmetric digital subscriber line. A system currently under trial in several metropolitan areas. Uses existing copper phone lines. With proper retooling by telephone companies, ADSL can supply 6-Mbps downstream delivery of data.

algorithm. A mathematical coding scheme. A coding scheme can compress digitized broadband video or audio signals so that the signals can be transmitted over a lower (and less expensive) bandwidth. Standards-based algorithms enable communications with standards-based systems from disparate manufacturers. Proprietary algorithms are unique to individual manufacturers and enable communications only between equipment from that manufacturer. Current practice strongly encourages standards-based systems.

analog. Information (electronic or otherwise) that is created and transmitted as a continuous stream. Waveforms (e.g., on oscilloscopes) are analog. Compare this to digital information generated by computers. Modems are used to convert digital computer data to analog form for sending over standard (plain old telephone system, POTS) lines.

annotation. The capability to add comments or highlights to captured or live video. Simultaneous shared annotation of captured (or, less commonly, live video) images allows conference participants to clearly point out the areas in question on an image, and may provide significant instructional value.

ATM. Asynchronous transfer mode. A telecommunications service that supports switched multimedia communications from T1 (1.544 Mbps) to very high data rates (155 Mbps and higher). Not commonly available.

audio-only conference add-ins. The capability to add another site into a videoconference using only an audio connection. This feature uses a regular phone line connected to the CODEC to connect someone who is not near a video site but needs to be part of the conversation.

bandwidth. The capacity of an electronic transmission medium to transmit data per unit of time. The higher the bandwidth, the more data can be transmitted. Typically measured in kilobits or megabits per second. Standard telephones are low-bandwidth devices (a maximum bandwidth of 33.6 Kbps). Cable television uses high bandwidth (up to 140 Mbps).

beam splitter. A device for tele-otoscopes or -ophthalmoscopes that allows the clinician to see directly into the eye or ear and also routes a portion of the image to the video camera. This capability is usually preferred by the clinician, who is accustomed to looking directly through the device rather than at a video monitor.

bit. Binary digit. The basic 0–1 unit of information used by computers for information entry, storage, and transmission. Data rates in telecommunications are often referred to in bits (b) per second. See bandwidth, byte, Kbps, Mbps.

BRI. Basic rate interface.
bursty data. Short, intense transmissions of grouped, related information. Sometimes called “boluses of data” by medical clinicians.

byte. The amount of computer memory needed to store one character. Each data character, such as the letter A, is composed of 8 bits, called a byte (abbreviated B). Units of storage are often referred to in terms of the number of bytes (e.g., “100-MB hard drive”).

camera control. The capability to control the video camera used in the consultation, either at the near end (local control of local pan-tilt-zoom iris-focus) or the far end (hub control of pan-tilt-zoom at the remote site). This feature may be quite useful in consultations if the examiner wants to control the remote camera’s view without having to provide verbal directions to the assistant at the remote site.

CCD. Charge-coupled device. An integrated circuit, or “chip.” A 1-CCD (one-chip) camera contains a single charge-coupled device with specialized semiconductors containing photosensitive cells that generate voltage when struck by photons of light. One photosensitive cell equates to one pixel in the displayed image. The number of cells on a chip determines the number of pixels of resolution that the camera can display. The larger the chip, the greater the image resolution. Increased resolution is accomplished either by using larger chips or by using more chips. Single-chip cameras do a good job. Two-chip cameras use one chip for chrominance and one for luminence. Three-chip cameras do an even better job, because they have more total cells and because they use one chip each to capture red, green, and blue light. Three-chip cameras provide images with higher resolution and better color representation, and can cost 10 times as much as single-chip cameras. CCD scanners for teleradiology are less expensive than laser scanners and may not have the same ability to detect contrast. This may or may not affect their ability to transmit diagnostic-quality images.

chip. An integrated circuit. See CCD.

chrominance. Hue and saturation (color) on a video monitor.

CIF. Common intermediate format. An international standard for video display formats developed by the TSS (see ITU-T Standards).

CODEC. Coder/decoder hardware or software used with interactive video systems that converts an analog signal to digital, then compresses it so that lower bandwidth telecommunications lines can be used. The signal is decompressed and converted back to analog output by a compatible CODEC at the receiving end. The compression method (algorithm) may be proprietary or standards based.

CSU/DSU. Channel service unit/data service unit. A hardware device that is needed to terminate a high-speed telecommunications connection. It is inserted between the telemedicine system (e.g., CODEC) and the communications line. The device conditions and strengthens the signal and supports the necessary link protocols for transmission of data over leased or switched communications lines. It also acts as a multiplexer.

DICOM. Digital imaging and communications in medicine. An industry standard for connection of, and communications among, medical imaging devices. The most recent iteration is DICOM 3.

digital. Information coded in discrete numerical values (bits). Digital data streams are less susceptible to interference than analog data streams. Also, because they are made up of zeros and ones (bits), they can be manipulated and integrated easily with other data streams (voice, video, data).
**digital camera.** A camera that captures images (still or motion) digitally and does not require analog-to-digital conversion before the image can be transmitted or stored in a computer. The analog-to-digital conversion process (which takes place in a CODEC) usually causes some degradation of the image and a time delay in transmission. Avoiding this step theoretically provides a better, faster image at the receiving end.

**DS3.** A leased line (nonswitched) running at 45 Mbps. Compare with OC3, T1, ISDN.

**duplex audio.** A communications mode that enables simultaneous transmission and reception of audio signals in both directions. Full-duplex audio enables both ends of a conference to speak and be heard simultaneously (like a regular telephone call). Half-duplex audio supports only one site speaking at a time; other speakers will be cut off.

**echo cancellation.** A feature that prevents a system from picking up the sound from its own speakers and transmitting it back to other conference sites. Highly desirable for acceptable audioconferencing.

**encryption.** A security feature that ensures that only the parties who are supposed to be participating in a video conference or data transfer are able to do so. It is accomplished by mathematically transposing a file or data stream so that it cannot be deciphered at the receiving end without the proper key.

**Ethernet.** A local area network datalink protocol operating at 10 Mbps to 100 Mbps.

**firewall.** A computer connected to both the Internet and the local hospital information network that prevents the passing of Internet traffic to the internal hospital network. It provides an added layer of protection against computer hackers.

**fps.** Frames per second. See frame rate.

**frame rate.** The number of frames per second (fps) displayed on a video monitor. A frame rate of 25–30 fps is considered “full motion”; most broadcast video operates at this rate. A frame rate of 15 fps is noticeably “jerky.” Slower frame rates may be inadequate for observing and analyzing gait and motion.

**frame relay.** A service that supports data rates in the range of 56 Kbps to 1.54 Mbps. The frame relay circuit often comes in different levels of committed information rates. Regional telephone companies can offer frame relay cheaper because they can oversubscribe these circuits to users and share the bandwidth.

**freeze-frame video.** A video camera feature that allows the consultant to get a well-framed and focused still image of a lesion or other medical condition for closer examination. Still images captured from a live video source are often of higher resolution than the live video picture and, as a result, may provide more diagnostic value. Also referred to as image capture.

**frequency response.** A relative measure of audio quality, expressed in cycles per second, or hertz (Hz). Generally, the broader the frequency response, the better the signal. To approximate a standard acoustic stethoscope, an electronic stethoscope should be able to send and receive sounds as low as 30 Hz (for low-pitched heart murmurs) and as high as 1,000 Hz (for squeaks, wheezes, and pops heard in lung conditions). Many electronic stethoscopes can have their frequency response optimized for either heart or lung sounds by flipping a switch.

**full-motion video.** Video that runs at 25 or 30 frames per second, down to a minimum of 10–15
fps. Any frame rate less than about 10 fps is approaching slow-scan video.

ghosting. A motion artifact in monitor displays of compressed video images. As an image moves quickly across the field of view (e.g., an arm waving), it leaves a trail of ghost images that resolve as the movement stops.

graphic equalizer. A device that allows the user to emphasize or deemphasize selected frequencies within an audio sample. An example is the different settings for heart and lung sounds in electronic stethoscopes. See frequency response.

graphics stand. A device that is typically used to support a document so that images of graphics or text can be captured and transmitted. Can be used for skin lesions and the like.

gray scale. The levels (shades) of gray that a screen or pixel within a screen can display.

GUI. Graphical user interface. See interface.


IATV. Interactive televideo. Also abbreviated ITV.

image capture. See freeze-frame video.

image management. The capability to sort, arrange, and manipulate stored images into functional groups. Systems without this feature allow the user to store images only in the order in which they were saved; once stored, they cannot be rearranged.

INMARSAT. An international global telecommunications satellite network, established by government treaty in 1979, with 79 member countries. Land Earth Stations (fixed or portable, even to size) provide links between rural sites and telecommunications networks. INMARSAT can provide low-bandwidth digital services anywhere on the Earth’s surface for as little as $1 per minute.

integrator. A vendor that uses parts from other manufacturers to produce a product that is optimal for the particular user’s requirements.

interface. The means whereby a system enables information to be accessed and modified. A graphical user interface with mouse-controlled, point-and-click on-screen icons is an example of an easy-to-use interface device.

ISDN. Integrated services digital network. A low-to medium-speed technology for digital telephony. Usually transmits at 64–128 Kbps, although higher speeds are possible.


ISP. Internet service provider. The local, regional, or national company that provides dial-up connections to the Internet, as well as hosting of home pages.

ITU–T. International Telecommunications Union—Telecommunications Standardization Sector (TSS). An organization founded in 1865 as a telegraphy standards body and now is a United Nations agency.

ITU–T Standards. The H series refers to videoconferencing standards; the G series, to audioconferencing standards; and the T series, to data transfer standards. The T.120 series, in particular, refers to image capture, annotation, and transfer in videoconferences.

ITV. Interactive televideo. Also abbreviated IATV.
JPEG. Joint Photographic Experts Group. The international group that has developed standards for still-image compression.

KB. Kilobyte. 1,024 bits of data.

Kbps. Kilobits (thousands of bits) per second. A typical compressed-video clinical interaction is transmitted at 385 Kbps.

LAN. Local area network. A computer network linking computers, printers, servers, and other equipment within an organization.

laser digitizer. A scanner that uses a laser device to capture image information in digital form. Very high resolution and wide gray-scale range are possible.

leased line. A point-to-point private line for the sole use of the party who leases the circuit. Unlike a switched line, the price of a leased line does not vary as a function of usage.

leveling. A software manipulation technique, using mathematical algorithms, to compensate for a tele-radiology monitor’s inability to provide the same contrast and bit depth as the original hardcopy x-ray. This feature provides much more usable clinical information.

low-pass filter. A filter for leveling out the borders in the screen display of a radiology image.

luminence. Characteristics of brightness for a video monitor.

MB. Megabytes (millions of bytes).

Mbps. Megabits (millions of bits) per second. A typical uncompressed video signal requires 45 Mbps (or more) to transmit.

modem. Modulator-demodulator. A device that enables transmission of digital data (by transforming it to and from analog waveforms) over standard analog phone lines and cable video systems.


MRI. Magnetic resonance imaging.

multiplexer. A hardware device that combines two or more subchannels of information for transmission as a single data stream.

MUX. Multiplexer.

network. An assortment of electronic devices (computers, printers, scanners, etc.) connected (by wires or wireless) for mutual exchange of digital information.

ocular tube adapter. A device that allows a camera to be mounted to any microscope. This feature is needed to adapt a telepathology system to an existing ocular microscope without a camera port. Capturing images through an ocular tube has some disadvantages that must be weighed against the cost of a new scope.

OC3. A high-speed digital transmission capability of 1.55 Mbps. Compare with DS3, T1, ISDN.

PBX. Private branch exchange. A telephone switch, typically located at the customer site, connected to the public telephone network but operated by the customer. PBXs may be digital or analog.

peripheral device. An attachment to a videoconferencing system to augment its communications or medical capabilities. Examples include electronic stethoscopes, otoscopes, ophthalmoscopes, dermatoscopes, graphic stands, and scanners.
**PIP.** Picture in picture. This feature allows both ends of the videoconference to be viewed simultaneously on a single monitor. PIP swap allows the user to switch the two video pictures so that the local video fills the largest portion of the screen.

**pixel.** The smallest unit of a raster display; a picture cell with specific color or brightness. The more pixels an image has, the more detail, or resolution, it can display.

**POTS.** Plain old telephone system. The analog, public switched telephone network in common use throughout the world. POTS enables voice phone calls and data transmission of up to 56 Kbps, as well as limited videoconferencing.

**PRI.** Primary rate interface.

**primary user interface device.** The device used to control the videoconferencing system. Hardwired and wireless, keyboard, mouse, and touchscreen options each have advantages and disadvantages. The user should seriously consider in what setting and for what application the system will be used to determine the preferred interface.

**printer interface.** A device that allows data and images sent or received via the computer to be sent to a printer. This enables reports, images, and data shared in a videoconference to be rendered as hardcopy for recordkeeping and teaching purposes.

**raster.** A pattern of scanning lines covering the area upon which the image is projected in the cathode ray tube of a television set.

**real time.** Transmission and reception of audio, video, and data virtually simultaneously (without more than a fraction of a second delay). Applications that are transmitted within a few seconds are sometimes called “near” real time. Compare with store-and-forward, slow-scan video.

**resolution.** The level of detail that can be captured or displayed. For video displays (teleradiology or interactive video), resolution is measured in pixels x lines x bit depth.

**RGB.** Red green blue. A coding language that controls the electron gun in cathode ray tube monitors. The video signal that enters the monitor is separated into its component parts and converted to RGB; the video images are then rendered on the monitor’s screen.

**rollabout unit.** A portable teleconferencing or telemedicine system in which the monitor, CODEC, camera, etc., are placed in a cabinet with wheels that can be rolled from room to room. “Rollabout” can be a misleading term, because some units weigh more than 500 pounds and are very cumbersome to move.

**room unit.** A stationary teleconferencing or telemedicine system, usually with two large monitors, that is placed more or less permanently at a single site.

**RS–232.** An interface between data terminal equipment and data communications equipment, using serial binary data exchange.

**scan line.** Raster.

**slow-scan video.** A slow progression of freeze-frames (less than 1 or 2 per second). Also called “still video.” Compare with full-motion video.

**spooling.** The capability to review one image or data set, while receiving and storing additional images for subsequent review without “locking up” the computer.

**store-and-forward.** Captured audio clips, video clips, still images, or data that are transmitted or received at a later time (sometimes no more than a minute later). Compare with real time.
**Switched line** or network. A telecommunications mode similar to a dial-up telephone line. There is often a usage charge for switched services, particularly for long-distance connections, such as telephone lines. Compare with **leased line**, where the connection is continuously open and charges are usually levied at a flat, monthly rate.

**Switched 56.** A dial-up 56-Kbps digital line, billed at a monthly rate plus a per-minute charge, as with a POTS phone line. Costs for switched 56 service vary from provider to provider, but generally are about the same or somewhat more than those of a voice call.

**T1.** A leased line providing 1.544-Mbps data. T1 is available almost everywhere and can be fractionated. Fractional T1 services are less expensive than full T1. Typical interactive video telemedicine programs transmit video images at “1/4 T1” rates (384 Kbps).

**T.120.** A standard for audio and graphics exchanges, supporting higher resolutions and pointing and annotation (which the H.320 standard does not).

**TARIF.** Telecommunications rates set by either a Federal or State regulatory body.

**TCP/IP.** Transmission control protocol/Internet protocol. The most popular open-standard protocols used in data networks today. The Internet protocol is used to route packets of data on a network.

**Telemedicine.** The provision of health care over a distance using telecommunications technology.

**Teleradiology.** The interpretation of diagnostic images sent over a distance using leased or switched transmission lines.

**Third-party equipment.** Equipment added to an existing system to expand the original system’s capabilities. Some vendors modify videoconferencing systems with additional cameras to fabricate a telemedicine capability. Third-party equipment may not be covered by the vendor’s warranty, and its performance may not be guaranteed.

**Transmission rate.** The amount of information per unit of time that a technology such as a conventional (POTS) or digital (ISDN or T1) telephone line, satellite or wireless telecommunications, or LAN can transmit. A typical POTS-based modem can transmit 33.6 Kbps of information per second.

**TSS.** Telecommunications Standardization Sector of the International Telecommunications Union. See ITU-T.

**Twisted pair.** A pair of copper wires that has been twisted to minimize electronic interference. Standard telephone wire.

**URL.** Universal resource locator. The World Wide Web address (typically in the form: http://www.name_of_site) of an Internet home page or other document.

**Video format.** The manner by which video images are exchanged between the remote and hub sites. Formats include National Television System Committee (NTSC), phase alternation line (PAL), high-definition television (HDTV), and sequential color and memory (SECAM).

**Video on demand.** The ability to provide instantaneous access to remotely stored sources of video.

**Video output.** Composite, S-video.
**videophone.** A small, standalone video appliance with a small camera and circulation—not part of a computer or larger videoconferencing system—that enables interactive audio-video communications over *POTS* and *ISDN*.

**WAN.** Wide area network. A computer network wider in geographic scope than a *LAN*. Provides digital communications (voice, video, data) over switched (*ISDN, switched 56*) or unswitched (fractional *T1*, T1) networks.
About the National Institute of Justice

NIJ is the research and development agency of the U.S. Department of Justice and is the only Federal agency solely dedicated to researching crime control and justice issues. NIJ provides objective, independent, nonpartisan, evidence-based knowledge and tools to meet the challenges of crime and justice, particularly at the State and local levels. NIJ’s principal authorities are derived from the Omnibus Crime Control and Safe Streets Act of 1968, as amended (42 U.S.C. §§ 3721–3722).

NIJ’s Mission

In partnership with others, NIJ’s mission is to prevent and reduce crime, improve law enforcement and the administration of justice, and promote public safety. By applying the disciplines of the social and physical sciences, NIJ—

• **Researches** the nature and impact of crime and delinquency.
• **Develops** applied technologies, standards, and tools for criminal justice practitioners.
• **Evaluates** existing programs and responses to crime.
• **Tests** innovative concepts and program models in the field.
• **Assists** policymakers, program partners, and justice agencies.
• **Disseminates** knowledge to many audiences.

NIJ’s Strategic Direction and Program Areas

NIJ is committed to five challenges as part of its strategic plan: 1) **rethinking justice** and the processes that create just communities; 2) **understanding the nexus** between social conditions and crime; 3) **breaking the cycle** of crime by testing research-based interventions; 4) **creating the tools** and technologies that meet the needs of practitioners; and 5) **expanding horizons** through interdisciplinary and international perspectives. In addressing these strategic challenges, the Institute is involved in the following program areas: crime control and prevention, drugs and crime, justice systems and offender behavior, violence and victimization, communications and information technologies, critical incident response, investigative and forensic sciences (including DNA), less-than-lethal technologies, officer protection, education and training technologies, testing and standards, technology assistance to law enforcement and corrections agencies, field testing of promising programs, and international crime control. NIJ communicates its findings through conferences and print and electronic media.

NIJ’s Structure

The NIJ Director is appointed by the President and confirmed by the Senate. The NIJ Director establishes the Institute’s objectives, guided by the priorities of the Office of Justice Programs, the U.S. Department of Justice, and the needs of the field. NIJ actively solicits the views of criminal justice and other professionals and researchers to inform its search for the knowledge and tools to guide policy and practice.

NIJ has three operating units. The Office of Research and Evaluation manages social science research and evaluation and crime mapping research. The Office of Science and Technology manages technology research and development, standards development, and technology assistance to State and local law enforcement and corrections agencies. The Office of Development and Communications manages field tests of model programs, international research, and knowledge dissemination programs. NIJ is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, the Bureau of Justice Statistics, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime.

To find out more about the National Institute of Justice, please contact:

National Criminal Justice Reference Service
P.O. Box 6000
Rockville, MD 20849–6000
800–851–3420
e-mail: askncjrs@ncjrs.org

To obtain an electronic version of this document, access the NIJ Web site (http://www.ojp.usdoj.gov/nij).

If you have questions, call or e-mail NCJRS.
The use of Virtual Health (VH) is one of the most innovative lessons learned over the past 14 years of conflict. Army Medicine is a recognized leader in VH, with services spanning 18 time zones, 30 countries and territories, and over 30 clinical specialties. Army Medicine has developed a VH Business Plan to expand support across all roles of care (roles I-IV) within all phases of a military operation. By harnessing the power of our 21st century tools, we have the ability to fundamentally transform and exponentially improve both capacity and capability. All of our past successes and future plans in VH revolve around one core concept – connecting people and Soldiers to health care globally to increase readiness, access, quality, and patient safety. The end state will be a globally integrated and deployed Army VH system under a centralized program structure.

Army VH: Current Mission & Future Vision

The use of Virtual Health (VH) is one of the most innovative lessons learned over the past 14 years of conflict. Army Medicine is a recognized leader in VH, with services spanning 18 time zones, 30 countries and territories, and over 30 clinical specialties. Army Medicine has developed a VH Business Plan to expand support across all roles of care (roles I-IV) within all phases of a military operation. By harnessing the power of our 21st century tools, we have the ability to fundamentally transform and exponentially improve both capacity and capability. All of our past successes and future plans in VH revolve around one core concept – connecting people and Soldiers to health care globally to increase readiness, access, quality, and patient safety. The end state will be a globally integrated and deployed Army VH system under a centralized program structure.

Army VH in Garrison – Approximately 39,500 Total VH Encounters in FY16

Army VH to Deployed Forces – Over 30 Countries and Territories and 18 Time Zones

FY16 Combined Garrison Specialty Encounters (w/o TBH)

- IMSUB: 22%
- PC: 2%
- DERM: 2%
- ORTHO: 5%
- SURGSSUB: 2%
- SURG: 2%
- OTHER: 2%
- ENT: 2%
- OB/GYN: 2%

Army VH – New Initiatives

**Operational VH (Readiness):** To address the future operating environment, several enterprise programs are planned alongside a longer-term requirements process. The plan will expand support across all roles of care, within medical battlefield operating systems, across unified land operations, and within all phases of a military operation.

**Virtual Medical Center (MEDCEN):** Army Medicine is establishing a Virtual MEDCEN with clinicians and staff that specialize in delivering health care remotely to patients wherever the patients are in the world, in both garrison and deployed settings, across all roles of care.

**Teleconsultations (TC):** Army Medicine is building a seamless, global TC portal. From battlefield to bedside, providers will be able to access specialty expertise from their colleagues – wherever in the world they are working.

**Virtual Visits:** Army Medicine is acting on ASD(HA) authority granted on 3FEB16. Virtual Visits (phone and video) will enable us to increase access to care, readiness, and satisfaction by caring for patients anywhere.

**Remote Health Monitoring (RHM):** Army Medicine is developing its capabilities in RHM using advanced biometric devices. Use of RHM will focus on care coordination and early medical intervention, preventing poor outcomes and supporting the HRO.

**Carts:** Army Medicine is deploying VH carts across the enterprise in FY17 along with VH nurses to create a foundation of all-specialty care in the enterprise.

Army VH Timeline

- FY14: IOC of Virtual MEDCEN
- FY15: TH @ Patient Location (Prim. Care/Spec. Care)
- FY16: VFMHI
- FY17: TH @ Patient Location (Prim. Care/Spec. Care): Phase I begins
- FY18: TH @ Patient Location (Prim. Care/Spec. Care): Phase II begins
- FY19: TH @ Patient Location (Prim. Care/Spec. Care): Phase II begins (includes GD Depot Maintenance)
- FY20: VH Opportunities: Capability begins
- FY21: Develop Business Plan Phase 2

**“Connecting Health Globally to Increase Readiness, Access, Quality and Patient Safety.”**
Mario Gutierrez is executive director of the Center for Connected Health Policy. Mr. Gutierrez joined CCHP in May 2010 as a senior policy associate, and brings with him more than thirty years of experience in California’s nonprofit health and health philanthropy sectors.

Mr. Gutierrez served as a program director with The California Endowment for twelve years prior to joining CCHP, where he led several major health care initiatives including the foundation’s ten-year, $20 million investment in telehealth deployment throughout California. He also served as the Endowment’s lead person for Rural and Agricultural Worker Health Programs and Policy. Previously, he served for six years as a senior program officer with The Sierra Health Foundation.

In recognition of his achievements in the field, Mr. Gutierrez received the prestigious 2007 Terrance Keenan National Leadership Award in Health Philanthropy.

Mr. Gutierrez currently serves on the board of directors of the California State Rural Health Association, a nonprofit, nonpartisan, grassroots organization that works to improve the health of rural Californians and the quality and accessibility of the health care they receive.

He also serves on the board of directors of OCHIN, one of the nation’s largest and most successful non-profit health information networks. OCHIN is nationally recognized for its innovative use of Health IT to improve the integration and delivery of health care services across a wide variety of practices, with an emphasis on safety net clinics and small practices, as well as critical access and rural hospitals.

He currently serves as chairman of the Rural Policy Research Institute (RUPRI) Rural Human Services Advisory Panel, which provides agencies of the federal government with policy analysis and recommendations to promote livable rural communities.
Latoya Thomas is the Director, State Policy Resource Center for the American Telemedicine Association. In this capacity, she works with ATA members, affiliates, and state officials on legislative and regulatory issues affecting the use and deployment of telehealth services.

Prior to joining the ATA, Latoya worked as an Associate Director of Government Affairs for the National Association for Home Care and Hospice to advance the use of technologies within the home health care industry, and also to ensure equitable access to health information technologies for all involved in the care continuum. She served as Research and Communications Strategist for the National HIT Collaborative for the Underserved (NHIT) to promote their core message of using health IT as a tool to reduce health disparities, and improve patient engagement and access to care.

Latoya is a Howard University alumna.
<table>
<thead>
<tr>
<th>Dr. Kim Landry from March TAC Meeting</th>
<th>Mario Gutierrez Center for Connected Health Policy</th>
<th>Children’s Health Fund</th>
<th>Legislative Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Technology Barriers</strong></td>
<td><strong>2. Regulations</strong></td>
<td><strong>1. Encourage federal grant support for the development and utilization of telehealth and other technologies to improve access to health care</strong></td>
<td><strong>1. Telehealth Definition</strong></td>
</tr>
<tr>
<td>i. Definition</td>
<td>i. Requirements regarding location of services (originating and/or presenting site requirements)</td>
<td>2. Advocate for experienced health professional groups to create quality guidelines and standards for telehealth services</td>
<td>2. Standardization of Regulations I. Requirements regarding locations of services</td>
</tr>
<tr>
<td>a. Store &amp; Forward</td>
<td>II. E-Prescribing – who is authorized, under what circumstances, and for what classes of medications</td>
<td>2. Advocate for experienced health professional groups to create quality guidelines and standards for telehealth services</td>
<td>2. Standardization of Regulations I. Requirements regarding locations of services</td>
</tr>
<tr>
<td>ii. Connectivity</td>
<td>III. Requirements for in-person services before telehealth can be used?</td>
<td>2. Advocate for experienced health professional groups to create quality guidelines and standards for telehealth services</td>
<td>2. Standardization of Regulations I. Requirements regarding locations of services</td>
</tr>
<tr>
<td><strong>2. Health Care Provider Barriers</strong></td>
<td><strong>3. Licensure Requirements</strong></td>
<td><strong>3. Licensure Requirements</strong></td>
<td><strong>3. Licensure Requirements</strong></td>
</tr>
<tr>
<td>i. Health Services available to patients via telehealth (PT, OT, Pharmacy, etc.)</td>
<td><strong>3. Licensure Requirements</strong></td>
<td><strong>3. Licensure Requirements</strong></td>
<td><strong>3. Licensure Requirements</strong></td>
</tr>
<tr>
<td>ii. Direct to Consumers</td>
<td><strong>3. Licensure Requirements</strong></td>
<td><strong>3. Licensure Requirements</strong></td>
<td><strong>3. Licensure Requirements</strong></td>
</tr>
<tr>
<td>iii. Out of state Consultations</td>
<td><strong>3. Licensure Requirements</strong></td>
<td><strong>3. Licensure Requirements</strong></td>
<td><strong>3. Licensure Requirements</strong></td>
</tr>
<tr>
<td><strong>3. Coverage &amp; Reimbursement Barriers</strong></td>
<td><strong>4. Coverage</strong></td>
<td><strong>4. Encourage Medicaid &amp; commercial health insurers to cover appropriate, high quality telehealth services for all children, especially those living in HPSAs and other underserved areas</strong></td>
<td><strong>4. Encourage Medicaid &amp; commercial health insurers to cover appropriate, high quality telehealth services for all children, especially those living in HPSAs and other underserved areas</strong></td>
</tr>
<tr>
<td>I. Limitations on reimbursement models (Spoke &amp; Hub)</td>
<td>I. Coverage – should coverage be required II. Site transmission fees (should presenting sites also receive payment?)</td>
<td>4. Encourage Medicaid &amp; commercial health insurers to cover appropriate, high quality telehealth services for all children, especially those living in HPSAs and other underserved areas</td>
<td>4. Encourage Medicaid &amp; commercial health insurers to cover appropriate, high quality telehealth services for all children, especially those living in HPSAs and other underserved areas</td>
</tr>
<tr>
<td>II. Payment Parity</td>
<td>4. Coverage – should coverage be required</td>
<td>4. Encourage Medicaid &amp; commercial health insurers to cover appropriate, high quality telehealth services for all children, especially those living in HPSAs and other underserved areas</td>
<td>4. Encourage Medicaid &amp; commercial health insurers to cover appropriate, high quality telehealth services for all children, especially those living in HPSAs and other underserved areas</td>
</tr>
<tr>
<td></td>
<td>II. Site transmission fees (should presenting sites also receive payment?)</td>
<td>4. Encourage Medicaid &amp; commercial health insurers to cover appropriate, high quality telehealth services for all children, especially those living in HPSAs and other underserved areas</td>
<td>4. Encourage Medicaid &amp; commercial health insurers to cover appropriate, high quality telehealth services for all children, especially those living in HPSAs and other underserved areas</td>
</tr>
<tr>
<td></td>
<td>I. Payment Parity – should payers be required to</td>
<td>4. Encourage Medicaid &amp; commercial health insurers to cover appropriate, high quality telehealth services for all children, especially those living in HPSAs and other underserved areas</td>
<td>4. Encourage Medicaid &amp; commercial health insurers to cover appropriate, high quality telehealth services for all children, especially those living in HPSAs and other underserved areas</td>
</tr>
<tr>
<td>4. Patient/Consumer Barriers</td>
<td>6. Patient consent (rules may vary by state)</td>
<td>5. Create a national campaign for the public to understand telehealth resources that are available and how access to specialists can be organized for anyone in the US</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>I. Patient expectations vs services offered</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Qualifications of physician offering service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II. Consumer protection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Telehealth Definitions:**

**Telehealth**: Broad definition, which incorporates multiple modalities including telemedicine, telemonitoring, administrative, and educational communications.

**Telemedicine**: The use of information and communication technology for the specific purpose of clinical services, focused on diagnosis and treatment.

**Office of the National Coordinator for Health Information Technology**: While telemedicine refers specifically to remote clinical services, telehealth can refer to remote non-clinical services, such as provider training, administrative meetings, and continuing medical education, in addition to clinical services.

**US Department of Health and Human Sciences**: Telehealth is defined as the use of telecommunications and information technologies to share information and provide clinical care, education, public health, and administrative services at a distance.

**American Academy of Family Physicians**: Telemedicine is the practice of medicine using technology to deliver care at a distance, over a telecommunications infrastructure, between a patient at an originating (spoke) site and a physician, or other practitioner licensed to practice medicine, at a distant (hub) site. Telehealth refers to a broad collection of electronic and telecommunications technologies and services that support at-a-distance healthcare delivery and services. Telehealth technologies and tactics support virtual medical, health and education services.

**Centers for Medicare & Medicaid Services**: Medicaid
Telemedicine is two-way, real time interactive communication between the patient, and the physician or practitioner at the distant site. This electronic communication means the use of interactive telecommunications equipment that includes, at a minimum, audio and video equipment. **Note**: The federal Medicaid statute does not recognize telemedicine as a distinct service. However, it is defined in 39G1.057, FAC of the Florida Medicaid program.

**Medicare**
Telehealth is defined in 42CFR 410.78 (a):

**Asynchronous store and forward technologies** means the transmission of a patient's medical information from an originating site to the physician or practitioner at the distant site. The physician or practitioner at the distant site can review the medical case without the patient being present. An asynchronous telecommunications system in single media format does not include telephone calls, images transmitted via facsimile machines and text messages without visualization of the patient (electronic mail). Photographs visualized by a telecommunications system must be specific to the patient's medical condition and adequate for furnishing or confirming a diagnosis and or treatment plan. Dermatological photographs, for example, a photograph of a skin lesion, may be considered to meet the requirement of a single media format under this provision.

**Distant site** means the site at which the physician or practitioner delivering the service is located at the time the service is provided via a telecommunications system.

**Interactive telecommunications system** means multimedia communications equipment that includes, at a minimum, audio and video equipment permitting two-way, real-time interactive communication between the patient and distant site physician or practitioner. Telephones, facsimile machines, and electronic mail systems do not meet the definition of an interactive telecommunications system.
**Originating site** means the location of an eligible Medicare beneficiary at the time the service being furnished via a telecommunications system occurs. For asynchronous store and forward telecommunications technologies, the only originating sites are Federal telemedicine demonstration programs conducted in Alaska or Hawaii.

**World Health Organization:**
The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities.

**Florida Board of Medicine:**
The practice of medicine by a licensed Florida physician or physician assistant where patient care, treatment, or services are provided through the use of medical information exchanged from one site to another via electronic communications. Telemedicine shall not include the provision of health care services only through an audio only telephone, email messages, text messages, facsimile transmission, U.S. Mail or other parcel service, or any combination thereof.

**2017 HB 7011:**
“Telehealth” means the use of synchronous or asynchronous telecommunications technology by a telehealth provider to provide health care services, including, but not limited to, patient assessment, diagnosis, consultation, treatment, and monitoring; transfer of medical data; patient and professional health-related education; public health services; and health administration. The term does not include audio-only telephone calls, e-mail messages, or facsimile transmissions.
<table>
<thead>
<tr>
<th>Practitioner Type</th>
<th>Licensure Compact</th>
<th>Organization Governing</th>
<th>Number of states participating</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Doctors (MD &amp; DO) and Physician Assistants</td>
<td>Yes</td>
<td>Interstate Medical Licensure Compact Commission (IMLCC),</td>
<td>18 enacted 8 pending legislation</td>
<td></td>
</tr>
<tr>
<td>Registered &amp; Licensed Practical Nurses</td>
<td>Yes</td>
<td>National Council of State Boards of Nursing (NCSBN)</td>
<td>25 enacted</td>
<td>The initial licensure compact has 25 participants. Does not apply to APRNs.</td>
</tr>
<tr>
<td>(Enhanced Version) Registered &amp; Licensed Practical Nurses</td>
<td>Yes</td>
<td>National Council of State Boards of Nursing (NCSBN)</td>
<td>15 enacted (including Florida) 16 pending legislation</td>
<td>An enhanced version of the licensure compact was introduced 2015. Compact will come into effect once 26 states have enacted the legislation or December 31, 2018. Does not apply to APRNs</td>
</tr>
<tr>
<td>Advanced Practice Registered Nurses</td>
<td>Yes</td>
<td>National Council of State Boards of Nursing (NCSBN)</td>
<td>2 enacted 3 pending legislation</td>
<td>Compact will come into effect once 10 states have enacted the legislation.</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>Yes</td>
<td>Interstate Medical Licensure Compact Commission</td>
<td>18 enacted 8 pending legislation</td>
<td></td>
</tr>
<tr>
<td>Psychologists</td>
<td>Yes</td>
<td>Psychology Interjurisdictional Compact (PSYPACT)</td>
<td>2 enacted 5 pending legislation</td>
<td>PSYPACT becomes operational when seven states enact PSYPACT.</td>
</tr>
<tr>
<td>Dentists</td>
<td>Yes</td>
<td>Interstate Medical Licensure compact Commission</td>
<td>99 enacted 20 pending legislation</td>
<td></td>
</tr>
<tr>
<td>Emergency Medical Services (EMT &amp; Paramedic)</td>
<td>Yes</td>
<td>National Registry of Emergency Medical Technicians</td>
<td>9 enacted</td>
<td>Compact will activate after the tenth state signs the REPLCIA legislation.</td>
</tr>
<tr>
<td>Physical Therapists</td>
<td>Yes</td>
<td>The Federation of State Boards of Physical Therapy</td>
<td>9 enacted 9 pending legislation</td>
<td>Compact will come into effect once 10 states have enacted the legislation.</td>
</tr>
<tr>
<td>Speech-Language Pathologist and Audiologists</td>
<td>No</td>
<td>State Governments – National Center for Interstate Compacts (CSG)</td>
<td>0</td>
<td>American Speech-Language-Hearing Association (ASHA), National Council of State Boards (NCSB), and stakeholders—are establishing an Advisory Committee to begin discussions about the development of the compact.</td>
</tr>
<tr>
<td>Occupational Therapists</td>
<td>No</td>
<td>The American Occupational Therapy Association, Inc.</td>
<td>0</td>
<td>Investigating the merits of establishing professional license portability for the occupational therapy profession possibly through the creation of a licensure compact.</td>
</tr>
<tr>
<td>Respiratory Therapists</td>
<td>No</td>
<td>American Association for Respiratory Care</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Mental Health Counselors/Social Workers</td>
<td>No</td>
<td>Association of Social Work Boards</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
## Florida Regulations Referencing Telehealth

<table>
<thead>
<tr>
<th>Overseeing Organization</th>
<th>Language Summary</th>
<th>Regulatory Citation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Management Services</td>
<td>Telehealth noted as a priority services for broadband grant funding</td>
<td>§364.0135(2)(d)4, Florida Statutes</td>
</tr>
<tr>
<td>Department Children and Family (Mental Health)</td>
<td>Notation of legislative support for use of telehealth for mental health services</td>
<td>§394.453 (3), Florida Statutes</td>
</tr>
<tr>
<td>Agency for Health Care Administration</td>
<td>Defines telehealth for the purpose of Medicaid fee-for-service reimbursement</td>
<td>Rule 59.G-1.057, Florida Administrative Code</td>
</tr>
<tr>
<td>Department of Health (Public Health)</td>
<td>Notes electronic consultation between health care providers for the purpose of administering an epinephrine injection is <strong>not</strong> considered telehealth</td>
<td>§381.885(4), Florida Statutes</td>
</tr>
<tr>
<td>Department of Health (Children’s Medical Services)</td>
<td>Provides requirements for use of telemedicine by CMS Child Protection Team Services</td>
<td>Rule 64C-8.003, Florida Administrative Code</td>
</tr>
<tr>
<td>Department of Health (Children’s Medical Services)</td>
<td>Defines telehealth for the purpose of Child Protection Team</td>
<td>Rule 64C-8.001, Florida Administrative Code</td>
</tr>
<tr>
<td>Department of Health (Board of Medicine)</td>
<td>Standards of Practice for Telemedicine (Medical Doctor)*</td>
<td>Rule 64B8-9.0141, Florida Administrative Code</td>
</tr>
<tr>
<td>Department of Health (Board of Osteopathic Medicine)</td>
<td>Standards of Practice for Telemedicine (Doctor of Osteopathy)*</td>
<td>Rule 64B15-14.0081, Florida Administrative Code</td>
</tr>
<tr>
<td>*Department of Health (Board of Medicine) (Board of Osteopathic Medicine)</td>
<td>*Statutory language that permits the medical boards to specify telehealth standards</td>
<td>§458.331(1)(v), Florida Statute §459.015(1)(z), Florida Statute</td>
</tr>
</tbody>
</table>
The 2016 Florida Statutes
Chapter 364 - TELECOMMUNICATIONS COMPANIES

364.0135  Promotion of broadband adoption.—

(1)  The Legislature finds that the sustainable adoption of broadband Internet service is critical to the economic and business development of the state and is beneficial for libraries, schools, colleges and universities, health care providers, and community organizations. The term “sustainable adoption” means the ability for communications service providers to offer broadband services in all areas of the state by encouraging adoption and utilization levels that allow for these services to be offered in the free market absent the need for governmental subsidy.

