



U.S. Department of Health and Human Services  
Assistant Secretary for Planning and Evaluation  
Office of Disability, Aging and Long-Term Care Policy



**OPPORTUNITIES FOR  
ENGAGING LONG-TERM AND  
POST-ACUTE CARE PROVIDERS  
IN HEALTH INFORMATION  
EXCHANGE ACTIVITIES:  
EXCHANGING INTEROPERABLE PATIENT  
ASSESSMENT INFORMATION**

December 2011

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**OPPORTUNITIES FOR ENGAGING LONG-TERM AND  
POST-ACUTE CARE PROVIDERS IN HEALTH  
INFORMATION EXCHANGE ACTIVITIES:  
Exchanging Interoperable  
Patient Assessment Information**

Michelle Dougherty, MA, RHIA, CHP  
AHIMA Foundation

Jennie Harvell  
Office of the Assistant Secretary for Planning and Evaluation  
U.S. Department of Health and Human Services

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# STUDY ACKNOWLEDGEMENTS AND CONTRIBUTORS

Bob Dolin, MD  
Lantana Consulting Group

Gaye Giannone Dolin, MSN, RN  
Lantana Consulting Group

Sue Mitchell, RHIA, Consultant

Margaret Williams  
AHIMA Foundation

Cyndi Lundberg, RN, BSN  
SNOMED Terminology Solutions  
College of American Pathologists

Daniel Vreeman, PT, DPT, MSc  
Regenstrief Institute, Inc.

Keystone Beacon Community

James Walker, MD, FACP

James Younkin  
Geisinger Health System

# EXECUTIVE SUMMARY

Individuals who receive long-term and post-acute care (LTPAC) services obtain care from a diverse group of physicians, clinicians, and specialists and experience frequent transitions between health care provider settings. The availability of health information to support and coordinate care is crucial for eliminating fragmentation and ensuring high quality, safe and efficient health care. Transitions in care are known to be particularly problematic because relevant information may not be communicated in a timely manner. Health information technology (HIT) and health information exchange (HIE) have the potential to address the information gap and improve the overall quality and continuity of care of LTPAC patients, reduce rehospitalizations, and control health care spending.

LTPAC providers generally do not have robust HIT capabilities to support the electronic exchange and use of clinical information. Without these capabilities, LTPAC providers cannot readily access patients' clinical information from other providers. Conversely, hospitals, primary care professionals, caregivers and others cannot obtain timely and important LTPAC information. Today, electronic health record (EHR) incentive programs, which are not applicable to LTPAC settings, are advancing adoption of interoperable HIE for eligible hospitals and eligible providers. Given the lack of incentives or other requirements for LTPAC providers to use interoperable EHRs, other actions are needed to advance the use of this technology by this sector.

## **Opportunities to Accelerate LTPAC Readiness for HIE:**

- Leverage standardized assessment content to engage LTPAC providers in HIE.
- Prioritize the Health Information Technology for Economic and Clinical Health Act (HITECH) and Patient Protection and Affordable Care Act (ACA) requirements for exchange of clinical summary information.
- Build a sustainable technical infrastructure for content and exchange standards for patient assessment information.
- Expand beyond patient assessments for HIE with other providers.

This report, prepared for and in collaboration with the Office of the Assistant Secretary for Planning and Evaluation (ASPE) in the U.S. Department of Health and Human Services (HHS) by the American Health Information Management Association (AHIMA) Foundation (with significant input and expertise from HIT, HIE, and LTPAC experts), identifies opportunities and tools to support cost-effective data re-use and interoperable HIE by LTPAC providers, particularly nursing homes and home health agencies. The opportunities described in this report use federally required assessment instruments, the Minimum Data Set Version 3 (MDS 3.0) and the Outcome and Assessment Information Set (OASIS), created and electronically exchanged by almost 100 percent of the nursing homes and home health agencies in the United States as the entrance point for HIE. The study applied HIT standards to the MDS 3.0 and OASIS to support the interoperable exchange of assessments and describes opportunities to re-



use assessment content to exchange a summary of information that will be useful for shared care and transitions.

The tools developed in this study support the transformation of assessment content into interoperable and re-usable formats and are available to nursing home and home health agency providers, their HIT vendors, and HIE organizations. The report describes how the tools can be used to facilitate exchange of a subset of assessment content to provide a summary for other LTPAC providers, hospitals, physicians, and patients/caregivers to support continuity, coordination and transitions of care. The approach outlined for engaging LTPAC providers in HIE activities is expected to be low-cost and could serve as a stepping stone towards more sophisticated use of EHRs and comprehensive HIE opportunities. The report and appendices:

- Describe the drivers for LTPAC's participation in HIE and data re-use activities.
- Describe the federal requirements for the nursing home MDS 3.0 and home health OASIS assessment instruments and their electronic transmission.
- Describe the HIT readiness of nursing homes and home health agencies.
- Identify and apply HIT content standards to the data elements on the MDS 3.0 and OASIS to support the interoperable re-use of assessment content.
- Identify a "Patient Assessment Summary Document" composed of a clinically relevant subset of MDS 3.0 and OASIS data elements that clinicians indicate would be useful to exchange at times of transitions and shared care.
- Support the development of an industry-accepted HIT exchange standard for the interoperable exchange of patient assessment instruments and applies that standard to the MDS 3.0.
- Identify the HIT content standards that would be used for the Patient Assessment Summary Documents for the MDS 3.0 and OASIS, describes how accepted HIT exchange standards could be applied to support the interoperable exchange of these patient assessment summary documents, and identifies issues/gaps that need to be filled with these exchange standards.

