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January 2017

ELECTRONIC HEALTH RECORDS

HHS Needs to Improve Planning and Evaluation of Its Efforts to Increase Information Exchange in Post-Acute Care Settings

GAO-17-184

GAO Highlights

Highlights of GAO-17-184, a report to congressional requesters

January 2017

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HHS Needs to Improve Planning and Evaluation of Its Efforts to Increase Information Exchange in Post-Acute Care Settings

Why GAO Did This Study

Many patients who leave hospitals receive care in post-acute settings such as skilled nursing facilities and long-term care hospitals. Exchange of accurate and timely health information is particularly important in these transitions, and technology like EHRs could help to improve quality and reduce costs.

GAO was asked to review issues related to the use of EHRs in post-acute care settings. With regard to post-acute settings, GAO (1) described factors that affect EHR use and electronic exchange of health information and (2) examined HHS efforts to promote EHR use and electronic information exchange. GAO reviewed HHS planning and related documents and best practices for planning identified in prior GAO work. GAO also interviewed HHS officials, and through those interviews and background research identified and interviewed a non-generalizable selection of individuals representing 20 relevant stakeholder groups, including experts, vendors, and professional associations.

What GAO Recommends

GAO recommends that HHS (1) evaluate the effectiveness of its key efforts to increase the use of EHRs and electronic information exchange, and (2) comprehensively plan for how to achieve the department's goal regarding the use of EHRs and electronic information exchange in post-acute care settings. HHS concurred with GAO's recommendations.

View GAO-17-184. For more information, contact Carolyn Yocom, (202) 512-7114, yocomc@gao.gov.

What GAO Found

Stakeholders that GAO interviewed, including experts on electronic health records (EHR) in post-acute care settings, described five key factors that affect the use of EHRs and the electronic exchange of health information in these settings.

1) **Cost:** Stakeholders stated that facilities often have limited financial resources to cover the initial cost of an EHR and noted that additional costs may be incurred for exchanging information and for EHR maintenance.
2) **Implementation of standards:** Stakeholders expressed concerns with the variability in implementation of health data standards and the difficulty of finding health information relevant to post-acute care providers when this information is exchanged.
3) **Workflow disruptions:** Stakeholders stated that implementation of EHRs requires post-acute facilities to change their daily work activities or processes, which can be disruptive.
4) **Technological challenges:** Stakeholders stated that they face technological challenges, such as having EHRs that are not capable of electronically exchanging health information.
5) **Staffing:** Stakeholders noted that a lack of staff with expertise to manage EHRs and high staff turnover result in a constant need to train staff to use the technology.

The Department of Health and Human Services (HHS) has not measured the effectiveness of each of its efforts to promote the use of EHRs, and it lacks a comprehensive plan to meet its goal of increasing the proportion of post-acute care providers electronically exchanging health information. HHS identified four key efforts related to post-acute care settings; however, the lack of measurement of the effectiveness of these efforts is contrary to leading principles of sound planning. The Office of the National Coordinator for Health Information Technology (ONC) is planning to survey providers in post-acute settings to gather baseline data on the rates of EHR adoption and activities that demonstrate ways to electronically exchange health information. However, these surveys are not intended to assess the effectiveness of HHS's efforts to promote EHR use. In addition, most of the key efforts lack specific plans for evaluating their progress. Therefore, HHS cannot determine if its efforts are contributing to its goal, or if they should be adjusted. In addition, although HHS's goal depends in part on actions by post-acute care providers and EHR vendors, HHS lacks a comprehensive plan with specific action steps to achieve this goal. HHS's planning also does not address how to overcome key external factors that may adversely affect its key efforts. Without a comprehensive plan to address these issues, HHS risks not achieving its goal of increasing EHR use and the electronic exchange of health information in post-acute care settings.

Contents

Abbreviations

C-CDA	Consolidated-Clinical Document Architecture
CMS	Centers for Medicare & Medicaid Services
EHR	electronic heath record
GPRA	Government Performance and Results Act of 1993
GPRAMA	GPRA Modernization Act of 2010
HHS	Department of Health and Human Services
HIE	health information exchange
HITECH Act	Health Information Technology for Economic and Clinical Health Act
IT	information technology
IMPACT Act	Improving Medicare Post-Acute Care Transformation Act
LOINC	Logical Observation Identifier Name Codes
ONC	Office of the National Coordinator for Health Information Technology

U.S. GOVERNMENT ACCOUNTABILITY OFFICE
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January 27, 2017

The Honorable Lamar Alexander
Chairman
Committee on Health, Education, Labor, and Pensions
United States Senate

The Honorable Mike Enzi
Chairman
Subcommittee on Primary Health and Retirement Security
Committee on Health, Education, Labor, and Pensions
United States Senate

The Honorable Richard Burr
United States Senate

The Honorable Pat Roberts
United States Senate

The Honorable John Thune
United States Senate

Many patients discharged from acute-care hospitals have a continuing need for health care services that they can receive in post-acute care settings, such as long-term care hospitals, inpatient rehabilitation facilities, skilled nursing facilities, and home health agencies. Providers of post-acute care can facilitate patients' continued recovery, helping to restore medical and functional capacity and prevent health deterioration. When patients transition from acute care to post-acute care settings, it is important that the providers share patient health information, such as health records and test results. This can help coordinate care, avoid duplication of tests and procedures, and prevent medication and other errors. However, researchers have estimated that across the health care system, the costs associated with failed care coordination were between $25 billion and $45 billion in 2011, and studies have shown that transitions between acute care settings and post-acute care settings account for as much as 60 percent of medication errors.[1] The use of

[1]For example, see D. Berwick and A. Hackbarth, "Eliminating Waste in U.S. Health Care," *Journal of the American Medical Association*, vol. 307, no. 14 (2012) and J. D. Rozich and R. K. Resar, "Medication Safety: One Organization's Approach to the Challenge," *Journal of Clinical Outcomes Management*, vol 8, no. 10 (2001).

health information technology (IT), such as electronic health records (EHRs), to exchange information during transitions between acute and post-acute settings can facilitate prompt care coordination and thus has the potential to help improve health care quality and reduce costs.

Despite the potential benefits of EHRs, available evidence suggests the use of EHRs is limited in post-acute settings. The Department of Health and Human Services' (HHS) Office of the National Coordinator for Health Information Technology (ONC) reported in its 2013 Issue Brief that there are no national data on EHR adoption and the electronic exchange of health information across the different types of post-acute care settings.[2] At that time, ONC noted that a survey of some post-acute settings—specifically long-term acute care hospitals and rehabilitation hospitals—conducted in 2009 showed adoption rates for EHRs of six percent and four percent, respectively.[3] Furthermore, a 2014 survey of post-acute care providers in New York found that only one-quarter reported receiving an electronic document when a patient transitioned to their care.[4] In contrast, ONC has reported that most acute care hospitals possessed EHRs in 2015.[5]

Neither the Medicare nor Medicaid programs incentivize the use of EHRs in post-acute care settings. While certain hospitals and health care professionals are eligible to receive incentive payments through the Medicare and Medicaid EHR Incentive Program, based on their use of

[2]The Office of the National Coordinator for Health Information Technology, "*Health IT in Long-term and Post Acute Care"*, Issue Brief (March 2013).

[3]L. Wolf, J. Harvell, and A. K. Jha, "Hospitals Ineligible for Federal Meaningful-Use Incentives Have Dismally Low Rates of Adoption of Electronic Health Records," *Health Affairs,* vol. 31, no. 3 (2012).

[4]LeadingAge New York, "*Electronic Health Record Adoption and Health Information Exchange Among Long Term and Post Acute Care Providers: A Survey of LeadingAge New York Members*", (LeadingAge New York, March 2015).

[5]The Office of the National Coordinator for Health Information Technology, "*Adoption of Electronic Health Record Systems among U.S. Non-Federal Acute Care Hospitals: 2008-2015*", ONC Data Brief No. 35 (May 2016).

EHR technology, these "meaningful use" payments do not apply to post-acute care settings.[6]

HHS has set a goal to increase the use of EHRs and the electronic exchange of information in post-acute care settings, and you asked us for information on these efforts. In this report, we

(1) describe factors that may affect the use of EHRs and the electronic exchange of health information in post-care settings, and

(2) examine HHS's efforts to promote the use of EHRs and electronic information exchange in post-acute care settings.

To describe factors that may affect the use of EHRs and electronic exchange of health information in post-acute care settings, we interviewed 20 stakeholders that represent relevant groups in this area. We identified a potential pool of stakeholders to interview based on our background research, and we also asked for suggestions during interviews with officials at ONC and the Centers for Medicare & Medicaid Services (CMS), which is responsible for Medicare and Medicaid activities that relate to post-acute care and EHRs. From that pool, we selected specific stakeholders that met the following criteria:

- Four experts with relevant experience and professional qualifications. Each expert is also an author of relevant literature or has presented at relevant conferences or workshops, and is also a member of a relevant national committee related to health information technology.
- Officials from six companies that are vendors of EHRs. These companies were recommended by other stakeholders, included in a comprehensive list of post-acute EHR vendors, and have a large volume of EHRs in the post-acute care market. One of the vendors also has the largest share of the market for acute-care EHRs.