(2)  The Department of Management Services is authorized to work collaboratively with, and to receive staffing support and other resources from, Enterprise Florida, Inc., state agencies, local governments, private businesses, and community organizations to:

(a)  Monitor the adoption of broadband Internet service in collaboration with communications service providers, including, but not limited to, wireless and wireline Internet service providers, to develop geographical information system maps at the census tract level that will:

1.  Identify geographic gaps in broadband services, including areas unserved by any broadband provider and areas served by a single broadband provider;

2.  Identify the download and upload transmission speeds made available to businesses and individuals in the state, at the census tract level of detail, using data rate benchmarks for broadband service used by the Federal Communications Commission to reflect different speed tiers; and

3.  Provide a baseline assessment of statewide broadband deployment in terms of percentage of households with broadband availability.

(b)  Create a strategic plan that has goals and strategies for increasing the use of broadband Internet service in the state.

(c)  Build and facilitate local technology planning teams or partnerships with members representing cross-sections of the community, which may include, but are not limited to, representatives from the following organizations and industries: libraries, K-12 education, colleges and universities, local health care providers, private businesses, community organizations, economic development organizations, local governments, tourism, parks and recreation, and agriculture.

(d)  Encourage the use of broadband Internet service, especially in the rural, unserved, and underserved communities of the state through grant programs having effective strategies to facilitate the statewide deployment of broadband Internet service. For any grants to be awarded, priority must be given to projects that:

1.  Provide access to broadband education, awareness, training, access, equipment, and support to libraries, schools, colleges and universities, health care providers, and community support organizations.

2.  Encourage the sustainable adoption of broadband in primarily unserved areas by removing barriers to entry.
3. Work toward encouraging investments in establishing affordable and sustainable broadband Internet service in unserved areas of the state.

4. Facilitate the development of applications, programs, and services, including, but not limited to, telework, telemedicine, and e-learning to increase the usage of, and demand for, broadband Internet service in the state.

(3) The department may apply for and accept federal funds for purposes of this section, as well as gifts and donations from individuals, foundations, and private organizations.

(4) The department may enter into contracts necessary or useful to carry out the purposes of this section.

(5) The department may establish any committee or workgroup to administer and carry out the purposes of this section.

59G-1.057 Telemedicine.

(1) This rule applies to any person or entity prescribing or reviewing a request for Florida Medicaid services and to all providers of Florida Medicaid services that are enrolled in or registered with the Florida Medicaid program.

(2) Definition. Telemedicine – The practice of health care delivery by a practitioner who is located at a site other than the site where a recipient is located for the purposes of evaluation, diagnosis, or treatment.

(3) Who Can Provide. Practitioners licensed within their scope of practice to perform the service.

(4) Coverage. Florida Medicaid reimburses for telemedicine services using interactive telecommunications equipment that includes, at a minimum audio and video equipment permitting two-way, real time, interactive communication between a recipient and a practitioner.

(5) Exclusion. Florida Medicaid does not reimburse for:
   (a) Telephone conversations, chart review(s), electronic mail messages, or facsimile transmissions.
   (b) Equipment required to provide telemedicine services.

(6) Reimbursement. The following applies to practitioners rendering services in the fee-for-service delivery system:
   (a) Florida Medicaid reimburses the practitioner who is providing the evaluation, diagnosis, or treatment recommendation located at a site other than where the recipient is located.
   (b) Providers must include modifier GT on the CMS-1500 claim form, incorporated by reference in Rule 59G-4.001, F.A.C.

Rulemaking Authority 409.919 FS. Law Implemented 409.905 FS. History—New 6-20-16.
The 2016 Florida Statutes

Mental Health

394.453 Legislative intent.—

(1) It is the intent of the Legislature:

(a) To authorize and direct the Department of Children and Families to evaluate, research, plan, and recommend to the Governor and the Legislature programs designed to reduce the occurrence, severity, duration, and disabling aspects of mental, emotional, and behavioral disorders.

(b) That treatment programs for such disorders include, but not be limited to, comprehensive health, social, educational, and rehabilitative services to persons requiring intensive short-term and continued treatment in order to encourage them to assume responsibility for their treatment and recovery. It is intended that:

1. Such persons be provided with emergency service and temporary detention for evaluation when required;

2. Such persons be admitted to treatment facilities on a voluntary basis when extended or continuing care is needed and unavailable in the community;

3. Involuntary placement be provided only when expert evaluation determines it is necessary;

4. Any involuntary treatment or examination be accomplished in a setting that is clinically appropriate and most likely to facilitate the person’s return to the community as soon as possible; and

5. Individual dignity and human rights be guaranteed to all persons who are admitted to mental health facilities or who are being held under s. 394.463.

(c) That services provided to persons in this state use the coordination-of-care principles characteristic of recovery-oriented services and include social support services, such as housing support, life skills and vocational training, and employment assistance, necessary for persons with mental health disorders and co-occurring mental health and substance use disorders to live successfully in their communities.

(d) That licensed, qualified health professionals be authorized to practice to the fullest extent of their education and training in the performance of professional functions necessary to carry out the intent of this part.

(2) It is the policy of this state that the use of restraint and seclusion on clients is justified only as an emergency safety measure to be used in response to imminent danger to the client or others. It is, therefore, the intent of the Legislature to achieve an ongoing reduction in the use of restraint and seclusion in programs and facilities serving persons with mental illness.

(3) The Legislature further finds the need for additional psychiatrists to be of critical state concern and recommends the establishment of an additional psychiatry program to be offered by one of Florida’s schools of medicine currently not offering psychiatry. The program shall seek to integrate primary care and psychiatry and other evolving models of care for persons with mental health and substance use disorders. Additionally, the Legislature finds that the use of telemedicine for patient evaluation, case
management, and ongoing care will improve management of patient care and reduce costs of transportation.

History.—s. 2, ch. 71-131; s. 198, ch. 77-147; s. 1, ch. 79-298; s. 4, ch. 82-212; s. 2, ch. 84-285; s. 10, ch. 85-54; s. 1, ch. 91-249; s. 1, ch. 96-169; s. 96, ch. 99-8; s. 36, ch. 2006-227; s. 77, ch. 2014-19; s. 1, ch. 2016-231; s. 4, ch. 2016-241.
64C-8.001 Definitions Used in the Child Protection Team Rule.

For the purpose of this rule chapter, the following definitions will apply:

(1) “Case” – an individual child referred to and accepted by a child protection team for assessment services as a result of a report of alleged abuse or neglect made to the central abuse hotline as set forth in Section 39.201, F.S.

(2) “Case Coordinator” – a member of the child protection team professional staff who provides or directs the activities on behalf of clients to complete team assessment services.

(3) “Medical Consultation” – a Child Protection Team medical opinion based on oral or written information obtained by the team when the child was not physically examined by a team medical provider.

(4) “Team Coordinator” – the person in charge of managing the day to day operation of a Child Protection Team.

(5) “Telemedicine” – the use of telecommunication and information technology to provide clinical care to individuals at a distance and to transmit the information needed to provide that care.

Rulemaking Authority 39.3031 FS. Law Implemented 39.303 FS. History–New 3-2-93, Amended 5-7-96, Formerly 10J-10.002, 65C-7.001, Amended 4-30-08, 12-2-15.
64C-8.003 Child Protection Team Services.

(1) A Child Protection Team physician or Advanced Registered Nurse Practitioner and a case coordinator must be available 24 hours a day, seven days a week for consultation. On-site services will be provided as deemed necessary for child safety.

(2) Child Protection Team services are provided in cases of suspected abuse or neglect without regard to income. All children, reported as being abused or neglected by an adult caretaker and accepted by the Florida Abuse Hotline for protective investigation, are eligible for Child Protection Team services.

(3) Medical diagnosis and evaluation can be conducted in person or through the use of telemedicine technology. Use of telemedicine requires the presence of a CMS approved physician or Advanced Registered Nurse Practitioner at the hub site and a Registered Nurse at the remote site to facilitate the evaluation.

Rulemaking Authority 39.3031 FS. Law Implemented 39.303 FS. History—New 3-2-93, Amended 5-7-96, Formerly 10J-10.007, 65C-7.003, Amended 4-30-08, 12-2-15.
64B8-9.0141 Standards for Telemedicine Practice.

(1) “Telemedicine” means the practice of medicine by a licensed Florida physician or physician assistant where patient care, treatment, or services are provided through the use of medical information exchanged from one site to another via electronic communications. Telemedicine shall not include the provision of health care services only through an audio only telephone, email messages, text messages, facsimile transmission, U.S. Mail or other parcel service, or any combination thereof.

(2) The standard of care, as defined in Section 456.50(1)(e), F.S., shall remain the same regardless of whether a Florida licensed physician or physician assistant provides health care services in person or by telemedicine.

(3) Florida licensed physicians and physician assistants providing health care services by telemedicine are responsible for the quality of the equipment and technology employed and are responsible for their safe use. Telemedicine equipment and technology must be able to provide, at a minimum, the same information to the physician and physician assistant which will enable them to meet or exceed the prevailing standard of care for the practice of medicine.

(4) Controlled substances shall not be prescribed through the use of telemedicine except for the treatment of psychiatric disorders. This provision does not preclude physicians or physician assistants from ordering controlled substances through the use of telemedicine for patients hospitalized in a facility licensed pursuant to Chapter 395, F.S.

(5) Prescribing medications based solely on an electronic medical questionnaire constitutes the failure to practice medicine with that level of care, skill, and treatment which is recognized by reasonably prudent physicians as being acceptable under similar conditions and circumstances, as well as prescribing legend drugs other than in the course of a physician’s professional practice.

(6) Physicians and physician assistants shall not provide treatment recommendations, including issuing a prescription, via electronic or other means, unless the following elements have been met:

   (a) A documented patient evaluation, including history and physical examination to establish the diagnosis for which any legend drug is prescribed.

   (b) Discussion between the physician or the physician assistant and the patient regarding treatment options and the risks and benefits of treatment.

   (c) Maintenance of contemporaneous medical records meeting the requirements of Rule 64B8-9.003, F.A.C.

(7) The practice of medicine by telemedicine does not alter any obligation of the physician or the physician assistant regarding patient confidentiality or recordkeeping.

(8) A physician-patient relationship may be established through telemedicine.

(9)(a) Nothing contained in this rule shall prohibit consultations between physicians or the transmission and review of digital images, pathology specimens, test results, or other medical data by physicians or other qualified providers related to the care of Florida patients.

   (b) This rule does not apply to emergency medical services provided by emergency physicians, emergency medical technicians (EMTs), paramedics, and emergency dispatchers. Emergency medical services are those activities or services to prevent or treat a sudden critical illness or injury and to provide emergency medical care and prehospital emergency medical transportation to sick, injured, or otherwise incapacitated persons in this state.

   (c) The provisions of this rule shall not apply where a physician or physician assistant is treating a patient with an emergency medical condition that requires immediate medical care. An emergency medical condition is a medical condition manifesting itself by acute symptoms of sufficient severity that the absence of immediate medical attention will result in serious jeopardy to patient health, serious impairment to bodily functions, or serious dysfunction of a body organ or part.

   (d) The provisions of this rule shall not be construed to prohibit patient care in consultation with another physician who has an ongoing relationship with the patient, and who has agreed to supervise the patient’s treatment, including the use of any prescribed medications, nor on-call or cross-coverage situations in which the physician has access to patient records.

Rulemaking Authority 458.331(1)(v) FS. Law Implemented 458.331(1)(v), 458.347(4)(g) FS. History—New 3-12-14, Amended 7-22-14, 10-26-14, 3-7-16.
458.331 Grounds for disciplinary action; action by the board and department.—
(1) The following acts constitute grounds for denial of a license or disciplinary action, as specified in s. 456.072(2):
(v) Practicing or offering to practice beyond the scope permitted by law or accepting and performing professional responsibilities which the licensee knows or has reason to know that he or she is not competent to perform. The board may establish by rule standards of practice and standards of care for particular practice settings, including, but not limited to, education and training, equipment and supplies, medications including anesthetics, assistance of and delegation to other personnel, transfer agreements, sterilization, records, performance of complex or multiple procedures, informed consent, and policy and procedure manuals.
Florida Statutes

Chapter 458 Medical Practice

458.331  Grounds for disciplinary action; action by the board and department.—

(1)  The following acts constitute grounds for denial of a license or disciplinary action, as specified in s. 456.072(2):

(v)  Practicing or offering to practice beyond the scope permitted by law or accepting and performing professional responsibilities which the licensee knows or has reason to know that he or she is not competent to perform. The board may establish by rule standards of practice and standards of care for particular practice settings, including, but not limited to, education and training, equipment and supplies, medications including anesthetics, assistance of and delegation to other personnel, transfer agreements, sterilization, records, performance of complex or multiple procedures, informed consent, and policy and procedure manuals.
64B15-14.0081 Standards for Telemedicine Practice.

(1) “Telemedicine” means the practice of medicine by a licensed Florida physician or physician assistant where patient care, treatment, or services are provided through the use of medical information exchanged from one site to another via electronic communications. Telemedicine shall not include the provision of health care services only through an audio only telephone, email messages, text messages, facsimile transmission, U.S. Mail or other parcel service, or any combination thereof.

(2) The standard of care, as defined in Section 456.50(1)(e), F.S., shall remain the same regardless of whether a Florida licensed physician or physician assistant provides health care services in person or by telemedicine.

(3) Florida licensed physicians and physician assistants providing health care services by telemedicine are responsible for the quality of the equipment and technology employed and are responsible for their safe use. Telemedicine equipment and technology must be able to provide, at a minimum, the same information to the physician and physician assistant which will enable them to meet or exceed the prevailing standard of care for the practice of medicine.

(4) Controlled substances shall not be prescribed through the use of telemedicine except for the treatment of psychiatric disorders. This provision does not preclude physicians or physician assistants from ordering controlled substances through the use of telemedicine for patients hospitalized in a facility licensed pursuant to Chapter 395, F.S.

(5) Prescribing medications based solely on an electronic medical questionnaire constitutes the failure to practice medicine with that level of care, skill, and treatment which is recognized by reasonably prudent physicians as being acceptable under similar conditions and circumstances, as well as prescribing legend drugs other than in the course of a physician’s professional practice.

(6) Physicians and physician assistants shall not provide treatment recommendations, including issuing a prescription, via electronic or other means, unless the following elements have been met:

(a) A documented patient evaluation, including history and physical examination to establish the diagnosis for which any legend drug is prescribed.

(b) Discussion between the physician or the physician assistant and the patient regarding treatment options and the risks and benefits of treatment.

(c) Maintenance of contemporaneous medical records meeting the requirements of Rule 64B15-15.004, F.A.C.

(7) The practice of medicine by telemedicine does not alter any obligation of the physician or the physician assistant regarding patient confidentiality or recordkeeping.

(8) A physician-patient relationship may be established through telemedicine.

(9)(a) Nothing contained in this rule shall prohibit consultations between physicians or the transmission and review of digital images, pathology specimens, test results, or other medical data by physicians or other qualified providers related to the care of Florida patients.

(b) This rule does not apply to emergency medical services provided by emergency physicians, emergency medical technicians (EMTs), paramedics, and emergency dispatchers. Emergency medical services are those activities or services to prevent or treat a sudden critical illness or injury and to provide emergency medical care and prehospital emergency medical transportation to sick, injured, or otherwise incapacitated persons in this state.

(c) The provisions of this rule shall not apply where a physician or physician assistant is treating a patient with an emergency medical condition that requires immediate medical care. An emergency medical condition is a medical condition manifesting itself by acute symptoms of sufficient severity that the absence of immediate medical attention will result in serious jeopardy to patient health, serious impairment to bodily functions, or serious dysfunction of a body organ or part.

(d) The provisions of this rule shall not be construed to prohibit patient care in consultation with another physician who has an ongoing relationship with the patient, and who has agreed to supervise the patient’s treatment, including the use of any prescribed medications, nor on-call or cross-coverage situations in which the physician has access to patient records.

Rulemaking Authority 459.015(1)(z) FS. Law Implemented 459.015(1)(c), 459.022(4)(f) FS. History—New 3-12-14, Amended 7-22-14, 12-9-14, 5-24-16.
Florida Statutes

Chapter 459 Osteopathic Medicine

459.015 Grounds for disciplinary action; action by the board and department.—

(1) The following acts constitute grounds for denial of a license or disciplinary action, as specified in s. 456.072(2):

(z) Practicing or offering to practice beyond the scope permitted by law or accepting and performing professional responsibilities which the licensee knows or has reason to know that he or she is not competent to perform. The board may establish by rule standards of practice and standards of care for particular practice settings, including, but not limited to, education and training, equipment and supplies, medications including anesthetics, assistance of and delegation to other personnel, transfer agreements, sterilization, records, performance of complex or multiple procedures, informed consent, and policy and procedure manuals.
<table>
<thead>
<tr>
<th>Regulatory Board</th>
<th>Petitioner</th>
<th>Final Order/Date</th>
<th>Petition General Request*</th>
<th>Board General Response*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine</td>
<td>Daubert</td>
<td>Aug 2013</td>
<td>A Florida licensed physician (ophthalmologist) inquires as to whether his proposed usage of technology to conduct remote eye exams to increase access to refractions and eye exams for Florida residents would be in compliance with Section 458.3485, FS, Rule 64B8-9.014, FAC, and Rule 64B8-9.003, FAC.</td>
<td>The Board declined to issue a declaratory statement in response to Dr. Daubert's petition on the basis that the Board was presented with insufficient information to make an Informed determination.</td>
</tr>
<tr>
<td>Medicine</td>
<td>Garcia</td>
<td>Feb 2014</td>
<td>A Florida licensed physician inquires about treatment provided via telehealth to patients in rural areas at American Care clinics five days per week and after hour in some locations. Telemedicine would only be available to existing clinic patients who have been seen personally by a clinic medical provider prior to the telemedicine visit. The telemedicine provider must be a member of the American Care practice or an American Care on-call covering practice physician who is licensed in Florida and resides in Florida. The provider, however, may be at another clinic location other than the telemedicine patient location. The provider will have access to the patient's electronic medical record. Petitioner's proposed practice plan as set forth in Petition does not reveal any practices that would violate Rule 64B8-9.014. It is important to note, however, that the standard of care remains the same regardless of whether the physician provides medical services in person or via telemedicine. It is the treating physician's responsibility to assure that the technology employed will provide him or her with sufficient data and information that will enable him or her to provide medical services within the current standard of care.'</td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>Arnovitz</td>
<td>Nov 2016 DOH-16-2185**</td>
<td>Petitioner inquires whether he may provide services to patients located in Florida from his Ohio practice locations through audio and video communications.</td>
<td>The Board finds there is no prohibition against providing advanced practice nursing services by audio or video communications if those services are provided in compliance with acceptable and prevailing nursing practice.</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>Mollin</td>
<td>Aug 2014</td>
<td>The Petitioner is requesting a Declaratory Statement regarding Section 486.021(11), F.S., seeking the Board's interpretation of whether the &quot;practice of physical therapy,&quot; as defined by Section 486.021(11), F.S., includes practice through Telehealth, which the Petitioner defines as &quot;physical therapy assessments and treatments through the use of electronic information and telecommunications technologies.&quot; After discussion, the Board determined that Petitioner is not a &quot;substantially affected person&quot; as that term is used in Section 120.542, F.S., since he is not currently licensed, nor is he currently seeking licensure, as a physical therapist in Florida. Furthermore, the Board finds that the Petitioner has failed to allege any facts and circumstances unique to Petitioner's particular circumstances, rather than...</td>
<td></td>
</tr>
<tr>
<td>Regulatory Board</td>
<td>Petitioner</td>
<td>Final Order/Date</td>
<td>Petition General Request*</td>
<td>Board General Response*</td>
</tr>
<tr>
<td>------------------</td>
<td>------------</td>
<td>------------------</td>
<td>--------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Psychology</td>
<td>Dielman</td>
<td>Jun 2006</td>
<td>Petitioner asks whether treating patients who are physically located in Ohio by telecommunications, including telephone sessions, e-mails, and video conferencing, while he is physically located in Florida, constitutes the practice of psychology in Florida requiring Florida licensure</td>
<td>The Board answered the question in the affirmative. The psychological treatment of patients who are physically located in Ohio by telecommunications, including telephone sessions, e-mails, and video conferencing, by a psychologist physically located in Florida, constitutes the practice of psychology in Florida requiring Florida licensure.</td>
</tr>
<tr>
<td>Psychology</td>
<td>Sobin</td>
<td>Apr 2013</td>
<td>Petitioner asks whether treating long-term patients located in New Hampshire by videoconference or by telephone, once he moves to Florida and has obtained a Florida License to practice psychology is acceptable under the scope of practice of a clinical psychologist in Florida. He noted approval from the New Hampshire Board of Psychology.</td>
<td>Based the facts set forth in the Petition, and being otherwise advised in the premises, the Board answers this particular question in the affirmative.</td>
</tr>
<tr>
<td>Psychology</td>
<td>Wetherby</td>
<td>Feb 2015</td>
<td>Petitioner primary issue pursuant to Section 490.003(4)(a), FS, is whether the Petitioner is allowed to continue to treat her established patients as well as new patients by videoconference or by telephone from her office in California and/or Florida, in a private setting. Furthermore, Petitioner will maintain her Florida license and has applied for licensure in California. Petitioner has also arranged clinician who can provide local backup should backup be necessary.</td>
<td>Based the facts set forth in the Petition, and being otherwise advised in the premises, the Board answers this particular question above in the affirmative.</td>
</tr>
</tbody>
</table>

*Excerpts from Petitions for Declaratory Statement Final Orders and/or Attachments

**Could not download from Department of Administrative Hearings website. Final order and petition can be reviewed online https://www.doah.state.fl.us/FLAIO/
STATE OF FLORIDA
BOARD OF MEDICINE

IN RE: PETITION FOR DECLARATORY STATEMENT OF

JACK DAUBERT, M.D., F.A.C.S.

FINAL ORDER

This matter came before the Board of Medicine (hereinafter the Board) on June 7, 2013, in Tampa, Florida, for consideration of the above-referenced Petition for Declaratory Statement. The Notice of Petition for Declaratory Statement was published on May 7, 2013, in Vol. 39, No. 89, in the Florida Administrative Register. Petitioner made a personal appearance before the Board and was represented by Alexis Gilroy Esq., who appeared on behalf of the Petitioner as his qualified representative.

Dr. Daubert, a Florida licensed physician and ophthalmologist, inquires as to whether his proposed usage of technology to conduct remote eye exams to increase access to refractions and eye exams for Florida residents would be in compliance with Section 458.3485, Florida Statutes, Rule 64B8-9.014, Florida Administrative Code, and Rule 64B8-9.003, Florida Administrative Code.

FINDINGS OF FACTS

1. The facts set forth in Petitioner Daubert’s petition and attachments are hereby adopted and incorporated herein by reference as the findings of fact by the Board.

CONCLUSIONS OF LAW

1. The Board of Medicine has authority to issue this Final Order pursuant to Section 120.565, Florida Statutes, and Rule 28-105, Florida Administrative Code.
2. The Petition filed in this cause is in substantial compliance with the provisions of 120.565, Florida Statutes, and Rule 28-105.002, Florida Administrative Code.

3. Section 120.565, Florida Statutes, reads as follows:

120.565. Declaratory statement by agencies

(1) Any substantially affected person may seek a declaratory statement regarding an agency's opinion as to the applicability of a statutory provision, or of any rule or order of the agency, as it applies to the petitioner's particular set of circumstances.

(2) The petition seeking a declaratory statement shall state with particularity the petitioner's set of circumstances and shall specify the statutory provision, rule, or order that the petitioner believes may apply to the set of circumstances.

(3) The agency shall give notice of the filing of each petition in the next available issue of the Florida Administrative Weekly and transmit copies of each petition to the committee. The agency shall issue a declaratory statement or deny the petition within 90 days after the filing of the petition. The declaratory statement or denial of the petition shall be noticed in the next available issue of the Florida Administrative Weekly. Agency disposition of petitions shall be final agency action.

4. Rule 28-105.001, Florida Administrative Code, reads as follows:

A declaratory statement is a means for resolving a controversy or answering questions or doubts concerning the applicability of statutory provisions, rules, or orders over which the agency has authority. A petition for declaratory statement may be used only to resolve questions or doubts as to how the statutes, rules, or orders may apply to the petitioner's particular circumstances. A declaratory statement is not the appropriate means for determining the conduct of another person or for obtaining a policy statement of general applicability from an agency.

5. The Board declines to issue a declaratory statement in response to Dr. Daubert's petition on the basis that the Board was presented with insufficient information to make an informed determination.

6. The issuance of this order does not preclude the Petitioner from filing an amended or new petition providing additional or more detailed data and information.
DONE AND ORDERED this ______ day of __________, 2013.

BOARD OF MEDICINE

Allison M. Dudley, J.B., Executive Director
For Zachariah P. Zachariah, M.D., Chair
VIA OVERNIGHT CARRIER

Florida Department of Health
Office of Agency Clerk
ATTN: Crystal Sanford
4052 Bald Cypress Way
Bin# A02
Tallahassee, FL 32399-1703

IN RE: PETITION FOR DECLARATORY STATEMENT
OF JACK DAUBERT, M.D., F.A.C.S.

1. Petitioner Jack Daubert, M.D., F.A.C.S., a Florida-licensed ophthalmologist with an address of 1050 SE Monterey Rd. Suite 104, Stuart, FL 34994, (772) 283-2020 (telephone), plans, as a method of increasing access to refractions and eye exams for Florida residents, to perform examinations (A) from a location remote to an eye patient located in Florida, (B) using automated refraction and eye imaging technology operated by a technician specially trained in the use of the automated technology (each an “Automated Technology Technician”), (C) deployed in a real-time (synchronous) manner, while the eye patient located in Florida receives on-site disclosures, consent materials, and general assistance from an attendant trained in the use of the automated technology (the “Remote Exams”).


3. Petitioner seeks a declaratory statement from the Florida Department of Health, Board of Medicine, with regard to Section 458.3485 of the Florida Statutes and Section 64B8-9.014 of the Florida Administrative Code, as they pertain to the proposed Remote Exams. The term “Petitioner,” as used below to describe the Remote Exams includes Petitioner, Jack Daubert, M.D., F.A.C.S., individually, and/or, as applicable, Petitioner’s employed or contracted ophthalmologists working in collaboration with or at the direction of Petitioner regarding the Remote Exams.

4. Petitioner intends to conduct the Remote Exams using technology specially designed for refractions and eye health examinations, including (1) for the refraction portion of the Remote Exam, an automated objective and subjective refraction technology developed by Eyelogic System, Inc. and (2) as to the eye health evaluation, applicable FDA-approved instruments such as Optovue’s anterior and posterior ocular coherence tomography instruments paired with fundus photography for the real-time capture of digital images.
NOTICE OF APPEAL RIGHTS

Pursuant to Section 120.569, Florida Statutes, Respondents are hereby notified that they may appeal this Final Order by filing one copy of a notice of appeal with the Clerk of the Department of Health and the filing fee and one copy of a notice of appeal with the District Court of Appeal within 30 days of the date this Final Order is filed.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by U. S. Mail to: Jack Daubert, M.D., 1050 SE Monterey Road, Suite 104, Stuart, Florida 34994; by email to: Edward A. Tellechea, Chief Assistant Attorney General, PL-01 The Capitol, Tallahassee, Florida 3239-1050, ed.tellechea@myfloridalegal.com; Jennifer Tschetter, General Counsel, Department of Health, 4052 Bald Cypress Way, BIN A02, Tallahassee, Florida 32399-1703, Jennifer_Tschetter@doh.state.fl.us; and Alexis Gilroy, Esq., Nelson Mullins Riley & Scarborough LLP, 101 Constitution Avenue, NW, Suite 900, Washington, DC, 20001, Alexis.Gilroy@nelsonmullins.com on this 13th day of August, 2013.

Deputy Agency Clerk

28356
5. Each Remote Exam will include a vision test to determine optical or refractive eye aberrations for evaluating the refraction error of the eye and to provide for a prescription (power formula specifications) of refractive lenses, as applicable, to adjust for the refractive error given applicable results. As requested by the patient, certain Remote Exams would also involve a non-invasive (e.g. no use of eye drops) comprehensive eye health exam whereby state of the art auto-focus, auto-tracking, auto-imaging and other FDA approved technology and instruments are used to test eye tissue health, intraocular pressure, depth perception, color vision, pupil reflexes, muscle balance, and visual fields of the patient's eyes. The results of all tests will be transmitted instantaneously to Petitioner for immediate review. The patient then receives the results of the assessments in real-time.

6. Petitioner plans to implement the Remote Exams by placing equipment for conducting the Remote Exams, in a separately designated and exclusive exam area, within other health care and medical related facilities such as optical dispensaries, primary care offices, and ophthalmology practices. The exam area will contain the equipment described above for the Remote Exams and will include real-time audio and video technology enabling simultaneous connection with the Petitioner and the Automated Technology Technicians.

7. The exam room will be attended by an onsite attendant trained and supervised by Petitioner in the use, function, and patient care practices related to the Remote Exams. Such on-site attendant will obtain signed forms such as HIPAA authorizations and informed patient consents for inclusion in the medical chart of the patient, direct the patient to the equipment and clean the equipment after each use.

8. Upon entering the exam room, the patient will view an instructional and informational video developed by Petitioner explaining the Remote Exams, including the risks and benefits of such exams and related prescriptions for refractive lenses. This video will be pre-recorded by Petitioner.

9. Following the video, the patient will be greeted by the Automated Technology Technician via real-time audio and video technology in order to obtain appropriate patient history data and guide and instruct the patient through the Remote Exam. The video and audio in the exam room will be transmitted between the patient and the Automated Technology Technician through synchronous video and audio feed. In the event that the Remote Exam also involves a comprehensive eye health exam, the captured measurements and images will be transmitted and reviewed in real-time by Petitioner. The results of that assessment (i.e. whether the eyes are healthy, clear and normal or require further evaluation by an in-person ophthalmologist or other professional) will be conveyed to the patient via pre-recorded real-time audio and video messages from Petitioner. In the event a patient has any questions or other concerns to address with Petitioner, at any time, before, during, and after the Remote Exam, the Petitioner will be made available for a live, synchronous, audio and/or video conversation.

10. The Petitioner intends to maintain an office in the State of Florida that will house the Automated Technology Technicians, as well as a call center to facilitate the performance of the Remote Exams, thus the Petitioner and the Automated Technology Technicians will be physically located in the same facility (the "Petitioner Location"). As such, Petitioner will provide real-time direct supervision of the Automated Technology Technicians during the performance of each Remote Exam.

11. Petitioner will only issue prescriptions for refractive lenses, as needed, based on the results of the Remote Exam. Petitioner would not dispense or fit eyeglasses or contact lenses. No prescriptions would be issued for any treatments, legend drugs or devices based on the eye health portion of the Remote Exam. Should the eye health portion of the Remote Exam result in a finding that is adverse for the patient, the Petitioner will refer such patient to the applicable local ophthalmologist, primary care physician or other local physician of their choice for further evaluation.
12. Under F.S. §458.3485, medical assistants may perform certain duties under the direct supervision of a licensed physician, including, for example, assisting with patient care management, executing administrative and clinical procedures, and performing managerial and supervisory functions. Direct supervision is defined as requiring "the physical presence of the supervising licensee on the premises so that the supervising licensee is reasonably available as needed ..." See, Florida Administrative Code §64B8-2.001. Petitioner believes that the proposed model for the Remote Exams meets the direct supervision requirement because all of the functions performed by the Automated Technology Technician will be taken under the direct supervision of Petitioner while the Automated Technology Technician is located on the same premises as Petitioner.

13. Because the attendant on-site with the patient undergoing the Remote Exam will not be a licensee and will not act as a medical assistant, Petitioner believes that such individual would not be subject to the "direct supervision" of Petitioner. Notwithstanding, Petitioner will provide a general level of supervision as Petitioner will be available via real-time technology to answer any questions that the on-site attendant may have and to direct the duties and tasks performed by the on-site attendant, as necessary.

14. The Florida Department of Health has issued standards for prescribing in connection with the provision of remote care (telemedicine), but no specific guidelines or standards for the general use of technology in connection with the remote provision of healthcare services. See, Florida Administrative Code §64B8-9.014(2). The subject guidance only appears to contemplate the prescribing of legend drugs via electronic means, which Petitioner believes to be inapplicable to the proposed activities conducted in connection with the Remote Exams. Notwithstanding, contemporaneous with the performance of the Remote Exams, Petitioner plans to ensure that: (1) a documented patient evaluation, including history and physical examination necessary for the Remote Exam will be performed by the Automated Technology Technician under the direct supervision of the Petitioner, (2) Petitioner will be available for direct patient questions at all times throughout the Remote Exam; and (3) contemporaneous medical records are maintained in compliance with 64B8-9.003 F.A.C. Further, Petitioner expects that the equipment for the performance of the Remote Exams will be proximately located within other healthcare facilities such as optical dispensaries, primary care offices, and ophthalmology practices to provide overall ease of access to additional on-site professionals and licensees as needed.

15. Petitioner believes that the proposed Remote Exams are appropriately and narrowly structured to comply with applicable Florida laws and regulations. Given the innovative and novel use of technology to provide access to refractive and eye health examinations, Petitioner seeks the guidance of the Board of Medicine in connection with the implementation of the proposed business model.

16. Petitioner would be happy to further discuss or make available a demonstration of the proposed Remote Exams to the Board of Medicine at its next available meeting should the Board so desire. A copy of Petitioner's Curriculum Vitae is also attached for the Board's reference.

PETITIONER:

[Signature]

Jane E. Bennett, M.D., F.A.C.S.
Jack Steven Daubert, M.D., F.A.C.S.
Curriculum Vitae

Medical Offices
1050 SE Monterey Rd.  550 Heritage Drive  1515 N. Flagler Drive  1715 SE Tiffany Ave.
Stuart, FL 34994  Suite 105  Suite 500  Port St, Lucie FL 33458
(772) 283-2020  (561) 839-2780  (561) 659-9700

Board Certifications
July 1991  Diplomat, American Board of Ophthalmology
July 1986  Diplomat, National Board of Medical Examiners

Education
1981 – 1985  Jefferson Medical College
            Philadelphia, PA
            Degree: M.D.
1977 – 1981  Pennsylvania State University, Pennsylvania
            Graduate:  Summa Cum Laude
            Phi Beta Kappa
            Degree: Bachelor of Science

Post Doctoral Training
            Retina Associates
            Boston, Massachusetts
1985 – 1986  Surgical Internship
            Washington Hospital Center
            Washington, D.C.
1986 – 1989  Ophthalmology Residency
            Washington Hospital Center
            Washington National Eye Center
            Washington, D.C.
1989 – 1990  Palm Beach Eye Clinic
            130 Butler Street
            West Palm Beach, FL
1988 – 1989  Chief Ophthalmology Resident
            Washington Hospital Center
            Washington National Eye Center
            Washington, D.C.
1992 – Present  Florida Vision Institute
               Self-employed
Awards and Honors
2012  Top Doctor Award – Castle Connolly Medical, Ltd.
2011  Top Doctor Award – Castle Connolly Medical, Ltd.
2010  Top Doctor Award – Castle Connolly Medical, Ltd.
2009  Top Doctor Award – Castle Connolly Medical, Ltd.
2008  Top Doctor Award – Castle Connolly Medical, Ltd.
2007  Top Doctor Award – Castle Connolly Medical, Ltd.
1989  Davis Cup Recipient for outstanding Scientific Research & Presentation
      Washington National Eye Center
1988  Davis Cup Recipient for outstanding Scientific Research and Presentation
      Washington National Eye Center
      + Muller Memorial Award in Ophthalmology
      + Graduated Summa Cum Laude
      + Phi Beta Kappa
      + Who's Who Among Students in American Universities?