Finally, this report summarizes HIT activities underway in federal programs and selected state HIT and private sector initiatives, and identifies activities that support LTPAC providers in interoperable HIE. Some of these initiatives are re-using standardized assessment content and the work products created in this study. The re-use of patient assessment content in emerging initiatives validates the key premise of this study -- leveraging assessment data (available in almost all nursing homes and

home health care providers) and standardizing the content supports its re-use for more robust clinical HIE activities. Using the tools developed through this study will support LTPAC providers' involvement in a variety of HIE activities and the attainment of quality and continuity care goals envisioned in health care reform.

# I. BACKGROUND

Each year about 12 million medically complex and/or functionally impaired Americans need long-term and post-acute care (LTPAC) services in nursing homes, home health, or other settings. Persons receiving LTPAC services typically have multiple health care encounters with physicians and other clinicians. Transitions to and from LTPAC settings to emergency rooms and hospitals are common.

The need to improve care and care coordination for LTPAC patients is great. For example, about one in four Medicare beneficiaries discharged from a hospital to a skilled nursing facility is readmitted within 30 days.<sup>1</sup> Clinical trials suggest that 20-50 percent of rehospitalizations are preventable. Preventable rehospitalizations and other suboptimal health care outcomes are detrimental to LTPAC patients and costly for federal and state governments as Medicare and Medicaid programs are the primary payers of LTPAC services.<sup>2</sup> Most persons who receive formal LTPAC services are insured by these programs.

## Definition of Interoperability

Interoperability in health care is the ability of different information technology systems and software applications to communicate, to exchange data accurately, effectively and consistently, and to use the information that has been exchanged.

*National Alliance for Health Information Technology*

Health information technology (HIT) and health information exchange (HIE) among providers have the potential to improve the overall quality and continuity of care of LTPAC patients, reduce rehospitalizations, and control health care spending. Yet LTPAC providers do not have robust, interoperable HIT capabilities to support the electronic exchange and use of clinical information. Without these HIT capabilities, LTPAC providers face significant barriers in accessing patients' clinical information from other providers; further, hospitals, primary care professionals, caregivers and other providers cannot obtain timely and important LTPAC information. Ultimately, LTPAC providers' limited HIT capacity and engagement in HIE activities:

- Impedes care coordination and effective transitions of care;
- Retards improvements in the delivery of quality health care;

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<sup>1</sup> Mor, V., Intrator, O., Feng, Z., Grabowski, D.C. "The Revolving Door of Rehospitalization From Skilled Nursing Facilities," *Health Affairs* 29(1): 57-64. 2010.

<sup>2</sup> Jenicks, S., Jack, B., Field, T. "Managing Patient Care Transitions: How Health IT Can Reduce Unnecessary Rehospitalization." AHRQ, A National Web Conference on Transitions in Care. February 24, 2010. [http://healthit.ahrq.gov/portal/server.pt?open=514&objID=5553&mode=2&holderDisplayURL=http://wci-pubcontent/publish/communities/a\\_e/events/events/events/a\\_national\\_web\\_conference\\_on\\_transitions\\_in\\_care.html](http://healthit.ahrq.gov/portal/server.pt?open=514&objID=5553&mode=2&holderDisplayURL=http://wci-pubcontent/publish/communities/a_e/events/events/events/a_national_web_conference_on_transitions_in_care.html).

- Contributes to higher costs for payers and patients, and poor outcomes; and
- Will eventually stymie eligible professionals' and hospitals' ability to qualify for incentives for the meaningful use of HIT.<sup>3</sup>

Both the Patient Protection and Affordable Care Act (ACA) and the Health Information Technology for Economic and Clinical Health Act (HITECH) aim to improve the quality and efficiency of health care. Many health care reform provisions depend on health care providers' ability to electronically exchange and use clinical information. Although HITECH supports the development of a nationwide HIT infrastructure for the electronic exchange and use health information, to date, limited resources have been directed to support LTPAC providers' participation in HIE activities. Although HITECH did not include financial incentives for LTPAC providers, market-driven pressures arising from payment and delivery reforms are expected to require investments in technology to coordinate care and exchange information with other providers to deliver high quality care in a safe and efficient manner. These pressures will extend to eligible providers (e.g., physicians and short-term acute care hospitals) as they attempt to qualify for their meaningful use electronic health record (EHR) incentive payments; as well as to providers ineligible for such incentives, including nursing homes and home health agencies, as they seek to position themselves in a reformed health delivery environment.

To achieve national health care reform goals, HIT policies and initiatives to advance the electronic use and exchange of health information must include LTPAC. This report describes the:

- **Policy rationale** for engaging certain LTPAC providers (specifically nursing homes and home health agencies) in HIT activities, and describes activities underway that seek to engage these providers.
- **Opportunities** to leverage federally mandated assessment instruments as an entrance point for engagement.
- **Tools** to assist LTPAC providers in expanding their HIT capabilities.

Substantial gains in health care quality, efficiency, and outcomes will be potentially delayed if LTPAC providers do not adopt and use HIT and exchange capabilities. Concrete steps are needed to engage nursing homes and home health agencies and enable them to use HIT that supports electronic exchange across providers. As described later in this report, there is support for adding to future stages of meaningful use requirements that eligible professionals and hospitals have two-way electronic exchanges of clinical information with other providers -- including LTPAC -- in order for

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<sup>3</sup> Meaningful Use: The incentives under HITECH are available to eligible professionals and hospitals for their "meaningful use" of certified EHRs (i.e., for e-prescribing; HIE to improve quality of care, such as care coordination; and reporting of quality measures).