[6]The Health Information Technology for Economic and Clinical Health (HITECH) Act authorized the Medicare and Medicaid Electronic Health Records Incentive Programs. To qualify for these incentive payments and subsequently avoid penalties, eligible providers must demonstrate the use of certified EHR technology in a meaningful manner and meet other requirements, including submitting information to HHS on measures of their clinical quality. See Pub. L. No 111-5, div. B. tit. IV, §§ 4101-4102 123 Stat. 115, 467-486 (2009). HHS stated that HITECH Act funds were not appropriated or allocated for post-acute care provider participation and the Centers for Medicare & Medicaid Services was not authorized to incentivize post-acute care providers to adopt health IT.

- Officials from six organizations that represent providers and professionals in post-acute care settings. These organizations have produced documents related to the use of EHRs in post-acute care settings and provided comments to HHS related to the use of EHRs in post-acute care settings.
- Officials from four organizations that are recipients of the ONC Advance Interoperable Health Information Technology Services to Support Health Information Exchange Program awards, which fund programs intended to facilitate EHR use and exchange. We selected the recipients to include those who focus on post-acute care providers, represent different types of awardees (including state governments and non-profit organizations), and represent different geographic regions.

Using information from those interviews, we categorized the responses to describe the factors that may affect EHR use.[7] The information we developed is not generalizable beyond the individuals we interviewed. We corroborated the information we obtained in these interviews with information from our background research and our own prior reports.

To examine HHS's efforts to promote the use of EHRs and electronic information exchange in post-acute care settings, we reviewed documentation related to key efforts that were either ongoing or planned at the time of our work and were specifically directed at post-acute care settings. We also reviewed supporting documentation related to those efforts, such as ONC's Federal Health IT Strategic Plan 2015-2020 and ONC's Shared Nationwide Interoperability Roadmap. We also interviewed officials from ONC and CMS about the key efforts we identified. We compared the information and documentation to relevant criteria from GAO's body of work on effectively managing performance under the

[7]For purposes of this report, we focused our interviews and other data collection on the four post-acute care settings included in the Improving Medicare Post-Acute Care Transformation (IMPACT) Act of 2014—long-term care hospitals, inpatient rehabilitation facilities, skilled nursing facilities, and home health agencies. The IMPACT Act requires, among other things, the standardization of certain data elements that are required to be reported to CMS by these settings. See Pub. L. No. 113-185, 128 Stat. 1952 (Oct. 6, 2014).

Government Performance and Results Act of 1993 (GPRA), or the GPRA Modernization Act of 2010 (GPRAMA).[8]

We conducted this performance audit from March 2016 to January 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.

Background

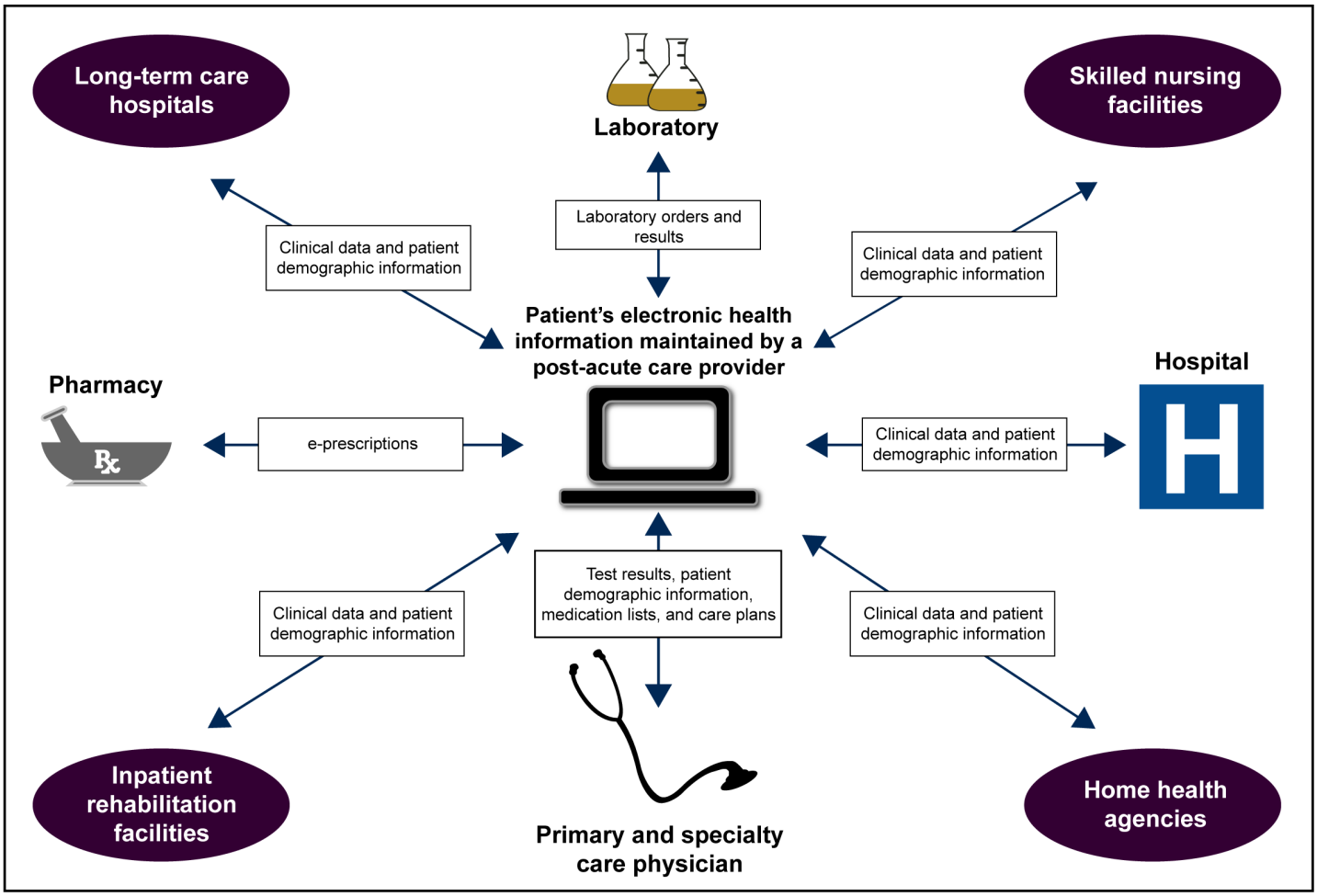
Electronic Health Records and the Electronic Exchange of Health Information

ONC defines an EHR as a digital version of a medical record that can include a person's medical and treatment history, such as diagnoses, medications, treatment plans, and more.[9] According to ONC, EHR systems also can allow access to evidence-based tools that providers use to make decisions about a person's care, and they can automate and streamline provider workflow. ONC states that one of the key potential benefits of an EHR is that it can allow health information to be created and managed in a digital format capable of being shared with other providers across more than one health care organization. This exchange may occur between hospitals, primary care physicians, specialty physicians, pharmacies, laboratories, and post-acute care providers. (See fig. 1.)

[8]See Pub L. No. 103-62, 107 Stat. 285 (1993) (GPRA) and Pub. L. No. 111-352, 124 Stat. 3866 (2011) (GPRAMA). GPRA and GPRAMA require, among other things, that federal agencies develop strategic plans that include agencywide goals and strategies for achieving those goals. We have reported that these requirements also can serve as leading practices for planning at lower levels within federal agencies, such as individual programs or initiatives. For example, see GAO, *Executive Guide: Effectively Implementing the Government Performance and Results Act*, GAO/GGD-96-118 (Washington, D.C.: June 1996) and GAO, *Managing for Results: Critical Issues for Improving Federal Agencies' Strategic Plans*, GAO/GGD-97-180 (Washington, D.C.: Sep. 16, 1997).

[9]www.healthit.gov/providers-professionals/faqs/what-electronic-ehealth-record-ehr (downloaded 9/7/2016).