Professional Membership
Fellow American Academy of Ophthalmology
Fellow American College of Surgeons
American College of Surgeons
Florida Society of Ophthalmology
Florida Medical Society
Palm Beach Ophthalmology Society
Palm Beach Medical Society
American Society of Cataract & Refractive Surgery

Medical Licensure
Florida
Pennsylvania

Appointments
Attending Staff  Good Samaritan Hospital
                 West Palm Beach, FL.
Attending Staff  Martin Memorial Medical Center
                 Stuart, FL.
Attending Staff  Palm Beach Gardens Medical Center
                 Palm Beach Gardens, FL.
Attending Staff  Jupiter Medical Center
                 Jupiter, FL.
Publications and Original Reports
Daubert, J; El-choufi, L; Stephens, R:
Laser Treatment of Subfoveal Choroidal Neovascular Membranes

Stephens, R; Daubert, J; El-choufi, L:
Visual Improvement after Four Laser Treatments To Foveola for Choroidal Neovascular Membrane
Ophthalmic Surgery 1991; 22: 470-474

Daubert, J; Nik, N; Chandeyssoun, PA; El-choufi, L:
Tear Flow Analysis Through the Upper and Lower Systems

Daubert, J; Bernanrdino, V
Conjunctival Nevi, Review of 350 cases
Wills Eye Hospital 1985

Clinical Trials
2009/10 Sub-Investigator, Genentech, FVF4168g, A Phase III, Double-Masked, Multi-Center, Randomized, Sham-Controlled Study of the Efficacy and Safety of Ranibizumab Injection in Subjects with Clinically Significant Macular Edema with Center Involvement Secondary to Diabetes Mellitus

2009/10 Sub-Investigator, Regeneron Pharmaceuticals, Study VGFT-OD-0605 Version VGFT-OD-0605.1 A Randomized, Double Masked, Active Controlled Phase III Study of the Efficacy, Safety, and Tolerability of repeated Doses of Intravitreal VEGF Trap in Subjects with Neovascular Age-Related Macular Degeneration.

2008/09 Sub-Investigator, Genentech, FVF4165g, A Phase III, Double-Masked, Multi-Center, Randomized, Sham-Controlled Study of the Efficacy and Safety of Ranibizumab Injection Compared with Sham in Subjects with Macular Edema Secondary to Branch Retinal Vein Occlusion.

2008/09 Sub-Investigator, Genentech, FVF4166g, A Phase III, Double-Masked, Multi-Center, Randomized, Sham-Controlled Study of the Efficacy and Safety of Ranibizumab Injection Compared with Sham in Subjects with Macular Edema Secondary to Central Retinal Vein Occlusion.

IN RE: PETITION FOR DECLARATORY STATEMENT OF
JOSE E. GARCIA, M.D.

FINAL ORDER ON PETITIONS FOR DECLARATORY STATEMENT

This matter came before the Board of Medicine (hereinafter the “Board”) on December 6, 2013, in Orlando, Florida, for consideration of two Petitions for Declaratory Statement (attached hereto as exhibits A and B). The Notices of Petition for Declaratory Statements were published on July 9, 2013, in the Vol. 39, No. 132, in the Florida Administrative Register.

The petitioner, Jose E. Garcia, M.D., originally filed two petitions that generally inquire as to whether his proposed telemedicine practice plans comply with Rule 64B8-9.014, Florida Administrative Code. The first petition (hereinafter referred to as Petition A) inquires as to the propriety of his telemedicine practice for after hour care. The second petition (hereinafter referred to as Petition B) addresses the propriety of his telemedicine practice for patients located in rural areas. On August 27, 2013, the Petitioner filed a consolidated Petition for Declaratory Statement (hereinafter referred to as Petition C) that addressed both issues and clarified some of the issues regarding the use of non-physician healthcare practitioners. This final order shall be responsive to Petition C.

FINDINGS OF FACTS

The facts set forth in Petitioner Garcia’s Petition C and attachments are hereby adopted and incorporated herein by reference as the findings of fact by the Board.
CONCLUSIONS OF LAW

1. The Board of Medicine has authority to issue this Final Order pursuant to Section 120.565, Florida Statutes, and Rule 28-105, Florida Administrative Code.

2. The Petitions filed in this cause is are substantial compliance with the provisions of 120.565, Florida Statutes, and Rule 28-105.002, Florida Administrative Code.

3. For purposes of determining standing in this matter, the individual Petitioner, an allopathic physicians licensed pursuant to Chapter 458, Florida Statutes, is a substantially affected person due to the fact that his failure to comply with Rule 64B8-9.014, Florida Administrative Code, may result in disciplinary action by the Board.

4. Rule 64B8-9.014, Florida Administrative Code, reads as follows:

64B8-9.014 Standards for Telemedicine Prescribing Practice.

(1) Prescribing medications based solely on an electronic medical questionnaire constitutes the failure to practice medicine with that level of care, skill, and treatment which is recognized by reasonably prudent physicians as being acceptable under similar conditions and circumstances, as well as prescribing legend drugs other than in the course of a physician’s professional practice.

(2) Physicians and physician assistants shall not provide treatment recommendations, including issuing a prescription, via electronic or other means, unless the following elements have been met:

(a) A documented patient evaluation, including history and physical examination to establish the diagnosis for which any legend drug is prescribed.

(b) Discussion between the physician or the physician assistant and the patient regarding treatment options and the risks and benefits of treatment.

(c) Maintenance of contemporaneous medical records meeting the requirements of Rule 64B8-9.003, F.A.C.

(3) The provisions of this rule are not applicable in an emergency situation. For purposes of this rule an emergency situation means those situations in which the prescribing physician or physician assistant determines that the immediate administration of the medication is necessary for the proper treatment of the patient, and that it is not reasonably possible for the prescribing physician or physician assistant to comply with the provision of this rule prior to providing such prescription.

(4) The provisions of this rule shall not be construed to prohibit patient care in consultation with another physician who has an ongoing relationship with the patient, and who has agreed to supervise the patient’s treatment, including the use of any prescribed medications, nor on-call or cross-coverage situations in which the physician has access to patient records.
(5) For purposes of this rule, the term “telemedicine” shall include, but is not limited to, prescribing legend drugs to patients through the following modes of communication:
(a) Internet;
(b) Telephone; and
(c) Facsimile.

5. The above-referenced rule clarifies that providing treatment recommendations, including the prescribing of legend drugs, based solely on electronic medical questionnaires is not in compliance with the standard of care and precluded by law. Rule 64B8-9.014 does not set forth a blanket prohibition on the use of telemedicine technology to provide medical care to patients.

6. Petitioner's proposed practice plan as set forth in Petition C does not reveal any practices that would violate Rule 64B8-9.014. It is important to note, however, that the standard of care remains the same regardless of whether the physician provides medical services in person or via telemedicine. It is the treating physician's responsibility to assure that the technology employed will provide him or her with sufficient data and information that will enable him or her to provide medical services within the current standard of care.¹

7. The Board's response to this Petition addresses solely the question propounded by the Petitioner and only addresses issues regarding the practice of medicine. The Board's conclusion is based solely on the Board's application of the factual circumstances outlined in the Petition to the pertinent statutory and rule provisions set forth above.

This Final Order shall become effective upon filing with the Clerk of the Department of Health.
DONE AND ORDERED this 14th day of February, 2014.

BOARD OF MEDICINE

Allison M. Dudley, J.D., Executive Director
For Nabil El Sanadi, M.D., Chair

NOTICE OF APPEAL RIGHTS

Pursuant to Section 120.569, Florida Statutes, Respondents are hereby notified that they may appeal this Final Order by filing one copy of a notice of appeal with the Clerk of the Department of Health and the filing fee and one copy of a notice of appeal with the District Court of Appeal within 30 days of the date this Final Order is filed.

1 The Board of Medicine believes that prescribing controlled substances via telemedicine is precluded by the current standard of care.
CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by U. S. Mail to: Cynthia S. Tunnicliff, Esq. and Brian A. Newman, Esq., Pennington, P.A., 215 South Monroe Street, Second Floor (32301), Post Office Box 10095, Tallahassee, Florida 32302-2095; and by email transmission to Edward A. Tellechea, Chief Assistant Attorney General, PL-01 The Capitol, Tallahassee, Florida 3239-1050, ed.tellechea@myfloridalegal.com; and Jennifer Tschetter, General Counsel, Department of Health, 4052 Bald Cypress Way, BIN A02, Tallahassee, Florida 32399-1703, jennifer.tschetter@doh.state.fl.us; on this 17th day of February, 2014.

______________________________
Deputy Agency Clerk

Angel Sardes
IN RE:
Petition of Jose E. Garcia, M.D.  Case No. ____________

PETITION FOR DECLARATORY STATEMENT

Jose E. Garcia, M.D. petitions pursuant to Section 120.565, Florida Statutes, for a Declaratory Statement seeking a determination as to the applicability of Florida Administrative Code Rule 64B8-9.014, implementing section 458.331(1)(q), (t), and (v), Florida Statutes, to a proposed telemedicine program, stating:

1. Petitioner is Jose E. Garcia, M.D., an internal medicine physician licensed in Florida. Dr. Garcia is the President and Chief Executive Officer of American Care, Inc. ("American Care"). American Care offers services to patients through employed physicians, nurse practitioners and other licensed professionals. The majority of American Care's patients are insured by Medicaid.

2. For the purposes of this Petition, Petitioner's address is that of his undersigned counsel.

PETITIONER'S STANDING

3. American care operates clinics in Florida, some of which operate in rural areas. At these locations, a medical care provider is available to see patients in the office one or two days per week. Petitioner is proposing to provide medical care in rural areas.
areas through the telemedicine program outlined in this Petition five days per week during normal business hours and after normal clinic in other locations.

4. Petitioner seeks a declaration that Rule 64B8-9.014, Florida Administrative Code, does not prohibit him from utilizing telemedicine technology to provide medical care to patients in his clinics as set forth in this Petition. Rule 64B8-9.014 regulates the delivery of health care by physicians who utilize telemedicine technology. Accordingly, Petitioner has standing to seek a declaratory statement under Section 120.565, Florida Statutes.

STATEMENT OF FACTS AND LAW

5. Petitioner and American Care employ physicians and nurse practitioners to deliver health care to patients in a clinic setting. All American care providers must meet the credentialing requirements of American Care. Some American Care clinics operate in rural areas in the State of Florida that are not open to the public five days per week. Petitioner desires to implement a telemedicine program that will enable patients in these rural areas to access medical care five days per week, and after hours in other locations.

6. Telemedicine would only be available to existing clinic patients who have been seen personally by a clinic medical provider prior to the telemedicine visit. The telemedicine provider must be a member of the American Care practice or an American Care on-call covering practice physician who is licensed in Florida and resides in Florida. The provider, however, may be at another clinic location other than the telemedicine patient location. The provider will have access to the patient's electronic medical
record. The provider must document the patient encounter in accordance with Section 458.331(1)(m), Florida Statutes.

7. When a patient who meets criteria for a telemedicine visit arrives at the office, the front desk associates will check-in and check-out telemedicine patients. A Florida-licensed practical nurse will take the patient’s vital signs, take the patient to the telemedicine exam room, and enter the vital signs information into the patient’s electronic medical record.

8. All clinic locations using the telemedicine program will maintain an exam room for the telemedicine program.

9. A practical nurse, licensed in accordance with Chapter 464, Florida Statutes, will assist patients and prepare them to video conference with the telemedicine provider. Practical nurses are permitted by Florida law to administer treatments and medications in nursing homes, hospitals and home health care settings pursuant to lawful orders of a physician or a nurse practitioner even if the physician/nurse practitioner is not physically present at the time the treatment or medication is administered by the nurse. It is the intent to utilize the services of a licensed practical nurse in the same, lawful manner with the telemedicine program proposed in this Petition.

10. The video camera in the exam room will allow the on-call provider to see the patient and the patient will be able to see the provider. During the visit, the licensed practical nurse will be in the exam room at all times and assist when needed (the facilitator.) The licensed practical nurse will be permitted to perform and
administer the following tests and treatments under the direction of the provider (who will be either a Florida-licensed physician or a Florida-licensed Advanced Registered Nurse Practitioner): 

a. Pulse oxymetry  
b. Spirometry  
c. EKG  
d. Fingerstick blood sugars  
e. Urine dipsticks  
f. Urine HCG  
g. Fingerstick hemoglobin  
h. Albuterol 0.083% nebulized x 1  
i. Ipatropium 0.02% nebulized x 1  

The telemedicine provider will review the patient’s electronic medical record. The telemedicine provider will obtain a history of the patient’s complaints, evaluate the general appearance of the patient, and evaluate the patient’s vital signs and any testing done in the office. Based on the patient’s medical record and present findings, the telemedicine provider will: 1) refer the patient to the hospital for treatment of an acute illness; 2) order treatment consistent with the current treatment the patient has received within the last year at American Care as documented in the patient’s electronic medical record; or 3) schedule a follow-up appointment to see an American Care provider when the provider is physically present at the clinic. The telemedicine provider must document the patient’s evaluation in accordance with Section 458.331(1)(m), Florida Statutes.

11. If the telemedicine provider determines that medication should be prescribed, such medications must be called to the pharmacy. Patients may wait until a provider is physically at the clinic location for an in-person evaluation by the provider to
obtain their medications under the dispensing practitioner program. If a patient is in need of medication, the licensed practical nurse may administer one dose of the required medications, under the direction of the telemedicine provider, if the patient has taken the medication before as documented in the patient's medical record. Medications which may be administered to a telemedicine patient are limited to the following:

<table>
<thead>
<tr>
<th>Medication</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen</td>
<td>325mg</td>
</tr>
<tr>
<td>Amlodipine</td>
<td>10mg</td>
</tr>
<tr>
<td>Amlodipine</td>
<td>2.5mg</td>
</tr>
<tr>
<td>Amlodipine</td>
<td>5mg</td>
</tr>
<tr>
<td>Ampicillin</td>
<td>500mg</td>
</tr>
<tr>
<td>Aspirin</td>
<td>325mg</td>
</tr>
<tr>
<td>Aspirin</td>
<td>81mg</td>
</tr>
<tr>
<td>Bactrim DS</td>
<td></td>
</tr>
<tr>
<td>Benazepril</td>
<td>10mg</td>
</tr>
<tr>
<td>Benazepril</td>
<td>20mg</td>
</tr>
<tr>
<td>Cipro</td>
<td>500mg</td>
</tr>
<tr>
<td>Clonidine</td>
<td>0.1mg</td>
</tr>
<tr>
<td>Clonidine</td>
<td>0.2mg</td>
</tr>
<tr>
<td>Diphenhydramine</td>
<td>50 mg</td>
</tr>
<tr>
<td>Furosemide</td>
<td>20mg</td>
</tr>
<tr>
<td>Furosemide</td>
<td>40mg</td>
</tr>
<tr>
<td>Hydrochlorothiazide</td>
<td>12.5mg</td>
</tr>
<tr>
<td>Hydrochlorothiazide</td>
<td>25mg</td>
</tr>
<tr>
<td>Lisinopril</td>
<td>10mg</td>
</tr>
<tr>
<td>Lisinopril</td>
<td>20mg</td>
</tr>
<tr>
<td>Lisinopril</td>
<td>40mg</td>
</tr>
<tr>
<td>Lisinopril</td>
<td>5mg</td>
</tr>
<tr>
<td>Losartan</td>
<td>50mg</td>
</tr>
<tr>
<td>Metoprolol</td>
<td>25mg</td>
</tr>
<tr>
<td>Metoprolol</td>
<td>50mg</td>
</tr>
<tr>
<td>Nifedipine</td>
<td>10mg</td>
</tr>
<tr>
<td>NTG</td>
<td>0.4mg</td>
</tr>
</tbody>
</table>

This formulary may be modified from time to time by American Care's pharmacy and therapeutic committee to reflect current therapeutic practices. The formulary will not, however, be amended to include controlled substances.
12. Rule 64B8-9.014 provides standards for telemedicine prescribing practices as follows:

(1) Prescribing medications based solely on an electronic medical questionnaire constitutes the failure to practice medicine with that level of care, skill, and treatment which is recognized by reasonably prudent physicians as being acceptable under similar conditions and circumstances, as well as prescribing legend drugs other than in the course of a physician's professional practice.

(2) Physicians and physician assistants shall not provide treatment recommendations, including issuing a prescription, via electronic or other means, unless the following elements have been met:

(a) A documented patient evaluation, including history and physical examination to establish the diagnosis for which any legend drug is prescribed.

(b) Discussion between the physician or the physician assistant and the patient regarding treatment options and the risks and benefits of treatment.

(c) Maintenance of contemporaneous medical records meeting the requirements of Rule 64B8-9.003, F.A.C.

All of the elements of subsection (2) will be met under the telemedicine program described above. The patient will have been seen in person previously by an American Care practice physician. An evaluation, history, and physical examination will have been performed; discussion about treatment options will occur; and contemporaneous medical records will be maintained.

13. Moreover subsection (4) of Rule 64B8-9.014 provides:

The provisions of this rule shall not be construed to prohibit patient care in consultation with another physician who has an ongoing relationship with the patient and who has agreed
to supervise the patient's treatment, including the use of any prescribed medications, nor on-call or cross-coverage situations in which the physician has access to patient records.

The telemedicine program set forth above provides the same type of care that is routinely provided on an on-call or cross-coverage basis. The patient must be a patient of a provider at an American Care clinic. The telemedicine provider must be a member of an American Care practice who has agreed to provide coverage to American Care patients. In the proposed telemedicine plan, however, the patient have the additional benefit of direct, and instantaneous, visualization through the videoconference telemedicine technology. Accordingly, subsection (4) of the Rule provides an additional and independent basis for the approval of this proposed telemedicine plan.

WHEREFORE, Petitioner, Jose E. Garcia, M.D., respectfully requests that the Board of Medicine issue a Declaratory Statement holding that the provisions of Chapter 458.331(1), Florida Statutes, as implemented by Rule 64B8-9.014, Florida Administrative Code, do not prohibit the telemedicine program described in this Petition.
RESPECTFULLY SUBMITTED this 27th day of August, 2013.

CYNTHIA S. TUNNICLIFF
Florida Bar Number: 0134939
BRIAN A. NEWMAN
Florida Bar Number: 0004758
PENNINGTON, P.A.
215 South Monroe Street, Second Floor (32301)
Post Office Box 10095
Tallahassee, Florida 32302-2095
Telephone: 850/222-3533
Facsimile: 850/222-2126
E-Mail: cynthia@penningtonlaw.com
brian@penningtonlaw.com

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished, by Hand Delivery, to EDWARD A. TELLECHEA, ESQUIRE, Senior Assistant Attorney General, Chief, Administrative Law Bureau, Office of the Attorney General, PL-01, The Capitol, Tallahassee, Florida 32399-1050; and Crystal A. Sanford, CPM, Program Operations Administrator, Department of Health (DOH) | Division of Medical Quality Assurance (MQA), Board of Medicine, 4052 Bald Cypress Way, # C03, Tallahassee, FL 32399-3256, this 27th day of August, 2013.

8
IN RE: PETITION FOR DECLARATORY STATEMENT BY:

SHAWN MOLLIN, P.T.

ORDER DENYING PETITION FOR DECLARATORY STATEMENT

This matter came before the Board of Physical Therapy Practice (herein “the Board”) at a duly-noticed public meeting held on August 8, 2014, in St. Augustine, Florida, for consideration of a Petition for Declaratory Statement (herein “Petition”), filed on June 3, 2014 by SHAWN MOLLIN, P.T. ("Petitioner"). The Petitioner was not present at the meeting and was not represented by legal counsel. The Petition was published on June 24, 2014, in Vol. 40 No. 122 of the Florida Administrative Register. No comments by interested persons or requests for intervention were received.

STATEMENT OF RELEVANT FACTS

The Petitioner is requesting a Declaratory Statement regarding Section 486.021(11), Florida Statutes ("F.S."), seeking the Board's interpretation of whether the "practice of physical therapy," as defined by Section 486.021(11), F.S., includes practice through Telehealth, which the Petitioner defines as "physical therapy assessments and treatments through the use of electronic information and telecommunications technologies." The Board accepts the facts as presented in the Petition, which is attached to this Order and incorporated by reference.

GROUND FOR DENIAL

Petitions for declaratory statements are governed by Section 120.565, F.S., and Chapter 28-105, Florida Administrative Code ("F.A.C.").
Subsections 120.565(1) and (2), Florida Statutes state:

(1) Any substantially affected person may seek a declaratory statement regarding an agency's opinion as to the applicability of a statutory provision, or of any rule or order of the agency, as it applies to the petitioner's particular set of circumstances. (Emphasis added)

(2) The petition seeking a declaratory statement shall state with particularity the petitioner’s set of circumstances and shall specify the statutory provision, rule, or order that the petitioner believes may apply to the set of circumstances. (Emphasis added)

Rule 28-105.001, Florida Administrative Code states:
A declaratory statement is a means for resolving a controversy or answering questions or doubts concerning the applicability of statutory provisions, rules, or orders over which the agency has authority. A petition for declaratory statement may be used to resolve questions or doubts as to how the statutes, rules, or orders may apply to the petitioner’s particular circumstances. A declaratory statement is not the appropriate means for determining the conduct of another person. (Emphasis added)

The Petitioner seeks the Board's decision as to whether physical therapists may practice physical therapy through "telehealth," including the use of electronic information and telecommunications technologies. After discussion, the Board determined that Petitioner is not a "substantially affected person" as that term is used in Section 120.542, F.S., since he is not currently licensed, nor is he currently seeking licensure, as a physical therapist in Florida. Furthermore, the Board finds that the Petitioner has failed to allege any facts and circumstances unique to Petitioner's particular circumstances, rather than a statement of general applicability which would apply to all physical therapists in Florida. Accordingly, the Board declines to issue the requested Declaratory Statement.

Based upon the foregoing, it is therefore ORDERED that the Petition for Declaratory Statement requested by SHAWN MOLLIN, P.T. is hereby DENIED.

This Order shall become effective upon filing with the Clerk of the Department of
DONE AND ORDERED this 27th day of August, 2014.

BOARD OF PHYSICAL THERAPY PRACTICE

ALLEN HALL, Executive Director for Gina Petraglia, DPT, Chair

NOTICE OF RIGHT TO JUDICIAL REVIEW

A party who is adversely affected by this Final Order is entitled to judicial review pursuant to Section 120.68, Florida Statutes. Review proceedings are governed by the Florida Rules of Appellate Procedure. Such proceedings are commenced by filing one copy of a Notice of Appeal with the Agency Clerk of the Department of Health and a second copy, accompanied by filing fees prescribed by law, with the District Court of Appeal, First District, or with the District Court of Appeal in the Appellate District where the party resides. The Notice of Appeal must be filed within thirty (30) days of rendition of the order to be reviewed.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing was furnished by U.S. Mail to: SHAWN MOLLIN, P.T., 5 Ardmore Drive, Bordentown, New Jersey 08505; and by interoffice mail to Lawrence D. Harris, Assistant Attorney General, Department of Legal Affairs, PL-01 The Capitol, Tallahassee, Florida 32399-1050 and the Board of Physical Therapy Practice, 4052 Bald Cypress Way, Bin #C-05, Tallahassee, Florida 32399-3255 this 27th day of August, 2014.

Deputy Agency Clerk
Petition for Declaratory Statement Before the Florida Board of Physical Therapy

Petition By:
Shawn Mollin, P.T.
5 Ardmore Drive
Bordentown, NJ 08505
609-298-9484

Inquiry of Statute 486.021 Definitions-(11) “Practice of Physical Therapy”

Description of Inquiry:
I am a licensed Physical Therapist in the State of New Jersey. I have plans to eventually move to Florida and apply for licensure in Florida. I am inquiring whether the Florida Board of Physical Therapy allow for the “Practice of Physical Therapy” through Telehealth (physical therapy assessments and treatments though the use of electronic information and telecommunications technologies). An Internet search has revealed that the Florida legislature is considering bills to regulate Telehealth in the State of Florida. It has also revealed that at least one Florida practice is already offering “Telemedicine” services for Florida residents. I would also like to offer Telehealth services once I am licensed in Florida. In the meantime I would like to confirm whether the Florida Board of Physical Therapy is able state whether the “Practice of Physical Therapy” through Telehealth is presently allowed under the license of a Physical Therapist practicing in Florida. Thank you for time and consideration.

Signature of Petitioner: [Signature]  
Date: 5/31/2014
STATE OF FLORIDA
BOARD OF PSYCHOLOGY

IN RE: THE PETITION FOR DECLARATORY STATEMENT OF MARC B. DIELMAN, Ph.D.

FINAL ORDER

THIS MATTER came before the Board of Psychology ("Board") pursuant to Section 120.565, Florida Statutes, at a duly-noticed public meeting held on April 28, 2006, in Tampa, Florida, for the purpose of considering the Petition for Declaratory Statement filed March 10, 2006, by Marc B. Dielman, Ph.D., ("Petitioner"). Notice of the Petition was published on March 31, 2006, in the Florida Administrative Weekly, Volume 32, No. 13. No comments by interested persons were received. Petitioner was not present at the meeting and was represented by Erin Smith Aebel, Esquire. The Board was represented by Mary Ellen Clark, Assistant Attorney General. Having considered the petition, the Board makes the following findings and conclusions:

FINDINGS OF FACT

1. Petitioner is a psychologist licensed in good standing in the State of Ohio.

2. Petitioner intends to move to Florida in 2006 to live part time.

3. Petitioner asks whether treating patients who are physically located in Ohio by telecommunications, including telephone sessions, e-mails, and video conferencing, while he is physically located in Florida, constitutes the practice of psychology in Florida requiring Florida licensure.
CONCLUSIONS OF LAW

1. The Board has jurisdiction over this matter pursuant to Section 120.565, Florida Statutes.

2. The Board answers the question in the affirmative. The psychological treatment of patients who are physically located in Ohio by telecommunications, including telephone sessions, e-mails, and video conferencing, by a psychologist physically located in Florida, constitutes the practice of psychology in Florida requiring Florida licensure.

3. This Order constitutes final agency action and may be appealed by any party pursuant to Section 120.68, Florida Statutes, and Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, by filing a notice of appeal conforming to the requirements of Rule 9.110(d), Florida Rules of Appellate Procedure, both with the appropriate District Court of Appeal, accompanied by the appropriate filing fee, and with the department's clerk of agency proceedings, within thirty (30) days of rendition of this Order.

DONE AND ORDERED this 5th day of June, 2006.

BOARD OF PSYCHOLOGY

Susan Love, Executive Director
for Rafael Rivas-Vazquez, Psy.D., Chair
CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing was furnished
by U.S. Mail to Mark Dielman, Ph.D., 5600 Monroe Street, Suite 103B, Sylvania, Ohio
43560; Erin Smith Aebel, Esquire, Shumaker, Loop & Kendrick, LLP, P.O. Box 172609,
Tampa, FL 33672-0609; and by interoffice mail to Mary Ellen Clark, Assistant Attorney
General, Administrative Law Section, PL-01 The Capitol, Tallahassee, Florida 32399-
1050, this 5th day of June, 2006.

[Signature]
Deputy Agency Clerk
AMENDED PETITION FOR DECLARATORY STATEMENT
BEFORE THE FLORIDA DEPARTMENT OF HEALTH
BOARD OF PSYCHOLOGY

This Amended Petition is submitted by Mark Dielman, Ph.D., 5600 Monroe Street, Suite 103B, Sylvania, Ohio 43560 (Telephone 419.885.5952) through his undersigned Florida legal counsel, Erin Smith Aebel, Esquire, Shumaker, Loop & Kendrick, LLP, P.O. Box 172609, Tampa, Florida 33672-0609 (Telephone 813.227.2357) (Facsimile 813.229.1660).

The statutory provision on which the declaratory statement is sought is Florida Statute § 490.003(4), the definition of the “practice of psychology.” Petitioner is a psychologist licensed in good standing in Ohio, where he practices. This year, he intends and plans to move to Florida part-time. Petitioner would like to continue his psychologist practice while in Florida. More specifically, he would like to treat patients of his who are residents of Ohio by telecommunications, which may include telephone sessions, e-mails and video conferencing. Before providing these services to his Ohio patients, Petitioner would like to know if providing treatment via telecommunications with patients in Ohio while he is physically located in Florida constitutes the “practice of psychology” in Florida. Dr. Dielman intends to have patient contacts more numerous than those under the exemption in Florida Statute Section 490.014(2)(e). Therefore, he needs to know if such activity is the “practice of psychology” in Florida, such that he will be required to obtain Florida licensure before providing such services.

Petitioner is directly affected by the Board of Psychology’s determination of the above question. He is moving his practice to Florida part-time and as such, will need to know whether
a license is required to provide treatment while in Florida to his Ohio patients via telecommunications.

Dated: March 3, 2006

Respectfully submitted,

SHUMAKER, LOOP & KENDRICK, LLP

[Signature]

ERIN SMITH AEBEL
Florida Bar No. 0092746
Shumaker, Loop & Kendrick, LLP
P.O. Box 172609
101 E. Kennedy Blvd., Suite 2800
Tampa, Florida 33672-0609
Telephone 813.227.2357
Facsimile 813.229.1660
Attorney for Petitioner

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by United States mail this 27th day of March, 2006 to:

Mary Ellen Clark
Assistant Attorney General
Office of the Attorney General
PL-01, The Capitol
Tallahassee, FL 32399-1050

[Signature]

Attorney

06MAR-9 PH:1:10
IN RE: PETITION FOR DECLARATORY STATEMENT OF
JONATHAN SOBIN, Psy.D.

FINAL ORDER REGARDING PETITION FOR DECLARATORY STATEMENT

This matter appeared before the Board of Psychology to Sections 120.565 and 120.57(2), Florida Statutes, and Chapter 120-105, Florida Administrative Code, at a duly-noticed public telephonic meeting on March 22, 2013, for consideration of a Petition for Declaratory Statement, which is attached as Exhibit "A." The Petitioner was present during consideration of this matter and was not represented by counsel.

STATEMENT OF RELEVANT FACTS

1. On February 1, 2013, the Petitioner, JONATHAN SOBIN, Psy.D., filed a Petition for Declaratory Statement regarding Section 490.003(4)(a), Florida Statutes.

2. The Notice of Petition for Declaratory Statement was published on April 5, 2013, in Vol. 39, No. 67, of the Florida Administrative Register. No comments by interested persons were received.
3. Section 490.003(4) sets forth the definition of the phrase "practice of psychology." Subsection (4)(a) further states that psychological services may be rendered to individuals, couples, families, groups, and the public without regard to place of service.

4. The Petitioner states that after twenty years of practice in New Hampshire, he is moving to Florida and has obtained a Florida License to practice psychology. The Petitioner states that he has a few long-term patients who have come to him periodically over many years (10-20) for routine life stressors, who would like to continue to be treated by him periodically by videoconference or by telephone. The Petitioner believes this to be in the best interest of these long established patients to be able to continue with periodic sessions with him by telephone or videoconference. The majority of his patients are being transferred to other providers.

5. The Petitioner asks whether this scenario would be allowable under the scope of practice of a clinical psychologist in Florida. Specifically, he clarifies that he would be in Florida providing services by videoconference or telephone from his office in Florida, in a private setting. Also, he states that he is maintaining his New Hampshire license and will maintain a professional partnership with a New Hampshire
clinician who can provide local backup should backup be necessary. He also states he has spoken with the Board of Psychology in New Hampshire, and they have indicated that they agree these types of sessions can take place provided the Petitioner holds both a Florida and a New Hampshire license to practice psychology.

**GROUND FOR APPROVAL**

6. The Board has jurisdiction of this matter pursuant to Chapter 490, Florida Statutes, and has authority to issue this Final Order pursuant to Section 120.565, Florida Statutes, and Rule 28-105, Florida Administrative Code.

7. The Petition filed in this cause is in substantial compliance with the provisions of Section 120.565, Florida Statutes, and Rule 28-105, Florida Administrative Code.

8. For purposes of determining standing in this matter, the Petitioner is a substantially affected person, because the Petitioner is a Florida-licensed practitioner who seeks guidance on interpreting Section 490.003(4)(a), Florida Statutes, as applied to his future, particular circumstances.

9. Section 490.003(4) sets forth the definition of the phrase "practice of psychology." Subsection (4)(a) further states that psychological services may be rendered to individuals, couples,
families, groups, and the public without regard to place of service.

10. The primary issue, pursuant to Section 490.003(4)(a), Florida Statutes, is whether the Petitioner is allowed to continue to treat the few long term patients (10-20 years) by videoconference or by telephone from his office in Florida, in a private setting. Furthermore, Petitioner will maintain his New Hampshire license as well as a professional partnership with a New Hampshire clinician who can provide local backup should backup be necessary.

11. Based the facts set forth in the Petition, and being otherwise advised in the premises, the Board answers this particular question above in the affirmative. The Board’s response to this Petition addresses solely the question propounded by the Petitioner. The Board’s conclusion is based solely on the Board’s application of the narrow, factual circumstances outlined in the Petition to the pertinent statutory provision set forth in the Petition. In deciding this matter, the Board does not opine with respect to the law in New Hampshire.

12. Finally, the Board requests that the Petitioner submit to the Board office documentation from New Hampshire demonstrating
the New Hampshire Board is in agreement with this type of counseling.

This Order shall become effective upon filing with the Clerk of the Department of Health.

DONE AND ORDERED this __ day of ____________, 2013.

BOARD OF PSYCHOLOGY

Allen Hall, Executive Director
for Harry Reiff, Psy.D., Chair

NOTICE OF RIGHT TO JUDICIAL REVIEW

A party who is adversely affected by this Final Order is entitled to judicial review pursuant to Section 120.68, Florida Statutes. Review proceedings are governed by the Florida Rules of Appellate Procedure. Such proceedings are commenced by filing one copy of a Notice of Appeal with the Agency Clerk of the Department of Health and a second copy, accompanied by filing fees prescribed by law, with the District Court of Appeal, First District, or with the District Court of Appeal in the Appellate District where the party resides. The Notice of Appeal must be filed within thirty (30) days of rendition of the order to be reviewed.
CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing was furnished by Certified U.S. Mail to: JONATHAN SOBIN, 2934 W. Knights Ave., Tampa, FL 33611; and by interoffice mail to Rachel W. Clark, Assistant Attorney General, PL-01 The Capitol, Tallahassee, Florida 32399-1050, this 16th day of __________, 2013.

Deputy Agency Clerk

7012 1010 0002 2383 4381
March 29, 2013

Board of Psychology
Department of Health's Agency Clerk's Office
4052 Bald Cypress Way, Bin #A02
Tallahassee, Florida 32399-1703

Regarding: PETITION FOR DECLARATORY STATEMENT BEFORE THE BOARD OF PSYCHOLOGY

On February 1, 2013, I, Jonathan Sobin, Psy.D. (Florida license #PY8611), filed a Petition for Declaratory Statement regarding section 490.003(4)(e), Florida Statutes.

The Board approved my petition, but wanted assurance in writing that the Board in New Hampshire similarly approved of tele-therapy. When I contacted office of the Board in New Hampshire, I was directed to the attached written statement. This statement does address the issue definitively. Here is a link so you may see it directly, as well: http://www.nh.gov/mhp/docs/documents/out-of-statepractice.htm

Sincerely,

Jonathan Sobin, Psy.D.
Psyologist, Licensed by the State of Florida

Mailing address: 2934 W. Knights Ave
Tampa, FL 33611
Phone: (813) 444-9163
Email: jonsobin@hotmail.com

jonathansobin.com
4230 South McDill Ave Tampa, FL 33611
NH Board of Mental Health Practice
Statement of Interpretation of Statutory Authority
Approved by the Board on February 17, 2012

In light of the recent queries posed to the Board concerning out-of-state practice, practice via the Internet, practice through the use of videoconference, and via other technologies, the Board clarifies as follows:

OUT-OF-STATE PRACTICE

Pursuant to NH RSA chapter 330-A

If you are located in New Hampshire and are providing mental health services to a consumer located in another jurisdiction, you are considered to be practicing in New Hampshire and need to be licensed in this State.

If you are located in another state and are providing mental health services to a consumer located in New Hampshire, you are considered to be practicing in New Hampshire and need to be licensed in this State.

In either case, you might also be considered to be practicing in another jurisdiction. This statement is not intended to interpret the laws of any other state.

If you are about to engage in therapy with a mental health provider in New Hampshire you would be advised to contact the Board of Mental Health Practice to check if the provider is licensed in New Hampshire (603-271-6762) or check online at www.nhlicensure.nh.gov.

Telephone: 603-271-6762
TDD Access; Relay NH 1-800-735-9964
MEETING REPORT

Roll call 5:56 p.m.

Present: Sarvam TerKonda, M.D., Chair
James Orr, Jr., M.D.
Bernardo Fernandez, M.D.
Nicholas Romanello, Consumer Member
Joel Rose, D.O.
Sandra Schwemmer, D.O.
Anna Hayden, D.O

Members Absent:

Staff Present:
Claudia Kemp, J.D., Executive Director
Edward Tellechea, Esquire, Board Counsel
Donna McNulty, Esquire, Board Counsel
Nancy Murphy, Paralegal
Rebecca Hewett, Regulatory Specialist III

Other Present:
Downtown Reporting, LLC
200 S. Andrews Ave, Suite 604
Ft. Lauderdale, FL 33301
Phone: (954) 467-8204
Fax: (954) 767-8811

Telehealth/Medicine Rule Hearing……..Rule 64B8-9.0141, Standards for Telemedicine

Dr. Terkonda made a motion to table this agenda item until the legislative session has ended.

Many speakers from different fields in Florida spoke about their concerns and issues with the proposed rule language.

Mr. Tellechea noted that the board will be having another rule hearing in Orlando in June and we will be having an additional hearing in North Florida. He noted that all the public comments sent to the department from interested parties would become part of the official rule file and will be considered by the board. He also emphasized that interested parties may continue to submit written comments about their concerns with the proposed language and those comments would become part of the official rule file.