<http://healthit.hhs.gov/portal/server.pt?open=512&objID=2996&mode=2>.

those eligible providers to qualify for federal incentives and avoid financial penalties. As hospitals and physicians -- both important referral sources for LTPAC providers -- increase their use of HIT they will exert more pressure on LTPAC providers to use standards-based technology to exchange information and coordinate care.

This report identifies opportunities and tools to support HIT adoption and use among LTPAC providers, particularly nursing homes and home health agencies by leveraging federally required assessment instruments used and electronically transmitted by almost 100 percent of these providers in the United States. The analysis and approach for engaging LTPAC providers in HIE activities result from a four-year study sponsored by the Office of the Assistant Secretary for Planning and Evaluation (ASPE) in the U.S. Department of Health and Human Services (HHS) and undertaken by the American Health Information Management Association (AHIMA) Foundation that involved input and technical expertise from a variety of public and private sector LTPAC stakeholders and experts in HIT and HIE.

The central opportunity presented in this report to engage LTPAC in HIE activities is to apply HIT vocabulary and document exchange standards to existing federally required patient assessment content thus enabling their interoperable exchange and re-use. Clinical and other experts consulted as part of this study indicated that:

- Exchanging patient assessment information could improve communication between care providers and provides an important snapshot of an individual's clinical status at the time the assessment was completed.
- Exchanging a summary of the patient's clinical status derived from each assessment completed provides allows for tracking and trending changes in condition over time and is useful to clinicians and case managers.
- Exchanging a summary of an assessment completed prior to transition may be dated but still provides valuable information since some information is better than no information. (See discussion in the Exchanging Standardized Assessment Content for Patient Assessment Summary Documents section regarding the Keystone Beacon Community Program.)
- Re-using some assessment content could provide clinically useful information to support more complex shared care and transition processes. (See discussion in Opportunities to Re-Use Standardized Patient Assessment Content and Link with Other Data section regarding the inclusion of assessment information in the creation and exchange of the Uniform Transfer Form in Massachusetts, and the creation and exchange of the home health plan of care in New York.)

In summary, an approach to accelerate LTPAC providers' adoption of more sophisticated types of information exchange and sharing capabilities would support meaningful use requirements. The exchange of patient assessment instruments (PAIs) and the re-use of assessment content could serve as the initial foundation for expanding

LTPAC providers' HIT capabilities and participation in more sophisticated HIE activities. This report includes the following information and makes available a set of technical tools for LTPAC providers to begin participating in HIE.

- Section II describes the methods and approaches used to conduct this study.
- Section III describes the national policy priorities and the policy rationale for engaging LTPAC providers in electronic HIE activities, highlighting relevant parts of the ACA and HITECH.
- Section IV provides an overview of the HIT capabilities in LTPAC and reviews existing PAIs.
- Section V describes how standardized PAIs and content could be used to engage LTPAC providers in HIE activities. This section describes how interoperable PAIs and content could be used to accelerate LTPAC providers' readiness and ability to participate in the nationwide HIT infrastructure through the interoperable exchange of PAIs and patient assessment summary documents. This section also describes how standardized assessment content is being re-used in a variety of HIE activities.
- Section VI describes the technical infrastructure needed to support an interoperable nationwide health information infrastructure that includes LTPAC and outlines the tools available to facilitate interoperable exchange.
- Section VII discusses opportunities for expanding beyond patient assessments and advancing to more sophisticated types of HIE.
- Section VIII, describes opportunities and options for next steps that could be undertaken to increase the LTPAC sector's and states' awareness of impending demands for electronic clinical information exchange.

## II. STUDY METHODS

In 2007, ASPE/HHS contracted with the AHIMA Foundation to advance the interoperable use of HIT and EHRs by LTPAC providers by leveraging federal requirements for the electronic submission of PAIs. The study, building on work that had been undertaken by the Consolidated Health Informatics Initiative and endorsed by the National Committee on Vital and Health Statistics (NCVHS),<sup>4</sup> involved the identification and application of HIT standards to the Minimum Data Set (MDS) and Outcome and Assessment Information Set (OASIS) instruments, development of technical tools to support interoperable exchange of assessment instruments and the re-use of assessment content for patient assessment summary documents, identification of opportunities to support the widespread adoption and use of interoperable patient assessment information, and steps needed to advance HIE with and by LTPAC providers.

The AHIMA Foundation subcontracted with several technical experts to assist in linking recognized vocabulary standards to PAIs, develop implementation guides for the interoperable exchange of PAIs, and identify issues that need to be addressed to enable the interoperable exchange of patient assessment summary documents. These technical experts included:

- Lantana Consulting Group, Bob Dolin, MD, and Gaye Giannone Dolin, MSN, RN
- Sue Mitchell, RHIA, HIM and Standards Consultant
- Cyndi Lundberg, RN, BSN, SNOMED Terminology Solutions, College of American Pathologists
- Daniel Vreeman, PT, DPT, MSc, Regenstrief Institute, Inc.
- Keystone Beacon Community, Jim Walker, MD, CMIO and Jim Younkin, Director, Keystone Health Information Exchange
- LTPAC and industry stakeholders as noted in: Appendix A: Stakeholder Interview Summary, and Appendix J: Patient Assessment Summary for Health Information Exchange

To support the opportunities outlined in this report, AHIMA developed 13 Appendices that offer essential background information and technical tools developed as part of the four-year study. Study methods included:

- Conducting stakeholder interviews to discuss incentives for and barriers to HIT adoption and HIE by LTPAC providers. The interviews also explored implications of limited HIT interoperability and gathered insights on how to advance the use and exchange of electronic clinical information in LTPAC settings (see Appendix A: Stakeholder Interview Summary). The stakeholder interviews were

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<sup>4</sup> Harvell, J. "Consolidated Health Informatics Update." Presentation to the NCVHS. October 11, 2006. <http://ncvhs.hhs.gov/061011p2a.pdf>.

instrumental in identifying and developing the opportunities identified in this report.