Figure 1: Possible Ways That Health Information Can Be Exchanged with a Post-Acute Care Provider



Sources: GAO analysis (data); Art Explosion (clip art). | GAO-17-184

Even when providers adopt an EHR system, they may not be able to use that system to exchange health information with other providers, and the EHR systems will not necessarily be interoperable with other health IT systems, including EHRs and health IT systems belonging to laboratories, specialists, and post-acute care settings.[10] When EHR systems are interoperable, information can be exchanged—sent from one provider to

[10]ONC defines interoperability as the ability of a system to exchange electronic health information with and use electronic health information from other systems without special effort on the part of the user.

another—and then seamlessly integrated into the receiving provider's EHR system, allowing the provider to use that health information to inform clinical care. We previously reported that EHR systems often use different formats and terminology while exchanging health information, which limits interoperability. We also reported that the electronic exchange of health information and interoperability relies, in part, on business arrangements between health care providers who must agree on the rules for exchange, without which the ability to exchange information may be hampered.[11] As a result, even when health information can be exchanged electronically, there is no guarantee that the information can and will be automatically integrated into the receiving system, and therefore the EHR systems may not be interoperable. ONC has studied the extent to which non-federal acute care hospitals performed tasks that demonstrate the ability to be interoperable. In particular, for 2015 ONC reported the percentage of surveyed hospitals electronically sending (85 percent), receiving (65 percent), finding (52 percent), and using or integrating key clinical information (38 percent). According to ONC, even fewer hospitals—about 25 percent—performed all four of these tasks.[12]

Health care providers can use different mechanisms for the electronic exchange of health care information. For example, if two providers' EHR systems are interoperable with each other, then the providers can electronically share information directly from one provider's EHR system to the other provider's EHR system. Another mechanism is Direct, which is a set of specifications that allows users to send secure messages, including documents, to known and trusted recipients over the internet. With Direct, one health care provider can electronically transmit documents with health information to another. However, the provider may send documents with information in a format that is difficult for the receiving provider to access and consider in a timely or efficient manner, which can limit the ability to ensure coordination of care and avoid errors. Another way of electronically exchanging health information is through health information exchange (HIE) organizations, which are entities that bring together health care stakeholders within a defined geographic area to share health information. An HIE organization can facilitate the electronic exchange of health information by providing data connections

[11]GAO, *Electronic Health Records: Nonfederal Efforts to Help Achieve Health Information Interoperability*, GAO-15-817 (Washington, D.C.: Sep. 16, 2015).

[12]The Office of the National Coordinator for Health Information Technology, "*Interoperability among U.S. Non-federal Acute Care Hospitals in 2015*", ONC Data Brief No. 36 (May 2016).

among stakeholders, such as laboratories, public health departments, hospitals, and physicians. We previously identified some concerns associated with HIEs, including costs.[13]

One of the ways to standardize the information that acute care facilities and other providers may exchange electronically is by using the Consolidated-Clinical Document Architecture (C-CDA). It provides a common structure for sharing information and was developed to help providers manage a complex set of documents and reduce duplicative and conflicting standards issued by different organizations. The C-CDA contains more than 150 templates for information such as allergies, medications, plan of care, social history, vital signs, functional status, family history, and more.

Federal Role in Health Information Exchange

HHS has implemented a series of actions designed to increase the use of health IT in general and the use of EHRs and electronic exchange of health information specifically in post-acute care settings.

The IMPACT Act and Quality Assessment Reporting Requirements

CMS requires providers in each of four different types of post-acute facilities—specifically skilled nursing facilities, inpatient rehabilitation facilities, home health agencies, and long-term care hospitals—to report certain data that are used for quality measures, resource use measures, and other types of measures. The Improving Medicare Post-Acute Care Transformation (IMPACT) Act of 2014 requires, among other things, the standardization of those data elements—or specific pieces of data—that providers must report to CMS.[14] Under the IMPACT Act, these data elements should be standardized in a way that allows for the exchange of data among post-acute care settings and providers. The first of these data elements required to be standardized for submission include data on patients' functional status, skin integrity (such as pressure ulcers), and incidence of major falls.

Federal Health Information Technology Strategic Planning

ONC released the most recent strategic plan for health IT in September 2015, outlining four primary goals, each with its own objectives, for using health IT to improve the health and well-being of individuals and

[13]GAO, *Electronic Health Records: HHS Strategy to Address Information Exchange Challenges Lacks Specific Prioritized Actions and Milestones*, GAO-14-242 (Washington, D.C.: Mar.24, 2014).

[14]Pub. L. No. 113-185, 128 Stat. 1952 (Oct. 6, 2014).

communities.[15] One of those goals is to enhance and modernize the nation's health IT infrastructure.[16] ONC's Shared Nationwide Interoperability Roadmap (Roadmap), established in 2015, aligns with this goal in the strategic plan.[17] The Roadmap is a planning document that proposes specific actions to achieve an interoperable health IT system nationwide that collectively improves health. The Roadmap includes plans for the infrastructure needed to support the sharing and use of electronic health information. The Roadmap includes a specific goal to increase the proportion of post-acute care providers electronically exchanging health information.[18] This Roadmap goal relates to the HHS strategic plan goal of enhancing health IT infrastructure. The strategic plan also notes that post-acute care settings require access to patient information to ensure continuity of care and prevent adverse events, such as medication allergies or errors.

Certification of EHRs

ONC authorizes certification bodies to (on its behalf) certify whether health IT, including EHR systems, meet certain functional and technical requirements and conform to standards and implementation specifications.[19] Certified EHR technology helps assure purchasers and other users that an EHR meets the technological and functional requirements adopted by HHS. Providers that participate in the Medicare and Medicaid EHR Incentive Programs (which do not include post-acute care providers) must demonstrate that they are meaningful users of certified EHR technology. CMS officials noted that EHR selection is

[15]The Office of the National Coordinator for Health Information Technology, Office of the Secretary, U.S. Department of Health and Human Services, *Federal Health IT Strategic Plan 2015-2020*, September 21, 2015. http://dashboard.healthit.gov/strategic-plan/federal-health-it-strategic-plan-2015-2020.php (downloaded October 24, 2016).

[16]The other three goals in the strategic plan are to advance person-centered and self-managed health; transform health care delivery and community health; and foster research, scientific knowledge, and innovation.

[17]The Office of the National Coordinator for Health Information Technology, *Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap, FINAL Version 1.0*, October 6, 2015.

[18]The Roadmap specifies that measuring success on this goal in the near-term is defined as increasing the proportion of post-acute care providers, among others, that (1) send, receive, find and use electronic health information, (2) have electronic health information available from outside sources and make electronic health information to outside sources, and (3) use electronic health information to inform decision-making.

[19]81 Fed. Reg. 72404 (Oct. 19, 2016). For example, some standards, like the C-CDA, have a corresponding implementation guide that ensures conformity to standards.

provider specific and that CMS has no authority to demand which EHR system is used by post-acute care providers.

Five Key Factors Affect EHR Use and Electronic Health Information Exchange in Post-Acute Care Settings

We identified five key factors that affect the use of EHRs and the electronic exchange of health information in post-acute care settings, based on our stakeholder interviews: (1) the cost of EHRs, (2) implementation of standards for EHRs and electronic health information exchange, (3) the impact of EHRs on workflow, (4) technological challenges such as lack of EHR capabilities, and (5) the need to train staff to use EHRs.

Cost: All 20 stakeholders we interviewed described the cost of EHRs and related technology as a key factor discouraging post-acute care providers from obtaining EHRs and exchanging health information electronically. According to a survey of care providers in New York, the costs associated with the adoption of EHRs in long-term and post-acute care settings varied significantly. Two-thirds of the surveyed providers reported that they spent more than $100,000 on EHRs, and nearly 20 percent reported spending more than $500,000.[20] In addition to the high cost of the initial purchase of EHR software, stakeholders indicated that post-acute care providers must also often purchase additional software modules so that their EHRs can be used to send health information electronically, which is considered a more advanced function. Furthermore, stakeholders told us that the additional fees for maintaining an EHR can add more costs in addition to fees associated with adding the capability to exchange health information electronically. For example, one stakeholder noted the costs of connecting EHRs to allow them to be interoperable with other facilities' EHRs and ongoing maintenance fees that some vendors charge can be more challenging to pay for than the initial purchase of the EHR.

We previously reported on similar experiences among acute care providers, who expressed challenges with the upfront costs associated with purchasing and implementing EHRs, as well as with fees for participating in state and local HIEs and per-transaction fees for exchanging health information.[21] According to stakeholders, these costs are particularly challenging in cases when post-acute care providers have small profit margins and may therefore not have the financial resources to

[20]LeadingAge New York, "*Electronic Health Record Adoption and Health Information Exchange Among Long Term and Post-Acute Care Providers: A Survey of LeadingAge New York Members*", (March 2015). We did not validate the survey results.

[21]GAO-14-242.

purchase EHR technology.[22] For example, one stakeholder stated that post-acute care providers struggling financially will only invest in EHR systems if they have an incentive to do so, such as the promise of receiving more patient referrals.

Stakeholders also noted that post-acute care settings did not receive federal incentives for meaningful use of EHRs aimed at acute-care hospitals and other providers. Without financial incentives, or a mandate to adopt EHR technology, there is no business case for post-acute care providers to adopt EHR technology, several stakeholders told us. According to stakeholders, post-acute facilities generally do not see an immediate financial benefit from adopting or using EHRs, because purchasing and implementing an EHR is expensive and challenging, and post-acute facilities are not eligible for financial incentives. As a result, providers may not perceive that the value of an EHR is worth the cost, and they are less likely to use EHRs. In addition, stakeholders stated that purchasing an EHR does not result in more revenue for the provider. CMS officials noted that post-acute care facilities are not eligible to receive "meaningful use" incentive payments through the Medicare or Medicaid programs, consistent with the Health Information Technology for Economic and Clinical Health Act.