A motion was made, seconded and carried unanimously to table this agenda item until the legislative
session has ended.

**Action Taken:** Tabled agenda item until the legislative session has ended.

**New Business:**

None

**Old Business:**

None

There being no further business, the meeting adjourned at 6:16 p.m.
Telehealth 2016-2017

This project will identify existing and potential telehealth metrics to identify gaps and develop a measure framework, prioritized list of measure concepts, and guiding principles for future telehealth measurement. Read more

Events

**In-person Meeting** (day 2 of 2)
Wednesday, Mar. 08, 2017

**In-person Meeting** (day 1 of 2)
Tuesday, Mar. 07, 2017

**Web Meeting**
12:00pm Tuesday, Feb. 14, 2017

Materials

[Committee Roster and Bios](#) (PDF)

[Call for Nominations](#) (PDF)

Sign up for project alert emails that will help you stay informed with our latest project activities. 
Subscribe Now

Explore NQF’s new virtual space and learn about current and planned measure development activities.
Access the Measure Pipeline
Telemedicine Today: The State of Affairs

March 2015

Anne Montgomery
Dora Hunter
Elizabeth Blair
Meghan Hendricksen
Table of Contents

I. Introduction ............................................................................................................................................. 1
II. Background ............................................................................................................................................... 1
III. Brief Review of Telemedicine Developments ..................................................................................... 2
IV. Telemedicine Literature Review ......................................................................................................... 4
    Telemedicine Treatment Findings ........................................................................................................... 4
    Possible Cost Savings ............................................................................................................................... 5
    The Value of Telephone Consultation .................................................................................................... 6
V. Evolving Regulation .............................................................................................................................. 7
VI. Growing Congressional Interest in Telemedicine ............................................................................... 10
VII. Concluding Observations ................................................................................................................ 11
     The Growing Role of Quality Measurement in Telemedicine ................................................................. 11
     Choice Among Modalities ...................................................................................................................... 12
     Future Drivers of Telemedicine ............................................................................................................ 13
Appendix: Literature Review Results ....................................................................................................... 14
I. Introduction

Imagine if financial transactions were different every time that you went to the bank and rules differed from state to state, program to program, and agency to agency. For consumers, the complexity would make no sense. No one would want a system in which, for example, it was possible to withdraw money remotely only in certain states without seeing a teller face to face first or to transfer funds remotely only upon authorization by particular programs.

For telemedicine, the state of play in 2015 resembles this hypothetical banking scenario. As telecommunications technologies continue to transform multiple industries, medical interventions using electronic devices and interconnectivity are creatively disrupting the practice of medicine, presenting a need to rethink many of the traditional rules that were developed for in-person interactions, procedures, policies, and payment. But because medicine is largely governed by state rules, the changes are creating a patchwork of rules and standards that are difficult to follow for both practitioners and consumers.

Amidst an evolving array of regulations, entrepreneurs are trying to reshape (and, in many cases, succeeding in reshaping) the delivery of medicine by providing virtual care via phone, video, email, and combinations thereof. Guidelines are far from settled, but the body of evidence on the efficacy, safety, and cost-effectiveness of virtual care is growing. This paper will review both scientific research and policy positions regarding telemedicine and describe some of the challenges confronting practitioners and policymakers as they work to improve access to health care, improve practice protocols, and fuel further innovation in this rapidly evolving field.

II. Background

Telemedicine is rapidly expanding to serve millions of consumers. With the prospect that its interventions and innovations will multiply as phones and handheld devices feature expanded platforms and capabilities, telemedicine is generating keen interest in both the public and private sector. Numerous definitions of telemedicine exist, with some using the terms “telemedicine” and “telehealth” interchangeably and others setting distinctions between the two, often arguing that telemedicine is a subset of telehealth. Definitions differ with regards to which technologies are included and which providers are involved. Using the broadest definition, telemedicine is “the use of medical information exchanged from one site to another via electronic communications to improve a patient’s clinical health status.” Telemedicine includes phone- and video-based consults between doctors and patients, remote monitoring of patient status via phone lines, image-based “store and forward” analysis and diagnosis, team-based collaborations between practitioners conducting surgeries and other complex treatments, communication via secure email and instant messaging, mobile phone health applications, and more. These applications have expended dramatically in recent years.

Concurrently, expanding insurance coverage in the United States associated with implementation of the Patient Protection and Affordable Care Act and the aging of the general population will place unprecedented demands on the health and social service delivery systems in the 21st century. In turn, this will continue to exert pressure on practitioners to achieve greater efficiency in delivering quality care, combined with pressure to hold down costs. Longstanding concerns about projected trends
associated with rising medical spending, as well as the need to finance and deliver services to a much larger population of older adults, will continue to shape national health care policy through the mid-21st century. Additionally, geographic provider shortages and limited access to services for rural consumers forces communities to consider other mechanisms of health care delivery, including telemedicine.

Consumer demand for more timely and convenient access to their practitioners and to evidence-based information and education that can help them manage their care is also fueling growing public interest in telemedicine. Looking ahead, development of better-defined care protocols and more integrated technology platforms spanning multiple settings appears certain to open up opportunities for expanded application and wider adoption of electronically delivered care from a distance.

Against this backdrop, this paper reviews evidence of telemedicine and its performance to date in providing access to good medical care, with a focus on telemedicine delivered to patients seeking primary care through different modalities (e.g., phone-only, video, store-and-forward, remote monitoring). Additionally, we review policy guidelines and regulations currently shaping telemedicine. A search of the health care literature (see Appendix) found that while additional research and evaluation is needed to clearly establish the safety and efficacy of different forms of telemedicine, overall, most evidence suggests that telemedicine can be as effective as in-person care. With regard to evolving policy and regulatory discussions, at the national level, Congress appears interested in seeing the uses of telemedicine expanded in Medicare, while discussions at the regulatory level are more cautious, and state coverage of telehealth-facilitated care in the Medicaid program continues to vary widely.

III. Brief Review of Key Telemedicine Developments

Historically, the use of the telephone in health care delivery has encompassed a variety of uses, including summoning emergency assistance, obtaining second opinions, scheduling health care activities, providing health care advice, and monitoring patients’ conditions remotely. One of the first widely recognized uses of telemedicine occurred in the late 1960s, when a closed circuit television system was set up at the Nebraska Psychiatric Institute and a remote state mental health hospital to provide distance education and teleconsultation. Managed care plans were also early adopters, with the first nurse triage call center established by Kaiser Permanente in the late 1960s.

During the 1970s and 1980s, additional uses of telemedicine were developed for certain remote populations needing health care. For example, the National Aeronautics and Space Administration (NASA) turned to telemedicine for monitoring the health status of astronauts on missions. Other sponsors included employers of workers stationed on oil rigs, organizations sponsoring research expeditions in Antarctica, and the U.S. military.

Interest in telemedicine for the general population took off first in Norway during the 1980s and 1990s, which had both a universal health care system that could subsidize telemedicine development and a significant portion of its population located in remote areas with few medical specialists. The two-way audio and visual links established in that country resulted in findings that diagnosis using telemedicine was equivalent to in-person care, that it was safe and reliable, and that it saved on transport costs.

In the United States, telemedicine has been promoted and financed by the federal government to expand access to care for certain populations, including prisoners and residents of medically
underserved rural areas. The Telecommunications Act of 1996 expands the definition of universal communications service to include rural health care providers and provides funds for rural health care centers through the Rural Health Care Program for telecommunications and broadband services. The federal government has also made major investments in development of a technological infrastructure suitable for delivery of telemedicine services. For example, since the enactment of the Health Information Technology for Economic and Clinical Health Act in 2009, an estimated $30 billion has been earmarked for allocation in the form of incentive payments to physician practices across the country that meet “meaningful use” criteria and standards of use for electronic health records. In 2010, the Federal Communications Commission released the National Broadband plan, which made a number of recommendations around encouraging the use of telehealth through greater broadband expansion. Elsewhere in the federal government, the Department of Veterans Affairs (VA) made a major investment in telemedicine starting in 2003 in three areas: home telehealth, clinical video telehealth, and store-and-forward telehealth. As a result, the number of Veterans served through one or more of these modalities in 2013 was estimated to be nearly half a million in fiscal year (FY) 2012 and projected to reach 820,000, or about 15% of the Veteran population, in FY 2013.

Broadly speaking, several types of telemedicine exist today, as briefly summarized below. (Note: This white paper does not cover mobile apps and mobile medical apps.)

<table>
<thead>
<tr>
<th>Type of Telemedicine and Their Uses</th>
</tr>
</thead>
</table>
| **Phone-Only Consultations:** Plain old telephone service is frequently used for telehealth between physicians and patients. Additionally, Integrated Services for Digital Network (ISDN) is a system of digital phone connections that can transmit voice, data, and video simultaneously. Telephonic consults can be through landlines or wireless devices for both regular phones and smartphones. Telephone consults occur far more than video consults and have been used over many more years to support regular care and communication between physician and patient. As explained by Adam Darksins, the former chief consultant for telehealth services at the VA, “for many patients, the telephone is often their entrée into the health care system. Data from primary care suggests that 66% of patients call their doctors for reassurance, explanation of a worrying symptom, or advice. Sixteen percent of calls are for medication and are made because patients want to be seen immediately…. Typically, women are much more likely than men to call a doctor for a telephone consultation.” Today, Teladoc is one of the largest telehealth providers in the United States, offering real-time telephone and online video consultations through a secure Internet connection to about 6 million members. Numerous other purveyors of telephone consultations exist, including MD Live and DermatologistOnCall.

**Interactive videoconferencing** involves a patient in one location and a provider in another using real-time, two-way transmission of digitized images. Videoconferencing networks may be sponsored by hospitals, managed care plans, academic health centers, physician practices, and states using federal grant funds in order to establish networks for treatment of vulnerable, hard-to-reach populations. Typically, this type of telemedicine relies on high-speed Internet connection or broadband with sufficient bandwidth to enable all connections to send and receive large amounts of complex data quickly and accurately. There is also a need for security measures to be in place to ensure that data is transferred only to intended recipients.

**Store-and-forward technology** is a type of encounter or consult that uses digital images of a patient for the purpose of opinion or diagnosis. The digital images are captured at the patient’s site of care.
and forwarded to a clinician at another site for interpretation. This form of telemedicine is increasingly used in radiology and dermatology. The process is usually asynchronous. This form of telemedicine is used in some consults; for example, patients can send photos of a skin rash or of the back of their throat to the treating primary care physician.

**Remote monitoring** is a form of telemedicine technology that involves the use of devices to remotely collect and send patient data to a monitoring station for interpretation. It covers a range of activities, including passive observation and recording of vital signs, use of alarms, sending of information to a practitioner, and support for self-management of care. Among the most well-known uses of remote monitoring is the VA’s program for in-home telehealth, which supported nearly 117,000 Veterans in FY 2012, reducing hospital admissions by 30% and producing savings of $2,000 per patient.\(^{12}\)

### IV. Telemedicine Literature Review

This literature review was done with EBSCOhost by using the search terms “remote monitoring,” “telemedicine,” “cost savings,” “telehealth,” “outcomes,” and “efficacy” and further narrowing by the type of telemonitoring. This resulted in 1,659 articles, which were then filtered for results by measured outcomes. A total of 99 articles were read and used to draw concluding observations. Results of the review are presented in Appendix A. Overall, some research shows that telemedicine offers benefits in health outcomes and effectiveness of care. There are also some studies showing cost savings as compared to usual care. While this is quite promising, additional well-designed research is needed to definitively demonstrate the magnitude of cost savings on a per-episode basis compared to in-person care, as well as how large integrated systems, such as managed care plans, can achieve cost efficiencies over time.

**Telemedicine Treatment Findings**

The majority of telemedicine services evaluated to date focus on identified health conditions which, absent good management, typically lead to acute episodes of illness or exacerbation requiring substantial care or hospitalization.

For telemedicine in primary care settings and utilized for individuals with chronic illnesses, several positive health outcomes were identified, including better self-management of disease, reduced mortality, and high patient satisfaction. A comprehensive review of telemedicine studies showed positive health outcomes among patients with various conditions for health services offered in rural locations.\(^{13,14,15}\) In a systematic review by Krishna, telemedicine was shown to provide clinically significant results for management of diabetes and smoking cessation.\(^ {16}\) A review of diabetes management found the utilization of telemedicine led to an improvement in self efficacy and glycemic control.\(^ {17}\) In a systematic review of the VA home telehealth program, Darkins and colleagues found a reduced mortality rate among telemedicine participants.\(^ {18}\) Several studies have found that telemedicine can improve the ability of individuals in self-care and health management.\(^ {19,20}\) Finally, there have been studies which show that telemedicine can be utilized effectively to treat minor conditions as compared to regular in office visits.\(^ {21,22}\)

Other positive outcomes for telemedicine include improved clinical outcomes such as reduced emergency room (ER) visits and improved quality of life. Kleinpell and Avitall demonstrated overall
positive outcomes of telemedicine for patients with chronic heart failure (CHF), including a decrease in ER visits, reduced costs, and improved quality of life. Bashshur and colleagues found, when reviewing stroke, CHF, and chronic obstructive pulmonary disease, that benefits of telemedicine included reduced hospital admissions, length of stay, and reduced ER visits. Sloan and colleagues found that telemedicine treatment for post-traumatic stress disorder (PTSD) was effective, while Pratt and colleagues showed better management of psychiatric symptoms. For homebound low income disabled adults, telemedicine was as effective as in person care for treatment of depression. Among oncology patients, the use of telemedicine was associated with better clinical outcomes, increased patient satisfaction, and improved access to care, particularly among those who have more difficulty traveling to seek care. A VA study using video conferencing for pain management showed high patient satisfaction and saved time traveling to doctors’ appointments. Another review by Chan and colleagues found positive health outcomes for telemedicine utilization for children with asthma. However, while benefits for specific health conditions and high patient satisfaction have been documented, telemedicine interventions are not always more effective than face-to-face care.

When comparing telemedicine technologies, it is important to note that no single intervention has been shown to be more effective than another in disease management. A major review of 20 years of telemedicine in management of chronic disease found no advantage of telemonitoring or videoconferencing over telephone support. The review examined a range of telemedicine interventions (e.g., telephone support, telemonitoring, videoconferencing) in five major chronic diseases, assessing the value of each intervention in terms of the outcomes specified by the investigators in that trial against a control group; these included hospitalizations, mortality, quality of life, cost to society, and ER visits. Finding the evidence base “weak and contradictory,” the study recommended that future studies be designed “carefully, in order to identify the true value of distance support,” and that outcomes measures be based on a standardized “minimum dataset.”

Possible Cost Savings

In some analyses, telemedicine shows cost savings through reduced use of additional and more costly health care services such as office visits, ER visits, and hospitalizations for both treatment of minor health conditions and management of chronic illnesses. In cases where telemedicine substitutes low-cost visits (under $50 per encounter) for more-expensive office or ER visits (sometimes hundreds or thousands of dollars), there is potential for significant cost reduction.

Telemedicine has demonstrated the potential for cost savings in the primary care setting. For example, during the 12-month study for the VA’s home telehealth care program, participants had statistically significant lower health care costs compared to those not enrolled in the telemedicine program. Baker and colleagues found that telehealth intervention among those with chronic illnesses had significant cost savings and lower mortality rates when compared to usual care. Finally, a systematic review of video telemedicine concluded that the technology is a cost-effective approach for home care for use by practitioners communicating remotely with on-call hospital specialists, and is a cost-effective method for linking practitioners and patients in regional and rural health care systems.

With regard to management of chronic diseases, some research has found that telemedicine is cost effective. In a study by De San Miguel and colleagues, for example, investigators found that those patients with chronic obstructive pulmonary disease (COPD) receiving telemedicine services saved on average $2,931 per year through reduced use of office visits, fewer hospitalizations, and shorter hospital stays. In a meta-analysis of COPD patients, researchers similarly found a significant
reduction in ER visits and hospitalizations for those participating in telemedicine.\textsuperscript{41,42} A study looking at managing renal failure using telemedicine produced significantly decreased cost for intervention group participants.\textsuperscript{43} Results from a systematic review of the use of telemedicine in patients with CHF identified a decrease in hospital admissions and readmissions in several studies, while several others found a reduction in overall health care costs.\textsuperscript{44-46,47,48} Similar reductions in primary care visits and urgent care use can be found in a Pratt and colleagues study using telemedicine for mental health disorders.\textsuperscript{49}

Importantly, studies show telemedicine can reduce costs for patients seeking standard primary care in certain geographic areas where there is known overuse of urgent care clinics or ERs.\textsuperscript{50,51} Another aspect to consider in evaluating possible cost savings associated with telemedicine is that more advanced technologies typically have higher operational costs. For example, when using specific in-home devices, two studies found that more sophisticated technology was less cost effective than using lower-technology devices (e.g., phone only). Furthermore, some research has shown that using lower technology devices is more cost effective than usual care.\textsuperscript{52,53} In summary, a growing body of evidence demonstrates that urgent care visits, office visits, and hospitalizations have decreased with the use of telemedicine.

However, not all studies show telemedicine interventions to be cost-effective, and some find that the initial startup costs associated with installing telemedicine technology and training in its use are high, but worthwhile in the long run. Others find no significant improvement in cost effectiveness when comparing telemedicine to usual care.\textsuperscript{54-56} A study by Pearl and colleagues, for example, found that telemedicine visits are less costly on a per-visit basis than office visits but do not decrease the overall number of office visits across the system.\textsuperscript{57} Some meta-analyses have reported economic savings and cost-effectiveness of a telemedicine intervention but note that many of the studies exhibit poor methodologies for properly evaluating cost efficiencies.\textsuperscript{58} Among the challenges of designing analyses that can prove cost effectiveness are that results may “depend on the geographical, lifestyle, or other characteristics of the patients.”\textsuperscript{59} In addition, an analysis by Whitten and colleagues concluded that small sample sizes and short time frames have also limited the ability of many studies to establish clear evidence of cost-effectiveness.\textsuperscript{60} A systematic review of real-time telemedicine delivery published in 2010 found mixed results, with some studies showing cost savings and others showing higher costs.\textsuperscript{61} As the field develops and as telemedicine is more commonly used to diagnose, treat, and manage a range of conditions, additional rigorous research will be needed to clarify the cost savings of particular telemedicine interventions and the overall efficacy of remote health care versus face-to-face care.\textsuperscript{62}

\textit{The Value of Telephone Consultation}

In a study published in the February 2014 edition of \textit{Health Affairs}, the California Public Employees’ Retirement System employees using a physician telemedicine service (in this case, Teladoc) were found to have fewer follow-up visits after a telemedicine encounter compared to other enrollees who visited emergency departments and primary care offices, suggesting very little evidence of misdiagnosis or treatment failure. For future research, the study’s authors recommend additional analysis to assess quality of care outcomes and impact on costs. They also note that additional analysis will be required to determine whether the intervention “might be improving access for patients with lower incomes and those in rural areas and, if not, whether it could be positioned to do so in the future.”\textsuperscript{63} Noting that “providers saw patients with many diagnoses that typically require a physical exam, diagnostic testing, or both,” the study cautions that without the use of additional technology, Teladoc will continue to be limited in its ability to support the diagnosis and management
of many conditions. Additional research is needed to address questions about the quality of care, such as rates of antibiotic prescribing across settings.”

The experience of Kaiser Permanente Northern California (KPNC) is also instructive. For more than a decade, the nonprofit managed care plan has offered telephone visits of 10–15 minutes with a physician. In 2013, KPNC estimated the number of telephone visits to be more than 2.3 million, a substantial rise from the 640,000 in 2008. KPNC has also invested in expansion of uses for video visits to treat conditions ranging from substance abuse in pregnant women to adolescent acne. By 2016, KPNC projects that “the number of virtual visits—including secure email, telephone, and video encounters—will surpass the number of in-person office visits.”

With regard to patient satisfaction, research shows consumers frequently report high satisfaction with their telemedicine experience. However, overprescribing may be a concern. One study found a 98% antibiotic prescription rate in e-visits for urinary tract infections, compared with 49% for office visits.

Telemedicine has other important positive impacts, including reduced travel time and absence from work, greatly improved access to specialty health care for rural populations, and a narrowing of the “digital divide” among hard-to-reach populations. For example, results of a systematic review of health care delivery via cellphones, published in 2009, concluded, “This the first technology where industry has documented a trend toward a digital divide in the reverse…. Sending cellphone text messages has been helpful for patients in reducing missed physician appointments and for staying in touch with their physician for follow-up questions or consults…. Since, compared to computer technology, the ownership and use of cell phones is more prevalent among persons of low socioeconomic status, use of cellphones may reduce the impact of digital divide inherent in Web-based health interactions.”

There is also a natural limitation to telemedicine in that not all people have access to phones, utilize the Internet, or have access to higher-quality Internet connection (broadband). While approximately half of Americans have both a broadband connection and a smartphone, there are still those who do not own cellphones (9%), and approximately 15% of Americans do not use the Internet. The majority of those who are not online and do not own a smartphone are over age 65 and have low incomes. These factors have implications when it comes to utilizing the various modes of telemedicine, particularly for those over the age of 65, who are more likely to benefit from chronic disease management.

V. Evolving Regulation

As federal work in telemedicine has expanded, definitions of the terms “telemedicine” and “telehealth” have proliferated, and new terms such as “mHealth” “telemonitoring” and others have come into their own. Today, various definitions of these terms are used by different agencies, and there are additional interagency variations among programs. Reimbursement approaches also vary significantly. In Medicare, for example, with the exception of Alaska and Hawaii, coverage of telehealth services is limited by statute to services furnished to beneficiaries located in rural areas and to synchronous video communication between certain originating sites and a remote site. In 2013, less than $12 million was reimbursed for telemedicine services by Medicare. Regulatory flexibility is tightly constrained in this context. However, in a recent “burden reduction” final rule, the Centers for Medicare & Medicaid Services (CMS) stated that physicians practicing remotely in Rural Health Centers, Federally Qualified Health Centers, and Critical Access Hospitals would no longer be
required to visit in person every 2 weeks. CMS also released a rule in 2014 inviting comments on how to waive certain telehealth payment requirements for accountable care organizations (ACO).

Elsewhere in the U.S. Department of Health and Human Services (HHS), efforts to improve cross-agency federal collaboration are now accelerating under the leadership of the Health Resources and Services Administration (HRSA), which convened a federal workgroup on telemedicine in 2011 composed of 26 partners. Known as “FedTel,” the group convenes bimonthly and works to try to reduce organizational silos and to share information about telemedicine initiatives across agencies. In a recent study that surveyed FedTel officials about the definition of telemedicine, officials from HHS provided the following: “the use of electronic communication and information technologies to provide or support clinical care at a distance. Included in this definition are patient counseling, case management, and supervision/preceptorship of rural medical residents and health professions students when such supervising/precepting involves direct patient care.”

HRSA Administrator Mary Wakefield discussed various aspects of telemedicine policy during a June 2013 speech, citing its potential to improve quality by maximizing the “functionality” of electronic health records, registries, and databases to generate “clinically valid feedback.” Wakefield also noted, “Licensure requirements and barriers to cross-state practice should be seen as part of general considerations around the mobility of health professionals in order to address workforce needs and improve access to care.” In this regard, within the U.S. Department of Defense’s health care system, legislation enacted in 2012 now allows credentialed health care professionals to serve members of the active-duty military across the country without having to obtain a new license. Similar legislation was also introduced in the 113th Congress to enable physicians in the VA to serve Veterans anywhere in the United States. The policy, which has not yet been enacted, defines telemedicine as “the use of telecommunication technology and information technology to support the provision of health care in situations where the patient and health care professional are separated by geographic distance.”

At the state level, significant variation in approach exists with regard to whether and how telemedicine is reimbursed by private insurers, as well as how it is treated under Medicaid. As of February 2015, 22 states and the District of Columbia have insurance parity laws that mandate comparable coverage and reimbursement for telehealth services in private insurance plans. In general, live video predominates in Medicaid reimbursement, with 10 states now also offering program reimbursement for store-and-forward telemedicine and 13 covering remote monitoring. Alaska, a leader among states in telemedicine, reimburses for all three modalities, and the state recently passed a law to allow physicians to diagnose and prescribe by using telephone and online consultations. Rules dictating telemedicine vary widely; in fact, no two states are alike in how it is defined and regulated. However, because the field is evolving, interest in regulating and defining telemedicine and how it is practiced is strong: As of September 2014, 36 states and the District of Columbia had pending legislation regarding telemedicine, many to establish or change different aspects of reimbursement of telemedicine for private payers, Medicaid, or both.

In April 2014, the Federation of State Medical Boards (FSMB) approved nonbinding model guidelines defining telemedicine for practitioners as “the practice of medicine using electronic communications, information technology, or other means between a licensee in one location and a patient in another location with or without an intervening health care provider.” The guidelines further state, however, “Generally, telemedicine is not an audio-only telephone conversation, email messaging conversation, or fax. It typically involves an application of secure videoconferencing or store-and-forward technology to provide or support health care delivery by replicating the interaction of a traditional encounter in person between a provider and a patient.”
In a release accompanying the guidelines, FSMB president and CEO Humayun J. Chaudhry explained that the guidelines “are designed to provide flexibility in the use of technology by physicians—ranging from telephone and email interactions to videoconferencing—as long as they adhere to widely recognized standards of patient care.” Reaction to the guidelines has been mixed, with opposition expressed by some telehealth providers, some researchers, and patient advocacy groups. In a letter dated May 1, 2014, a coalition of patient and provider groups wrote to FSMB expressing concern that the guidelines do “not account for many of the safe, secure ways patients are accessing health care today, including ‘audio-only telephone.’”

In a more extensive report focusing on live, on-demand primary and urgent care that was published on December 15, 2014, by the American Telemedicine Association (ATA) observes that “there is a growing body of evidence regarding the effectiveness of video- and audio-based interventions for a variety of acute and chronic conditions seen in primary care such as diabetes, asthma, heart failure, and hypertension.” Focusing on the use of real-time, interactive technologies, the clinical practice guidelines discuss certain “acute conditions that may be managed effectively by video-based telemedicine and as appropriate other interactive technologies supported by peripheral devices and ancillary tests necessary to establish a diagnosis.” With regard to acute medical conditions, these include “uncomplicated cases of allergy/asthma, chronic bronchitis, conjunctivitis, genitourinary conditions, low back pain, otitis media, rashes, and upper respiratory infections,” according to the report. For management of chronic medical conditions, live interactive telemedicine is appropriate for “mental illness and behavioral health, chronic obstructive pulmonary disease, congestive heart failure, diabetes, and hypertension,” ATA says. The report adds that “the virtual medium” may be effective “for consultations regarding prevention and wellness services such as immunizations, smoking cessation, diet, and physical activity.”

While the initial draft guidelines on urgent and primary care that were issued by ATA in May 2014 included side-by-side examples of various acute and chronic medical conditions, along with recommendations about whether they would be best managed by telephone only or video telemedicine (or either), the final report omits these comparisons. Instead, it states: “In general, conditions that are not suitable for telemedicine are those for which an in-person visit is required to evaluate the patient due to the severity of presenting symptoms, the necessity of haptic information, the need for protocol-driven procedures, or the need for aggressive interventions.” The guidelines caution against using telemedicine for “some patients with cognitive disorders, intoxication, language barriers, emergency situations that warrant escalation to an ER visit or 911, or when patients do not have the requisite technology to complete a virtual visit.”

The final guidelines advise that audio-based consults “may be used for consultation if and only if the evaluation, diagnosis, and treatment of conditions can be made reliably on the basis of complete medical history, full understanding of presenting symptoms reported by the patient or caregiver and be consistent with established clinical protocols, state and federal laws, and regulations related to audio-based evaluations, in particular when such evaluation results in prescribing.” The report further recommends that patient evaluations be supported by clinical history, access to patient medical records, diagnostic data, and laboratory test results. In the case of both telephonic and video consults, ATA emphasizes, “To reduce the risk of overprescribing, the provider shall follow evidence-based guidelines and all federal, state, and local regulations. In particular, “providers shall determine the appropriateness of telemedicine on a case-by-case basis, whether or not a telemedicine visit is indicated, and what portion of the examination must be performed and documented in conformance with appropriate standards in evaluating the patient.” The report concludes “Wherever possible,
diagnostic interventions should be supported by high-quality evidence,” but also gives significant latitude to providers in using “their professional judgment, experience, and expertise” where evidence is lacking. Other practice guidelines developed by ATA include telemental health, tele-ICU, home telehealth and telerehabilitation.

VI. Growing Congressional Interest in Telemedicine

At the national policy level, legislation introduced last year by Reps. Doris Matsui (D-CA) and Bill Johnson (R-OH) proposes to define telehealth as health care “that a health care professional is authorized to deliver to an individual in person under State law...not in person; from any location to any other location; and by means of real-time video, secure chat or secure email, or integrated telephony.”91 The FSMB, the ATA regulations, and the pending federal proposal support the notion that a patient care relationship can be established remotely—a clear step forward relative to policy enacted in some states that require a physical encounter to establish a doctor-patient relationship. In addition, legislation introduced in September 2014 by Reps. Diane Black (R-TN) and Peter Welch (D-VT) would allow certain ACOs to provide “store-and-forward” and remote patient monitoring services as means of encouraging emphasis on health outcomes over volume of services performed.92 Similarly, the House Energy and Commerce Committee’s recently released discussion draft of the 21st Century Cures Bill would require the implementation of a methodology to provide coverage of telemedicine services under Medicare. It would also expand the definition of telehealth under Medicare to include store-and-forward technology.93

In recognition of the expanding uses of telemedicine, some health care analysts have adopted the term “connected health” in order to encompass a broad range of direct patient care, education, and remote monitoring.94 Consumers are increasingly expressing interest and enthusiasm for telemedicine as well: A PricewaterhouseCoopers survey published in late 2013 found that 69% of respondents said they would be willing to communicate with their doctor or nurse using email, 49% said that they would be willing to do so via an online chat feature or a Web portal, 45% indicated that they would text, and 40% said that they would use a mobile health application. By comparison, only 27% of physicians are encouraging consumers to use mobile applications, even though 59% believe them to be inevitable in the future.95

Congressional interest in the potential of telemedicine to give health care consumers the necessary information to take greater control of their health and health care has been growing, which was evident during a hearing conducted by the House Energy & Commerce Subcommittee on Health in 2014. Rashid Bashshur, director of the e-Center at the University of Michigan’s School of Public Health, testified that “telemedicine has the potential for transforming the current system of health care by creating seamless and ubiquitous health care with continuous care management in integrated systems with empowered patients as partners in every phase of care…. The technologies that can be used to promote adoption of healthy lifestyles—with enormous implications for cost savings—are wearable sensors, smartphones, and mobile devices (likely to become the dominant telemedicine technology). These technologies have produced efficiencies in the delivery of service to the point of need in entertainment, banking, commerce, and education. The same applies to health care.”96

Another witness, Kofi Jones of American Well, similarly observed, “Mobile devices can significantly mitigate time and distance barriers, regardless of location, socioeconomic status, or mobility issues.... It is the epitome of patient-centered health care.”97 Sounding a more cautionary note, Thomas Beeman, president and CEO of Lancaster General Health, an integrated nonprofit health system, testified, “As an organization that has committed hundreds of millions of dollars to connect and
integrally link health information, telehealth, and digital medicine infrastructures. [we have found that] successful implementation of health technologies requires a compelling and measurable clinical or preventive health model for a defined population aligned with strong partnerships among information technology, operations, and leadership. Institutions should consider investments in pilots or proofs of concepts with strong evaluation metrics for success and return on investments, in order to identify potential scalability of telehealth tools. 

VII. Concluding Observations

The Growing Role of Quality Measurement in Telemedicine

Decades of research has firmly established that telemedicine expands access to health services for individuals living in remote and rural areas. Evidence is beginning to accumulate that telemedicine may be “especially appealing” for those “who are infrequent users of health care and to those who are relatively resistant to usual outreach methods and vulnerable to untreated chronic conditions in the long run.” Equally important, development of telemedicine is now intersecting with rapid and ongoing changes in the health care system’s organizational structure toward provision of more integrated care models and toward payment protocols that aim to shift reimbursement toward payment for value. These trends are accelerating even as different forms of telemedicine are being used in a complementary fashion; as electronic health records become mainstream; and as shared electronic record systems are extended to independent practitioners, community hospitals, and providers of various community-based services.

For policymakers and stakeholders, these findings suggest that a prudent approach may be to balance the need for regulatory development in such areas as practice standards and scopes of practice in a manner that does not impede the further development of telemedicine services and better-integrated health information technology platforms. At an August 2012 workshop on telehealth sponsored by HRSA and convened by the Institute of Medicine, Spero Manson of the University of Colorado’s Centers for American Indian and Alaska Native Health suggested that the idea of a driver’s license could serve as a useful concept for possibly reconsidering the notion of licensure at both the state and federal levels.

Just as with medical practice broadly defined, telemedicine has a mixed record with regard to outcomes and cost-effectiveness. Use of the most appropriate modality for various circumstances is essential. While evidence to restrict a specific modality does not exist, practice guidelines are essential. The enlarging role of quality management in telemedicine is reflected in the development of guidelines by ATA and medical organizations, including the American College of Radiology, the American Dermatology Association, and the American Medical Association. The need for evidence guidelines and quality management were mentioned by several experts at the 2012 Institute of Medicine workshop.

For large integrated health systems such as the VA and Kaiser Permanente, which have made a commitment to embed telemedicine interventions into many clinical processes, the challenges associated with quality and standardization of telemedicine protocols are multifaceted. In the case of the VA, the agency has established three telemedicine training centers that develop and disseminate standardized training and resource materials and a system of performance metrics for local medical centers, regional administrative units, and the national system. Internal accreditation processes, called “Conditions of Participation,” are used in biannual assessments, the results of which are reflected in scorecard reports. Data on quality management are reviewed internally every 3 months.
This practice suggests that accelerated development of practice guidelines that inform both practitioners and consumers about the uses and outcomes of various forms of telemedicine may represent a sound investment for purposes of informing public policy and regulatory protocols. Careful, ongoing evaluation of the quality and cost-effectiveness of telemedicine is clearly warranted, along with evaluations of whether the interventions provide wider access to consumers without increasing unnecessary utilization.

In an influential book published in 2000, *Telemedicine and Telehealth: Principles, Policies, Problems, and Pitfalls*, Adam Darkins argued, “The best way to establish the framework for training and education in telehealth is to use the guidelines and protocols developed by the clinicians who are actually teleconsulting. Telehealth programs can support clinicians in developing guidelines by establishing a culture to support setting standards, devising protocols/guidelines, and instituting training and education.” Expanding on this theme, in a 2012 systematic review of the use of telemedicine in treatment of chronic disease, Richard Wootton of the Norwegian Centre for Integrated Care and Telemedicine urged that stakeholders develop “a minimum dataset” with “quantitative indices, from which pooled estimates of effect can be calculated and which are applicable across all disease groups, [including] quality of life (as measured on the scale appropriate to the disease in question), cost to society, emergency department visits, days in hospital, [and] mortality.”

*Choice Among Modalities*

Given the diversity of populations, conditions, and circumstances to which telemedicine is applied and the medical evidence to date, it is premature to declare any one modality more or less appropriate. Different modalities are preferable depending on specific medical, technologic, and access-to-care situations. Standards of practice will certainly continue to evolve, based on evidence and experience, to guide preferred avenues of communication and care delivery. However, given that individuals on the low-technology end of the digital divide may be limited in their access to Internet-based or high-speed network devices, the simple telephone may be the only choice for many for some time to come.

Good decisions about the “right” type of telemedicine delivery thus require careful balancing challenges of medical access, technology availability, practitioner discretion, and consumer preference rather than adhering to rigid notions of being limited to an ideal modality under ideal circumstances. Part of the challenge is to understand and distinguish varying patient needs and how telemedicine applies to those circumstances specifically. Virtual treatment of hay fever, for example, differs markedly from home monitoring of congestive heart failure and cannot be evaluated as the same intervention. To date, policies appear to have consensus that telephonic telemedicine is safe and (in some cases) cost effective in treatment of acute, minor illnesses. As conditions become more serious and complex and technologies become more expensive and complex, cost reduction and cost-effectiveness are less consistent.
Future Drivers of Telemedicine

As consumers of varying ages are exposed to telemedicine, many are likely to find it useful for accessing health care practitioners and for receiving information and advice about managing their chronic conditions and other challenges. In terms of public interest and further development of “person-centered care” models, informed consumers are likely to increasingly engage in shared decisionmaking with their doctors based on the best available evidence—a dynamic that is well-suited for telemedicine. The ability of organized telemedicine systems to offer superior information and care to those who might otherwise base health care decisions on advice from family and friends, as well as information from the Internet when in-person care is not available or not chosen by the patient, is already clear.

It is possible that as telemedicine interventions become more widespread, they can be tailored to broaden access among those who are less mobile and those who cannot be seen during hours convenient to providers. It is also conceivable that more convenient access to evidence-based health information and personal health care records will benefit family caregivers. As the U.S. health care and social services systems look ahead to the “age wave” era that will become apparent after 2020, when demand for services starts to surge, it seems probable that telemedicine will play a vital role in deploying interventions that are aimed at supporting tens of millions of frail elders living in the community.