- Engaging experts to determine a technical approach and interoperability tools for content and exchange standards to be applied to the MDS Version 3 (MDS 3.0) and OASIS.
- Mapping HIT content standards to assessment items and developing a “Rosetta Stone” as a resource for assessment items and their standard representations.
- Engaging experts to identify a subset of assessment content for a summary to provide a clinically relevant snapshot of an individual’s status.
- Testing the premise of the study to re-use assessment content to support HIE with a provider and HIE organization.

In addition to the technical tools in Appendices A-L, a list of Terms and Acronyms was compiled that readers may find useful when reading the report (Appendix M: Terms and Acronyms).



### III. NATIONAL POLICY PRIORITIES

National policy promotes the use of HIT to advance health care delivery, payment and outcomes. LTPAC providers are a vital part of the health care system and an important part of the nationwide HIT infrastructure. The HITECH of 2009 and the ACA of 2010 establish important goals for the exchange and use of HIT to reform health care. This study collected and analyzed data from multiple sources to generate the findings and opportunities described in this report.

As described in this section, national policy is reforming the health care system with the goals of better quality care, health care outcomes and efficiency. The policy framework uses HIT as a tool that aids improvements in care coordination and transitions of care. National policymakers also have promoted HIT as a critical tool to support new health care delivery and payment systems that will make marked improvements in quality, safety, efficiency, population health and health outcomes. Key strategies to advance the technical HIT infrastructure in the United States include spurring adoption of EHRs, using technical standards and vocabularies, and establishing a mechanism to exchange clinical information electronically. These policies stemmed from the need to accelerate health care providers' EHR adoption and use including HIE.

In the health care system, LTPAC providers deliver specialized care to elderly, frail or disabled patients and to individuals who require ongoing treatment or care following an acute health episode. **Figure 1** identifies some of the most common LTPAC providers. Typical services include rehabilitation, medical management, skilled nursing services, and assistance with activities of daily living due physical and/or cognitive impairments. This study specifically focused on two of those LTPAC providers -- nursing facilities/skilled nursing facilities and home health agencies.

<b>FIGURE 1. Common Types of Long-Term and Post-Acute Care (LTPAC) Providers</b>
<ul style="list-style-type: none"><li>• Nursing facilities or skilled nursing facilities</li><li>• Home health agencies</li><li>• Hospice providers</li><li>• Inpatient rehabilitation facilities (IRFs)</li><li>• Long-term acute care hospitals</li><li>• Assisted living facilities</li><li>• Continuing care retirement communities</li><li>• Home and community-based services</li><li>• Adult day service providers</li></ul>

The Federal Health IT Strategic Plan lays a foundation for HHS to support adoption of HIT/EHRs in LTPAC by leveraging the 2009 HITECH and the 2010 ACA. **Figure 2** provides an excerpt from the Office of the National Coordinator for Health

Information Technology's (ONC's) Federal Health IT Strategic Plan.<sup>5</sup> The next subsections review the policy goals of HITECH and the ACA and their meaning for LTPAC providers.

<b>FIGURE 2: Federal HIT Strategic Plan Excerpt related to LTPAC</b>
HHS will build on meaningful use to adopt electronic standards for the exchange of clinical data among facilities and community-based LTPAC settings, including, where available, standards for messaging and nomenclature. ONC will leverage the State HIE and Beacon Community grant programs in demonstrating methods for which the electronic exchange of information with LTPAC entities can improve care coordination.
In addition, HHS will identify opportunities in the ACA to support the use of HIE technologies by LTPAC and behavioral health providers to improve quality of care and care coordination.

Improving LTPAC providers' capacity to participate in HIE could contribute to the success of both the HITECH EHR Meaningful Use Incentives Program and systemic improvements envisioned in health care reform. As observed in the Federal Health IT Strategic Plan 2011-2015:<sup>6</sup>

- The Medicare and Medicaid EHR Incentive program (under HITECH) incentivizes eligible professionals and hospitals to electronically exchange information and states that “requirements for sharing information electronically across provider settings will grow stronger in future stages [of the Meaningful Use Program].”
- The ACA is “an even more important potential driver of provider motivation to exchange information.” The delivery system reforms and quality improvements envisioned in the ACA will require richer and timelier information to provide more efficient and coordinated care. These efforts, as well as likely future stages of meaningful use, will rely on emerging HIE models. The strategic plan reflects that: “Eventually, as digital health information becomes more widely available, exchanging it will be more natural and incentives will become less relevant. Several challenges also exist to creating a national infrastructure.”