Implementation of Standards: There are a number of health data standards—technical specifications for standardized terminology that define how information should be packaged and communicated from one entity to another—to help facilitate the electronic exchange of health information. However, 19 of the 20 stakeholders we interviewed described concerns with the implementation of these standards that affect their use of EHRs and the electronic exchange of health information.[23] Concerns included variability in the implementation of standards and the difficulty of finding relevant information when it is exchanged.

Stakeholders stated that variability in the implementation of standards allows each post-acute care provider to make individual adjustments to its

[22]A Medicare Payment Advisory Commission report indicates that the average profit for freestanding skilled nursing facilities was 1.9 percent in 2014. See Medicare Payment Advisory Commission, *Report to the Congress: Medicare Payment Policy*. (March 15, 2016).

[23]See GAO-14-242. We previously noted that acute care providers and stakeholders had concerns with insufficiencies in the standards for the electronic exchange of health information.

EHR, which can make it difficult to electronically exchange health information from one provider to another. These statements were similar to findings from our previous work, in which we found that health IT standards are not implemented consistently.[24] For example,

- One stakeholder said different providers may not store similar data in the same location within their EHRs, which can cause challenges when communicating with providers in other health care settings.
- Another stakeholder stated there is no universal guidance on how to apply existing standards; therefore, providers can apply the standards differently. Other stakeholders added that vendors may implement standards differently, which creates inconsistencies when exchanging health information electronically.

Customizing an EHR results in variability of terminology and formatting in EHR products and may cause difficultly exchanging health information between two EHR systems. In our previous work, we reported that information that is electronically exchanged from one provider to another must adhere to the same standards and these standards must be implemented uniformly, in order for the information to be interpreted and used in EHRs, thereby enabling interoperability.[25]

However, even if the implementation of standards were more consistent, concerns about the length and usability of a major standard, the C-CDA, would remain. Several stakeholders mentioned limitations with the C-CDA, which is a set of templates that can capture information from one or more health care encounters and can be exchanged when patients transfer from one provider to another. Stakeholders reported the C-CDA is not reader-friendly, includes information that is irrelevant to post-acute care providers, and is too long to easily find information that is relevant for post-acute care providers. For example, stakeholders told us that post-acute care providers only need a limited set of information when a patient transfers from an acute care facility, but stakeholders report that they typically have to search through as many as 50 to 100 pages of a C-CDA for the relevant information.

Another concern stakeholders mentioned about the implementation of standards relates to limitations of certified EHRs for post-acute care

[24]GAO 15-817.

[25]GAO 15-817.

settings. ONC offers certification for EHRs to ensure they meet certain standards; however, stakeholders told us that there are few vendors that offer certified EHRs for post-acute care settings. Post-acute care developers and vendors wishing to certify a health information technology, including EHRs, must have their product tested and certified by an approved body to demonstrate that it meets criteria related to comprehensiveness, functionality, interoperability, and security. These criteria were developed by a workgroup of industry representatives and are designed to support primary clinical needs for post-acute care providers. The criteria include standards to help facilitate data exchange. While ONC offers certification of EHR software for post-acute care settings to ensure that the software meets certain standards and implementation specifications, this certification is voluntary. One stakeholder stated that vendors are unlikely to undertake voluntary certification for their EHR products because it requires an investment of time and money. According to stakeholders, unless using certified EHR technology is required, post-acute care providers are not likely to acquire the certified technology. Furthermore, one stakeholder told us that even if providers use certified EHRs for post-acute care, those certified EHRs do not necessarily standardize how providers enter data into an EHR. ONC officials told us the 2015 health IT certification criteria—the most recent version—adopted more specific and detailed standards intended to improve health information exchange. Officials noted, however, that providers have only recently begun to use technology certified based on these standards.

Stakeholders also reported that existing standards do not address challenges related to matching patients with the correct health information when electronically exchanging information. According to stakeholders we interviewed, the lack of a standard method to identify patients and match them to records, such as a national patient identifier for each unique patient, contributes to these challenges.[26] Many EHR systems use demographic information, such as a patient's name, date of birth, and home address, to match patients with their correct health information. We have previously reported that challenges matching patients to their health records can occur because demographic variables do not always yield

[26]HHS has stated that it is prohibited from implementing a national patient identifier citing the Omnibus Consolidated and Emergency Supplemental Appropriations Act of 1999. The act prohibits HHS from using any funds to promulgate or adopt any final standard providing for, or providing for the assignment of, a unique health identifier for an individual until legislation is enacted specifically approving the standard.

accurate results; for example, there could be more than one patient with the same information.[27] In addition, one stakeholder indicated that if post-acute patients move from their primary residences to long-term care facilities, their home address may no longer match facilities' health records.

Workflow disruptions: Sixteen of the 20 stakeholders mentioned that providers faced challenges with their workflow—everyday work processes— when implementing an EHR. For example, stakeholders we interviewed stated that providers may be reluctant to implement an EHR because it would require them to make changes to their workflow, which can be disruptive. For example, one stakeholder stated that they are more efficient recording information on paper than they would be doing so electronically.

Stakeholders noted that there were important differences between the workflow of post-acute care settings and acute care settings that affect the use of EHRs. As an example, one stakeholder stated that implementing an EHR is more complicated in a post-acute care setting because multiple services—such as pharmacy and radiology—are not located in a single location, which increases the challenge to interoperability. In contrast, an acute care setting—such as a hospital—often has all providers in a single location. Other stakeholders pointed out that patients stay longer in post-acute care settings than they do in an acute care setting, and that this longer length of stay affects how information is recorded in EHRs.

Some stakeholders also reported delays of as much as 72 hours when attempting to electronically exchange health information. Other stakeholders noted that delays can be caused by inefficient internal facility workflow processes for electronic exchange, such as needing to wait for physicians to electronically approve documents. One stakeholder further stated that printing and faxing a patient's health information can be faster than electronic exchange, and therefore providers often use this method in emergency situations.

Technological Challenges: Sixteen of the 20 stakeholders stated that technological challenges prevent some facilities from using EHRs or electronically exchanging health information. For example, one

[27] See GAO-15-817 and GAO-14-242.

stakeholder told us that limited internet access in some areas of the country prevents home health providers from using EHRs, because these providers cannot rely on being able to access an EHR in patients' homes. Furthermore, stakeholders indicated that some post-acute care facilities may have EHRs that are used primarily for administrative and billing purposes rather than for clinical care. According to stakeholders, these EHRs may not be capable of sending and receiving health-related information electronically and may not have other advanced functionalities, such as support for clinical decision-making. Finally, post-acute care facilities with an EHR capable of receiving electronic health information can encounter instances when information is not automatically integrated into the receiver's EHR, which can require the recipient to manually enter data into the EHR.

Staffing: Thirteen of the 20 stakeholders we interviewed identified staffing challenges at post-acute facilities as a factor affecting their ability to use EHRs and electronically exchange health information. For example, stakeholders stated that high staff turnover—which can be from 50 to 100 percent every year—results in a constant need to train new staff to use the EHR systems. As an example, one stakeholder told us that EHR vendors may provide a specified number of training hours to facilities who purchase their EHRs, but this amount of training can be insufficient due to high turnover.

In addition to high turnover, stakeholders noted that post-acute care settings may lack information technology (IT) staff to manage the EHR software and train staff to use the technology. Stakeholders indicated that many facilities do not have the resources to hire experienced IT professionals, and therefore the facilities may have few or no qualified staff to manage EHR software.

HHS Has Not Measured the Effectiveness of Each of Its Efforts to Promote the Use of EHRs and Lacks a Comprehensive Plan to Meet Its Goal for Post-Acute Care

HHS Has Four Key Efforts Designed to Promote the Use of EHRs and the Electronic Exchange of Health Information

ONC and CMS officials identified four key efforts that promote the use of EHRs in post-acute care settings, including the electronic exchange of health information. Two of these efforts provide funding to support EHR use and exchange, and two of the efforts focus on standardizing health information used in EHRs. As of October 2016, these efforts were ongoing.

ONC Financial Awards. ONC has funded cooperative agreements with state governments and other entities that in turn fund programs that promote EHR use and health information exchange among post-acute providers and others not eligible for meaningful use incentives. ONC provides this funding through its Advance Interoperable Health Information Technology Services to Support Health Information Exchange Program, and funding recipients offer training, education, and technical assistance to providers, such as assistance with incorporating health information exchange into their existing workflows. ONC funded 12 awards totaling over $29 million, each covering 2 years of activities from 2015 through 2017. For example, a health information organization in Nebraska received funding to help nursing homes, home health agencies, and assisted living facilities adopt Direct messaging, which provides basic exchange capabilities. Another awardee helps post-acute providers and others, such as acute care hospitals, electronically exchange health information by, for example, submitting health information documents to a state HIE. In addition to their individual activities, awardees are expected to communicate with each other and with ONC to identify best practices, such as techniques for explaining to providers the potential benefits of EHRs and electronic information exchange.