Issues concerning the utilization of telemedicine as compared to in-person care are broader and warrant careful evaluation, as with all health care interventions. Since evidence shows that telemedicine has significantly improved access to health care among rural and other isolated populations, the potential for telemedicine to reach additional hard-to-reach populations, including individuals with disabilities and functional limitations and socioeconomically disadvantaged populations, should be explored further. For policymakers and payers, keeping an eye on the purse as consumer-fueled demand for health care services rises will be paramount. A question of continuing interest will be whether and under what circumstances use of telemedicine can exceed results achieved through traditional in-person care at a lower per capita cost.
## Appendix: Literature Review Results

<table>
<thead>
<tr>
<th>Citations</th>
<th>Cost Savings Evidence</th>
<th>Health Outcomes Evidence</th>
<th>Effectiveness Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phone Only</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whitten, P., Holz, B., &amp; LaPlante, C.⁶⁰</td>
<td>Meta-analysis of cost for phone-only interventions shows mixed results of cost-effectiveness. Some say that as the technology improves, savings will increase; others say that there is no sufficient evidence to claim cost-effectiveness. More research needs to be done.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Böhme, S., et al.⁵⁵</td>
<td>Telephone counseling for CHF patients was proven an effective approach to improving patient’s health status, but it was not proven whether the content of the calls or the social support provided had the greater impact.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cassimatis, M., &amp; Kavanagh, D. J.¹⁷</td>
<td>In a review of telehealth and type 2 diabetes, telehealth interventions have been shown to be a promising approach for self-care of diabetes and shows better management of glycemic control.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McLean, S., et al.⁴⁰</td>
<td>For those with COPD, a review of studies show a reduction in the numbers of ER visits, hospitalizations, and flare-ups for telehealth participants.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Audiovisual</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Darkins, A.¹²</td>
<td>For VA patients enrolled in telehealth, health care costs decreased due to decreased ER visits and inpatient admissions.</td>
<td>The study also found that participating in telehealth led to an almost 10% decline in mortality.</td>
<td></td>
</tr>
<tr>
<td>Nazareth, S., et al.¹⁴</td>
<td>For those in rural and remote locations in Australia, videoconferencing helped achieve a standard variable rate that allowed them to receive treatment that otherwise probably would not have been obtained.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Henderson, C., et al.⁵²</td>
<td>There is a low probability that telehealth is a cost-effective addition to standard support and treatment for people with long-term conditions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author(s)</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wade, V. A., et al.¹³</td>
<td>Delivery of health services by real-time video communication was cost effective for home care and access to on-call hospital specialists, showed mixed results for rural service delivery, and was not cost effective for local delivery of services between hospitals and primary care.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pratt, S., et al.</td>
<td>For patients with serious mental illness, significant improvement was found in self-efficacy in medication management. In patients with diabetes, decreases in mean blood glucose levels and primary and urgent care health visits were found.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wright, J., Purdy, B., &amp; McGonigle, S.¹⁵</td>
<td>A pilot study for cancer patients found improved clinical outcomes, increased patient satisfaction, improved access for patients in remote locations, and reduction of travel costs and isolation due to rural living.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Udsen, F. W., Hejlesen, O., &amp; Ehlers, L. H.⁵⁹</td>
<td>While a review of studies of COPD patients revealed fewer hospitalizations and cost savings, the general quality of economic data was poor, and its effectiveness overall is cautioned for large-scale implementation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wakefield, B. J., et al.³³</td>
<td>Home telehealth can facilitate detection of key clinical symptoms that occur between regular physician visits.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sloan, D., et al.</td>
<td>For those with PTSD, telehealth had a similar impact on mental health to that of usual care.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choi, N. G., et al.</td>
<td>Tele-problem-solving therapy was demonstrated to be efficacious compared to in-person problem-solving therapy for low-income, homebound older adults and had longer-lasting effects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desko, L., &amp; Nazario, M.³⁰</td>
<td>A study of the VA clinical video telehealth pain management clinic found that the VA saved $2,317.51 due to averted travel reimbursement. There was a 90% satisfaction rate with the service.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Author(s)</td>
<td>Study Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rowell, P. D., Pincus, P., White, M., &amp; Smith, A. C.</td>
<td>A retrospective review of pediatric orthopedic patients consulted via telehealth at the Royal Children’s Hospital in Queensland over a 10-year period found that 40% of patients seen via telehealth in pediatric orthopedics had documented cerebral palsy, an intellectual disability, or congenital syndrome. Lower limb malalignment was the most common presenting complaint. About 58% of patients were seen exclusively via telehealth and did not require in-person consultation or operative therapy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Store-and-Forward</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smith, M. W., et al.</td>
<td>Store-and-forward has been shown to have significant cost savings over video and telephone interventions due to its low costs of technology and labor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kleinpell, R., &amp; Avitall, B.</td>
<td>For 216 patients with CHF, those who were randomized to telemangement for 3 months after hospital discharge had fewer heart failure-related readmissions with shorter lengths of stay compared to patients who received home health visits.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chan, D., et al.</td>
<td>Internet-based store-and-forward video assessment of children’s use of asthma medications and monitoring tools in their homes appeared effective and well-accepted. The use of this tool may improve adherence to asthma medications, especially those requiring careful technique.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote Monitoring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cartwright, M., et al.</td>
<td>This large cluster randomized trial of second generation, home based telehealth for patients with chronic obstructive pulmonary disease, diabetes, or heart failure found no main effect of telehealth on generic health related QoL, anxiety, or depressive symptoms over 12 months.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>De San Miguel, K., Smith, J. &amp; Lewin, G.</td>
<td>Patients with COPD and defibrillators saw an annual savings of almost $3,000 per patient.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gellis, Z., et al.</td>
<td>There were significant positive outcomes with regard to depression, quality of life, and numbers of ER visits from the teleHEART intervention within the older population.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ciere, Y., Cartwright, M., &amp; Newman, S.</td>
<td>A review of several studies of heart failure patients showed some benefit for self-efficacy but no other benefits for participants in telehealth interventions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minatodani, D. E., &amp; Berman, S. J.</td>
<td>There were significant cost savings for telehealth renal failure intervention participants engaging with remote monitoring via a nurse.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bashshur, R. L., Shannon, G. W., &amp; Smith, B. R.</td>
<td>The benefits include reductions in use of service: Hospital admissions/readmissions, length of hospital stay, and emergency department visits typically declined. It is important that there often were reductions in mortality.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Widespread integration of telehealth into health care services will be realized only if the effectiveness and cost-effectiveness can be improved in carefully selected clinical groups. For high-risk dialysis patients, the number of medical and technical occurrences dramatically decreased, requiring fewer nurse contacts. The significance of the findings makes a strong argument for home telehealth with nurse oversight to improve health outcomes by preventing hospitalizations in select patients with chronic illnesses.
<table>
<thead>
<tr>
<th><strong>Baker, L. C., et al.</strong>&lt;sup&gt;38&lt;/sup&gt;</th>
<th>Study found evidence that intervention of telehealth reduced spending by 7%–13% over 2 years compared to matched control group.</th>
<th>The study found significant differences in mortality between the intervention and control groups, suggesting noticeable changes in health outcomes.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Whittaker, F., &amp; Wade, V.</strong>&lt;sup&gt;48&lt;/sup&gt;</td>
<td>Based on evidence suggesting that completing a formal rehabilitation program significantly reduces the risk of a secondary event and readmission, the net present value was calculated to be $4,008 per patient. Taking into account the cost of the telehealth program, $1,633, this would equate to a savings in health care costs of $2,375 per patient.</td>
<td></td>
</tr>
</tbody>
</table>

**Telehealth Research Methodologies**

| **Law, L. M., & Wason, J. M. S.**<sup>58</sup> | There is potential to address the flaws discussed in the telehealth literature through the adoption of adaptive approaches to trial design. Such designs could lead to improvements in efficiency, allow the evaluation of multiple telehealth interventions in a cost-effective way, or accurately assess a range of endpoints that are important in the overall success of a telehealth program. |  |


19 Ibid.


Federation of State Medical Boards. (2014). Model policy for the appropriate use of telemedicine technologies in the practice of Medicine. Euless, TX: Federation of State Medical Boards.


Telehealth Modernization Act of 2013, H.R. 3750.

ACO Improvement Act of 2014, H.R. 5558.


Ibid.


The Creating High-Quality Results and Outcomes Necessary to Improve Chronic (CHRONIC) Care Act of 2016

DISCUSSION DRAFT

Section-By-Section Summary

TITLE I – RECEIVING HIGH QUALITY CARE IN THE HOME

Section 101. Extending the Independence at Home Model of Care

The Patient Protection and Affordable Care Act (ACA, P.L. 111-148) created the Independence at Home (IAH) demonstration under the Medicare program to test a payment incentive and service delivery model that uses physician and nurse practitioner-directed home-based primary care teams designed to reduce expenditures and improve health outcomes in the provision of items and services to applicable Medicare beneficiaries with multiple chronic illnesses. Medical practice staff are required to make in-home visits and to be available 24 hours per day, seven days per week to implement care plans tailored to the individual beneficiary's chronic conditions. Under the IAH demonstration, qualifying medical practices continue to receive traditional Medicare fee-for-service payments for services furnished but are eligible for incentive payments, subject to meeting performance standards on quality measures, if actual annual expenditures for applicable beneficiaries are less than the estimated spending target for the year. In the first performance year, 17 participating practices served more than 8,400 Medicare beneficiaries. In the second year, 15 practices served over 10,000 beneficiaries. The demonstration began on June 1, 2012, and will end on September 30, 2017.

This section would extend the promising IAH demonstration to provide a broader base of experience to inform future legislative efforts. Specifically, it would extend the demonstration for an additional two years—through September 30, 2019, increase the cap on the total number of participating beneficiaries from 10,000 to 12,000, and allow practices up to three years to receive a shared savings payment before they are terminated from the demonstration. Currently, practices must be terminated if they do not receive such an incentive payment for two consecutive years.

Section 102. Expanding Access to Home Dialysis Therapy

Medicare requires that a beneficiary receiving dialysis treatment in his or her home receive a monthly clinical assessment with their clinician, often a nephrologist, to review lab work, check for complications, answer questions, and discuss the effectiveness of treatment. Beneficiaries can utilize telehealth to receive this visit only if it occurs in a) an authorized originating site (including a physician office and hospital-based dialysis facility) and b) the site is located in in a rural Health Professional Shortage Area (HPSA) or area county outside a Metropolitan Statistical Area (MSA).
This section would expand the ability of beneficiaries on home dialysis to receive required monthly clinical assessments to monitor their condition using telehealth, beginning in 2018. Specifically, it would expand the originating sites from which the beneficiary can choose to receive an assessment with the nephrologist via telehealth to include freestanding dialysis facilities and the patient’s home, and it would allow these telehealth visits to be conducted without geographic restriction. A beneficiary would be required to have a face-to-face assessment with a nephrologist at least once every three months.

**TITLE II – ADVANCING TEAM BASED CARE**

**Section 201. Allowing End-Stage Renal Disease Beneficiaries to Choose a Medicare Advantage Plan**

Individuals who are under 65 years old and are not receiving Social Security Disability Insurance (SSDI) benefits are entitled to Medicare if they are diagnosed with end-stage renal disease (ESRD) – permanent kidney failure – and meet limited work requirements. Beneficiaries who are entitled to Medicare solely on the basis of ESRD are prohibited from enrolling in a Medicare Advantage (MA) plan unless (1) an MA Special Needs Plan (SNP) is available in the beneficiary’s area or (2) the beneficiary is receiving health benefits through the same organization that offers an MA plan. Beneficiaries enrolled in an MA plan who are entitled to Medicare due to age or SSDI and subsequently develop ESRD, may stay in the same MA plan or join a different plan offered by the same company. Additionally, an ESRD beneficiary who has had a successful kidney transplant and subsequently becomes entitled to Medicare due to age or SSDI may enroll in an MA plan.

This section would allow individuals with ESRD to enroll in any MA plan beginning in 2021. To help eliminate uncertainty for an MA plan related to costs associated with these complex beneficiaries, the standard acquisition charges (SACs) for kidneys would be removed from the benchmark and bid. The Centers for Medicare and Medicaid Services (CMS) would make payments for SACs for an MA enrollee like they currently do for a beneficiary in the fee-for-service program to limit the risk to an MA plan associated with paying for the acquisition of a high number of kidneys. The Secretary would be required to conduct an evaluation on whether ESRD-specific quality measures should be included in the 5-star quality rating system. The Secretary would also be required to submit a report to Congress on the impact of the provisions of this section related to spending, enrollment and sufficiency of data under the traditional Medicare and Medicare Advantage programs for ESRD beneficiaries.


The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA; P.L. 108-173) established a new Medicare Advantage (MA) coordinated care plan to provide services for individuals with special needs. Special needs plans (SNPs) are permitted to target enrollment to one or more types of special needs individuals, including those who are (1) institutionalized, (2) dually eligible for both Medicare and Medicaid, or (3) living with severe or disabling chronic conditions. Among other changes, the Affordable Care Act extended SNP authority through December 31, 2013, and temporarily extended authority through the end of 2012 for dual eligible SNPs without contracts with state Medicaid programs to continue to operate, but in their current service areas. After 2012, dual eligible SNPs, new and renewing, were required to have contracts with state Medicaid agencies. Several subsequent laws have
extended SNP authority without interruption; most recently, the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA, P.L. 114-10) extended SNP authority through December 31, 2018.

In this section, the Medicare-Medicaid Coordination Office would be directed to serve as a dedicated point of contact for states to assist with Medicare and Medicaid integration efforts, and the Secretary would be required to work through this office to establish a unified grievances and appeals process for individuals enrolled in a D-SNP. This section would permanently authorize the I-SNP, D-SNP and C-SNP, if certain requirements are met. By 2020, a D-SNP contract would be required to have a unified grievances and appeals procedure in place, and by 2021, a D-SNP would be required to integrate Medicare and Medicaid behavioral health services. Beginning in 2019, a C-SNP would be required to meet additional requirements to improve care management for the beneficiaries with severe or disabling chronic conditions enrolled in the plan. By December 31, 2019, the Secretary would be required to update the list of chronic conditions eligible for participation in a C-SNP based on the health needs of the condition, providers and models of care required, and the prevalence of the chronic condition in the general Medicare population. The Secretary may consider implementing the quality star rating system at the plan level for SNPs and all MA plans.

TITLE III – EXPANDING INNOVATION AND TECHNOLOGY

Section 301. Adapting Benefits to Meet the Needs of Chronically Ill Medicare Advantage Enrollees

Under Medicare Advantage (MA) private health plans are paid a per-person monthly amount to provide all Medicare-covered benefits (except hospice) to beneficiaries who enroll. Unlike original Medicare, where providers are paid for each item or service provided to a beneficiary, an MA plan receives the same capitated monthly payment regardless of how many or few services a beneficiary actually uses. The plan is at-risk if aggregate costs for its enrollees exceed program payments and beneficiary cost sharing; conversely, in general, the plan can retain savings if aggregate enrollee costs are less than program payments and cost sharing. Currently, an MA plan must offer the same benefit package to all of its enrollees. The Centers for Medicare and Medicaid Innovations (CMMI) is currently testing a model to allow greater flexibility for an MA plan to meet the needs of chronically ill enrollees.

This section would expand the testing of the CMMI Value-Based Insurance Design (VBID) Model to allow an MA plan in any state to participate in the model during the testing phase to determine whether savings are achieved without negatively impacting quality.

Section 302. Expanding Supplemental Benefits to Meet the Needs of Chronically Ill Medicare Advantage Enrollees

All Medicare Advantage (MA) plans must offer required Medicare benefits (except hospice) and may offer additional or supplemental benefits. Mandatory supplemental benefits are covered by the MA plan for every person enrolled in the plan and are paid for either through plan rebates, a beneficiary premium, or cost sharing. Optional supplemental benefits must be offered to all plan enrollees, but the enrollee may choose to pay an additional amount to receive coverage of the optional benefit; optional benefits cannot be financed through plan rebates.
An MA plan must adhere to specific rules regarding the supplemental benefits that it can offer. First, the MA plan cannot design a benefit plan that is likely to substantially discourage enrollment by certain MA eligible individuals. Further, supplemental benefits (a) may not be Medicare Part A or Part B required services, (b) must be primarily health related with the primary purpose to prevent, cure, or diminish an illness or injury, and (c) the plan must incur a cost when providing the benefit. Items that are primarily for comfort or are considered social services would not qualify as supplemental benefits. Examples of supplemental benefits include the following:

(a) Additional inpatient hospital days in an acute care or psychiatric facility,
(b) Acupuncture or alternative therapies,
(c) Counseling services,
(d) Fitness benefit,
(e) Enhanced disease management, and
(f) Remote Access Technologies (including Web/Phone based technologies).

This section would allow an MA plan to offer a wider array of supplemental benefits to chronically ill enrollees. These supplemental benefits would be required to have a reasonable expectation of improving or maintaining the health or overall function of the chronically-ill enrollee and would not be limited to primarily health related services. The section would allow an MA plan the flexibility to provide targeted supplemental benefits to specific chronically ill enrollees.

Section 303. Increasing Convenience for Medicare Advantage Enrollees through Telehealth

Telehealth is the use of electronic information and telecommunications technologies to support remote clinical health care, patient and professional health-related education, and other health care delivery functions. While Medicare beneficiaries may receive telehealth services in a variety of settings, under current law (SSA Section 1834(m)), the Medicare program recognizes and pays for only certain Part B telehealth services. These services must be either (1) remote patient and physician/professional face-to-face services delivered via a telecommunications system (e.g., live video conferencing), or (2) non face-to-face services that can be conducted either through live video conferencing or via store and forward telecommunication services in the case of any Federal telemedicine demonstration program in Alaska or Hawaii. Typically, Medicare coverage for remote face-to-face services includes payments (1) to physicians or other professionals (at the distant site) for the telehealth consultation, and (2) to the facility where the patient is located (the originating site).

An MA plan may provide basic telehealth benefits as part of the standard benefit; for example, telemonitoring and web-based and phone technologies can be used to provide telehealth services. Medicare Advantage Prescription Drug (MAPD) may choose to include telehealth services as part of their plan benefits, for instance, in providing medication therapy management (MTM). However, while there is nothing to preclude Medicare Advantage (MA) from providing telemedicine or other technologies that they believe promote efficiencies beyond what is covered in the traditional Medicare program, those services and technologies are not separately paid for by Medicare and plans must use their rebate dollars to pay for those services as a supplemental benefit.
This section would allow an MA plan to offer additional, clinically appropriate, telehealth benefits in its annual bid amount beyond the services that currently receive payment under Part B. The Secretary would be required to solicit comments on what types of telehealth services offered as supplemental benefits should be considered to be additional telehealth benefits. The use of these technologies would not be a substitute for meeting network adequacy requirements, and the beneficiary would have the ability to decide whether or not to receive the service via telehealth.

Section 304. Providing Accountable Care Organizations the Ability to Expand Use of Telehealth

While Medicare beneficiaries may receive telehealth services in a variety of settings, under current law (SSA Section 1834(m)), the Medicare program restricts telehealth payments by the type of services provided, the geographic location where the services are delivered, the type of institution delivering the services, and the type of health provider. While there is nothing to preclude ACOs from providing telemedicine or other technologies that they believe promote efficiencies, those services and technologies are not separately paid for by Medicare. Traditionally telehealth has been viewed as a tool to improve access to services, but interest is growing to see if telehealth has the potential to reduce health care costs. Telehealth may have the potential to replace some face-to-face office visits, reduce emergency room visits, and prevent hospitalizations. Telehealth may also keep beneficiaries in closer, more consistent contact with providers.

This section would apply the Next Generation ACO telehealth waiver criterion to the Medicare Shared Savings Program (MSSP) Track II (only if an ACO chooses prospective attribution and remains at two-sided risk), MSSP Track III, and the Pioneer ACO program. This provision would (1) eliminate the geographic component of the originating site requirement, (2) allow beneficiaries assigned to the approved MSSP and ACO programs to receive currently allowable telehealth services in the home, and (3) ensure that MSSP and ACO providers are only allowed to furnish telehealth services as currently specified under Medicare’s physician fee schedule, with limited exceptions. To be eligible for Medicare payment, the beneficiary must be located at an originating site that is either (1) one of the approved sites listed in Section 1834(m)(4)(C)(ii) of the Social Security Act, or (2) the beneficiary’s place of residence. Medicare would not provide a separate payment for the originating site fee if the service is furnished in the home.

Section 305. Expanding Use of Telehealth for Individuals with Stroke

Currently, Medicare pays for physician services involved in stroke treatment under the Physician Fee Schedule, with the hospital being paid under the Hospital Outpatient Prospective Payment System and Inpatient Prospective Payment System. While many of these physician services are furnished on-site when the beneficiary presents symptoms of stroke at the hospital emergency department, Medicare will pay a physician, at a distant site, for consulting on a patient experiencing acute stroke symptoms via telehealth if the originating site hospital, where the beneficiary presents, is in a rural HPSA or a county outside an MSA.

This section would expand the ability of patients presenting with stroke symptoms to receive a timely consultation via telehealth to determine the best course of treatment, beginning in 2018. Specifically, it would eliminate the geographic restriction to permit payment to physicians furnishing the telehealth services.
consultation service in all areas of the country. The hospital at which the patient is present and the telehealth consultation is initiated would not receive a separate originating site payment.

TITLE IV – IDENTIFYING THE CHRONICALLY ILL POPULATION

Section 401. Ensuring Accurate Payment for Chronically Ill Individuals

Payments made to Medicare Advantage (MA) plans are risk adjusted using the Centers for Medicare and Medicaid Services (CMS)-Hierarchical Conditions Category (HCC) Risk Adjustment Model, and are based on health status and demographics of each individual who enrolls in the plan. The size of the adjustment takes into account the severity of a beneficiary’s illness, the accumulated effect of multiple diseases and the interactive effects of certain diseases. For the 2017 plan year, a six-segment community model will be used to account for the different costs associated with beneficiaries who are dually eligible for both Medicare and Medicaid.

To further adjust the model to improve accuracy, this section would direct the Secretary of the Department of Health and Human Services (HHS) to take into account the total number of diseases, use at least two years of diagnosis data, and Medicare-Medicaid dual eligibility status. This section would also direct the Secretary to evaluate the impact of including additional diagnosis codes related to mental health and substance use disorders, chronic kidney disease, and other factors in the ESRD-Risk Adjustment Model. These changes would be phased in over three years, and would allow for a 60-day public comment period. MedPAC would be directed to conduct an evaluation on the impact of these changes to the overall accuracy of risk scores under the MA program, and the Secretary would be directed to submit a report to Congress every three years beginning by December 31, 2018 on revisions to the risk adjustment and ESRD risk adjustment models.

Section 402. Providing Flexibility for Beneficiaries to Be Part of an Accountable Care Organization

Medicare fee-for-service beneficiaries are assigned to ACOs based on their utilization of primary care services provided by a physician who is an ACO provider and/or supplier. Beneficiaries currently do not have the option of choosing to participate directly in an ACO (aside from seeking care from a particular provider), but are notified if their primary care provider is an ACO participant. Beneficiaries who receive at least one primary care service from a primary care physician within the ACO may be assigned to that ACO if the beneficiary receives the plurality of his or her primary care services from primary care physicians within the ACO. Beneficiaries who have not had a primary care service furnished by any primary care physician either inside or outside the ACO, but who receive at least one primary care service from any physician within the ACO, are assigned to that ACO if the beneficiary receives a plurality of his or her primary care services from specialist physicians.

The manner in which Medicare fee-for-service beneficiaries are assigned to an ACO affects how the ACO can tailor care for its beneficiaries and how the ACO is evaluated. Under current Centers for Medicare & Medicaid (CMS) rules, Medicare determines the method of beneficiary attribution, rather than giving ACOs the option to choose the assignment methodology that best fits their model of care. Medicare fee-for-service beneficiaries can be assigned to an ACO either retrospectively or prospectively.
depending on the ACO’s track. Prospective assignment allows ACOs to identify beneficiaries for whom they will be held accountable and proactively take steps to connect these beneficiaries to appropriate care, but also holds ACOs accountable for the spending for these beneficiaries even if the ACO providers do not provide the care. Retrospective assignment ensures that ACOs are held accountable for the spending only of those beneficiaries who receive most of their primary care services from ACO providers, but they may not know who those beneficiaries are until the end of the year.

This section would amend Section 1899(c) of the Social Security Act to give ACOs in the MSSP the choice to have their beneficiaries assigned prospectively at the beginning of a performance year. Additionally, this provision would give a beneficiary the option to voluntarily align to the MSSP ACO in which the beneficiary’s main primary care provider is participating. The Secretary of HHS would establish a process by which beneficiaries are notified of their ability to make such an election as well as the process by which they may change such election. The beneficiary would retain their freedom of choice to see any provider.

**TITLE V – EMPOWERING INDIVIDUALS AND CAREGIVERS IN CARE DELIVERY**

Section 501. Eliminating Barriers to Care Coordination under Accountable Care Organizations

ACOs are collaborations that integrate groups of providers, such as physicians (particularly primary care physicians), hospitals, federally qualified health centers, rural health clinics, and others. In the Medicare Shared Savings Program (MSSP) specifically, ACOs are designed to provide incentives to providers to manage care across the continuum by reducing health care costs while meeting quality performance standards. The ACO mission is to ensure that patients, especially the chronically ill, receive the right care at the right time in the right care setting, while avoiding unnecessary duplication of services and preventing medical errors. Delaying or forgoing preventive care—especially care related to chronic disease management—may lead to increased costs and poor health outcomes. ACOs are accountable for the health outcomes and overall costs of their attributed beneficiaries. As a result, ACO aligned beneficiaries could be encouraged to seek out preventive care or chronic disease management if the cost to access those services is manageable.

This section would establish the ACO Beneficiary Incentive Program. This new program would create a process that allows ACOs to make incentive payments to all assigned beneficiaries that receive qualifying primary care services. ACOs would be allowed to offer a flat payment, of up to $20 per qualifying service, directly to the beneficiary. This program is voluntary. Eligible ACOs would not be provided additional Medicare reimbursement to cover the primary care incentive payment costs. Permitting this option under a two-sided risk model would give ACOs an additional tool to achieve better health outcomes for beneficiaries—as well as produce cost savings for both the ACO and the Medicare program. President Obama’s Fiscal Year (FY) 2017 budget contained a similar policy proposal.
Section 502. **GAO Study and Report on Longitudinal Comprehensive Care Planning Services**

Diagnoses of serious or life-threatening illnesses—such as Alzheimer’s/dementia, cancer, neuromuscular disease—are devastating to Medicare beneficiaries and their families. Some of these illnesses do not have a predictable disease progression, do not have an arsenal of treatment options that can be immediately deployed, and symptoms may not manifest for years. These circumstances make it imperative that a discussion between the patient and their doctor occurs upon diagnosis.

This section would direct Government Accountability Office (GAO) to submit a report to Congress within 9 months of the date of enactment to inform the development of a Medicare payment code for a one-time visit to formulate a comprehensive plan of longitudinal care for a Medicare beneficiary diagnosed with a serious or life-threatening illness. Specifically, GAO would identify the extent to which such a comprehensive longitudinal care planning service is currently provided to beneficiaries, whether there would be any duplication in payment for such service with the codes for which Medicare currently pays, and any barriers to hospitals, skilled nursing facilities, hospice programs, home health agencies and other providers working with a Medicare beneficiary to engage in the care planning process. It would also identify any barriers to providers accessing the care plan as well as the feasibility and appropriateness of requiring adherence to the care plan. In addition, GAO would assess the need to develop quality metrics related to care planning, the populations of Medicare beneficiaries that would be most appropriate to receive a comprehensive longitudinal care planning service, and the providers best suited to furnish the service as part of an interdisciplinary team.

**TITLE VI – OTHER POLICIES TO IMPROVE CARE FOR THE CHRONICALLY ILL**

Section 601. **GAO Study and Report on Improving Medication Synchronization**

In April 2012, the Centers for Medicare & Medicaid Services (CMS) finalized a rule requiring daily cost-sharing requirements for Medicare Part D prescription drugs. Beginning in 2014, CMS requires that Part D sponsors establish and apply a daily cost sharing rate whenever a prescription is dispensed by a network pharmacy for less than 30 days’ supply, unless the drug is exempted by regulation. This rule applies regardless of the setting in which the applicable drugs are dispensed. The daily cost-sharing rule does not address how pharmacy dispensing fees are to be negotiated, calculated, or paid and the rule does not require the proration of pharmacy dispensing fees. Individuals with chronic diseases often take multiple prescriptions that are prescribed by different clinicians. Because most prescriptions have a standard length (i.e., 30-days) and are prescribed on different days, the individual is required to pick up prescriptions at various times during the month. Alignment of dispensing could improve medication adherence by individuals living with chronic diseases.

This section would direct the Government Accountability Office to submit a report to Congress within one year of the date of enactment that would provide information on the prevalence and effectiveness of Medicare and other payer medication synchronization programs. Specifically, GAO would identify common characteristics of programs and assess their impact on medication adherence, patient outcomes, and patient satisfaction. GAO would also assess the extent to which Medicare rules support medication synchronization and whether there are barriers to such programs in Medicare.
Section 602. GAO Study and Report on Impact of Obesity Drugs on Patient Health and Spending

Obesity is a serious problem that is often directly related to or exacerbates chronic diseases. Prescription drug treatments may be an effective policy intervention, but more information is needed to better understand the impact on quality and overall costs to the Medicare program. Historically, Medicare Part D has not covered drugs used for weight loss or gain, or for cosmetic purposes. Some Medicare Advantage prescription drug plans (MA-PDs) are permitted to cover these drugs as a supplemental benefit.

This section would direct the Government Accountability Office to submit a report to Congress within one year of the date of enactment that would provide information on the impact of the use of obesity drugs on patient health and spending. Specifically, GAO would look at obesity drug utilization in Medicare and other payer programs, identify physician prescribing attitudes, assess drug adherence, and maintain weight loss. GAO would also identify the impact of obesity drugs on patient health outcomes, on other services furnished, and health spending.

TITLE VII – OFFSETS

Offsets to cover any costs associated with this legislation will be supplied.
Bipartisan senate bill seeks Medicare coverage for telemedicine

Reimbursement for telemedicine is still far from equal across health plans and state lines, especially for those under government programs. But there’s a new piece of telemedicine legislation on the table that could establish a federal model for Medicare populations.

The bipartisan Senate bill functions as an experiment: Senators Cory Gardner (R-CO) and Gary Peters (D-MI) introduced the Telehealth Innovation and Improvement Act, which require the Center for Medicare and Medication Innovation (CMMI) to “test the effect of including telehealth services in Medicare health care delivery reform models.”

The bill would require the Department of Health and Human Services to allow eligible hospitals to test telehealth services through CMMI. Subsequently, the HHS will direct CMMI to conduct evaluations for cost, effectiveness and improvement of health outcomes without increasing the cost of delivery. If the test telemedicine models can meet that set of criteria, a system-wide program will be established and covered through Medicare.

Even though the most recent state-by-state “report card” by the American Telemedicine Association noted that 2017 was the first year all Medicaid agencies were covering at least some form of telemedicine services, Medicare currently only covers a limited amount. If passed, the bill could potentially have significant impact on aging, low-income and rural-dwelling populations.

While the bill would establish standards for both urban and rural populations, the focus is primarily on those living in areas far away from healthcare services. Senator Peters referred to the bill as, “bipartisan, common sense legislation,” that would help rural and underserved communities who would otherwise not have access to specialty care, or who are overusing the emergency department. Gardner – who introduced similar legislation in 2015 that was never passed – echoed the sentiment.

“All Coloradans deserve access to health care services regardless of whether they live in rural or urban areas,” Senator Gardner said in a statement. “The Telehealth Innovation and Improvement Act would allow Medicare to expand coverage of telehealth services and increase access for people living in rural America. It would also incentivize the healthcare industry to develop new technologies that could potentially reduce costs and improve patient health.”
HEALTH CARE

Telehealth and Remote Patient Monitoring Use in Medicare and Selected Federal Programs
HEALTH CARE

Telehealth and Remote Patient Monitoring Use in Medicare and Selected Federal Programs

What GAO Found

Selected associations representing providers and patients most often cited the potential to improve or maintain quality of care as a significant factor that encourages the use of telehealth (providing clinical care remotely by two-way video) and remote patient monitoring (monitoring of patients outside of conventional settings) in Medicare. For example, according to officials from a provider association, telehealth can improve patient outcomes by facilitating follow-up care, while remote patient monitoring is helpful for treating patients with chronic diseases. With regard to factors that create barriers, the selected associations most often cited concerns over payment and coverage restrictions. For example, officials from a provider association noted that Medicare telehealth coverage restrictions limit the geographic and practice settings in which beneficiaries may receive services. While not indicating how significant these factors are to Medicare, officials with a payer association told GAO that they considered these factors—as either encouraging use or creating barriers to the use of telehealth and remote patient monitoring.

Significance of Improving or Maintaining Quality of Care as a Factor that Encourages the Use of Telehealth and Remote Patient Monitoring in Medicare

<table>
<thead>
<tr>
<th>Provider associations</th>
<th>Patient associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>E</td>
<td>F</td>
</tr>
<tr>
<td>G</td>
<td>H</td>
</tr>
</tbody>
</table>

Medicare models, demonstrations, and a new payment program have the potential to expand the use of telehealth and remote patient monitoring. The Centers for Medicare & Medicaid Services, an agency within the Department of Health and Human Services (HHS), supports eight models and demonstrations in which certain Medicare telehealth requirements have been waived, such as requirements for the locations and facility types where beneficiaries can receive telehealth services. For example, the waivers allow beneficiaries to access telehealth in urban areas, or from their homes. Additionally, the use of telehealth and remote patient monitoring in Medicare may change depending on how many clinicians use them as a way to achieve the goals of the new Merit-based Incentive Payment System, which—starting in 2017—will pay clinicians based on quality and resource use, among other things. Under this payment program, clinicians can use telehealth and, in some instances, remote patient monitoring, to help meet the payment program’s performance criteria. For example, clinicians could use telehealth to coordinate care or use remote patient monitoring to remotely gather information to determine a patient’s proper dose of medication.
# Contents

<table>
<thead>
<tr>
<th>Letter</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Background</td>
<td>6</td>
</tr>
<tr>
<td>Available Data Show Low Proportions of Beneficiaries Accessing Telehealth; Limited Data Are Available on Remote Patient Monitoring</td>
<td>14</td>
</tr>
<tr>
<td>CMS Uses Routine Claims Review Processes for Telehealth Payments and Is Examining Some Questionable Claims Identified by MedPAC</td>
<td>18</td>
</tr>
<tr>
<td>Selected Associations Report Telehealth and Remote Patient Monitoring May Improve Care for Medicare Beneficiaries, but Cited Coverage and Payment Restrictions as Barriers</td>
<td>21</td>
</tr>
<tr>
<td>CMS Has Various Efforts Underway That Have the Potential to Expand the Use of Telehealth and Remote Patient Monitoring in Medicare</td>
<td>27</td>
</tr>
<tr>
<td>Agency and Third-Party Comments</td>
<td>34</td>
</tr>
</tbody>
</table>

| Appendix I | Use of Remote Patient Monitoring by Selected Private Payers | 38 |
| Appendix II | Scope and Methodology for Identifying Factors Affecting the Use of Telehealth and Remote Patient Monitoring | 41 |
| Appendix III | Medicare Telehealth Services Added and Denied by the Centers for Medicare & Medicaid Services, 2011-2016 | 45 |
| Appendix IV | Telehealth and Remote Patient Monitoring Reimbursement and Use in Selected State Medicaid Plans | 51 |
| Appendix V | Selected Associations’ Rating of the Significance of Factors that Affect Telehealth and Remote Patient Monitoring | 53 |
| Appendix VI | Medicare Valuation of Remote Patient Monitoring | 58 |
Appendix VII Examples of Telehealth and Remote Patient Monitoring in Medicare Models and Demonstrations 64

Appendix VIII GAO Contact and Staff Acknowledgments 66

Tables

Table 1: Summary of Federal Agency Telehealth Services and Originating Sites 13
Table 2: Medicare Telehealth Requirements Waived for Selected Models and Demonstrations 30
Table 3: Telehealth Use by Selected Models and Demonstrations with Waivers of Certain Medicare Requirements 32
Table 4: Potential Factors that Encourage the Use or Are Barriers to the Use of Telehealth or Remote Patient Monitoring in Medicare Used in the Data Collection Instrument 41
Table 5: Telehealth Service Codes Added by the Centers for Medicare & Medicaid Services (CMS), Calendar Years 2011 through 2016 46
Table 6: Telehealth Service Codes Denied by the Centers for Medicare & Medicaid Services (CMS), Calendar Years 2011 through 2016 48
Table 7: Reimbursement and Use of Telehealth and Remote Patient Monitoring in Selected State Medicaid Programs 51
Table 8: Centers for Medicare & Medicaid Services’ Innovation Center Categories and Examples of Potential Telehealth and Remote Patient Monitoring Use in Models or Demonstrations 64

Figures

Figure 1: Example of Telehealth Use in Medicare 9
Figure 2: Significance of Certain Factors That Encourage the Use of Telehealth and Remote Patient Monitoring in Medicare, According to Selected Provider and Patient Associations 22
Figure 3: Significance of Certain Barriers to the Use of Telehealth and Remote Patient Monitoring in Medicare, According to Selected Provider and Patient Associations 25
Figure 4: Significance of Factors That Encourage the Use of Telehealth in Medicare, According to Selected Provider and Patient Associations 54
Figure 5: Significance of Factors That Encourage the Use of Remote Patient Monitoring in Medicare, According to Selected Provider and Patient Associations 55
Figure 6: Significance of Barriers to the Use of Telehealth in Medicare, According to Selected Provider and Patient Associations 56
Figure 7: Significance of Barriers to the Use of Remote Patient Monitoring in Medicare, According to Selected Provider and Patient Associations 57

Abbreviations
ACO accountable care organization
AMA American Medical Association
CCO coordinated care organization
CHIP state Children’s Health Insurance Program
CMS Centers for Medicare & Medicaid Services
DOD Department of Defense
HHS Department of Health and Human Services
MAC Medicare Administrative Contractor
MedPAC Medicare Payment Advisory Commission
RUC American Medical Association/ Specialty Society Relative Value Scale Update Committee
VA Department of Veterans Affairs

This is a work of the U.S. government and is not subject to copyright protection in the United States. The published product may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.
April 14, 2017

Congressional Committees

For certain individuals, such as those who live in remote areas or cannot easily travel long distances, access to health care services can be challenging. Telehealth and remote patient monitoring can provide an alternative to health care provided in person at a physician’s office.\(^1\) Telehealth can be used to provide clinical care remotely by two-way video for services such as psychotherapy or the evaluation and management of conditions. Remote patient monitoring can be used to monitor patients with chronic conditions, such as those with congestive heart failure, hypertension, diabetes, and chronic obstructive pulmonary disease, and it can also be used as a diagnostic tool, such as for some heart conditions.\(^2\) Although the literature is mixed on the effectiveness of telehealth and remote patient monitoring, a 2016 review of studies by the Agency for Healthcare Research and Quality—an agency within the Department of Health and Human Services (HHS)—found that the most consistent benefit of telehealth and remote patient monitoring occurs when the technology is used for communication and counseling or to remotely monitor chronic conditions such as cardiovascular and respiratory disease, with improvements in outcomes such as mortality, quality of life, and reductions in hospital admissions.\(^3\)

In recent years there have been efforts to increase the use of telehealth and remote patient monitoring in federal health care programs. A federal strategic plan prepared by the Office of the National Coordinator for Health Information Technology within HHS calls for an increased use of

\(^1\)For this report, we define telehealth as clinical services that are provided remotely via telecommunications technologies, while remote patient monitoring is a technology to enable monitoring of patients outside of conventional clinical settings, such as in the home. Federal agencies have various definitions for telehealth, and in this report we show how these definitions vary across programs.