## **HITECH Focuses on Key Priorities for HIT**

To support the development and adoption of a nationwide HIT infrastructure, Congress enacted and President Obama signed the HITECH of 2009. The Act seeks to substantially expand the electronic use and exchange of health information to:

- Improve the quality and continuity of health care, the delivery of health care services, patient health outcomes, and population health;

<sup>5</sup> Federal HIT Strategic Plan available at <http://healthit.hhs.gov/portal/server.pt?open=512&objID=1211&parentname=CommunityPage&parentid=2&mode=2>.

<sup>6</sup> Federal HIT Strategic Plan. Pages 13-16. <http://web.mediact.com/onc-emerg/FINAL-Federal-Health-IT-Strategic-Plan-0911.pdf>.

- Increase efficiencies;
- Decrease costs; and
- Increase overall health care value.

HITECH resources to accelerate the adoption of HIT and EHRs primarily target physicians and acute care hospitals. Several HITECH programs support the electronic exchange and use of health information. These include state-level HIEs and Beacon Community initiatives. A few grantees in both programs are making a deliberate effort to engage nursing homes and home health agencies.<sup>7</sup>

The law also enables eligible professionals (primarily physicians) as well as eligible hospitals to receive Medicare and Medicaid incentive payments for the meaningful use of certified EHR technology. A core goal of meaningful use is the two-way exchange of clinical information among the spectrum of health care providers. Once providers establish electronic exchange of basic clinical information, they can progress to exchanging other clinical information like advance directives and obtaining prescription information for medication reconciliation. Accordingly, meaningful use objectives for electronic exchange become more rigorous each year. To qualify for Stage 1 meaningful use incentives, eligible professionals and hospitals must meet certain measures regarding the electronic exchange of clinical information. Objectives for electronic clinical information exchange are expected to ratchet up in Stages 2 and 3.

Even though LTPAC providers are not eligible for EHR incentive payments, their capacity to exchange health information electronically is likely to impact eligible professionals' and eligible hospitals' ability to qualify for meaningful use incentives. **Figure 3** identifies meaningful use Stage 1 objectives that eligible professionals and hospitals could have trouble meeting if LTPAC providers have limited EHR and electronic exchange capabilities. These challenges will likely increase as meaningful use thresholds increase in future stages. Further, beginning in 2015, Medicare eligible professionals and hospitals that do not meet the meaningful use requirements will be subject to downward payment adjustments.

<b>FIGURE 3: Meaningful Use Objectives for Eligible Professionals and Hospitals Impacted by LTPAC Electronic Exchange Abilities</b>
<ul style="list-style-type: none"> <li>• Electronically <b>exchange</b> (i.e., send and receive) <b>key clinical information</b> among providers of care.</li> <li>• Provide a <b>summary care record</b> for each transition of care (ToC) or referral.</li> <li>• Perform <b>medication reconciliation</b> for individuals who transition into care of an eligible professional or eligible hospital.</li> <li>• <b>Record advance directive status</b> upon admission of patients 65 and older in an eligible hospital.</li> </ul>

<sup>7</sup> ONC awarded 56 grants to states and state designated entities (SDEs) to support state HIE activities. In January 2011, ONC supplemented grants to four states by making available approximately \$7 million to advance HIE activities on behalf of nursing home and home health agency providers. ONC also awarded 17 Beacon Community grants to advance innovative HIE activities. Two of the Beacon Community programs include a focus on nursing homes and/or home health agency providers.

ONC recognizes the importance of including the wide array of health care providers in the emerging nationwide HIE infrastructure. A May 2011 Blog<sup>8</sup> posted by the ONC states that:

“ONC’s core mission includes promoting the meaningful use of health information technology nationwide. By one definition, “meaningful users” are those who qualify to receive funding under the Medicare and Medicaid Electronic Health Records Incentive Programs under the HITECH.... But the incentives do not apply to everyone...[including] mental health providers...[and] long-term and post-acute care providers.

For ONC, the fact that not all providers are eligible for payments under HITECH is a reminder that meaningful use is not only a financial incentive program; it is also a goal. Meaningful use is the idea that *all* of our nation’s health care system will benefit from an IT infrastructure in which electronic health information can be collected, exchanged, and innovatively deployed to improve the safety, quality, and cost-effectiveness of American health care. ONC has several programs and resources to help providers and hospitals that do not happen to be eligible for incentive payments nevertheless use health IT to improve their patients’ care.”

There are several initiatives underway to engage LTPAC providers in HIT, EHR, and HIE activities at the federal, state and regional level. Some of these initiatives are described below:

- **ONC Challenge Grants:** In January 2011, ONC announced an additional \$16 million in “Challenge Grants” to ten states/SDEs focusing on certain clinical areas, including “improving long-term and post-acute care transitions.” The funding for the Challenge Grants supplemented the \$547 million in funds that ONC awarded to each state and qualifying Territories to support electronic HIE primarily by Eligible Professionals and Eligible Hospitals participating in the Meaningful Use Program. Through the Challenge Grant program, ONC awarded almost \$7 million to the following four states focusing on transitions in nursing homes and/or home health.
  - **Colorado:** Colorado Regional Health Information Organization is focusing on connecting communities and developing tools to support the workflow for information exchange including LTPAC providers.
  - **Oklahoma:** Oklahoma is focusing on the technology infrastructure across the state to facilitate the HIE workflow that will avoid unnecessary transfers and coordinate advanced directives.
  - **Maryland:** Maryland will leverage an operational statewide HIE to share critical pieces of clinical information in real-time as residents of the state's

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<sup>8</sup> Hogan, E., Daniels, J. “The Many Meaningful Uses of Health Information Technology.” *Health IT Buzz*. May 18, 2011. <http://www.healthit.gov/buzz-blog/meaningful-use/meaningful-health-information-technology/>.

long-term care facilities (LTCFs) transition from one care setting to another. The goal is to connect all 235 LTCFs to the statewide HIE.