Medicaid Matching Funds. States may also be eligible to receive federal funding through the Medicaid program to help providers who are not eligible for meaningful use incentives for HIEs and other related technology. In February 2016, CMS issued a letter to state Medicaid directors indicating that federal matching funds (with a 90 percent federal and 10 percent state match) could be used for these activities.[28] In other words, states may claim a 90 percent match for Medicaid expenditures related to electronically connecting eligible providers to other Medicaid providers, including post-acute care facilities. For example, in order to increase electronic health information exchange between post-acute care providers and acute care providers, CMS indicated that states may use the matching funds to connect post-acute care providers to state HIE organizations. ONC officials told us that as of October 2016, five states have received these matching funds, which are not exclusively for post-acute care providers. CMS's February 2016 letter also indicated that states may use funds to build web-based provider directories, which facilitate information exchange by allowing providers to identify relevant electronic information and the providers who have the capability to send or receive it. Cloud-based provider directories allow providers without EHRs to import and export relevant information.

ONC Certification of EHRs for Post-Acute Care. The 2015 Edition of ONC's Health IT Certification Criteria supports the certification of health IT, including EHRs, designed for post-acute settings, though as we have reported, there is no regulatory requirement or incentive for post-acute care settings to use certified EHRs.[29] ONC officials told us that the certification program could provide assurance to post-acute providers that EHRs offer capabilities providers need, such as the ability to send and receive key health information, and thereby encourage post-acute care providers to electronically exchange health information with other providers. ONC has added and updated the certification criteria to focus

[28]The matching funds are not available to directly assist post-acute care providers with acquiring EHR systems. Rather, states can claim the 90 percent match for costs of developing connectivity between eligible providers and other Medicaid providers, including post-acute care facilities, if this will help eligible providers demonstrate meaningful use under the HITECH Medicare and Medicaid Electronic Health Records Program.

[29]Since 2010, ONC has certified EHRs with certain capabilities for participation in the EHR meaningful use incentive program. While post-acute care providers were able to certify to previous editions of ONC Certification, this is the first time the rule included the entire health care continuum. ONC officials told us that the agency took stakeholder feedback on the 2014 edition of these criteria, which recommended that the agency focus on the incentive program.

on transitions of care from one setting to another, such as from an acute-care hospital to a post-acute setting. For example, the new criteria are used to assess whether an EHR has the capability to create and receive C-CDA documents, which are intended to allow electronic transmission of key health information. Since the ability to certify EHRs to the 2015 criteria began in 2016, ONC has not certified any EHRs that are marketed for post-acute care settings. However, ONC officials told us that an industry study of post-acute care vendors indicated that 22 out of 26 vendors have plans to pursue certification for their products.

CMS Data Mapping and Data Element Library. As part of implementing the IMPACT Act, CMS has begun to standardize certain data elements, or pieces of data, which could be used by EHR vendors and providers to facilitate electronic health information exchange. CMS's efforts are focused on the data elements for quality measures calculated using the patient assessment instruments that post-acute care providers are required to submit electronically to CMS.[30] The standardization of such patient assessment data is intended to serve as a centralized health IT data element resource for providers and vendors, which would make it easier for post-acute care providers to electronically exchange such data. For example, CMS is standardizing the patient assessment data indicating the extent to which patients experience pressure ulcers. According to CMS officials, these data may then be used both to calculate quality measures related to pressure ulcers across different post-acute settings and to electronically exchange information on pressure ulcers during transitions of care. According to CMS officials, standardized data elements would allow comparisons of quality across all post-acute care settings—a goal in the IMPACT Act. Further, data mapping—which identifies links between standardized data elements and health IT standards—could also improve health information exchange during transitions of care and inform post-acute care discharge planning. CMS officials told us that the Data Element Library was still in development as of December 2016 and that they are on track to meet the 2019 deadline set by the IMPACT Act.

As CMS works toward standardizing post-acute care assessment data elements, CMS officials said they are beginning to link the standardized data elements to more widely used health IT standards that support

[30]Some post-acute care settings—including skilled nursing facilities, long-term care hospitals, inpatient rehabilitation facilities, and home health agencies—are federally mandated to report certain data from quality measures and patient assessments to CMS.

electronic health information exchange. For example, standardized patient assessment data elements on clinical concepts may be linked to Logical Observation Identifier Name Codes, known as LOINC, a broader health IT standard used for laboratory and clinical observations. According to officials, the standardized data elements will do a better job of facilitating electronic health information exchange if they help ensure that post-acute providers send and receive the same data elements. Additionally, CMS is creating a Data Element Library to make the details of the standardized data elements available to key stakeholders. According to CMS officials, information from the Data Element Library could support vendors as they develop EHR products for post-acute care providers by using the standardized data elements linked to nationally accepted health IT standards, and thereby increase the capacity to electronically exchange health information. CMS officials envision that software vendors could use the information to develop EHR products with the capacity to inform care planning and sharing of long-term and post-acute care assessment summary documents, which in turn could facilitate more coordinated care and improve beneficiary outcomes.

CMS officials told us that they plan to make the Data Element Library available to the public to support standardization efforts and interoperability of the post-acute care assessment data elements in the near future. However, CMS officials told us that this is a long-term project and CMS does not have a more specific timeframe for this effort. In addition, there is no requirement that post-acute care providers or vendors use the standards associated with data elements that are part of this effort. Further, the standardized assessment data elements used for IMPACT Act reporting, or content from the Data Element Library, do not include all clinical content found in an EHR, since those standardized data elements focus only on post-acute care assessment data required for reporting to CMS. For example, many EHRs collect information on laboratory results. The Data Element Library would not currently contain this information, since post-acute care assessments do not currently include data elements for laboratory results.

HHS Has Not Measured the Effectiveness of Each of Its Key Efforts to Promote the Use of EHRs and the Electronic Exchange of Health Information in Post-Acute Settings

HHS does not have information on the effectiveness of its four key efforts to promote EHRs and the electronic exchange of health information in post-acute settings. HHS has plans to evaluate two of its four key efforts, one of which has several limitations, and it lacks any plan for two of the key efforts, as described below.

ONC Financial Awards: HHS has a plan to evaluate ONC's financial award program. Currently, ONC tracks each awardee's progress on specific activities that the awardees agree to perform using a series of milestones and metrics. Specifically, awardees must work with clinical and non-clinical care providers and individuals to establish reporting mechanisms, set goals, and track progress on required health information exchange milestones, including tracking the rates at which providers or others send, receive, find, and use available health information. They must also determine whether this information improves health or health care.[31] In addition, awardees must submit quarterly progress reports to ONC and participate in monthly phone calls to discuss their progress. According to ONC officials, a more complete program evaluation will be conducted once the program is finished. However, officials have not specified what the evaluation will entail, and it is too early to know if this evaluation will allow ONC to determine how the program may contribute to HHS's goal of increasing EHR use and the electronic exchange of health information among post-acute providers.

ONC Certification of EHRs in Post-Acute Care: HHS has a plan for evaluating the number of post-acute care settings that have an EHR; have a certified EHR; can send, receive, find and use electronic health information; and have information electronically available at the point of care. However, the plan has limitations. ONC plans to evaluate the extent to which post-acute care providers use certified EHR products by adding a question about certification to its ongoing surveys of home health agencies and skilled nursing facilities (discussed in more detail below). A separate ongoing survey that includes long-term acute care hospitals and inpatient rehabilitation facilities currently has a question that focuses on whether providers are using EHRs that are certified as eligible for meaningful use incentives. Because post-acute providers are not eligible for these incentives, however, it is unclear how this question will

[31]The Office of the National Coordinator for Health Information Technology, "American Recovery and Reinvestment Act of 2009: Advance Interoperable Health Information Technology Services to Support Health Information Exchange" (Program Guidance, Funding Opportunity Announcement, Fiscal Year 2015).

adequately assess whether providers are using EHR products that have received certification under ONC's voluntary certification program for post-acute care providers. ONC officials told us that the survey will not collect data on how the voluntary certification program may or may not affect post-acute care providers' decisions to adopt or use EHRs. Rather, ONC hopes to use the data—along with additional data, such as programmatic data from ONC's certification effort —to assess correlations between the adoption of certified EHRs and the likelihood that post-acute care providers send, receive, locate, or integrate electronic health information.

Medicaid Matching Funds and CMS Data Mapping: Finally, HHS does not have any plans to evaluate its other two key efforts—the use of Medicaid matching funds or the data mapping and Data Element Library. Once the Data Element Library is made publically available, ONC officials told us they expect to explore opportunities to evaluate its possible effects on the Roadmap's goal related to interoperability and health information exchange in post-acute care settings. Without specific evaluation plans, it is not clear how CMS will measure the success of either of these efforts.