Additional use of telehealth and remote patient monitoring. In December 2016, Congress expressed an interest in expanding the use of telehealth in Medicare through increasing the types of sites where telehealth can occur.

While Medicare currently uses telehealth primarily in rural areas or regions designated as having a shortage of health professionals, in the future emerging payment and delivery models may change the extent to which telehealth and remote patient monitoring are available and used by Medicare beneficiaries and providers in other areas. The Centers for Medicare & Medicaid Services (CMS), another HHS agency, oversees Medicare payments for telehealth services. According to the Congressional Budget Office, the financial impact of expanding telehealth and remote patient monitoring in Medicare is difficult to predict—it may reduce federal spending if used in place of face-to-face visits, but it may increase federal spending if used in addition to these visits. Beyond the Medicare program, other federal programs, along with some private insurers, also pay for—or provide—some telehealth and remote patient monitoring services.

The Medicare Access and CHIP Reauthorization Act of 2015 included a provision that we study telehealth and remote patient monitoring. In this report we

1. describe the extent to which telehealth and remote patient monitoring are used by Medicare and other federal programs to provide health care services;

2. assess the extent to which CMS oversees telehealth payments in Medicare;

4See Department of Health and Human Services, Office of the National Coordinator for Health Information Technology, Federal Health IT Strategic Plan 2015-2020.


6For the purposes of this report, we use the term “provider” to refer to physicians and non-physician practitioners, such as physician assistants and nurse practitioners.


3. describe the factors associations representing providers and patients rated—and payers cited—as affecting the use of telehealth and remote patient monitoring in Medicare; and

4. describe how emerging payment and delivery models could affect the potential use of telehealth and remote patient monitoring in Medicare.

Our report also describes the use of remote patient monitoring by selected health plans in the private insurance market (see app. I).

To describe the extent to which telehealth and remote patient monitoring are used by Medicare and other federal programs, we reviewed available data, statutes, regulations, and other relevant documentation related to telehealth in Medicare, Medicaid, the Department of Defense (DOD), and the Department of Veterans Affairs (VA).9 We interviewed agency officials from CMS as well as officials from DOD and VA, because the latter two departments operate federal programs outside of HHS that provide telehealth to their beneficiaries. The work we performed for each program included the following:

- For Medicare, we reviewed a June 2016 Medicare Payment Advisory Commission (MedPAC) report which, among other things, includes an analysis of Medicare telehealth and remote patient monitoring claims for calendar year 2014.10

- For Medicaid, we selected a sample of six states—Connecticut, Illinois, Kansas, Mississippi, Montana, and Oregon—to include in our review. We selected states that varied in geography, physical size, percentage of rural population, and other factors related to coverage and reimbursement for health care services. In particular, we considered factors such as the extent to which the state’s Medicaid

---

9Federal agencies have various definitions for telehealth. A May 2014 study from a federal working group found that across the 26 agencies that participated in the workgroup, there were multiple unique definitions using the terms “telehealth” and “telemedicine.” Some agencies’ definitions were broad, for example, defining only the overarching clinical interaction, while others included detailed descriptions of the technology involved. The study concluded that with agencies serving different populations and operating under different missions, a uniform definition of telehealth was elusive, though the study also concluded that the definitions overlapped. See Charles R. Doarn et al., “Federal Efforts to Define and Advance Telehealth—A Work in Progress,” Telemedicine and e-Health, vol. 20, no. 5 (2014).

10We relied on the MedPAC analysis because it analyzed the most recent Medicare data available at the time we conducted our work. See Medicare Payment Advisory Commission, Report to the Congress: Medicare and the Health Care Delivery System, (Washington, D.C.: June 15, 2016), 229-260.
program uses different payment systems, whether the state’s Medicaid program reimburses for telehealth, the type of locations for providing the services that were allowed, and the type and number of eligible providers. We obtained information about telehealth and remote patient monitoring use for the most recent state fiscal year available from four of the six states that had the information and also interviewed state officials from all six states about the use of telehealth and remote patient monitoring in their state, including any restrictions on and reimbursement for these services. Our findings for these six states cannot be generalized to other states.

- For DOD, we obtained data on the use of telehealth for fiscal year 2015, the most recent fiscal year available, and we interviewed officials about the use of telehealth and remote patient monitoring in DOD’s health care program.

- For VA, we reviewed documentation, interviewed officials, and received data on the use of telehealth and remote patient monitoring for fiscal year 2016, the most recent fiscal year available.

To assess the reliability of the program data we used, we interviewed MedPAC officials on how they collected and analyzed Medicare data for their report; we obtained information from DOD and VA on the controls used by the programs to ensure that the data were accurate and complete. Based on these steps we determined that these data were sufficiently reliable for our purposes.

To assess the extent to which CMS oversees telehealth payments in Medicare, we reviewed related agency documentation and interviewed knowledgeable officials about the procedures used to review claims for telehealth services. Additionally, we reviewed MedPAC’s report on Medicare telehealth claims for calendar year 2014 and interviewed MedPAC officials to understand the basis for their findings. We

---

11Connecticut, Illinois, and Mississippi provided us with information from 2015, and Montana also provided information for 2013 through 2015. The remaining two states—Kansas and Oregon—did not provide us with information about such things as numbers of patients or expenditures for telehealth or remote patient monitoring.

12Medicare Payment Advisory Commission, Report to the Congress: Medicare and the Health Care Delivery System.
assessed CMS’s oversight procedures and the agency’s response to MedPAC’s findings using federal standards for internal controls.¹³

To describe the factors associations representing providers and patients rated—and payers cited—as affecting the use of telehealth and remote patient monitoring in Medicare, we developed a data collection instrument for three groups of selected associations—six associations that represent providers, two associations that represent patients, and one association that represents payers. The associations representing providers and patients completed our data collection instrument; the payer association did not.¹⁴ To identify these associations, we reviewed relevant documents and literature and conducted interviews to identify relevant general and specialty associations. In the data collection instrument, we requested that the associations rate the significance of potential factors that may encourage the use of telehealth and remote patient monitoring and potential factors that may create barriers to their use. We identified these factors based on background research and initial interviews with two groups with an interest in telehealth. In addition to having the provider and patient associations rate the factors and having the payer association identify them, we also reviewed relevant documentation and interviewed officials from each provider, patient, and payer association using a structured question set to obtain examples, from their perspective, of how these factors can encourage the use of telehealth and remote patient monitoring in Medicare or create barriers to their use. The perspectives we obtained using the data collection instrument, from our document reviews, and during our interviews with association officials provided insights regarding the officials’ views on factors that encourage the use of telehealth and remote patient monitoring and factors that are barriers to their use. These perspectives cannot be generalized. See appendix II for more information on our data collection instrument and on our scope and methodology for identifying relevant associations and the factors, including the significance of the factors as rated by the associations.

¹³See GAO, Standards for Internal Control in the Federal Government, GAO-14-704G (Washington, D.C.: September 2014); and Standards for Internal Control in the Federal Government, GAO/AIMD-00-21.3.1 (Washington, D.C.: November 1999). Internal control is a process effected by an entity’s oversight body, management, and other personnel that provides reasonable assurance that the objectives of an entity will be achieved.

¹⁴A representative of the payer association we spoke with told us that the association did not have sufficient time to survey its members and could not complete our data collection instrument without doing so. Therefore, we reported separately the payer association’s views on factors that encourage the use of, or are barriers to, telehealth and remote patient monitoring.
To describe how emerging payment and delivery models could affect the potential use of telehealth and remote patient monitoring in Medicare, we reviewed CMS documents describing and evaluating the models developed by the Center for Medicare & Medicaid Innovation (Innovation Center) to support alternative approaches to health care payment and delivery.\footnote{In 2010, the Patient Protection and Affordable Care Act created the Innovation Center within CMS to test new approaches to health care delivery and payment—known as models, or in some cases as demonstrations—in order to reduce Medicare, Medicaid, and state Children’s Health Insurance Program expenditures while preserving or enhancing quality of care for beneficiaries of the programs. See Pub. L. No. 111-148, §§ 3021, 10306, 124 Stat. 119, 389, 939 (codified at 42 U.S.C. § 1315a).} We also studied implementation plans created by participants in one of the models, which outlined how the participants planned to use telehealth. We also interviewed knowledgeable agency officials about how telehealth was used in the models and how the models might affect telehealth and remote patient monitoring use in Medicare in the future. Additionally, we examined documents and interviewed CMS officials regarding a new Medicare payment program that allows the use of telehealth—and to some extent remote patient monitoring—to help achieve some of the goals of the payment program.

We conducted this work from March 2016 to April 2017 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The federal government uses telehealth and remote patient monitoring in various health care programs, including the following:

- Medicare, which provides health care coverage for people age 65 or older, certain individuals with disabilities, and individuals with end-stage renal disease;
- Medicaid, a joint federal-state health care financing program for certain low-income and medically needy individuals;
- DOD, which provides services through its regionally structured health care program to active duty personnel and their dependents,
medically eligible Reserve and National Guard personnel and their dependents, and retirees and their dependents and survivors; and

- VA, which delivers medical services to veterans primarily through an integrated health care delivery system.

Other federal agencies—within and outside of HHS—also provide grants to promote the use of telehealth.16

### Medicare Telehealth and Remote Patient Monitoring Requirements

Medicare began paying separately for certain telehealth services after the passage of the Balanced Budget Act of 1997.17 The statute requires that Medicare, which covers over 50 million beneficiaries, pay for certain telehealth services, including consultations, office visits, and office psychiatry services, that are furnished through a telecommunications system with audio and video equipment permitting two-way, real-time interactive communication between the patient and distant site provider.18

According to CMS officials, Medicare fee-for-service does not have an explicit definition of remote patient monitoring. Rather, Medicare pays separately for some services that are used to remotely monitor patients, as well as for other remote monitoring bundled with other services. For

---

16For example, within HHS, the Health Resources and Services Administration promotes the use of telehealth technologies for health care delivery, education, and health information services through grant programs. It does this to, among other things, improve health care services for medically underserved populations, support the establishment and operation of resource centers that help in implementing telehealth services, and support implementation of telehealth networks to deliver 24-hour emergency department consultation services. Additionally, the U.S. Department of Agriculture administers grants through the Distance Learning and Telemedicine and the Community Connect programs. The Distance Learning and Telemedicine program funds institutions to support advanced telecommunications in health care and education in rural communities and is designed specifically to assist rural communities that would otherwise be without access to learning and medical services over the Internet. The Community Connect program provides financial assistance to state and local governments, federally-recognized tribes, non-profit organizations, and for-profit corporations in rural areas that lack a minimum broadband speed connection.


18Separate payment for telehealth services in Medicare fee-for-service are limited to those on CMS’s approved list of telehealth services. Plans within Medicare Advantage—the Medicare managed care program—must cover the same telehealth services as those provided through fee-for-service, and the plans must include these costs in their annual bid amounts. However, Medicare Advantage plans can provide additional telehealth benefits not on CMS’s approved list to their beneficiaries by using rebate dollars or charging beneficiaries a supplemental premium. Plans must receive CMS approval in order to provide the additional telehealth benefits.
example, separate payment may be made for services used to remotely monitor patients’ conditions, such as services that use devices to monitor, record, and relay data on a patient’s heart activity to a provider for analysis. Additionally, Medicare pays for remote services as bundled parts of other services, such as elements of monthly care management services.

While telehealth visits with providers are conducted from a separate site, Medicare requires that the patient be physically present at a medical facility such as a hospital, rural health clinic, or skilled nursing facility—referred to as the originating site—during the telehealth service.19 Eligible providers who are furnishing Medicare telehealth services are located at a separate site, known as the distant site, and these providers submit claims in the service area where their distant site is located.20 The originating site is paid a facility fee—about $25 in calendar year 2017—under the Medicare Physician Fee Schedule for each telehealth service, and the distant site provider is paid the same rate for services delivered via telehealth as they would be paid for the in-person service, as required by statute.21 (See fig. 1.)

19 By statute, originating sites are limited to those located in rural health professional shortage areas, counties not included in a metropolitan statistical area, and sites participating in a federal telehealth demonstration project (referred to as telemedicine demonstration projects in statute) approved by or receiving funding from the Secretary of Health and Human Services as of December 31, 2000. Eligible originating sites are a physician or provider office, a critical access hospital, a rural health clinic, a federally qualified health center, a hospital, a hospital-based or critical access hospital-based renal dialysis center or satellites, a skilled nursing facility, and a community mental health center.

20 Eligible telehealth providers in Medicare are physicians, physician assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists, nurse-midwives, clinical social workers, clinical psychologists, and registered dietitians or nutrition professionals.

21 Medicare pays for physician and other health professional services based on a list of services and their payment rates, called the Physician Fee Schedule.
Note: Medicare Administrative Contractors (MAC) process and pay Medicare claims in specific geographic jurisdictions. The MACs review claims and identify and prevent improper payments for Medicare services, including telehealth.

\(^a\)Medicare requires that the patient be physically present at a medical facility—referred to as the originating site—such as a hospital, rural health clinic, or skilled nursing facility during the telehealth service.

\(^b\)Eligible providers who are furnishing Medicare telehealth services are located at a separate site, known as the distant site.

CMS does not limit the use of telehealth and remote patient monitoring in Medicaid, which has around 70 million enrollees. Therefore, individual states determine any restrictions and limitations. For example, states have the option to determine

- whether to cover telehealth;
- what types of telehealth to cover;
- how it is provided or covered;
- which types of telehealth providers may be covered or reimbursed, as long as such providers are recognized and qualified according to Medicaid statute and regulation; and
• how much to reimburse for telehealth services, as long as such payments do not exceed other requirements.\textsuperscript{22}

States are not required to submit a separate state plan amendment to CMS for coverage or reimbursement of telehealth services if they decide to reimburse for telehealth services the same way that they pay for face-to-face services.\textsuperscript{23} However, states must submit a separate reimbursement state plan amendment if they want to reimburse for telehealth services or components of telehealth differently than they reimburse for face-to-face services.

DOD, which serves around 9.4 million beneficiaries, allows telehealth through live videoconferencing between the provider and patient at different locations.\textsuperscript{24} DOD does not have restrictions on the services that can be provided through its direct care component.\textsuperscript{25} Broad types of allowable services include health assessments, treatments, diagnoses, interventions, and consultations. Different categories of providers are allowed to use telehealth and are not required to be individually licensed in the state where the patient—or originating site—is located. These providers include members of the Armed Forces, other DOD uniformed providers, civilian DOD employees, personal services contractors, and National Guard providers who are performing training or duty in response to an actual or potential disaster.\textsuperscript{26}

\textsuperscript{22}For example, there are maximum payment amounts—referred to as the federal upper payment limit—that the federal government will provide in matching funds for reimbursement for services under Medicaid.

\textsuperscript{23}Each state has a Medicaid state plan—approved by CMS—that describes, among other things, the services and populations that are covered under the state’s Medicaid program.

\textsuperscript{24}DOD also uses asynchronous telehealth, called store-and-forward, that involves the capture of diagnostic images, sounds, and data that are interpreted at a later time and at a different location by a qualified diagnostician.

\textsuperscript{25}DOD’s direct care component provides care in military hospitals and clinics, which are referred to as military treatment facilities. DOD’s purchased care, which is care provided through networks of civilian providers, limits services that can be provided via telehealth to clinical consultations, office visits, individual psychotherapy, psychiatric diagnostic interview examination, pharmacologic management, and end-stage renal disease related services when appropriate and medically necessary.

\textsuperscript{26}Providers not covered in these categories are required to be licensed in the state where the originating site is located and in the state in which the provider is located when providing such services.
DOD allows a range of eligible originating sites for telehealth. In addition to military treatment facilities, eligible originating sites include VA medical centers and clinics; installations, armories, or other non-medical fixed DOD locations; DOD mobile telehealth platforms; civilian sector hospitals and clinics; and contracted provider offices. In February 2016, DOD approved the patient’s home as an originating site for telehealth services from providers located in a military treatment facility or other designated facility in DOD’s direct care component.27

DOD also utilizes remote patient monitoring devices to provide care for eligible beneficiaries for a range of services. These services include the diagnosis and treatment of cardiac conditions, including ambulatory blood pressure monitoring and pacemakers, and continuous glucose monitoring for patients with diabetes. According to DOD officials, the department does not have policies that specifically govern the use of remote patient monitoring devices, but instead DOD leaves the determination of use to clinical practice guidelines or to professional society guidance or recommendations.

VA, which serves about 6.7 million patients, allows the use of telehealth via videoconferencing technologies to enable providers to assess, treat, and provide care to a patient remotely.28 VA also allows remote patient monitoring using mobile and in-home technologies assigned to veterans.

---

27In addition to the patient’s home, DOD allows telehealth services for any “other patient location” that is deemed appropriate by the treating provider in DOD’s direct care component. Among other requirements, the telehealth provider must be privileged at the distant site and must inform the patient’s military treatment facility or primary care manager of the care delivered by telehealth. Privileging is the process that health care organizations employ to authorize providers to provide specific services to their patients. In the case of DOD’s purchased care, the originating site must be located where the authorized provider normally offers professional medical or psychological services, such as the provider’s office.

28VA also uses store-and-forward telehealth, which uses devices to capture and store images, sounds, or data that are then forwarded to clinical caregivers for asynchronous review and interpretation.
According to officials, VA does not restrict the use of telehealth or remote patient monitoring by type of service, provider, or location. Telehealth in VA can take place in various originating and distant site locations throughout the country, such as between two VA medical centers; a VA medical center and a community-based outpatient clinic; two community-based outpatient clinics; from the provider’s site and the veteran’s home, a community living center, or a contract nursing home; and a provider’s home and sites such as a VA medical center or community-based outpatient clinic. In recent years, VA has taken steps to increase the use of telehealth. As part of VA’s fiscal year 2009 to fiscal year 2013 telehealth transformational initiative, VA recruited over 970 telehealth clinical technicians and purchased equipment for over 900 sites of care.

Table 1 summarizes the use of telehealth and remote patient monitoring in Medicare, Medicaid, DOD, and VA health programs.

29The remote patient monitoring technologies include VA-provided hub devices placed in the veteran’s home, as well as mobile platforms for use with the veteran’s own device. The VA-provided hub devices can receive and transmit data via a landline phone, or in homes without a landline via a cellular modem integrated with the device, or by using the veteran’s personal computer. Mobile platforms include interactive voice response, which allows veterans to use their own landline or cell phone to receive and transmit responses using voice and keypad entry, and web-enabled technology, allowing veterans to use their own smartphone, computer, or tablet to access a secure VA vendor website for data transmission.
### Table 1: Summary of Federal Agency Telehealth Services and Originating Sites

<table>
<thead>
<tr>
<th>Federal agency</th>
<th>Telehealth services</th>
<th>Originating sites</th>
</tr>
</thead>
</table>
| Centers for Medicare & Medicaid Services (CMS) | Medicare pays for the 81 telehealth services on CMS’s list of telehealth services as of 2016. | For sites located in a rural health professional shortage area or a county that is not included in a Metropolitan Statistical Area, Medicare pays for telehealth used at the following locations:  
- physician or provider office,  
- critical access hospital,  
- rural health clinic,  
- federally qualified health center,  
- hospital,  
- hospital-based or critical access hospital-based renal dialysis center or satellites,  
- skilled nursing facility, and  
- community mental health center. |
| Medicaid | Services covered differ depending on the state. According to CMS officials, CMS does not have any statutory or regulatory requirements for telehealth use in Medicaid. | CMS does not limit telehealth use in Medicaid. Restrictions on use vary by state. |
| Department of Defense (DOD) | DOD does not limit the services allowed for telehealth use within its direct care component. | Outside of military treatment facilities, originating sites are allowed at patient locations that are deemed appropriate by the treating provider in DOD’s direct care component, including the patient’s home. According to officials, telehealth services are not limited to certain geographic areas, such as rural locations. |
| Department of Veterans Affairs (VA) | According to officials, VA does not limit the services providers can offer via telehealth. | According to officials, VA does not limit the locations where telehealth services may be offered. |

Sources: CMS, DOD, and VA. | GAO-17-365

Note: The term “originating site” refers to the location where the patient is located while receiving a telehealth service.

Medicare also pays for telehealth use for entities that participate in a federal telehealth demonstration project (referred to as telemedicine demonstration projects in statute) approved by or receiving funding from the Secretary of Health and Human Services as of December 31, 2000.

DOD’s direct care component provides care in military hospitals and clinics, which are referred to as military treatment facilities. DOD’s purchased care, which is care provided through networks of civilian providers, limits services that can be provided via telehealth to clinical consultations, office visits, individual psychotherapy, psychiatric diagnostic interview examination, pharmacologic management, and end-stage renal disease related services when appropriate and medically necessary. Additionally, for purchased care, the originating site must be located where the authorized provider normally offers professional medical or psychological services, such as the provider’s office.
Our review of available data shows that low proportions of beneficiaries received care through telehealth in Medicare, Medicaid, VA, and DOD—from less than 1 percent of beneficiaries in Medicare and DOD to 12 percent in VA—while the types of services available through these technologies varies. Data on use of remote patient monitoring are not aggregated for analysis in Medicare and are not available in selected Medicaid states, and limited data are available for DOD and VA.

Available Data Show Low Proportions of Beneficiaries Accessing Telehealth; Limited Data Are Available on Remote Patient Monitoring

Medicare

Telehealth and Remote Patient Monitoring in Medicare

Medicare pays for a limited number of Part B services furnished by a physician or provider to an eligible beneficiary via a telecommunications system. Part B services include physician and outpatient hospital services. For eligible telehealth services, the use of a telecommunications system substitutes for an in-person encounter. According to officials, CMS does not consider remote patient monitoring services as a separate set of services, as it does with telehealth.

Source: CMS. | GAO-17-365

Available calendar year 2014 data show that Medicare providers used telehealth services for a small proportion of beneficiaries and relatively few services. An analysis of Medicare claims data by MedPAC shows that about 68,000 Medicare beneficiaries—0.2 percent of Medicare Part B fee-for-service beneficiaries—accessed services using telehealth. MedPAC also found that 10 states accounted for 42 percent of all Medicare telehealth visits, with South Dakota, followed by Iowa and North Dakota, accounting for the highest use—more than 20 telehealth services were provided per 1,000 fee-for-service beneficiaries. As of 2016, Medicare pays for 81 telehealth services. (See app. III for a list of health care services CMS has added or denied for inclusion on the Medicare list of telehealth services.)

According to MedPAC, beneficiaries accessing telehealth averaged about three telehealth visits per person per year in calendar year 2014, and Medicare spent an average of $182 per beneficiary, for a total of about $14 million. The majority of telehealth visits—62 percent—were for beneficiaries younger than 65 years old. The most common telehealth visits in calendar year 2014 were for evaluation and management services (66 percent), followed by psychiatric visits (19 percent).

---

30See Medicare Payment Advisory Commission, Report to the Congress: Medicare and the Health Care Delivery System. Part B services include physician and outpatient hospital services.

31The other seven states are—in rank order of use of telehealth per 1,000 beneficiaries—Wyoming, Nebraska, Minnesota, Missouri, Montana, Texas, and Oklahoma.

32Medicare provides health care coverage for certain individuals with disabilities and individuals with end-stage renal disease, in addition to people age 65 or older.
MedPAC reported that physicians and nurse practitioners were the most common providers participating in telehealth visits in calendar year 2014 and, of all providers, behavioral health clinicians, including psychiatrists, made up 62 percent of providers at distant sites. According to MedPAC, a small proportion of providers accounted for the majority of telehealth visits in calendar year 2014. Ten percent of distant sites providers accounted for 69 percent of telehealth claims.

According to officials, because CMS does not have a separate category for remote patient monitoring services, as it does with telehealth, and these services may be bundled with other services, CMS has not conducted a separate analysis of remote patient monitoring services. Therefore, the number of Medicare beneficiaries who use this service is unknown. While the number of beneficiaries who use remote patient monitoring is not identified, MedPAC reported information on Medicare spending on remote patient monitoring for selected services. Specifically, MedPAC reported that Medicare spent $119 million on remote cardiac monitoring services for 265,000 beneficiaries in calendar year 2014. MedPAC also reported that in calendar year 2014, Medicare spent $70 million on remote patient monitoring for 639,000 beneficiaries to remotely monitor heart rhythms through implantable cardiac devices, such as pacemakers, and to evaluate the function of these devices.

In Medicaid, the use of telehealth and remote patient monitoring varies by state. We interviewed officials from six states and among these officials, the ones from states that were generally more rural than urban said they used telehealth and remote patient monitoring more frequently than officials from more urban states. Officials from four states provided the following information on the use of telehealth and remote patient monitoring in their Medicaid program.

- A Connecticut official said that in the state, which has medical centers in-state and is close to multiple medical centers in other states, Medicaid uses telehealth in a limited capacity by only allowing

---

33The distant site is a separate location where the provider furnishing the telehealth service is located.

34These services were for mobile cardiac telemetry monitoring of patients to record the patient’s electrocardiographic rhythm using external, rather than implantable, devices. The data are sent via phone signal to a surveillance site, and a physician reviews the data and prepares a report.
provider-to-provider consults via secure messaging in federally qualified health centers. According to this official, Connecticut Medicaid data show that the state spent $89,053 on 817 provider-to-provider consults in 2015. The official told us that Connecticut officials needed to be convinced that the use of telehealth would not lead to unnecessary utilization of services in order to expand telehealth reimbursement beyond these consults.

- In Illinois, officials told us that telehealth represented a very small portion of the overall Medicaid budget and was used primarily to provide psychiatric services. According to officials, less than $500,000 of Illinois’ $20 billion in Medicaid spending in the state fiscal year 2015 was for telehealth.

- Mississippi began reimbursing for telehealth and remote patient monitoring in January 2015. Mississippi telehealth data show that from January 2015 through June 2015 Medicaid expenditures were about $9,360 for 210 claims for 172 managed care patients and $13,218 for 222 claims for 184 fee-for-service patients. For remote patient monitoring during the same period, Mississippi Medicaid expenditures were about $27,634 for 292 claims for 158 managed care patients and $4,969 for 99 claims for 68 fee-for-service patients.

- Montana officials told us they have used telehealth as a tool to help patients see both in-state and out-of-state specialists remotely, as there is limited access to specialists in the state. According to state officials, Montana’s Medicaid spending on telehealth increased from state fiscal years 2013 through 2015. Specifically, according to officials, Montana’s Medicaid program spent about $284,675 for 3,218 telehealth distant site claims related to telehealth services provided in state fiscal year 2015, which is an increase from about $132,194 for 1,841 distant site claims in state fiscal year 2013. According to officials, Montana’s Medicaid program reimbursed the site where the patient is located about $3,438 for 260 originating site claims in state fiscal year 2015, with psychiatric services accounting for the largest share of the state’s Medicaid telehealth expenditures that year.

For more details on telehealth and remote patient monitoring use in Medicaid in the six selected states, see appendix IV.
Fiscal year 2015 data show 25,389 DOD beneficiaries—or about 0.3 percent—received care through telehealth.\(^3\) The most commonly offered telehealth services were behavioral health/psychiatry services, which accounted for approximately 80 percent of all telehealth encounters in fiscal year 2015, followed by dermatology, cardiology, and pediatric services. According to officials, DOD data also show that the top five locations in fiscal year 2015 for the provision of telehealth services were San Antonio, Texas; Fort Shafter, Hawaii; Fort Meade, Maryland; Joint Base Lewis-McChord, Washington; and Landstuhl, Germany. According to DOD officials, of these locations, the surrounding areas of San Antonio, Fort Shafter, and Joint Base Lewis-McChord include zip codes that are considered rural or have an area serviced by a sole community hospital.\(^3\)

DOD has also used provider-to-provider e-consultations, which, according to a DOD official, allow providers to give consults to other providers who are deployed or stationed in remote areas, making it easier for providers to consult with one another even when separated by distance. According to officials, DOD also uses remote patient monitoring devices—such as remote pacemaker monitoring and sleep study monitors—to varying degrees across military treatment facilities. DOD officials noted that the agency conducted an Army pilot program using remote patient monitoring for 51 soldiers with known or newly diagnosed Type 1 Diabetes. According to DOD officials, DOD is currently developing additional pilot programs for remote patient monitoring.

According to VA officials, VA provided telehealth services to more than 702,000 veterans during fiscal year 2016, or approximately 12 percent of veterans enrolled in VA’s health care system. Of these veterans, approximately 45 percent were veterans living in rural areas with limited access to VA health care. Of these 702,000 veterans using telehealth, 150,600 veterans used remote patient monitoring services at least once from October 2015 to September 2016.

VA documents show that VA uses telehealth and remote patient monitoring for a wide range of services. These services include mental health services, such as services for post-traumatic stress disorder;

\(^3\)DOD telehealth also includes asynchronous telehealth, called store-and-forward, that involves the capture of diagnostic images, sounds, and data that are interpreted at a later time and at a different location by a qualified diagnostician.

\(^3\)Sole community hospitals provide health care in rural areas or areas where similar hospitals do not exist.
primary care; rehabilitation; speech and audiology services; eye care; dermatology services; specialty care; critical care; and care for chronic conditions such as diabetes, chronic heart failure, chronic obstructive pulmonary disease, hypertension, and depression. According to VA officials, providers from over 50 different specialties are using telehealth. VA officials noted that as of May 2016, the most common conditions for veterans using remote patient monitoring were hypertension (almost 19,000 veterans) and diabetes (about 14,000 veterans).

CMS oversees telehealth payments as a part of its general efforts to prevent improper payments in Medicare. CMS relies on Medicare Administrative Contractors (MAC), which process and pay Medicare claims in specific geographic jurisdictions. The MACs review claims to, among other things, identify and prevent improper payments for Medicare services, including telehealth. According to CMS officials, similar to other services, CMS has directed the MACs to only approve and pay claims with a telehealth modifier if the claims meet the statutory and regulatory criteria for covered telehealth services.

According to CMS officials, CMS does not conduct any enhanced oversight or fraud prevention specific to telehealth payments, though officials told us that if there were indications of inappropriate payments or fraud schemes related to telehealth payments, CMS would provide additional oversight for these claims. Telehealth represents a very small percentage of all Medicare claims.

---

CMS Uses Routine Claims Review Processes for Telehealth Payments and Is Examining Some Questionable Claims Identified by MedPAC

37An improper payment is any payment that should not have been made or that was made in an incorrect amount (including overpayments and underpayments) under statutory, contractual, administrative, or other legally applicable requirements. This definition includes any payment to an ineligible recipient, any payment for an ineligible good or service, any duplicate payment, any payment for a good or service not received (except where authorized by law), and any payment that does not account for credit for applicable discounts. Improper Payments Elimination and Recovery Act of 2012, Pub. L. No. 112-245, § 3(a)(1), 126 Stat 2390 (codified at 31 U.S.C. § 3321 note).

38Distant site providers who furnish telehealth services bill for these services using a GT or GQ code modifier. The GT modifier is used if the telehealth service was provided via interactive audio and video telecommunications systems. The GQ modifier is used if the telehealth service was provided via an asynchronous telecommunications system. The site where the patient is located can also submit a separate originating site claim, which is indicated by the use of code Q3014.

39According to MedPAC, in calendar year 2014, Medicare paid 175,000 telehealth claims for a total of about $14 million, which is less than 0.01 percent of the approximately $257 billion in total annual Medicare expenditures on Part B services in fiscal year 2014.
their efforts on areas that pose the greatest financial risk to the Medicare program and where their efforts are likely to produce the best return on investment, which is consistent with federal internal controls.\(^{40}\)

CMS officials told us that there are no payment incentives for a provider to put a telehealth modifier on a non-approved telehealth service, because the provider could receive payment for that service if it did not include the modifier and the service is payable under Medicare’s Physician Fee Schedule. That is, the payment to a distant site provider for a service on the approved telehealth list would be the same amount as the payment for the service if it were furnished in person. Adding a telehealth modifier incorrectly also increases the possibility that claim would be examined, CMS officials said, reducing the incentive to incorrectly add the telehealth modifier. CMS officials also said that for 2017 Medicare is using a new place of service code to describe services furnished via telehealth. According to officials, the code is intended to better identify telehealth services.

However, MedPAC’s 2016 report, which examined Medicare telehealth claims, identified potential improper telehealth payments. Specifically, MedPAC reported that among the 175,000 Medicare telehealth claims paid in calendar year 2014, 55 percent, or about 95,000 claims, did not have a corresponding originating site claim.\(^{41}\) Because there was no originating site claim, it is unclear whether these beneficiaries received telehealth services in a location not permitted under the Medicare statute, such as the home, an originating site located in an urban area, or whether the claims were paid under a demonstration project or model. The Medicare statute requires beneficiaries to receive telehealth services in an originating site located in a rural area, as defined by Medicare for telehealth purposes, unless the site is part of a demonstration project or is participating in a Medicare model where telehealth location requirements are waived.

The absence of a corresponding originating site claim does not definitively indicate that the telehealth claims are improper, though it warrants further review. As a possible explanation for the difference in the number of originating site claims relative to distant site claims, CMS

\(^{40}\)GAO-14-704G, GAO/AIMD-00-21.3.1.

\(^{41}\)Calendar year 2014 Medicare data were the most complete year of data at the time of MedPAC’s review.
officials suggested that if a facility does not frequently serve as an originating site, it may not find it worthwhile to submit a claim for the approximately $25 originating site fee. Additionally, there may be cases where a beneficiary receives multiple telehealth services in a single day, and in such cases, the telehealth encounter might include several services that are appropriately billed with several claims from the distant site provider, but only have a single originating site claim.

However, according to MedPAC, the absence of originating site claims may have occurred because some patients may have inappropriately received services in their homes or other locations not permitted under the Medicare statute. MedPAC also found that among the telehealth claims without corresponding originating site claims, 44 percent—or almost one-quarter of all telehealth claims made in calendar year 2014—were associated with beneficiaries living in urban areas, which could indicate that the patients were receiving telehealth services at inappropriate originating sites. MedPAC officials told us that they identified one provider who conducted 2,000 telehealth visits in a single year, and all of those claims originated from an urban area.

When asked about MedPAC’s findings, CMS officials told us that as of January 2017, they are reviewing the MedPAC report. They further stated that the agency will take action on MedPAC’s findings, as warranted. This is consistent with federal standards for internal controls related to monitoring that call for managers to promptly evaluate findings from audits and other reviews—including those showing deficiencies—and determine and complete appropriate corrective actions.

42Medicare has published information for providers to guide the use of telehealth. For example, in December 2015, CMS released a publication providing information on Medicare telehealth rules and regulations, including eligibility criteria for originating sites. In March 2016, CMS released guidance for providers submitting claims to the MACs for telehealth services provided to the beneficiaries. The guidance includes an address for a website that provides an updated list of Medicare telehealth services.

43MedPAC reported in 2013 that some physician practices billed errantly for telehealth services for urban patients because their billing managers were unaware of Medicare’s location requirements for telehealth payment.

44GAO-14-704G, GAO/AIMD-00-21.3.1.
Officials from selected associations representing providers and patients rated the significance of certain factors that encourage the use of telehealth and remote patient monitoring in Medicare as well as factors that create barriers to their use. The officials reported that both telehealth and remote patient monitoring may improve or maintain quality of care in Medicare, but they rated concerns regarding payment and coverage restrictions as potential barriers. Officials with a payer association we selected generally agreed with the assessments of the selected provider and patient associations.

Among the factors presented as potentially encouraging both telehealth and remote patient monitoring use in Medicare, officials from selected provider and patient associations most often rated the potential to improve or maintain quality of care as very or somewhat significant. (See fig. 2.) Officials from a provider association told us that telehealth can improve patient outcomes by facilitating follow-up to care. Additionally, an official from a patient association stated that remote patient monitoring is a helpful tool for treating patients with chronic disease.

Furthermore, officials from selected provider and patient associations more often rated alleviating provider shortages, convenience to patients, and coverage of services as very significant or somewhat significant factors that encourage both telehealth and remote patient monitoring use in Medicare. For example, officials from one provider association noted that provider and regional medical specialty shortages can be addressed through telehealth, potentially increasing productivity and ensuring on-time scheduling of appointments. Officials from another provider association reported that telehealth can increase convenience by shortening or eliminating travel times—which may lead to better adherence to recommended treatments and to patient satisfaction.