- **Massachusetts:** Massachusetts is leveraging its state HIE and implementing the Improving Massachusetts Post-Acute Care Transfers (IMPACT) program. The program is developing tools to support decision-making and information sharing at the point of transfer to reduce unnecessary hospitalizations. IMPACT is planning to leverage the ONC Standards and Interoperability (S&I) Framework TOC initiative to coordinate standards development for development of a universal transfer form (UTF) set and the re-use of interoperable, standards-based assessment content to engage LTPAC providers in HIE.
- **ONC Beacon Communities:** Under the Beacon Community Program, ONC provided grant funding to 17 communities to support building and strengthening their HIT infrastructure and exchange for improved care coordination, quality, and economic efficiency.<sup>9</sup> Some of the communities have specific initiatives to engage LTPAC providers.

One Beacon Community -- Keystone in Danville, Pennsylvania -- has leveraged the work of this study to engage the nursing home and home care agencies in their community. Their HIE efforts are described in the following section: [Exchanging Standardized Assessment Content for Patient Assessment Summary Documents](#).

In summary, HITECH did not include significant support for the use of EHRs and exchange of health information by LTPAC providers, even though eligible professionals and hospitals will increasingly need electronic clinical information from LTPAC providers to qualify for meaningful use incentives and deliver high quality health care. In the very near term, an approach to accelerate LTPAC providers' adoption of more sophisticated types of information exchange and sharing capabilities could contribute to the development of the technical infrastructure that could support the more robust clinical information exchange anticipated through the meaningful use requirements.

## **ACA Priorities for Care Coordination Depend on Electronic Exchange of Information**

The ACA of 2010 sets in motion changes to reform the United States health care system, improve the quality of care and control costs. Both health care delivery and payment structures are two ACA focal points. Specifically, ACA provisions aim to reduce care fragmentation by promoting delivery and payment improvements that support the continuity and quality of care as patients transition across care settings,

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<sup>9</sup> ONC Beacon Community Program.

<http://healthit.hhs.gov/portal/server.pt?open=512&objID=1805&parentname=CommunityPage&parentid=2&mode=2&cached=true>.

reduce hospital readmissions, and curb unnecessary costs. Many ACA provisions seek to enhance collaboration among providers and promote mutual accountability by aligning incentives.<sup>10</sup> **Table 1** highlights some of the ACA activities that advance the electronic information exchange and the use of HIT including EHRs by LTPAC providers.

TABLE 1. Key ACA Provisions that Impact LTPAC Providers	
ACA Section	Program
2701	Adult health quality measures for Medicaid eligible adults
2704	Evaluate integrated care around a hospitalization
3004	Quality reporting for long-term care hospitals, inpatient rehabilitation hospitals, and hospice programs
3006	Plans for value-based purchasing program for skilled nursing facilities and home health agencies including development, selection and modification of measures
3021	Establishment of Center for Medicare and Medicaid Innovation within the Centers for Medicare and Medicaid Services (CMS) (test and demonstrate new payment and delivery models)
3022	Medicare shared savings program (accountable care organizations)
3023	National pilot program on payment bundling and determination of the assessment instrument (such as Continuity Assessment Record and Evaluation (CARE)) to be used in the pilot program
3024	Independence at home demonstration program
3025	Hospital readmission reduction program
3026	Community-based care transitions program
3502	Community health teams to support the patient-centered medical home
6114	National demonstration projects on culture change and use of information technology in nursing homes
6703	Grant program for adoption and use of certified EHRs by LTCFs (e.g., nursing homes)
6703	Support participation of LTCFs and state HIE programs
6703	Secretary shall adopt and implement content and messaging standards for the exchange of clinical data by LTCFs

A number of ACA reforms extend across the health care continuum to stimulate coordination of care, especially after an acute episode. Service delivery and payment changes will encourage or require hospitals, physicians and post-acute care settings to work together to improve overall health care quality, reduce rehospitalizations and control health care spending.

LTPAC providers play a significant role in achieving ACA goals relating to care coordination and avoidable hospital readmissions because:

- Over a third of all Medicare patients discharged from acute hospitals receive LTPAC services (almost 80 percent are either discharged to skilled nursing facilities or sent home with home health services).<sup>11</sup>

<sup>10</sup> AHA Trend Watch: Maximizing the Value of Post-Acute Care. American Hospital Association. November 2010.

<sup>11</sup> Mor, V., Intrator, O., Feng, Z., Grabowski, D.C. “The Revolving Door of Rehospitalization from Skilled Nursing Facilities.” *Health Affairs*, 2010, 29(1): 57-64.

- A significant portion -- almost one-quarter of Medicare beneficiaries -- discharged to a skilled nursing facility was readmitted to the hospital within 30 days.<sup>12</sup>

**ACA Technology-Related Strategies to Improve Coordination  
and Reduce Rehospitalizations**

- Information exchange
- Quality and outcome metrics
- Improved communication
- Payment bundling

Research is demonstrating that improved information sharing and coordination can impact hospital readmission rates.<sup>13</sup> Accordingly, the ACA explicitly couples many reforms with the use of HIT and EHRs throughout the health care system, including LTPAC providers. A number of ACA provisions require, when feasible, the electronic exchange of patient clinical information. Other ACA sections mandate use of patient clinical data to measure quality and rely on or encourage the use of HIT to facilitate information sharing and improve care coordination and transitions in care. New Medicare and Medicaid payment methods will use electronic patient clinical data from many different provider types including: skilled nursing facilities, home health agencies, long-term care hospitals, IRFs, hospice and others.