In addition to the limited evaluation plans geared specifically for HHS's four key efforts, ONC officials told us that ONC is planning to survey providers in all four post-acute settings to gather baseline information about the rates of EHR adoption and the extent to which post-acute care providers are engaging in activities that demonstrate interoperability—specifically, sending, receiving, finding, and integrating electronic health information. Subsequent surveys could be used to identify progress towards expanding EHR use and the electronic exchange of health information. ONC officials told us that the agency plans to obtain survey data from two sources. First, the agency plans to use an ongoing annual survey of hospitals, conducted by the American Hospital Association, to gather baseline data on long-term care hospitals and inpatient rehabilitation facilities.[32] This mail survey has collected data on these facilities since 2012. Second, ONC officials told us the agency is developing a similar phone survey for home health agencies and skilled nursing facilities. The officials told us that the agency fielded both surveys

[32]The portion of this survey that focuses on health IT issues was funded by ONC. The survey was originally designed to measure EHR use and electronic health information exchange among meaningful use providers, such as acute care hospitals, but it is also distributed annually to long-term acute care hospitals, inpatient rehabilitation facilities, and other settings.

at a similar time in October 2016 and plans to analyze baseline data in 2017. ONC officials told us that the agency plans to fund data collection regarding the long-term care hospital and inpatient rehabilitation survey until at least 2018. They also said that the agency would like to conduct a follow-up survey for the other settings in 2018; however, ONC officials are uncertain as to whether they will have the funding for this effort.

ONC officials expect the surveys to provide useful information on rates of EHR adoption and activities that demonstrate interoperability, but officials say that the surveys are not intended to assess the effectiveness of specific HHS efforts designed to promote EHRs use in a post-acute care setting. For example, because the survey of home health agencies and skilled nursing facilities is being done by phone—which officials determined would be the most cost-effective method—it does not include detailed questions about factors that affect EHR adoption, use, and the electronic exchange of health information in post-acute care settings. In contrast, the ongoing annual survey of long-term care hospitals and inpatient rehabilitation facilities uses a written format and includes some questions that may provide greater detail. However, the differing formats and content of these surveys limit comparisons of results across different facility types.

The lack of detailed plans to promote the use of EHRs and the electronic exchange of health information in post-acute care settings is inconsistent with leading principles on planning we have identified in prior work. These principles state that detailed evaluation plans are an important way for agencies to measure progress and to identify which efforts may or may not be successful in achieving agency goals.[33] Without an evaluation plan for all of its four key efforts, HHS cannot determine whether or to what extent its efforts are contributing to the department's overall goals, or if these efforts need to be adjusted.

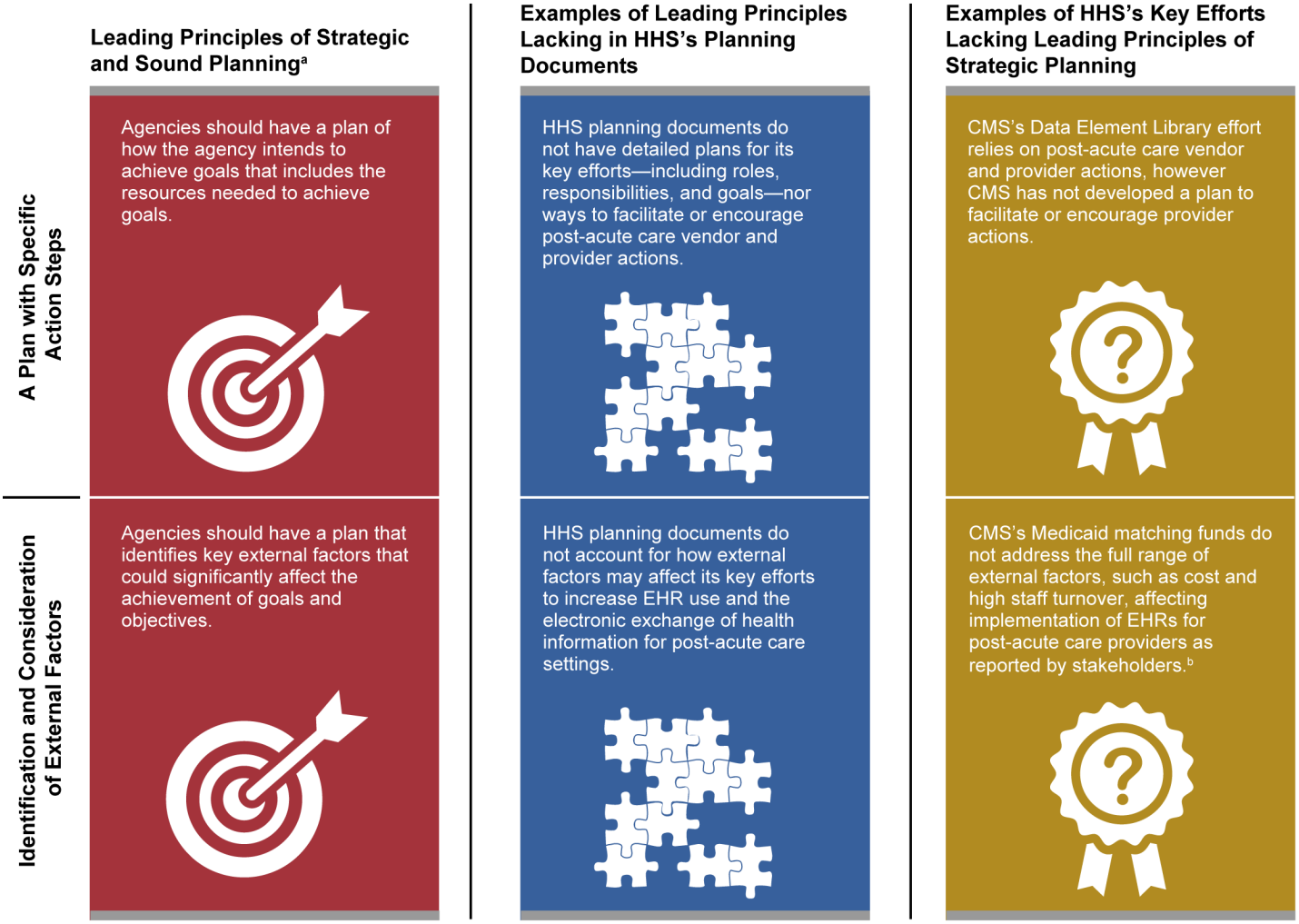
[33]For more information leading principles on evaluation plans, see GAO/GGD-96-118 and GAO/GGD-97-180.

HHS Lacks a Comprehensive Plan with Specific Action Steps and Consideration of External Factors to Achieve Its Goal for Post-Acute Care

HHS's ongoing activities to increase EHR use and the electronic exchange of health information are intended to help achieve the goal of ONC's Roadmap to increase the proportion of post-acute care providers electronically exchanging health information by 2017. However, HHS does not have a comprehensive plan to achieve this goal. While the Roadmap serves as a general plan, neither it nor other planning documents are comprehensive. First, these documents do not clearly outline how these individual key efforts will work together to meet the Roadmap goal. Second, the documents lack certain other elements that are desirable for a strategic plan so that HHS will be able to achieve its goal within its specified timeframes. According to leading principles of sound planning identified in our prior work, these elements include a plan with specific action steps and the identification and consideration of external factors.[34] (See fig. 2.) The lack of a comprehensive plan with specific action steps and the failure to consider external factors, such as cost and high staff turnover, in the Roadmap may adversely affect the implementation of HHS's key efforts and thus the ability of HHS to achieve the Roadmap's goal for post-acute providers.

[34] GAO/GGD-97-180.

Figure 2: Select Leading Principles of Strategic Planning Related to Post-Acute Care That Are Lacking from the Department of Health and Human Services' Planning Documents



Sources: GAO analysis of Department of Health and Human Services (HHS) information and criteria from leading pricicples of strategic planning based on Government Performance and Results Modernization Act of 2010 (GPRAMA) and prior GAO work. | GAO-17-184

[a]Leading principles of strategic planning are based on Government Performance and Results Modernization Act of 2010 (GPRAMA) and prior GAO work. For example, see GAO, *Executive Guide: Effectively Implementing the Government Performance and Results Act*, GAO/GGD-96-118 (Washington, D.C.: June 1996) and GAO, *Managing for Results: Critical Issues for Improving Federal Agencies' Strategic Plans*, GAO/GGD-97-180 (Washington, D. C.: Sep. 16, 1997).

[b]We interviewed 20 stakeholders, including experts, vendors, professional associations, and ONC funding recipients about factors that may affect the use of EHRs and electronic exchange of health information in post-acute care settings.

A Plan with Specific Action Steps. HHS officials indicated that while achieving the goal of the Roadmap depends in part on actions by post-acute care vendors and providers, the Roadmap does not address how to facilitate or encourage vendor and provider actions. For example, CMS officials told us they hope that by standardizing post-acute care assessment data elements and linking these data elements to health IT standards in its Data Element Library, post-acute care vendors will use these data elements to create technological solutions for post-acute care settings. CMS officials told us that the agency intends to notify the public, including stakeholders and vendors, when the Data Element Library is complete. Since the library is meant to serve as a resource, there are no requirements for vendors to use the data elements to improve EHR systems or for post-acute care providers to use the improved systems. CMS, therefore, has no plans to ensure that vendors use these data elements to improve EHR systems, or that post-acute providers use the improved systems—both of which would be key steps necessary to achieve the Roadmap's goal. Furthermore, in its certification program, HHS has not outlined specific action steps for post-acute care vendors or providers to take. For its part, ONC has provided guidance on functionality to vendors serving providers not eligible for the meaningful use incentives. ONC sees its certification of EHR technology as a chance to provide assurance to post-acute care providers that certain EHRs have functionality and standards and can support exchange with other settings, such as hospitals. ONC officials told us they hope there is an increase in the use of certified products among post-acute care settings, and the officials say they will continue outreach to and education for post-acute providers regarding the program and relevant certification criteria.