Regarding remote patient monitoring, officials from a provider association explained that it can be an important tool for emergency department physicians to provide expertise to rural areas remotely, which could alleviate provider shortages.
Figure 2: Significance of Certain Factors That Encourage the Use of Telehealth and Remote Patient Monitoring in Medicare, According to Selected Provider and Patient Associations

<table>
<thead>
<tr>
<th>Factor that encourages use</th>
<th>Provider associations</th>
<th>Patient associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving or maintaining quality of care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telehealth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote patient monitoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alleviation of provider shortages/scheduling problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telehealth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote patient monitoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenience for the patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telehealth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote patient monitoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coverage of services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telehealth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote patient monitoring</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- A very significant factor that encourages use
- A somewhat significant factor that encourages use
- A factor that encourages use, but not a significant one
- Not a factor that encourages use
- Did not respond

Source: GAO analysis of a data collection instrument completed by six associations that represent providers and two associations that represent patients. | GAO-17-365

Note: Remote patient monitoring is a technology to enable monitoring of patients outside of conventional clinical settings, such as in the home.

Less frequently identified factors cited by association officials that encourage telehealth and remote patient monitoring use are described in the following examples, and in appendix V.

- Officials from two selected provider associations told us that emerging Medicare payment structures—such as accountable care
organizations (ACO)—could alleviate concerns about overutilization in Medicare’s fee-for-service payment system. The concern is that telehealth would be used in addition to, instead of in place of, face-to-face visits.

- Officials from one selected provider association stated that remote patient monitoring use shows promise in lowering health care costs and avoiding unneeded emergency room visits, because it allows a provider to identify subtle changes in a patient’s condition and schedule an office visit before the patient’s condition deteriorates.

- Officials from a selected patient association said that remote patient monitoring can help patients and their caregivers save on transportation costs and help them avoid having to miss work.

Although officials from the payer association we selected did not rate the significance of the factors, they confirmed that improving or maintaining quality of care was a factor in encouraging the use of both telehealth and remote patient monitoring. For example, officials stated that telehealth has the potential to decrease hospital readmissions and use of intensive care units. These officials also identified alleviating provider shortages and providing convenience for the patient as encouraging the use of telehealth. Additionally, these officials noted that the ability of patients to use their own electronic devices—such as home computers or smartphones—could facilitate broader use of remote patient monitoring services.

Selected Associations Cited Payment and Coverage Restrictions as Barriers to the Use of Telehealth and Remote Patient Monitoring in Medicare

Among the factors presented as potential barriers to the use of both telehealth and remote patient monitoring in Medicare, selected patient and provider associations most often rated cost increases or inadequate payment and coverage restrictions as very significant or somewhat significant. (See fig. 3.) Officials often linked their comments on payment with those regarding coverage restrictions. For example, officials from a provider association reported that Medicare’s telehealth policies for payment and coverage lag behind other payers due to the program’s statutory and regulatory restrictions. In particular, these restrictions limit the geographic and practice settings in which beneficiaries may receive

45ACOs are groups of physicians, hospitals, and other health care providers who voluntarily work together to give coordinated care to the Medicare patients they serve. See GAO, Medicare Value-Based Payment Models: Participation Challenges and Available Assistance for Small and Rural Practices, GAO-17-55 (Washington, D.C.: Dec. 9, 2016).
services, as well as the types of services that may be provided via telehealth and the types of technology that may be used.

Additionally, officials from another provider association described coverage as the single greatest barrier to the use of telehealth, adding that Medicare’s restrictions on the types of services covered by the program have prohibited its broader use. Regarding remote patient monitoring, officials from another provider association stated that Medicare’s valuation methodology for services results in low payment rates for remote patient monitoring, which these officials said remains a principal barrier to the use of these services. For more information on Medicare’s valuation of remote patient monitoring, see appendix VI.

Officials from selected provider and patient associations more often rated infrastructure requirements as a very significant or somewhat significant barrier to the use of both telehealth and remote patient monitoring in Medicare. For example, officials from one provider association and both patient associations we selected described access to sufficiently reliable broadband internet service as a barrier to telehealth use. Officials from both of the patient associations also mentioned the ability to access the technology necessary to use telehealth as a potential barrier to its use. Officials from two of these provider associations also described uncertainty around which remote patient monitoring products and services are most effective.
Less frequently identified barriers to telehealth and remote patient monitoring use cited by selected provider and patient association officials are shown in the following examples, and in appendix V.

- Officials from both selected patient associations rated provider and patient training requirements as very significant barriers to the use of both telehealth and remote patient monitoring. Officials from one of these patient associations noted that training is important for patients, providers, and caregivers to help them understand the technology involved in using telehealth and remote patient monitoring.
Officials from both selected patient associations also rated cultural factors, such as language and technological literacy, as very significant barriers to the use of both telehealth and remote patient monitoring.

Officials from four selected provider associations rated professional licensure issues as a very or somewhat significant barrier to the use of telehealth. Officials from one association mentioned states’ participation in the Interstate Medical Licensure Compact as a potential strategy to overcome telehealth licensure barriers.\(^46\)

Although officials from the payer association we selected did not rate the significance of barriers to telehealth or remote patient monitoring use, they confirmed that cost increases and inadequate payment, as well as infrastructure requirements, are barriers to the use of these technologies. For example, officials cited as barriers equipment costs and the distribution of equipment to patients. Additionally, they discussed concerns about problems with the interoperability of platforms and devices used for telehealth.\(^47\)

\(^46\)The Interstate Medical Licensure Compact is a voluntary expedited pathway to licensure for physicians who wish to practice in multiple states.

\(^47\)Interoperability is the ability of two or more systems or components to exchange information and to use the information that has been exchanged. See GAO, *Electronic Health Records: DOD and VA Have Increased Their Sharing of Health Information, but More Work Remains*, GAO-08-954 (Washington, D.C.: July 28, 2008).
CMS Has Various Efforts Underway That Have the Potential to Expand the Use of Telehealth and Remote Patient Monitoring in Medicare

CMS has efforts underway that have the potential to expand the use of telehealth and remote patient monitoring in Medicare. First, CMS supports models and demonstrations that offer alternative approaches to health care payment and delivery.\(^48\) Second, CMS’s new Medicare payment program allows participating clinicians to use telehealth, and to some extent remote patient monitoring, to help them achieve some of the goals of the payment program.\(^49\)

The Patient Protection and Affordable Care Act created the Innovation Center within CMS to test innovative payment and service delivery models to reduce Medicare, Medicaid, and state Children’s Health Insurance Program expenditures while preserving or enhancing the quality of care for beneficiaries of the programs.\(^50\) The Innovation Center also supports Medicare demonstration projects, which study the likely impact of new methods of service delivery, coverage of new types of services, and new payment approaches on beneficiaries, providers, health plans, states, and the Medicare trust funds. The Innovation Center has the authority to waive Medicare telehealth requirements as part of its efforts to implement and test these models and, as allowed by other statutory authorities, as part of testing demonstrations.

---

\(^{48}\)Models are new payment and service delivery structures developed by CMS under the authority of section 1115A of the Social Security Act. Demonstration projects study the likely impact of new methods of service delivery, coverage of new types of services, and new payment approaches on beneficiaries, providers, health plans, states, and the Medicare trust funds. These demonstration projects are established under other statutory authorities.

\(^{49}\)The Merit-based Incentive Payment System applies to eligible clinicians, defined as physicians, physician assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists, and groups that include such clinicians who bill under Medicare Part B. While we refer to “providers” elsewhere in our report, we use the term “clinicians” when discussing the Merit-based Incentive Payment System.

According to CMS, telehealth waivers may broaden access to telehealth services, and CMS’s Innovation Center has used its authority, and other statutory authorities as applicable, to waive Medicare telehealth requirements for eight models and demonstrations in certain circumstances.\textsuperscript{51} Specifically, CMS’s Innovation Center waived certain requirements regarding the geographic location or types of permitted sites at which beneficiaries can receive telehealth services for four models:

- **Next Generation ACOs** are groups of doctors, hospitals, and other health care providers and suppliers who come together voluntarily to provide coordinated, high-quality care at lower costs to their Medicare patients.\textsuperscript{52}

- **Two Bundled Payments for Care Improvement models** link payments for the multiple services beneficiaries receive during an episode of care.\textsuperscript{53} Under this initiative, organizations enter into payment arrangements that include financial and performance accountability for episodes of care.

- **The Comprehensive Care for Joint Replacement Model** aims to support better and more efficient care for beneficiaries undergoing hip and knee replacements, which are the most common inpatient surgeries for Medicare beneficiaries.\textsuperscript{54}

Additionally, CMS officials told us that three Episode Payment Models will have telehealth waivers removing Medicare’s geographic and permitted site telehealth requirements beginning sometime in calendar year 2017 and will pay providers for care based on the following conditions treated:

- **acute myocardial infarction,**

\textsuperscript{51}The Social Security Act provides authority for the Secretary of Health and Human Services to waive Medicare payment requirements as may be necessary for the Innovation Center to test payment and delivery service models. According to CMS officials, the statutory authorities of certain demonstrations have provided similar authority to waive Medicare telehealth requirements.

\textsuperscript{52}As of January 2017, there were 45 Next Generation ACO model participants.

\textsuperscript{53}When we refer to the Bundled Payments for Care Improvement Model, we are referring to model two, Retrospective Acute & Post Acute Care Episode, and model three, Retrospective Post Acute Care Only, which are the two Bundled Payments for Care Improvement models with access to the telehealth waiver. As of January 2017, model two has 577 participants and model three has 779 participants.

\textsuperscript{54}Comprehensive Care for Joint Replacement Model participation is required in 67 Metropolitan Statistical Areas.
• coronary artery bypass grafts, and
• surgical hip and femur fractures.55

Furthermore, in one demonstration that aims to develop and test new models of integrated health care in sparsely populated rural counties—the Frontier Community Health Integration Project Demonstration—CMS allows participants to receive cost-based payments for telehealth when their location serves as the originating site, rather than the approximately $25 fixed fee that CMS otherwise pays originating sites.56 See table 2 for more information on the Medicare telehealth requirements waived for these models and demonstrations.

CMS officials told us that the Innovation Center also has the authority to waive requirements regarding payment for telehealth services for payment and delivery service models, but that the Innovation Center identified waiving requirements regarding the originating site as the best way to provide broader access to telehealth.57 The Innovation Center could potentially waive other telehealth requirements if it decided to do so in the future.

55According to CMS officials, the Acute Myocardial Infarction Model and the Coronary Artery Bypass Graft Model will be implemented in 98 Metropolitan Statistical Areas, accounting for approximately 1,127 hospitals, and the Surgical Hip and Femur Fracture Treatment Model will be implemented in the 67 Metropolitan Statistical Areas where the Comprehensive Care for Joint Replacement Model is also occurring, accounting for 866 hospitals.

56The Frontier Community Health Integration Project Demonstration has 10 rural health care participants, and of those, 8 have telehealth as a demonstration intervention tool. CMS officials told us that CMS initially explored implementing a store-and-forward waiver for this demonstration, which would have allowed providers to, for example, take a photo of a skin condition, then send that photo to a dermatologist at a distant site for review. CMS officials told us they determined that it was not operationally feasible to implement that waiver within the demonstration period.

57CMS officials told us that CMS also has the authority to waive some telehealth requirements for other demonstration projects through other statutory authority.
### Table 2: Medicare Telehealth Requirements Waived for Selected Models and Demonstrations

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Change in Medicare telehealth requirement under waiver</th>
<th>Applicable models and demonstrations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Originating site geography</strong></td>
<td>This waiver removes the requirement that telehealth only occur in</td>
<td>Bundled Payments for Care Improvement Model&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• a rural health professional shortage area,</td>
<td>Comprehensive Care for Joint Replacement Model</td>
</tr>
<tr>
<td></td>
<td>• a county that is not included in a Metropolitan Statistical Area, or</td>
<td>Episode Payment Models&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• an entity that participates in a federal telehealth demonstration project (referred to as telemedicine demonstration projects in statute) approved by or receiving funding from the Secretary of Health and Human Services as of December 31, 2000.</td>
<td>Next Generation Accountable Care Organizations</td>
</tr>
<tr>
<td><strong>Originating site type</strong></td>
<td>The waiver allows for telehealth services to be furnished in the patient’s home or place of residence and eliminates the requirement that the patient receiving telehealth services must be at one of the specified originating sites:</td>
<td>Comprehensive Care for Joint Replacement Model</td>
</tr>
<tr>
<td></td>
<td>• physician or provider office,</td>
<td>Episode Payment Models&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>• critical access hospital,</td>
<td>Next Generation Accountable Care Organizations</td>
</tr>
<tr>
<td></td>
<td>• rural health clinic,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• federally qualified health center,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• hospital,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• hospital-based or critical access hospital-based renal dialysis center or satellites,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• skilled nursing facility, or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• community mental health center.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The waiver eliminates the requirement to pay originating site fees when telehealth services are provided in the patient’s home.</td>
<td></td>
</tr>
<tr>
<td><strong>Originating site facility fee</strong></td>
<td>The waiver allows participants to receive cost-based payment for telehealth when they are the originating site, rather than the approximately $25 set fee for originating sites.</td>
<td>Frontier Community Health Integration Project Demonstration</td>
</tr>
</tbody>
</table>

Source: GAO analysis of Medicare statute and Centers for Medicare & Medicaid Services (CMS) regulations. | GAO-17-365

Note: The term “originating site” refers to the location where the patient is located while receiving a telehealth service.

<sup>a</sup>The Bundled Payments for Care Improvement Model refers in this case only to Bundled Payments for Care Improvement models two and three.

<sup>b</sup>Episode Payment Models refer to three models for episodes of care surrounding (1) acute myocardial infarction, (2) coronary artery bypass graft, and (3) surgical hip/femur fracture treatment. CMS officials told us that these models would begin sometime in calendar year 2017.
In calendar year 2015, 15 Next Generation ACOs submitted implementation plans that detailed their proposed strategies to implement the telehealth waiver.\(^5\) Eleven out of the 15 expected to use telehealth to provide increased access to specialty providers.\(^5\) For example, one participant reported that it would use telehealth to establish a virtual network of specialists who could provide telehealth consultations to patients in areas such as cardiology, rheumatology, and psychiatry. In addition, 8 out of 15 Next Generation ACOs included plans to use telehealth to improve care for patients with chronic conditions.\(^6\) For example, one participant planned to use telehealth to connect beneficiaries who have chronic diseases—such as congestive heart failure, diabetes, and pulmonary diseases—with their care team, including specialty providers.

As table 3 shows, the Innovation Center models and demonstration with waivers are in various stages of implementation, and their participants are using telehealth to varying degrees.

---

\(^5\)There were 18 Next Generation ACOs operating in calendar year 2016, and of those, 15 provided CMS with implementation plans to use telehealth waivers. CMS officials told us that implementation plans were also required for the Frontier Community Health Integration Project Demonstration, but not for the other models with telehealth waivers.

\(^6\)The remaining four Next Generation ACOs may plan to provide increased access to specialty providers through the use of telehealth; however, their implementation plans did not explicitly state that this was the ACOs’ intent under the waiver.

\(^6\)The remaining seven Next Generation ACOs may plan to use telehealth to improve care for patients with chronic conditions; however, their implementation plans did not explicitly state that this was the ACOs’ intent under the waiver.
Table 3: Telehealth Use by Selected Models and Demonstrations with Waivers of Certain Medicare Requirements

<table>
<thead>
<tr>
<th>Model or demonstration</th>
<th>Time period of services</th>
<th>Number of Medicare telehealth services provided</th>
<th>Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bundled Payments for Care Improvement Model&lt;sup&gt;a&lt;/sup&gt;</td>
<td>October 2013-June 2015</td>
<td>7</td>
<td>CMS officials told us that during this period model participants performed a total of 166,000 services.</td>
</tr>
<tr>
<td>Next Generation Accountable Care Organization (ACO) Model</td>
<td>January 2016-June 2016</td>
<td>1,422</td>
<td>According to CMS officials, telehealth services were concentrated among a few ACOs. One ACO accounted for more than half of all the telehealth claims, and five each had more than 50 telehealth claims. CMS officials said that around one-third of the telehealth services provided were for beneficiaries residing in urban areas, and the officials said they could attribute this use to the waiver.</td>
</tr>
<tr>
<td>Comprehensive Care for Joint Replacement Model</td>
<td>April 2016-September 2016</td>
<td>0</td>
<td>CMS officials said that as of January 2017 these data were still preliminary and may not include all claims for care that occurred between April 2016 and September 2016. As a result, there may be claims for telehealth services delivered as part of the Comprehensive Care for Joint Replacement Model during that time frame that are not yet reflected in CMS’s claims data.</td>
</tr>
<tr>
<td>Frontier Community Health Integration Project Demonstration</td>
<td>n/a</td>
<td>n/a</td>
<td>CMS officials told us that as of January 2017, they did not have data on the utilization of the originating site facility fee waiver, as the demonstration has only been operational for a few months.</td>
</tr>
<tr>
<td>Episode Payment Model&lt;sup&gt;b&lt;/sup&gt;</td>
<td>n/a</td>
<td>n/a</td>
<td>CMS officials told us that these models would begin sometime in calendar year 2017.</td>
</tr>
</tbody>
</table>

Source: GAO analysis of Centers for Medicare & Medicaid Services (CMS) reports and interviews. | GAO-17-365

Note: n/a = not applicable.

<sup>a</sup>The Bundled Payments for Care Improvement Model refers in this case only to Bundled Payments for Care Improvement models two and three.

<sup>b</sup>Episode Payment Models refer to three models for episodes of care surrounding (1) acute myocardial infarction, (2) coronary artery bypass graft, and (3) surgical hip/femur fracture treatment.

In addition to the models and demonstrations in which CMS waives certain telehealth requirements, other models and demonstrations may affect the use of telehealth, as described in the following examples.

- Under its Health Care Innovation Award program, CMS funds cooperative agreements that the agency identifies as the most compelling new ideas to deliver better health, improve care, and lower
costs to Medicare, Medicaid, and state Children’s Health Insurance Program beneficiaries. Some of these projects include initiatives focused on telehealth and remote patient monitoring. For example, one award supported efforts to use telehealth and remote patient monitoring to provide care for urban and rural Medicare patients receiving intensive care. An evaluation of this awardee found the effort was associated with a reduction in hospital readmissions.

- According to CMS documents, in the Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents—which aims to improve the quality of care for individuals residing in long-term care facilities by reducing avoidable hospitalizations—a participant plans to use telehealth to evaluate nursing home residents whose conditions worsen at night when physicians are not present.

- The Independence at Home Demonstration, which tests a payment incentive and service delivery model that uses primary care teams to provide in-home primary care to Medicare beneficiaries with multiple chronic conditions, includes practices that have the ability to use remote monitoring and mobile diagnostic technology with their patients.

For more examples of how telehealth and remote patient monitoring may be used in models and demonstrations, see appendix VII.

---

61A cooperative agreement is a legal instrument used to provide financial support when substantial interaction is expected between a federal agency and a state, local government, or other recipient carrying out the funded activity.

62Round one of the Health Care Innovation Awards funded up to $1 billion in awards over three years through cooperative agreements. A 2015 CMS report shows that 17 of the agency’s 108 round one Health Care Innovation Awards include a telehealth or remote patient monitoring component. Department of Health and Human Services, Center for Medicare & Medicaid Innovation, Health Care Innovation Awards (HCIA) Meta-Analysis and Evaluators Collaborative, Annual Report Year 1.

63Round two of the Health Care Innovation Awards funded up to $360 million in awards. CMS officials told us that of the 39 round two Health Care Innovation Awards, 7 focused on telehealth. The officials told us the awards were underway and that evaluation results are not yet available.

64As of January 2017, there were seven organizations selected for the Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents.

65This demonstration supports home-based primary care for Medicare beneficiaries with multiple chronic conditions.
Beginning in 2017, CMS will implement the Quality Payment Program, which will include a new Medicare payment program—the Merit-based Incentive Payment System—for physicians and other clinicians. The Merit-based Incentive Payment System will consolidate components of programs currently used to tie payments to quality and provide incentives for quality, resource use, clinical practice improvement activities, and advancing care information through the meaningful use of electronic health record technology.66 Under this payment program, clinicians can use telehealth in certain ways to meet the criteria in the program’s improvement activities performance category, which can help clinicians improve their performance under the payment program.67 For example, clinicians could use telehealth to coordinate care and, in some cases, to reach patients in remote locations. Additionally, there are some instances when clinicians can use remote patient monitoring to meet Merit-based Incentive Payment System goals—for example, using home monitoring to remotely gather information to determine a patient’s proper dose of blood thinning medication. According to CMS officials, clinicians using telehealth and remote patient monitoring for these purposes do not have to bill Medicare for the service in order to receive credit for it under the Merit-based Incentive Payment System, and these services can count for credit under the improvement activities performance category regardless of whether they meet the statutory telehealth requirements. However, if clinicians want to bill Medicare for these services, the service must meet Medicare’s statutory requirements for payment.

We provided a draft of this report to HHS, DOD, and VA for review and comment. These departments provided technical comments, which we incorporated as appropriate.

We also provided relevant draft portions of this report to stakeholders we interviewed. Specifically, we provided these excerpts to state Medicaid program officials for Connecticut, Illinois, Kansas, Mississippi, Montana,

6681 Fed. Reg. 77010. Components of the previously separate Physician Quality Reporting System, Physician Value-based Payment Modifier program, and Medicare electronic health record incentive program will be merged into the Merit-based Incentive Payment System so that payments for most physicians will reflect physician performance on both quality measures and electronic health record use. See GAO-17-55.

67Improvement activities are those that support broad aims within health care delivery, including care coordination, beneficiary engagement, population management, and health equity.
and Oregon; representatives of selected provider, patient, and payer associations; and officials from selected private payers. Not all of the stakeholders responded. One state and one association confirmed that the information we provided was accurate. In addition, three states, four associations, and three private payers provided technical comments, which we incorporated as appropriate.
We are sending copies of this report to the appropriate congressional committees, the Secretary of Health and Human Services, Secretary of the Department of Defense, Secretary of the Department of Veterans Affairs, and to other interested parties. In addition, the report is available at no charge on the GAO website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-7114 or YocomC@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix VIII.

Carolyn L. Yocom
Director, Health Care
List of Requesters

The Honorable Orrin Hatch  
Chairman  
The Honorable Ron Wyden  
Ranking Member  
Committee on Finance  
United States Senate  

The Honorable Lamar Alexander  
Chairman  
The Honorable Patty Murray  
Ranking Member  
Committee on Health, Education, Labor, and Pensions  
United States Senate  

The Honorable Greg Walden  
Chairman  
The Honorable Frank Pallone  
Ranking Member  
Committee on Energy and Commerce  
House of Representatives  

The Honorable Kevin Brady  
Chairman  
The Honorable Richard Neal  
Ranking Member  
Committee on Ways and Means  
House of Representatives
As part of our work, we interviewed officials from health plans in the private insurance market (private payers) about the use of remote patient monitoring. This appendix provides the results of those interviews. Officials from three of the top private payers (based on market share) told us that providers can use remote patient monitoring in their health care systems when it is indicated for a patient’s condition.

Officials from the three private payers told us they have limited data on the extent to which remote patient monitoring is used. They told us they did not have data available because, for example, remote patient monitoring services are usually part of a care management program in which charges are bundled and not billed and detailed separately. It is therefore difficult to distinguish remote patient monitoring services from services provided via telehealth, officials explained. Some of the health plans of these three private payers reimburse for remote patient monitoring on a fee-for-service basis, while others include it as part of the services offered through integrated delivery systems that do not reimburse for separate services.

Officials from one private payer explained that they want physicians to decide which patients, conditions, problems, and circumstances are most suited to remote patient monitoring. This private payer does not reimburse physicians on a fee-for-service basis, noting that incentives, such as payment, can drive behavior. As an example, if the provider receives reimbursement based on the amount of monitoring, the provider may file more claims for monitoring, regardless of whether the use is driven by evidence-based care processes. Instead, officials from this private payer stated that their incentives focus on the care outcomes of physicians’ patients, and they pay physicians based on the quality of the outcomes by disease population. Officials explained that they are currently rolling out programs to track diabetic patients’ blood sugar by monitoring what they eat, the exercise they get, and how they live. Additionally, this private payer has been using remote patient monitoring for patients with heart failure for some time, and officials told us that data

---

1Remote patient monitoring is a technology to enable monitoring of patients outside of conventional clinical settings, such as the home.

2The three private payers we interviewed were in the top five payers by market share in the accident and health insurance industry based on the National Association of Insurance Commissioners’ 2015 report. See National Association of Insurance Commissioners, 2014 Market Share Reports: For the Top 125 Accident and Health Insurance Groups and Companies by State and Countrywide (2015).
gathered through monitoring of weight and blood pressure are good predictors of early deterioration of heart conditions. Similarly, this private payer has a program for patients with hypertension that monitors a patient’s stress level.

Officials from a second private payer stated that they reimburse for remote patient monitoring in a manner that is appropriate for the specific condition being treated. For example, they reimburse for cardiologic remote patient monitoring if the patient has symptoms that are indications for the use of monitoring. If the condition does not indicate cardiologic monitoring, the private payer does not reimburse for this monitoring. Officials from this second private payer said they are reimbursing for remote patient monitoring that is used in real time to monitor patients with one or more chronic conditions and for high-risk patients. For example, the service is used to monitor blood pressure for hypertension, weight changes for congestive heart failure, and real-time blood sugar for diabetes. According to these private payer officials, providers typically use remote patient monitoring in the short-term and episodically, or to retrospectively look at monitoring results to make a clinical decision. Remote patient monitoring is also used to connect health plan members with their care managers, and these managers can notify providers to intervene if the monitoring indicates a need. This private payer also has various pilot programs related to remote patient monitoring, including a program for its members with varying levels of congestive heart failure.

Officials from the third private payer told us that if remote patient monitoring is indicated by a patient’s condition, then the provider can order its use. Some of the payer’s private plans are integrated delivery systems for overall care, and in these plans providers are not paid separately for remote patient monitoring. According to officials, their agreements with providers are designed to encourage providers to use data from all sources, such as claims information, electronic medical records, and remote patient monitoring. The private payer also contracts with accountable care organizations and enters into payment arrangements with provider groups.3 Those entities use remote patient monitoring and the information obtained through monitoring as part of their care management of patients. This private payer’s fee-for-service

---

3Accountable care organizations are groups of physicians, hospitals, and other health care providers who voluntarily work together to provide coordinated care to the Medicare patients they serve.
plans reimburse for remote patient monitoring services, including cardiac services.

Officials from all three private payers told us that there are challenges to using remote patient monitoring in the private sector. For example, officials from one private payer said that barriers to the use of remote patient monitoring can include the need to set up equipment in the patient’s home, interact with members with cognitive and physical disabilities and their caregivers, and address technical difficulties with the equipment.
We administered a data collection instrument to selected associations representing providers, patients, and payers to obtain information on the factors that encourage the use of telehealth and remote patient monitoring in Medicare or are barriers to their use. To develop the data collection instrument, we identified a list of potential factors and barriers based on background research and initial interviews with two groups with an interest in telehealth. Table 4 displays the list of factors that encourage use or are barriers to use as they appeared in the data collection instrument. For the purposes of the data collection instrument, we defined telehealth as clinical services that are provided remotely via telecommunications technologies, and we defined remote patient monitoring as a technology to enable monitoring of patients outside of conventional clinical settings, such as in the home.

Table 4: Potential Factors that Encourage the Use or Are Barriers to the Use of Telehealth or Remote Patient Monitoring in Medicare Used in the Data Collection Instrument

<table>
<thead>
<tr>
<th>Potential factors that encourage or are barriers</th>
<th>If Yes, how significant is the factor that encourages or is a barrier?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Is this a factor that encourages or is a barrier (Y/N)?</td>
</tr>
<tr>
<td></td>
<td>Not Significant</td>
</tr>
<tr>
<td>Factors that encourage use</td>
<td></td>
</tr>
<tr>
<td>Alleviation of provider shortages/</td>
<td></td>
</tr>
<tr>
<td>scheduling problems</td>
<td></td>
</tr>
<tr>
<td>Convenience for the patient</td>
<td></td>
</tr>
<tr>
<td>Cost reduction</td>
<td></td>
</tr>
<tr>
<td>Coverage of services</td>
<td></td>
</tr>
<tr>
<td>Emerging Medicare payment structures or</td>
<td></td>
</tr>
<tr>
<td>waivers</td>
<td></td>
</tr>
<tr>
<td>Enabling the use of emerging technology</td>
<td></td>
</tr>
<tr>
<td>Health Resources and Services Administration</td>
<td></td>
</tr>
<tr>
<td>telehealth grant programs/other federal</td>
<td></td>
</tr>
<tr>
<td>initiatives</td>
<td></td>
</tr>
<tr>
<td>Improving or maintaining quality of care</td>
<td></td>
</tr>
<tr>
<td>Other: please list any other factors</td>
<td></td>
</tr>
<tr>
<td>Barriers to use</td>
<td></td>
</tr>
<tr>
<td>Concern regarding quality of care</td>
<td></td>
</tr>
</tbody>
</table>

For the purposes of this report, we combined the tables for factors that encourage use or are barriers to use in one table. In the data collection instrument, the factors that encourage use or are barriers to use were separate for both telehealth and remote patient monitoring.
Cost increase or inadequate payment

Coverage of services

Cultural factors<sup>b</sup>

Infrastructure requirements<sup>c</sup>

Pace of changing technology

Privacy and security concerns

Professional licensure issues

Provider/patient training requirements

Other: please list any other barriers

Source: GAO analysis of background research documents and interviews with two groups with an interest in telehealth. | GAO-17-365

Note: Remote patient monitoring is a technology to enable monitoring of patients outside of conventional clinical settings, such as in the home.

<sup>a</sup>We used the word “incentive” in the data collection instrument, which we are referring to as “factors that encourage” for the purpose of our report.

<sup>b</sup>Cultural factors may include language and technological literacy, among others.

<sup>c</sup>Infrastructure requirements may include access to broadband internet, imaging technology or peripherals, and wireless communications systems, among others.

To identify associations that might have an interest in telehealth and remote patient monitoring, we conducted background research, interviewed two groups with an interest in telehealth, and used knowledge from our previous engagements to judgmentally select associations based on their relevance and expertise. We chose associations that represented three health care perspectives—providers, patients, and payers. In addition, we chose medical specialty associations that represent common conditions for which telehealth or remote patient monitoring may be used, or could be beneficial, during the course of treatment, such as stroke, heart disease and congestive heart failure, and mental health. We included nine associations in our review: six associations that represent providers, two associations that represent patients, and one association representing payers.<sup>2</sup>

A representative of the payer association we spoke with told us that it did not have sufficient time to survey its members and could not complete our data collection instrument without doing so. Therefore, we reported

<sup>2</sup>These associations are AARP, America’s Health Insurance Plans, American Heart Association/American Stroke Association, American Hospital Association, American Medical Association, American Telemedicine Association, National Association of Rural Health Clinics, National Patient Advocate Foundation, and Remote Cardiac Services Provider Group.
separately the payer association’s views on factors that encourage the use of, or are barriers to, telehealth and remote patient monitoring. For the payer association, we interviewed officials to identify factors that encourage use or are barriers to the use of telehealth and remote patient monitoring in Medicare. We used professional judgment based on information obtained throughout the course of our engagement to match the payer association officials’ statements on factors that encourage use or are barriers to use with corresponding data collection instrument factors that encourage use or are barriers to use.

After identifying the associations, we administered the data collection instrument and requested that officials from each association rate each factor that encourages the use of telehealth and remote patient monitoring and each barrier to use. We requested that officials rate factors that encourage telehealth use, factors that encourage remote patient monitoring use, barriers to telehealth use, and barriers to remote patient monitoring use. For example, if an official identified a factor as encouraging the use of telehealth, we requested that the official rate the factor as not significant, somewhat significant, or very significant.

To identify the factors that encourage use or are barriers to use that were rated either most often or more often “very significant” or “somewhat significant” by the associations who completed our data collection instrument, we developed the following scoring system.

- Highest points (5) were assigned to an individual factor when an association rated it very significant for both telehealth and remote patient monitoring.
- Next highest points (3) were assigned to an individual factor when an association rated it very significant for either telehealth or remote patient monitoring and somewhat significant for either telehealth or remote patient monitoring.
- Lowest points (1) were assigned to an individual factor when an association rated it somewhat significant for both telehealth and remote patient monitoring.

No points were assigned for any other rating combinations.

We used this scoring system to separately calculate total points assigned to (1) each individual factor that encouraged use, and (2) each factor considered to be a barrier to use. Within either group (either among those that encouraged use or among those that were considered barriers to use), if any one or two factors had measurably greater scores than the
other factors, those factors were reported as rated most often very significant or somewhat significant. Additionally, we determined whether any other factor or several factors had obviously higher scores than the remaining factors that either encourage use or are a barrier to use, and we reported those factors as rated more often very significant or somewhat significant.

We also interviewed officials from each association using a structured question set to obtain examples of how these factors can encourage or create barriers to the use of telehealth and remote patient monitoring in Medicare. Finally, we obtained and reviewed any relevant documentation from these associations. The perspectives we obtained using the data collection instrument, from our document reviews, and during our interviews with association officials provided insights regarding officials’ views about the factors that encourage the use of telehealth and remote patient monitoring and the factors that are barriers to their use. These perspectives cannot be generalized to other associations or officials.
The Centers for Medicare & Medicaid Service (CMS)—an agency within the Department of Health and Human Services—has a process for adding or denying proposed services to the list of Medicare telehealth services. This process provides the public with an ongoing opportunity to submit requests for adding services. Under this process, CMS assigns requests to one of two categories:

1. services that are similar to professional consultations, office visits, and office psychiatry services that are currently on the list of telehealth services; and

2. services that are not similar to the current list of telehealth services. In reviewing these requests, CMS looks for evidence indicating that the use of a telecommunications system in furnishing the requested telehealth service produces clinical benefit for the patient.

The most common reason a proposed service was added for payment from calendar years 2011 through 2016 was similarity to a service already on the list of telehealth services. See table 5 for the Current Procedural Terminology and Healthcare Common Procedure Coding System codes that were approved by CMS, including the reason for adding the service, from calendar year 2011 through calendar year 2016.

\[1\text{Medicare pays for a limited number of Part B services furnished by a physician or provider to an eligible beneficiary via a telecommunications system. Part B services include physician and outpatient hospital services. For eligible telehealth services, the use of a telecommunications system substitutes for an in-person encounter.}\]
### Table 5: Telehealth Service Codes Added by the Centers for Medicare & Medicaid Services (CMS), Calendar Years 2011 through 2016

<table>
<thead>
<tr>
<th>Calendar year</th>
<th>Service code</th>
<th>Description of service</th>
<th>CMS rationale for adding the service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>G0108</td>
<td>Individual and group diabetes outpatient self-management training services</td>
<td>CMS initially denied this in 2009 because it might involve injection training. The agency approved it as sufficiently similar to G0270 medical nutrition therapy, but requires 1 hour of in-person injection training.</td>
</tr>
<tr>
<td>2011</td>
<td>G0109</td>
<td>Individual and group kidney disease education</td>
<td>Similar to another telehealth code, G0270 medical nutrition therapy.</td>
</tr>
<tr>
<td>2011</td>
<td>G0420</td>
<td>Group medical nutrition therapy services, and group Health Behavior Assessment and Intervention services</td>
<td>Similar to other telehealth codes.</td>
</tr>
<tr>
<td>2011</td>
<td>96153</td>
<td>Subsequent hospital care services</td>
<td>Similar to follow-up inpatient consultation services. These services can only be furnished through telehealth once every 3 days.</td>
</tr>
<tr>
<td>2011</td>
<td>96154</td>
<td>Subsequent nursing facility care services</td>
<td>Similar to other telehealth codes. These services can only be furnished through telehealth once every 30 days.</td>
</tr>
<tr>
<td>2012</td>
<td>99231</td>
<td>Smoking and tobacco use cessation counseling, intermediate and intensive</td>
<td>Similar to individual kidney disease education reported by code G0420 and individual medical nutrition therapy services reported by G0270, 97802, and 97803.</td>
</tr>
<tr>
<td>2013</td>
<td>G0396</td>
<td>Alcohol and substance abuse assessment, 15 to 30 minutes and greater than 30 minutes, respectively</td>
<td>Similar to an existing telehealth service: smoking cessation counseling 99406 and 99407.</td>
</tr>
<tr>
<td>2013</td>
<td>G0397</td>
<td>Screening for behavioral conditions: alcohol misuse and counseling, depression, sexually transmitted infections, cardiovascular disease, and obesity</td>
<td>Similar to existing behavioral intervention telehealth codes.</td>
</tr>
<tr>
<td>2014</td>
<td>99495</td>
<td>Transitional care management services with follow up communication, 14 days and 7 days after discharge, respectively</td>
<td>Similar to other telehealth services.</td>
</tr>
<tr>
<td>2015</td>
<td>G0438</td>
<td>Annual wellness visit, initial and subsequent, respectively</td>
<td>Similar to existing behavioral intervention telehealth codes.</td>
</tr>
<tr>
<td>2015</td>
<td>90845</td>
<td>Psychoanalysis, family psychotherapy without patient, and family psychotherapy with patient, respectively</td>
<td>Similar to existing behavioral intervention telehealth codes.</td>
</tr>
<tr>
<td>2015</td>
<td>99354</td>
<td>Prolonged service in the office or other outpatient setting requiring direct patient contact beyond the usual service, first hour and each additional 30 minutes, respectively</td>
<td>Similar to existing behavioral intervention telehealth codes.</td>
</tr>
</tbody>
</table>
### Calendar year | Service code | Description of service | CMS rationale for adding the service
---|---|---|---
2016 | 90963 | End-stage renal disease related services for home dialysis per full month; patients younger than ages 2, 2-11, 12-19, and 20+, respectively | Similar to existing psychiatric diagnostic procedures or office/outpatient visits codes. |
| 90964 | | | |
| 90965 | | | |
| 90966 | | | |
| 99356 | Prolonged service in the inpatient or observation settings, requiring unit/floor time beyond the usual service; first hour and additional 30 minutes, respectively | Similar to existing psychiatric diagnostic procedures or office/outpatient visits codes. |
| 99357 | | | |

Source: GAO analysis of Federal Register Notices for Medicare Telehealth Services | GAO-17-365

There are several reasons that CMS denied proposed services for its approved telehealth list for calendar years 2011 through 2016. These reasons are, for example, that

- the service was not like any other on the telehealth list, and the requester could not prove to CMS that the service is effective when furnished through telehealth;
- the service was furnished by a provider or in a location that is not allowed under Medicare;
- the service was not face-to-face when not provided via telehealth; and
- the service required face-to-face care because of patient acuity or another factor.