These ACA provisions are expected to create market pressures on LTPAC to improve the quality, continuity, and efficiency of care; and the use of HIT and electronic HIE is expected to be a key enabler of these reforms.

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<sup>12</sup> Medicare Payment Advisory Commission (MedPAC). A Data Book: Healthcare Spending and the Medicare Program. Washington, DC: MedPAC, 2006a. <http://www.medpac.gov>.

<sup>13</sup> Lourde, K. "Ramping Up for Higher Acuity: Nursing Facilities Respond to the Need for Reducing Rehospitalizations." *Provider*, January 2011: 21-31.



## IV. HIT CAPABILITIES IN LTPAC

Almost all nursing homes, home health agencies and IRFs are capable of electronically transmitting (one-way) non-interoperable PAIs required by the Federal Government. In addition, some of these LTPAC providers have adopted additional HIT functionality, although few have robust, interoperable EHRs systems with the ability to electronically exchange clinical information with other providers. As a result, LTPAC providers are unlikely to become full participants in the nationwide HIT infrastructure unless steps are taken to engage the sector.

### Federally Required Assessment Instruments

As summarized in **Table 2**, CMS requires three LTPAC providers to complete and electronically transmit specific PAIs (i.e., records with clinical, demographic and other information about a patient). Providers and CMS use data from these instruments for payment, quality monitoring and reporting, patient assessment, and care planning. A fourth instrument is being demonstrated and evaluated.

TABLE 2. Existing Patient Assessment Instruments by Type of LTPAC Provider	
LTPAC Type	Patient Assessment Instrument
Nursing Homes	Minimum Data Set Version 3.0 (MDS 3.0)
Home Health Agencies	Outcome and Assessment Information Set (OASIS)
Inpatient Rehabilitation Facilities	Inpatient Rehabilitation Facility Patient Assessment Instrument (IRF-PAI)
Comprehensive assessment for post-acute care payment reform demonstration	Continuity Assessment Record and Evaluation (CARE) ( <i>demonstration</i> )

The assessment instruments for nursing homes, home health agencies and IRFs are required by CMS to be completed on patients/ individuals at various intervals of their stay. The instruments are required to be electronically transmitted each time they are completed in a format specified by CMS. As a result, almost 100 percent of these providers automate and transmit assessments, however, transmission formats are not interoperable (i.e., they do not adhere to accepted HIT formats and content standards) thus limiting the ability to exchange and re-use assessment content.

As part of a Deficit Reduction Act of 2005 demonstration on post-acute care payment reform, CMS developed the CARE instrument for use in this demonstration as a “single standardized patient assessment instrument...to measure functional status and other factors.”<sup>14</sup> In June 2011, CMS is required to report the demonstration results to Congress. The ACA also references the use of CARE or a similar instrument to support the national pilot program on payment bundling. Providers would use the

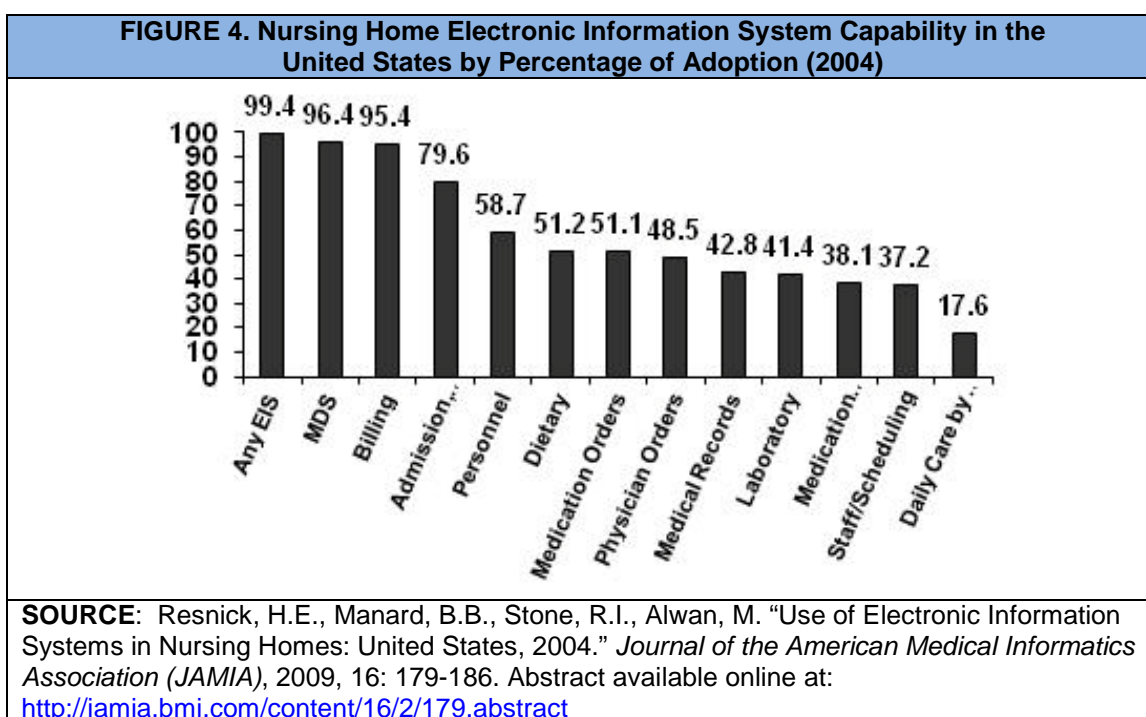
<sup>14</sup> Overview of the Medicare Post Acute Care Payment Reform Initiative. RTI International. [https://www.cms.gov/DemoProjectsEvalRpts/downloads/PACPR\\_RTI\\_CMS\\_PAC\\_PRD\\_Overview.pdf](https://www.cms.gov/DemoProjectsEvalRpts/downloads/PACPR_RTI_CMS_PAC_PRD_Overview.pdf).