Identification and Consideration of External Factors. ONC officials told us that the Roadmap is a high-level document describing the department's vision of an interoperable health care system. The officials added that this document therefore does not discuss in detail how external factors, such as costs, high staff turnover, lack of technical support, and workflow challenges may affect the extent to which post-acute care settings use EHRs and electronically exchange health information. While HHS has key efforts that may help to achieve the Roadmap's goal, these key efforts are unlikely to fully address these external factors. For example, while ONC financial awards and Medicaid matching funds may eventually help to make health information exchange more affordable for post-acute facilities, these funds are not intended to address the full range of factors reported by the 20 stakeholders we interviewed. Furthermore, some of the factors may be outside of HHS's control and may require action by external stakeholders. By not planning

for how to address external factors that could significantly affect EHR use and the electronic exchange of health information for post-acute care settings, HHS runs the risk that these factors could impede progress towards its goal.

Conclusions

HHS has several key efforts to promote EHR use and the electronic exchange of health information in post-acute care settings. However, HHS lacks plans for fully evaluating the effectiveness of each of these efforts. As a result, it will be difficult for HHS to determine whether any of its efforts contributed to that increase, and if any of its efforts should be modified to increase their effectiveness.

Furthermore, HHS's Roadmap and other planning documents do not clearly outline how these individual efforts will work together to meet HHS's goal for the electronic exchange of health information in post-acute settings. Describing how efforts will work together is an important part of comprehensive planning. Given that vendors and providers play an important role in whether HHS achieves its goals, it is problematic that HHS has not developed a comprehensive plan with specific action steps that specifically address how to facilitate or encourage vendor or provider actions. Additionally, HHS's Roadmap does not specify the external factors that affect post-acute provider's use of EHRs and the electronic exchange of health information, such as the many providers who do not see immediate financial benefits in adopting or using EHRs. Without comprehensive planning, HHS risks not achieving its goal of increasing the proportion of post-acute providers that send, receive, find, and use electronic health information by 2017.

Recommendations for Executive Actions

To improve efforts to promote EHR use and electronic exchange of health information in post-acute care settings, we recommend that the Secretary of Health and Human Services direct CMS and ONC to take the following two actions:

- Evaluate the effectiveness of HHS's key efforts to determine whether they are contributing to HHS's goal for increasing the use of EHRs and electronic exchange of health information in post-acute care settings.
- Comprehensively plan for how to achieve the department's goal related to the use of EHRs and electronic information exchange in post-acute care settings. This planning may include, for example,

identifying specific actions related to post-acute care settings and identifying and considering external factors.

Agency Comments

We provided a draft of this report to HHS for comment. HHS provided written comments, which are reprinted in appendix I, and technical comments, which we incorporated as appropriate. In its written comments, HHS concurred with our recommendations and described some of HHS's efforts to promote EHR use and electronic exchange of health information in post-acute care settings. Regarding our first recommendation, HHS stated that a first step in evaluating its efforts is to establish baseline metrics to assess the current situation. Regarding our second recommendation, HHS stated that it intends to develop comprehensive planning to achieve its goal, including working with stakeholders to advance the use of EHRs in post-acute settings and to address barriers and external factors.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the Secretary of Health and Human Services and other interested parties. In addition, the report will be 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 II.

Carolyn L. Yocom
Director, Health Care

Appendix I: Comments from the Department of Health and Human Services

DEPARTMENT OF HEALTH & HUMAN SERVICES

OFFICE OF THE SECRETARY

Assistant Secretary for Legislation
Washington, DC 20201

DEC 15 2016

Carolyn L. Yocom
Director, Health Care
U.S. Government Accountability Office
441 G Street NW
Washington, DC 20548

Dear Ms. Yocom:

Attached are comments on the U.S. Government Accountability Office's (GAO) report entitled, "*Electronic Health Records: HHS Needs to Improve Planning and Evaluation of Its Efforts to Increase Information Exchange in Post-Acute Care Settings*" (GAO-17-184).

The Department appreciates the opportunity to review this report prior to publication.

Sincerely,

Jim R. Esquea
Assistant Secretary for Legislation

Attachment

GENERAL COMMENTS OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS) ON THE GOVERNMENT ACCOUNTABILITY OFFICE'S DRAFT REPORT ENTITLED: ELECTRONIC HEALTH RECORDS: HHS NEEDS TO IMPROVE PLANNING AND EVALUATION OF ITS EFFORTS TO INCREASE INFORMATION EXCHANGE IN POST-ACUTE CARE SETTINGS (GAO-17-184)

The U.S. Department of Health and Human Services (HHS) appreciates the opportunity from the Government Accountability Office (GAO) to review and comment on this draft report.

Recommendation

To improve efforts to promote Electronic Health Records (EHR) use and electronic exchange of health information in post-acute care (PAC) settings, we recommend that the Secretary of Health and Human Services direct CMS and ONC to take the following two actions:

- Evaluate the effectiveness of HHS's key efforts to determine if they are contributing to HHS's goal for increasing the use of EHRs and electronic exchange of health information in PAC settings.
- Comprehensively plan for how to achieve HHS's goal regarding the use of EHRs and electronic health information exchange in PAC settings, which may include, for example, specific actions related to PAC settings, and identification and consideration of external factors.

HHS Response

HHS concurs with GAO's recommendations. HHS established three key areas for measuring nationwide progress on interoperability in Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap (hereafter Roadmap):

- Enhance capability to exchange electronic health information in an interoperable manner through increased adoption of critical infrastructure, standards, services, and policies;
- Increase the exchange of electronic health information so that it is available when and where it is needed, and subsequently used to inform decision-making; and
- Improve outcomes sensitive to interoperability (i.e., better health, lower cost, and improved processes enabled by interoperability).

PAC settings were included in both the near-term and long-term measurement focus of the Roadmap.

In 2017, HHS anticipates establishing baseline metrics for health IT adoption and interoperability within the PAC setting on the Health IT Dashboard. HHS believes that one of the first steps to developing an evaluation plan to promote interoperability in PAC settings is to gather the data necessary to assess the current situation.

As described in the GAO report, ONC is developing nationally representative surveys of PAC providers to establish the following estimates: the proportion of PAC providers that (1) have an EHR; (2) have a certified EHR; (3) can send, receive, find, or use electronic health information; and (4) have health information electronically available at the point of care.

It is important to understand how physicians and hospitals are exchanging information with post-acute care providers. To meet this need, HHS is conducting surveys to examine the extent to which

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hospitals and office-based physicians exchange electronic health information with providers in post-acute care settings. These data provide valuable information regarding the state of interoperability in the PAC setting.

For the long-term measurement strategy of the Roadmap, which emphasizes the impact of health IT use, HHS is supporting the establishment of a measurement framework that identifies outcomes sensitive to interoperability (i.e., better health, lower cost, and improved processes enabled by interoperability) through a contract with the National Quality Forum (NQF).[1] This effort involves identifying measures related to clinical processes enabled by interoperability across the care continuum including but not limited to the post-acute setting.

Despite its ongoing data collection efforts, HHS does not have adequate funding to broaden its survey strategy to include a national survey of PAC providers on factors that affect health IT adoption and interoperability, such as EHR costs, usability, and technical barriers.

Evaluating HHS Programs' To Promote Interoperability
The GAO report highlights two of ONC's efforts to promote interoperability across the care continuum, including among PAC providers.

Below are descriptions of current and anticipated evaluation plans for the ONC Health IT Certification Program and the Advance Interoperability Health Information Technology Services to Support Health Information Exchange Program.

ONC Health IT Certification Program. The ONC Health IT Certification Program is a voluntary program established to provide for the testing and certification of health IT standards, implementation specifications and certification criteria adopted by the Secretary of HHS. The program supports the availability of certified health IT for its encouraged and required users under other federal, state and private programs. When considering evaluation of the ONC Health IT Certification Program and its impact on the post-acute care setting, it is important to note that the rulemaking around the 2015 Edition of ONC's Certification Criteria wasn't complete until December 1, 2015. Several new and revised certification criteria that support settings and use cases across the care continuum were adopted in the 2015 Edition Final Rule to improve access to technical standards that form an essential foundation for interoperability and help ensure that key data is consistently available.