See table 6 for the Current Procedural Terminology and Healthcare Common Procedure Coding System codes that were denied by CMS and the reasons for denial, from calendar year 2011 through calendar year 2016.
## Table 6: Telehealth Service Codes Denied by the Centers for Medicare & Medicaid Services (CMS), Calendar Years 2011 through 2016

<table>
<thead>
<tr>
<th>Calendar year</th>
<th>Service code</th>
<th>Description of service</th>
<th>CMS rationale for denial</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>96119</td>
<td>Neuropsychological testing</td>
<td>Not similar to other telehealth services; no studies were provided on the efficacy of this service when provided through telehealth.</td>
</tr>
<tr>
<td></td>
<td>99221</td>
<td>Level 1, 2, and 3 initial hospital care, respectively</td>
<td>No current telehealth codes resemble initial hospital care like these, and CMS was not convinced by studies provided in support of the request.</td>
</tr>
<tr>
<td></td>
<td>99222</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99223</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99238</td>
<td>Hospital discharge management, less than 30 minutes and more, respectively</td>
<td>There are no services on the current list of telehealth services that resemble such preparation of a patient for discharge. CMS was not convinced by the studies provided in support of the request.</td>
</tr>
<tr>
<td></td>
<td>99239</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99304</td>
<td>Nursing facility care codes—initial, discharge, and annual assessment</td>
<td>Codes 99304, 99305, 99306, and 99318 are federally-mandated nursing facility visits that should be provided in person. Codes 99315 and 99316 are not required to be furnished under Medicare, but if a provider chooses to provide these services, the services should be provided in person. No current telehealth codes resemble this preparation of a patient for discharge, and CMS did not have evidence that these services provided via telehealth are equivalent to in-person services.</td>
</tr>
<tr>
<td></td>
<td>99305</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99306</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99315</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99316</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99318</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No code provided</td>
<td>Home wound care</td>
<td>The home is not an eligible telehealth originating site under Medicare.</td>
</tr>
<tr>
<td></td>
<td>No code provided</td>
<td>Speech language pathology services</td>
<td>Speech language pathologists are not eligible telehealth providers under Medicare.</td>
</tr>
<tr>
<td>2012</td>
<td>96040</td>
<td>Medical genetics and genetic counseling services</td>
<td>The services under this code would only be furnished by genetics counselors, who are not eligible telehealth providers.</td>
</tr>
<tr>
<td></td>
<td>99090</td>
<td>Analysis of clinical data stored in computers and collection and interpretation of physiologic data</td>
<td>As explained in a 2002 final rule, this code is part of pre- and post-work for a separate and unspecified evaluation and management code. These codes are not separately payable. CMS also denied these codes in 2015.</td>
</tr>
<tr>
<td></td>
<td>99091</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99291</td>
<td>Critical care, evaluation and management of the critically ill or critically injured patient, first 30 to 74 minutes and each additional 30 minutes, respectively</td>
<td>Previously considered and denied adding these codes in 2009 and 2010 because critical care services are not similar to any services on the current list of Medicare telehealth services and CMS believes patients requiring critical care services are more acutely ill than typical patients receiving telehealth services. Additionally, CMS did not have evidence that these services provided via telehealth are equivalent to in-person services.</td>
</tr>
<tr>
<td></td>
<td>99292</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99334</td>
<td>Domiciliary or rest home evaluation and management visit; 15 minute visit, 25 minute visit, 40 minute visit, and 60 minute visit respectively</td>
<td>A domiciliary or rest home is not an eligible telehealth originating site under Medicare.</td>
</tr>
<tr>
<td></td>
<td>99335</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99336</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99337</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99444</td>
<td>Online evaluation and management</td>
<td>As indicated in 2008, 2012, 2014, and 2016, this is a noncovered service because it is non-face-to-face and the language of the descriptor indicates that the service could be for noncovered entities, like guardians.</td>
</tr>
</tbody>
</table>
### Appendix III: Medicare Telehealth Services
Added and Denied by the Centers for Medicare & Medicaid Services, 2011-2016

<table>
<thead>
<tr>
<th>Calendar year</th>
<th>Service code</th>
<th>Description of service</th>
<th>CMS rationale for denial</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No code provided</td>
<td>Audiology services</td>
<td>Audiologists are not authorized telehealth providers under Medicare.</td>
</tr>
<tr>
<td>2013</td>
<td>99408</td>
<td>Alcohol and substance abuse screening, 15 to 30 minutes and greater than 30 minutes, respectively</td>
<td>These are noncovered services under the Physician Fee Schedule. As explained in 2008, Medicare only provides payment for certain screening services with an explicit benefit category. However, CMS created parallel codes—G0396 and G0397—and approved those for the telehealth list.</td>
</tr>
<tr>
<td></td>
<td>99409</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>98969</td>
<td>Online assessment and management service provided by a non-physician</td>
<td>These are noncovered services because it is non-face-to-face and the language of the descriptor indicates that the service could be for noncovered entities, like guardians.</td>
</tr>
<tr>
<td></td>
<td>99444</td>
<td>Online evaluation and management</td>
<td>As indicated in comments for 2008, 2012, 2014, and 2016, this is a noncovered service because it is non-face-to-face and the language of the descriptor indicates that the service could be for noncovered entities, like guardians.</td>
</tr>
<tr>
<td>2015</td>
<td>57452</td>
<td>Colposcopy of the cervix, colposcopy of the cervix with biopsy, and colposcopy of the cervix with loop electrode biopsy(s) of the cervix, respectively</td>
<td>These services are not similar to other services on the telehealth list and the requester did not submit evidence to support the clinical benefit of furnishing these services via telehealth.</td>
</tr>
<tr>
<td></td>
<td>57454</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>57460</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>90887</td>
<td>Interpretation of psychiatric examinations, analysis of clinical data stored in computers, collection and interpretation of physiologic data, prolonged evaluation and management, first hour and each additional 30 minutes, respectively</td>
<td>Medicare does not make a separate payment for these services.</td>
</tr>
<tr>
<td></td>
<td>99090</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99091</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99358</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99359</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>92250</td>
<td>Fundus photography with interpretation and report, and five types of echocardiography services</td>
<td>These services include a technical component and a professional component. By definition, the technical component portion of these services needs to be furnished in the same location as the patient and thus cannot be furnished via telehealth.</td>
</tr>
<tr>
<td></td>
<td>93010</td>
<td>Psychological testing, neuropsychological testing, respectively</td>
<td>These services involve testing by computer, can be furnished remotely without the patient being present, and are payable in the same way as other physicians' services. These services are not Medicare telehealth services.</td>
</tr>
<tr>
<td></td>
<td>93307</td>
<td>Psychological testing per hour of physician time and technician time; neuropsychological testing per hour of physician time and technician time, respectively</td>
<td>These services are not similar to other services on the telehealth list, as they require close observation of how a patient responds. The requester did not submit evidence supporting the clinical benefit of furnishing these services via telehealth.</td>
</tr>
<tr>
<td></td>
<td>93308</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>93320</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>93321</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>93325</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No code provided</td>
<td>Urgent dermatologic problems and wound care</td>
<td>Without a specified code, CMS cannot determine if this is an appropriate telehealth service.</td>
</tr>
</tbody>
</table>
## Appendix III: Medicare Telehealth Services
### Added and Denied by the Centers for Medicare & Medicaid Services, 2011-2016

<table>
<thead>
<tr>
<th>Calendar year</th>
<th>Service code</th>
<th>Description of service</th>
<th>CMS rationale for denial</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>99291, 99292</td>
<td>Critical care, evaluation and management of the critically ill or critically injured patient, first 30 to 74 minutes and each additional 30 minutes, respectively</td>
<td>Previously considered and denied adding these codes in 2009, 2010, and 2012 because critical care services are not similar to any services on the current list of Medicare telehealth services, and CMS believes patients requiring critical care services are more acutely ill than typical patients receiving telehealth services. Additionally, CMS did not have evidence that these services provided via telehealth are equivalent to in-person services. In 2016, CMS did not find that the submitted evidence demonstrates a clinical benefit to the patient.</td>
</tr>
<tr>
<td></td>
<td>99358, 99359</td>
<td>Prolonged evaluation and management service before or after direct patient care, first hour and each additional 30 minutes, respectively</td>
<td>As indicated in 2015, Medicare does not make a separate payment for these services.</td>
</tr>
<tr>
<td></td>
<td>99444</td>
<td>Online evaluation and management</td>
<td>As indicated in 2008, 2012, 2014, and 2016, this is a noncovered service because it is inherently non-face-to-face and the language of the descriptor indicates that the service could be for noncovered entities, like guardians.</td>
</tr>
<tr>
<td></td>
<td>99490</td>
<td>Chronic care management services</td>
<td>This service can be furnished without the beneficiary’s face-to-face presence and using any number of non-face-to-face means of communication.</td>
</tr>
<tr>
<td></td>
<td>99605, 99606, 99607</td>
<td>Medication therapy management services provided by a pharmacist, initial 15 minutes, new patient; initial 15 minutes, established patient; each additional 15 minutes, respectively</td>
<td>These are noncovered services under the Physician Fee Schedule.</td>
</tr>
<tr>
<td></td>
<td>No code provided</td>
<td>All evaluation and management services, telerehabilitation services; and palliative care, pain management and patient navigation services for cancer patients</td>
<td>The requests did not identify specific codes being requested, and two of the requests did not include evidence of any clinical benefit when the services are furnished via telehealth.</td>
</tr>
</tbody>
</table>

Source: GAO analysis of Federal Register Notices for Medicare Telehealth Services. | GAO-17-365

Medicare pays for physician and other health professional services based on a list of services and their payment rates, called the Physician Fee Schedule.
To better understand how telehealth and remote patient monitoring are used in Medicaid plans, we selected a sample of six states—Connecticut, Illinois, Kansas, Mississippi, Montana, and Oregon—to include in our review, and interviewed Medicaid officials from each of those states. We selected states that provide variation in geography, physical size, percentage of rural population, and other factors related to coverage and reimbursement for health care services.

The Centers for Medicare & Medicaid Services does not limit telehealth and remote patient monitoring use in Medicaid, thus reimbursement and use vary by state. The six states had a range of restrictions for the use of telehealth. For example, Illinois requires a medical professional be present with the patient receiving care at the originating site, while Oregon does not require anyone to be with the patient who is receiving care, at what is known as the originating site. More details on the use of telehealth and remote patient monitoring by selected state are included in table 7.

Table 7: Reimbursement and Use of Telehealth and Remote Patient Monitoring in Selected State Medicaid Programs

<table>
<thead>
<tr>
<th>State characteristics</th>
<th>Reimbursement of telehealth and remote patient monitoring</th>
<th>Use of telehealth and remote patient monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connecticut</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 percent rural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primarily fee-for-service</td>
<td>As described in state documentation, Connecticut passed a law effective July 1, 2016, for coverage under the Medicaid program for telehealth services that are (1) clinically appropriate to be provided by means of telehealth, (2) cost effective for the state, and (3) likely to expand access to medically necessary services for Medicaid recipients for whom accessing appropriate health care services poses an undue hardship. A Connecticut official told us that currently, Connecticut reimburses for provider-to-provider consults via secure electronic messaging, and does not reimburse for any other telehealth or remote patient monitoring services.</td>
<td>A Connecticut official told us that the state has considerable health resources and proximity to specialists, both in Connecticut and in neighboring states, and thus has less need for telehealth use.</td>
</tr>
<tr>
<td><strong>Illinois</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 percent rural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primarily managed care</td>
<td>As described in state documentation, Illinois requires telehealth patients to be at an originating site with a physician or licensed health care professional or other clinician present. A physician’s office, podiatrist’s office, local health department, community mental health center, and outpatient hospitals are allowed as originating sites. Allowable providers of telehealth are hospitals, physicians, advanced practice nurses, podiatrists, federally qualified health centers, rural health clinics, and encounter rate clinics.</td>
<td>Illinois officials told us telehealth is used frequently for psychiatric care.</td>
</tr>
</tbody>
</table>
### Appendix IV: Telehealth and Remote Patient Monitoring Reimbursement and Use in Selected State Medicaid Plans

<table>
<thead>
<tr>
<th>State characteristics</th>
<th>Reimbursement of telehealth and remote patient monitoring</th>
<th>Use of telehealth and remote patient monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kansas</td>
<td>As described in state documentation, Kansas does not limit reimbursement based on patient location and allows reimbursement for home-based telehealth. Kansas also does not limit the providers who can offer telehealth services. Kansas officials told us they reimburse for some remote patient monitoring services, such as monitoring of blood pressure, blood glucose, and weight.</td>
<td>Kansas officials told us that telehealth is a valuable tool, especially in supporting emergency room staff in hospitals without a level I or II trauma center nearby. The state has some experience with remote patient monitoring through a pilot project, which ran from September 2007 to June 2010 and, according to a Kansas report, reduced the rate of emergency department utilization.</td>
</tr>
<tr>
<td>Large</td>
<td>26 percent rural</td>
<td></td>
</tr>
<tr>
<td>Primarily managed care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mississippi</td>
<td>As described in state documentation, Mississippi reimburses for telehealth services that are medically necessary and would otherwise be covered in an in-person setting. Mississippi requires that telehealth be delivered in a live, interactive audiovisual format and does not reimburse for other types of services, such as telephone and email communication. Mississippi reimburses for telehealth services provided in specific originating sites.</td>
<td>Mississippi officials told us they began reimbursing for telehealth and remote patient monitoring in January 2015. Officials told us they focus their use of telehealth on serving high-cost, high-use beneficiaries.</td>
</tr>
<tr>
<td>Medium</td>
<td>51 percent rural</td>
<td></td>
</tr>
<tr>
<td>Primarily managed care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montana</td>
<td>According to state officials, Montana does not restrict the use of telehealth. They started reimbursing for originating site fees in 2014, and have increased the number of sites where they provide an originating site reimbursement fee since 2014. Officials told us that they do not reimburse for remote patient monitoring.</td>
<td>Montana officials told us the state does not have any medical schools and has limited access to specialists. As such, telehealth services are important to providing patients with access to specialty care.</td>
</tr>
<tr>
<td>Large</td>
<td>44 percent rural</td>
<td></td>
</tr>
<tr>
<td>Primarily fee-for-service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oregon</td>
<td>As described in state documentation, Oregon reimburses for medically appropriate covered telehealth services within the patient’s benefit package. In its definition of “telemedicine,” Oregon does not further specify restrictions on originating sites or provider types.</td>
<td>Oregon officials told us they see telehealth and remote patient monitoring as tools to be used by Oregon’s coordinated care organizations (CCO) when appropriate for delivering quality, value-based care.</td>
</tr>
<tr>
<td>Large</td>
<td>19 percent rural</td>
<td></td>
</tr>
<tr>
<td>Primarily managed care</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau data, state documents, and interviews with state officials. | GAO-17-365

Note: The term “originating site” refers to the location where the patient is located while receiving a telehealth service.

State size refers to the geographical size of the state and is based on U.S. Census 2010 data. Large states are from the largest third of states by size, medium states are from the middle third, and small states are from the smallest third. Rurality, the percentage of population living in a rural area, is based on U.S. Census 2010 data.

Encounter rate clinics are health care providers actively participating in the Illinois Department of Healthcare and Family Services’ Medical Assistance Program as an encounter rate clinic as of July 1, 1988; or, a clinic operated by a county with a population of over three million.

According to the American Trauma Society, trauma center levels (I, II, III, IV, or V) refer to the kinds of resources available in a trauma center and the number of patients admitted yearly. The categorization of trauma center level varies from state to state (including distinctions of adult and pediatric centers). A level I facility is capable of providing total care for every aspect of injury, and a level II trauma center is able to initiate definitive care for all injured patients, while lower levels may not be able to offer as comprehensive of care.

As described in state documentation, Oregon defines a CCO as a network of all types of health care providers (physical health care, addiction and mental health care, and sometimes dental care providers) who have agreed to work together in their local communities to serve people who receive health care coverage under Oregon’s Medicaid plan.
Appendix V: Selected Associations’ Rating of the Significance of Factors that Affect Telehealth and Remote Patient Monitoring

Through an administered data collection instrument, officials from six associations representing providers and two associations representing patients identified, and rated the significance of, factors that encourage—and barriers that limit—the use of telehealth and remote patient monitoring in Medicare.\(^1\) Officials were asked to respond from the perspective of their association, specifically from a provider or patient perspective, depending on the association.\(^2\)

Figures 4 and 5 show how provider and patient associations rated the significance of factors that encourage the use of telehealth and remote patient monitoring in Medicare. Figures 6 and 7 show how provider and patient associations rated the significance of barriers to the use of telehealth and remote patient monitoring in Medicare.

---

\(^1\) For the purposes of this report, telehealth refers to clinical services that are provided remotely via telecommunications technologies, while remote patient monitoring is a technology to enable monitoring of patients outside of conventional clinical settings, such as in the home.

\(^2\) A representative of the payer association we spoke with told us that it did not have sufficient time to survey its members and could not complete our data collection instrument without doing so. Therefore, we reported separately the payer association’s views on factors that encourage the use of or are barriers to telehealth and remote patient monitoring.
Figure 4: Significance of Factors That Encourage the Use of Telehealth in Medicare, According to Selected Provider and Patient Associations

<table>
<thead>
<tr>
<th>Factor that encourages telehealth use</th>
<th>Provider associations</th>
<th>Patient associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alleviation of provider shortages/scheduling problems</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Convenience for the patient</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Cost reduction</td>
<td>● ○</td>
<td>● ○</td>
</tr>
<tr>
<td>Coverage of services</td>
<td>× ○</td>
<td>○ ● ○</td>
</tr>
<tr>
<td>Emerging Medicare payment structures or waivers</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
<tr>
<td>Enabling the use of emerging technology</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
<tr>
<td>Health Resources and Services Administration telehealth grant programs/other federal initiatives</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
<tr>
<td>Improving or maintaining quality of care</td>
<td>● ○ ○ ○</td>
<td>● ○ ○ ○</td>
</tr>
</tbody>
</table>

- ● A very significant factor that encourages use
- ○ A somewhat significant factor that encourages use
- ○ A factor that encourages use, but not a significant one
- × Not a factor that encourages use
- ○ Did not respond

Source: GAO analysis of a data collection instrument completed by six associations that represent providers and two associations that represent patients. | GAO-17-365
### Figure 5: Significance of Factors That Encourage the Use of Remote Patient Monitoring in Medicare, According to Selected Provider and Patient Associations

<table>
<thead>
<tr>
<th>Factor that encourages remote patient monitoring use</th>
<th>Provider associations</th>
<th>Patient associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alleviation of provider shortages/scheduling problems</td>
<td>•</td>
<td>×</td>
</tr>
<tr>
<td>Convenience for the patient</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Cost reduction</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Coverage of services</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Emerging Medicare payment structures or waivers</td>
<td>○</td>
<td>•</td>
</tr>
<tr>
<td>Enabling the use of emerging technology</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Health Resources and Services Administration telehealth grant programs/other federal initiatives</td>
<td>○</td>
<td>×</td>
</tr>
<tr>
<td>Improving or maintaining quality of care</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

- **•**: A very significant factor that encourages use
- **○**: A somewhat significant factor that encourages use
- **○**: A factor that encourages use, but not a significant one
- **×**: Not a factor that encourages use
- **△**: Did not respond

Source: GAO analysis of a data collection instrument completed by six associations that represent providers and two associations that represent patients. | GAO-17-365

Note: Remote patient monitoring is a technology to enable monitoring of patients outside of conventional clinical settings, such as in the home.
Figure 6: Significance of Barriers to the Use of Telehealth in Medicare, According to Selected Provider and Patient Associations

<table>
<thead>
<tr>
<th>Barrier to telehealth use</th>
<th>Provider associations</th>
<th>Patient associations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Concern regarding quality of care</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Cost increase or inadequate payment</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Coverage of services</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Cultural factors[^a]</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Infrastructure requirements[^b]</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Pace of changing technology</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Privacy and security concerns</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Professional licensure issues</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Provider/patient training requirements</td>
<td>✗</td>
<td>●</td>
</tr>
</tbody>
</table>

- A very significant barrier
- A somewhat significant barrier
- A barrier, but not a significant one
- Not a barrier
- Did not respond

Source: GAO analysis of a data collection instrument completed by six associations that represent providers and two associations that represent patients. | GAO-17-365

\[^a\]Cultural factors may include language and technological literacy, among others.

\[^b\]Infrastructure requirements may include access to broadband internet, imaging technology or peripherals, and wireless communications systems, among others.
Appendix V: Selected Associations’ Rating of the Significance of Factors that Affect Telehealth and Remote Patient Monitoring

Figure 7: Significance of Barriers to the Use of Remote Patient Monitoring in Medicare, According to Selected Provider and Patient Associations

<table>
<thead>
<tr>
<th>Barrier to remote patient monitoring use</th>
<th>Provider associations</th>
<th>Patient associations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Concern regarding quality of care</td>
<td>✗</td>
<td>●</td>
</tr>
<tr>
<td>Cost increase or inadequate payment</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Coverage of services</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Cultural factors(^a)</td>
<td>●</td>
<td>X</td>
</tr>
<tr>
<td>Infrastructure requirements(^b)</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Pace of changing technology</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Privacy and security concerns</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Professional licensure issues</td>
<td>●</td>
<td>X</td>
</tr>
<tr>
<td>Provider/patient training requirements</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

- ✗ A very significant barrier
- ● A somewhat significant barrier
- ○ A barrier, but not a significant one
- X Not a barrier
- □ Did not respond

Source: GAO analysis of a data collection instrument completed by six associations that represent providers and two associations that represent patients. | GAO-17-365

Note: Remote patient monitoring is a technology to enable monitoring of patients outside of conventional clinical settings, such as in the home.

\(^a\)Cultural factors may include language and technological literacy, among others.

\(^b\)Infrastructure requirements may include access to broadband internet, imaging technology or peripherals, and wireless communications systems, among others.
Appendix VI: Medicare Valuation of Remote Patient Monitoring

Remote patient monitoring refers to a coordinated system that uses one or more home-based or mobile monitoring devices that transmit vital sign data or information on activities of daily living that are subsequently reviewed by a health care professional. This process can enable providers to closely track a patient’s condition and provide earlier intervention to potential problems.¹ According to a report by the Agency for Healthcare Research and Quality, remote patient monitoring has been shown to produce positive outcomes, such as reduced hospitalization, when used as a part of care management for chronic conditions such as diabetes and congestive heart failure.

A June 2016 report by the Medicare Payment Advisory Commission (MedPAC) found that Medicare covers some services through its Physician Fee Schedule that involve remote monitoring of a patient.² For example, MedPAC’s analysis of 2014 Medicare data found that the agency spent $119 million on remote cardiac monitoring services for 265,000 beneficiaries. While remote patient monitoring is used in Medicare, there are concerns about how to establish accurate valuations for some of these services’ Medicare payment rates in the Physician Fee Schedule. To identify these concerns, we collected documentation from and interviewed associations representing provider, patient, and payer

¹Monitoring programs can collect a wide range of health data from the point of care, such as weight, blood pressure, blood glucose, blood oxygen levels, and heart rate.

²Medicare Payment Advisory Commission, Report to the Congress: Medicare and the Health Care Delivery System, (Washington, D.C.: June 15, 2016). MedPAC noted that Medicare also covers many services under the Physician Fee Schedule that involve a provider’s remote interpretation of a diagnostic test. For example, a hospital can perform an imaging study on a patient and transmit the images electronically to a radiologist to interpret the images in another location. Medicare pays for physician and other health professional services based on a list of services and their payment rates, called the Physician Fee Schedule.
We also reviewed documentation and conducted interviews with Centers for Medicare & Medicaid Services (CMS) officials.

CMS—the agency within the Department of Health and Human Services that administers the Medicare program—values remote patient monitoring services in the same way it values other physician services—by setting payment rates primarily as a result of underlying relative values that CMS assigns to each service. These relative values largely reflect estimates of the level of physician work and the amount of practice expenses needed to provide one service relative to other services. Physician work relative values are based on the estimate of two main inputs: (1) the time the physician needs to perform the service (including pre- and post-service activities, or work performed before and after the service), and (2) the intensity of the service (including the physician’s mental effort and judgment, technical skill and physical effort, and psychological stress). Practice expense relative values are based primarily on estimates of (1) direct practice expense inputs, which reflect the clinical labor, medical equipment, and disposable supplies needed to provide a specific service as well as the amount of time for which labor is required and equipment is used, and (2) indirect practice expenses, which generally reflect overhead expenses not associated with a specific service.

In conducting our work to describe factors identified as encouraging the use of or creating barriers to remote patient monitoring in Medicare, we collected documentation from and interviewed representatives of associations who represented providers, patients, and payers. To identify these associations, we reviewed relevant documents and literature and conducted interviews to identify general associations, as well as specialty associations that represent common conditions for which telehealth or remote patient monitoring may be used, or could be beneficial, during the course of treatment, such as stroke, congestive heart failure, and mental health. We included 10 associations in our review: 7 associations that represent providers, 2 associations that represent patients, and 1 association representing payers. Not all associations commented on concerns regarding the Medicare valuation of remote patient monitoring.

CMS generates initial relative values for new services and may revise relative values for existing services to maintain their accuracy. The agency generally reviews valuation for several hundred service codes per year, while rates are re-calibrated annually to maintain relativity among the services. CMS reviews the relative values of all physicians’ services at least every 5 years.

A third resource, malpractice relative values, accounts for the cost of malpractice insurance premiums of the specialties that perform the service.

Several characteristics of remote patient monitoring services have been identified by some of the selected associations we interviewed as raising challenges to valuation within CMS’s methodology, such as the services’ personnel and technology, and the operating hours and location of where certain remote patient monitoring services are delivered. Additionally, officials from one provider association noted that some parts of CMS’s process for developing Medicare valuation may not consider input from stakeholders most knowledgeable about the technical components of the services.

**Personnel.** Officials from an association representing certain providers of remote patient monitoring services told us that Independent Diagnostic Testing Facilities frequently perform remote patient monitoring services that include patient diagnostic testing, but some personnel costs may not be recognized in the Medicare valuation methodology because these personnel are not considered clinical staff. For example, personnel involved in remote cardiac monitoring at Independent Diagnostic Testing Facilities include non-clinical administrative staff who the association officials noted are not adequately accounted for in the CMS methodology.

**Technology.** Officials from this same association also noted that the costs of technology associated with remote patient monitoring may not be fully captured by CMS’s valuation methodology. For example, while wearable remote devices only monitor one patient at a time, wireless communication systems—with their hardware and software costs—that can be used to remotely monitor multiple patients at a time are not attributed to an individual patient when considering the direct practice expense inputs. Therefore, this type of equipment is classified within the indirect cost category (with overhead costs), resulting in lower payment.

---

7An Independent Diagnostic Testing Facility is a diagnostic testing facility that is independent of a physician office or hospital. Its purpose is to furnish diagnostic tests and not to directly use test results to treat a patient.

8CMS officials explained that for costs that are not attributable to individual patients, like a centralized monitoring system, the established practice expense methodology considers these costs, like others not attributable to individual services or patients, to be indirect costs. According to officials, they are accounted for through the allocation of indirect practice expense relative value units that would be assigned to the code billed for the monitoring. In contrast, the equipment costs of the monitor worn by an individual patient would be a direct practice expense cost assigned to a particular service code. This direct practice expense cost would serve as an allocator for indirect practice expense relative value units to be assigned to the code (these might represent the costs associated with centralized monitoring equipment).
rates than if these costs were considered direct costs, according to association officials. Additionally, other unique costs for remote patient monitoring related to technology include such things as the cost of delivering the monitoring device to the patient and the cost of the patient returning the device after the monitoring period has ended.

In addition, technology used to provide remote patient monitoring services can vary among service providers and is evolving, contributing to difficulties in developing valuation for the services. Officials with a payer association said there is variation among the type of devices the patient or provider must possess or that must be installed in the patient’s home to carry out remote patient monitoring, such as motion sensors to determine if a patient has fallen or the components that transmit biometric information such as blood pressure or weight back to the monitoring site. Officials with a second provider association noted that remote patient monitoring technology continues to evolve, and for such newly-developed technology there is not a consensus in how to use and charge for the multiplicity of delivery models, including the range of services and procedures.

**Hours of operation and location.** Some remote patient monitoring may require a monitoring facility to operate 24 hours a day, 7 days per week. An association representing certain providers of remote patient monitoring services noted that Medicare’s valuation methodology, which CMS officials stated was designed for and primarily applies to services furnished in standard physician offices during business hours, may not fully incorporate costs associated with maintaining operations outside of standard business hours and in non-physician office settings, such as at Independent Diagnostic Testing Facilities or other types of remote monitoring centers.

**Knowledgeable stakeholders.** CMS works with a committee established by the American Medical Association (AMA)—the AMA/Specialty Society Relative Value Scale Update Committee (RUC)—three times a year annually to review a subset of physicians’ services, identified in part by CMS and in part by the RUC, to develop recommendations to CMS on the resources needed to provide those specific services. RUC members generally represent physician specialty societies, such as those for
cardiology, family medicine, and internal medicine. However, for services such as the cardiac monitoring services that are widely provided by Independent Diagnostic Testing Facilities, representatives from Independent Diagnostic Testing Facilities do not serve on the RUC and do not officially participate in the RUC process as advisors regarding these services, according to officials with the association representing certain providers of remote patient monitoring services.

**CMS response to cited concerns.** CMS officials agreed that the payment rates that result from the application of the current Medicare methodology may reflect relative resources for services furnished in the typical physician office rather than other locations. Officials said that they use CMS's annual rulemaking process for setting payment rates for the Physician Fee Schedule to address services, such as remote patient monitoring, that vary from the usual service delivery model. CMS officials said this process affords members of the public an opportunity to recommend codes to be considered for revaluation if they believe the services are inappropriately valued. Some examples CMS officials cited include the following:

- In revisions to the Physician Fee Schedule for calendar year 2016, CMS increased the input price for patient worn telemetry system equipment, which is a factor in establishing the payment rate for cardiovascular telemetry transmitted to a remote attended surveillance center for up to 30 days. In response to a request received in a public comment period during the annual Physician Fee Schedule rulemaking, CMS increased the price from $21,575 to $23,537 to account for the unique properties of the equipment, including its use 24 hours per day and 7 days per week for an individual patient over several weeks and its use primarily outside of a health care setting.

- CMS has developed codes within the Physician Fee Schedule that describe the non-face-to-face care management services that include

---

9The RUC members are supported by physician representatives who are responsible for coordinating with their respective specialty societies to develop relative value recommendations to present to the RUC.

10Each year CMS publishes proposed and then final rules setting out revisions to payment policies under the Physician Fee Schedule, which include relative values for existing services and for new services as well as opportunities both for public comment on these proposals and for requests from interested parties regarding payment rates for Medicare services.
interactions furnished through communication technology. These non-face-to-face services are associated with managing the particular needs of patients and are furnished over the course of a calendar month.
Appendix VII: Examples of Telehealth and Remote Patient Monitoring in Medicare Models and Demonstrations

The Patient Protection and Affordable Care Act created the Center for Medicare & Medicaid Innovation (Innovation Center) within the Centers for Medicare & Medicaid Services to test innovative payment and service delivery models to reduce Medicare, Medicaid, and state Children’s Health Insurance Program expenditures while preserving or enhancing the quality of care. The Innovation Center also supports Medicare demonstration projects, which study the likely impact of new methods of service delivery, coverage of new types of services, and new payment approaches on beneficiaries, providers, health plans, states, and the Medicare trust funds. The Innovation Center has organized the models and demonstrations into seven categories. Table 8 shows the seven categories and for each provides a description and an example of how a model or demonstration within that category may use telehealth or remote patient monitoring.

Table 8: Centers for Medicare & Medicaid Services’ Innovation Center Categories and Examples of Potential Telehealth and Remote Patient Monitoring Use in Models or Demonstrations

<table>
<thead>
<tr>
<th>Innovation Center category</th>
<th>Category description</th>
<th>Example of a model or demonstration that can use telehealth or remote patient monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountable care</td>
<td>Accountable Care Organizations (ACO) and similar care models are designed to incentivize health care providers to become accountable for a patient population and to invest in infrastructure and redesigned care processes that provide for coordinated care, high quality, and efficient service delivery.</td>
<td>Next Generation ACO: This model allows beneficiaries to receive telehealth services at home and in urban areas.</td>
</tr>
<tr>
<td>Episode-based payment initiatives</td>
<td>Under these models, health care providers are held accountable for the cost and quality of care that beneficiaries receive during an episode of care, which usually begins with a triggering health care event—such as a hospitalization or chemotherapy administration—and extends for a limited period of time thereafter.</td>
<td>Bundled Payments for Care Improvement models 2 and 3: These models remove geographic limitations on the use of telehealth services.</td>
</tr>
<tr>
<td>Primary care transformation</td>
<td>Advanced primary care practices—also called medical homes—utilize a team-based approach, while emphasizing prevention, health information technology, care coordination, and shared decision making among patients and their providers.</td>
<td>Independence At Home Demonstration: This demonstration requires practices to have the ability to use remote patient monitoring and mobile diagnostic technology with their patients.</td>
</tr>
</tbody>
</table>


2For the purposes of this report, telehealth is defined as clinical services that are provided remotely via telecommunications technologies, while remote patient monitoring is a technology to enable monitoring of patients outside of conventional clinical settings, such as in the home.
<table>
<thead>
<tr>
<th>Initiatives focused on the Medicaid and CHIP populations</th>
<th>Medicaid and the state Children’s Health Insurance Program (CHIP) are administered by the states but are jointly funded by the federal government and states. Initiatives in this category are administered by the participating states.</th>
<th>Medicaid Incentives for the Prevention of Chronic Disease: This model included grantees that use telehealth to reach participants dispersed through a large region.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiatives focused on the Medicare-Medicaid enrollees</td>
<td>Individuals enrolled in both Medicare and Medicaid (the “dual eligibles”) account for a disproportionate share of the programs’ expenditures. According to the Center for Medicare &amp; Medicaid Innovation, a fully integrated, person-centered system of care that ensures that all their needs are met could better serve this population in a high quality, cost-effective manner.</td>
<td>The Initiative to Reduce Avoidable Hospitalizations among Nursing Facility Residents: This model includes a participant that plans to use telehealth to provide after-hours telehealth services when needed.</td>
</tr>
<tr>
<td>Initiatives to accelerate the development and testing of new payment and service delivery models</td>
<td>Many innovations necessary to improve the health care system are expected to come from local communities and health care leaders from across the country. By partnering with these local and regional stakeholders, the Centers for Medicare &amp; Medicaid Services intends to help accelerate the testing of new models.</td>
<td>The Frontier Community Health Integration Project Demonstration: This demonstration includes testing the use of telehealth in critical access hospitals.</td>
</tr>
<tr>
<td>Initiatives to speed the adoption of best practices</td>
<td>The Center for Medicare &amp; Medicaid Innovation is partnering with a broad range of health care providers, federal agencies, professional societies, and other experts and stakeholders to test new models for disseminating evidence-based best practices and significantly increasing the speed of adoption.</td>
<td>The Million Hearts Initiative: This initiative includes information for providers about how they may be able to be paid for at-home blood pressure monitoring devices, and additional information on potential remote patient monitoring use.</td>
</tr>
</tbody>
</table>

Source: GAO analysis of Centers for Medicare & Medicaid Services documentation. | GAO 17-365

Note: Remote patient monitoring is a technology to enable monitoring of patients outside of conventional clinical settings, such as in the home.
# Acknowledgments

## GAO Contact

Carolyn L. Yocom, (202) 512-7114, yocomc@gao.gov

## Staff Acknowledgments

In addition to the contact named above, Karen Doran, Assistant Director; Sarah Resavy, Analyst-in-Charge; Luke Baron; Muriel Brown; Kristi Friday; Monica Perez-Nelson; and Helen Sauer made key contributions to this report.
GAO’s Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO’s commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO’s website (http://www.gao.gov). Each weekday afternoon, GAO posts on its website newly released reports, testimony, and correspondence. To have GAO e-mail you a list of newly posted products, go to http://www.gao.gov and select “E-mail Updates.”

Order by Phone

The price of each GAO publication reflects GAO’s actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO’s website, http://www.gao.gov/ordering.htm.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

Connect with GAO

Connect with GAO on Facebook, Flickr, LinkedIn, Twitter, and YouTube. Subscribe to our RSS Feeds or E-mail Updates. Listen to our Podcasts. Visit GAO on the web at www.gao.gov and read The Watchblog.

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:
Website: http://www.gao.gov/fraudnet/fraudnet.htm
E-mail: fraudnet@gao.gov
Automated answering system: (800) 424-5454 or (202) 512-7470

Congressional Relations

Katherine Siggerud, Managing Director, siggerudk@gao.gov, (202) 512-4400,
U.S. Government Accountability Office, 441 G Street NW, Room 7125,
Washington, DC 20548

Public Affairs

Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800
U.S. Government Accountability Office, 441 G Street NW, Room 7149
Washington, DC 20548

Strategic Planning and External Liaison

James-Christian Blockwood, Managing Director, spel@gao.gov, (202) 512-4707
U.S. Government Accountability Office, 441 G Street NW, Room 7814,
Washington, DC 20548

Please Print on Recycled Paper.