HHS measures the rate of adoption of certified health IT. HHS has publically reported on the adoption and use of certified health IT since 2011[2]. For example, in 2015, 96 percent of

[1] National Quality Forum (NQF) Interoperability Project 2016-2017
http://www.qualityforum.org/ProjectDescription.aspx?projectID=83283

[2] Henry, J., Pylypchuk, Y., Searcy T. & Patel V. (May 2016). Adoption of Electronic Health Record Systems among U.S. Non-Federal Acute Care Hospitals: 2008-2015. ONC Data Brief, no.35. Office of the National Coordinator for Health Information Technology: Washington DC.

GENERAL COMMENTS OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS) ON THE GOVERNMENT ACCOUNTABILITY OFFICE'S DRAFT REPORT ENTITLED: ELECTRONIC HEALTH RECORDS: HHS NEEDS TO IMPROVE PLANNING AND EVALUATION OF ITS EFFORTS TO INCREASE INFORMATION EXCHANGE IN POST-ACUTE CARE SETTINGS (GAO-17-184)

hospitals and 78 percent of office-based physicians used certified EHRs. In 2017, HHS anticipates establishing baseline metrics for the adoption and use of certified health IT by PAC providers. Additionally, HHS is supporting the development of a measurement strategy to assess the technical requirements to support interoperability, such as the adoption, use, and conformance of standards to ensure that capabilities are in place to support interoperability.

Advance Interoperability Health Information Technology Services to Support Health Information Exchange Program. Through the expansion and use of operational health information exchange infrastructure, ONC awardees seek to address workflow challenges and technical issues and improve the meaningful use of clinical data from external sources across the entire care continuum, including PAC providers. Awardees work with clinical and non-clinical care providers and individuals to establish reporting mechanisms, set goals, and track progress on the health information exchange milestones, including tracking the rates of send, receive, find, and use of available health information and the interoperable uses of this data downstream to improve health and health care.[3]

Awardees' performance will be evaluated on a quarterly basis by HHS to ensure that awardees meet program objectives (milestones vs. projections) and the criteria described within the funding announcement. Awardees must also submit semi-annual progress reports related to their performance.

This program was funded in 2015. HHS is actively monitoring the extent to which awardees are meeting program requirements specified in its funding announcement and will conduct a final evaluation upon the completion of program. The goal of the evaluation is to allow for a clear understanding of the programs, their implementations, associated outcomes, and replicability. ONC will also include in the final program evaluation a qualitative and quantitative analysis of successes, challenges, and mitigation strategies.

Regarding the second recommendation, ONC is committed to continuing to work with federal partners and external stakeholders to advance the adoption and use of health IT in post-acute settings. As described further below, ONC's ongoing and upcoming programmatic PAC work demonstrates this commitment, including the provision of federal investments to awardees via cooperative agreements; stakeholder outreach and education; federal advisory committee engagement with PAC stakeholders; and, collaborative efforts with federal partners such as CMS.

As the health care system shifts toward value-based reimbursement, participation by PAC providers will be essential to achieving goals of better health, better care and lower cost. HHS believes the adoption of health IT that can facilitate the ability of providers to send, find, receive and use essential health information will be key to the success of improved care coordination and communication across care teams and with patients and their families.

[3] American Recovery and Reinvestment Act of 2009: Advance Interoperable Health Information Technology Services to Support Health Information Exchange. Program Guidance. Funding Opportunity Announcement.

GENERAL COMMENTS OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS) ON THE GOVERNMENT ACCOUNTABILITY OFFICE'S DRAFT REPORT ENTITLED: ELECTRONIC HEALTH RECORDS: HHS NEEDS TO IMPROVE PLANNING AND EVALUATION OF ITS EFFORTS TO INCREASE INFORMATION EXCHANGE IN POST-ACUTE CARE SETTINGS (GAO-17-184)

Lack of funding to adopt interoperable health IT systems remains a significant challenge for the PAC sector since statutory authority and statutorily-defined financial incentives were not provided under the Health Information Technology for Economic and Clinical Health (HITECH) Act. In addition, although the Affordable Care Act gave HHS authority through the Elder Justice Act[4] to make grants to long term care facilities for specified activities (activities that would assist such entities in offsetting costs related to purchasing, leasing, developing, and implementing certified EHR technology), the appropriations to support the grants were not provided. Lack of funding not only impacts the ability of PAC providers to adopt health IT, but also impacts their ability to acquire technical assistance to plan for and operationalize health IT systems.

As part of efforts to advance nationwide interoperability, ONC has developed policies and programs that focus on electronic exchange and use of health information across the care continuum, including the publishing of *Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap, Final Version 1.0,* which focuses on collective efforts between public and private stakeholders to achieve priority interoperability goals over a 10-year period. The Roadmap—developed by ONC and focused on interoperability of health IT broadly—describes a path toward interoperability for the nation with shared commitments, milestones and calls to action. It is not designed to detail efforts for each healthcare sector, but highlights steps necessary to establish metrics assessing national progress. Additionally, as described in the Roadmap, initial focus of interoperability in the post-acute care setting should be placed on addressing gaps in data necessary to measure EHR use and interoperability. Obtaining such data for PAC providers is an essential first step in gaining situational awareness that can inform ongoing planning efforts.

ONC Certification of Health IT for PAC
As highlighted in this GAO report, there are promising ONC and CMS efforts underway that can increase interoperability in post-acute care such as the certification of health IT, including EHRs. However, it is important to note that the certification of health IT to the 2015 Edition and subsequent implementation efforts are in the very early stages for even those participating in programs that require the use of certified health IT.

Since 2013, ONC has worked with public and private stakeholders to identify capabilities and certification criteria that support the needs of federal and state programs and the needs of care continuum providers—including working with PAC stakeholders to identify interoperability focused criteria important to PAC settings and the patients they serve.[5] For example, the latest edition of certification criteria, the 2015 Edition, allows modular certification to enable developers to seek right-sized certification for health IT systems and includes criteria focused on the ability to send, receive, and use key data into a health IT system. We look forward to

[4] § 6703(a) through (c) of ACA
[5] https://www.healthit.gov/facas/sites/faca/files/TransmittalLetter_LTPAC_BH_Certification.pdf

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developers seeking certification for systems that can support PAC settings and look forward to continuing to work with the PAC community.

ONC's website, healthit.gov offers a variety of resources to support vendors and providers including materials on the 2015 Certification Final Rule[6], a brief on how the 2015 Edition supports the broader care continuum[7], an overview of the ONC Certification Program, testing and certification processes, supporting materials,[8], and provider-focused certification materials on the Health IT Playbook[9]. ONC is also actively working on updating certification guidance[10] for the 2015 Edition which is designed to identify certification criteria that can aid stakeholders across the healthcare ecosystem, including PAC stakeholders.

We appreciate the comments that GAO and industry stakeholders provided in this GAO report to address areas that may impact achieving this goal, including factors such as the cost of EHRs, implementation of standards, workflow disruption, technical challenges and staffing concerns that create barriers to health IT adoption and implementation. ONC is aware of these concerns and works to address barriers to interoperability through the efforts described above including: cooperative agreements, stakeholder outreach and education, federal advisory committee engagement with PAC stakeholders, and collaborative efforts with federal partners such as CMS. In addition, HHS has engaged PAC stakeholders through requests for public comment on interoperability measurement[11], requests for comment on financial incentives for the adoption of health IT by long term and post-acute care[12], and by encouraging the use of certified health IT in payment policy.[13] HHS will build upon this foundation going forward to advance progress toward interoperability and address ongoing challenges.

Pending funding and resources, ONC intends to track progress against Roadmap goals for PAC providers and to develop comprehensive planning and steps to advance such goals. These steps would consider the important role PAC stakeholders play in advancing the use of certified health IT in this setting.

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[6] https://www.healthit.gov/policy-researchers-implementers/2015-edition-final-rule
[7] https://www.healthit.gov/sites/default/files/2015editioncareacrosscontinuum_10615.pdf
[8] https://www.healthit.gov/policy-researchers-implementers/about-onc-health-it-certification-program ; https://www.healthit.gov/policy-researchers-implementers/testing-and-test-methods; https://www.healthit.gov/policy-researchers-implementers/2015-edition-test-method
[9] https://www.healthit.gov/playbook/certified-health-it/
[10] https://www.healthit.gov/sites/default/files/generalcertexchangeguidance_final_9-9-13.pdf
[11] https://www.regulations.gov/document?D=HHS-ONC-2016-0008-0001
[12] https://www.federalregister.gov/documents/2016/08/02/2016-17733/medicare-program-advancing-care-coordination-through-episode-payment-models-epms-cardiac
[13] http://www.gpo.gov/fdsys/pkg/FR-2015-11-05/pdf/2015-27931.pdf ; https://www.federalregister.gov/documents/2015/08/04/2015-18950/medicare-program-prospective-payment-system-and-consolidated-billing-for-skilled-nursing-facilities

Appendix II: GAO Contact and Staff Acknowledgments

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Staff Acknowledgments

In addition to the contact name above, Will Simerl (Assistant Director), Carolyn Feis Korman (Analyst-in-Charge), Courtney Liesener, and Ashley Nurhussein made key contributions to this report. Also contributing were Muriel Brown, Krister Friday, Monica Perez-Nelson, and Rebecca Rust Williamson.