instrument to evaluate a patient’s condition and help determine the most appropriate care setting.<sup>15</sup>

## Electronic Information System Capabilities in Nursing Homes and Home Health Agencies

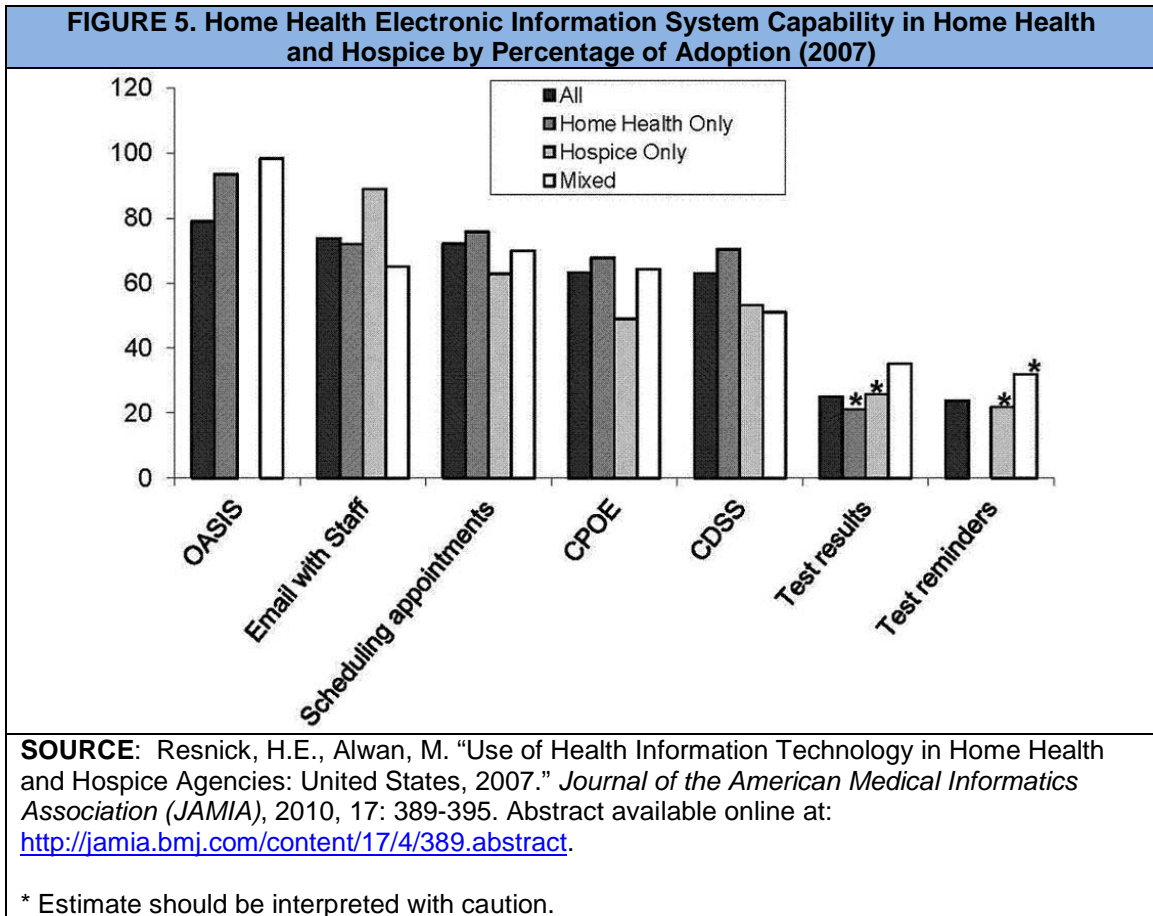
Federal assessment requirements have resulted in LTPAC providers having the information technology capacity to support the maintenance and transmission of required assessments. This section describes what is known about electronic systems capabilities in nursing home and home health agencies. Little research is available regarding the HIT capabilities for IRFs.



Nursing homes and home health providers currently use electronic information systems to support some administrative and clinical processes. **Figure 4** and **Figure 5** illustrate the most common HIT capabilities and adoption percentages. An analysis shows that nursing homes and home health agencies use electronic information systems to support a variety of internal processes. However, findings also show a significant underuse of the clinical capabilities in EHRs once acquired<sup>16</sup> thus widespread use of full functioning EHRs is not yet prevalent in this sector.

<sup>15</sup> *Affordable Care Act*. Public Law 111-148 and Public Law 111-152. Section 3023. National Pilot Program on Payment Bundling.

<sup>16</sup> Degenholtz, H. June 10, 2011 presentation ASPE Meeting.



There is growing awareness of the importance of fully interoperable HIT capabilities.<sup>17</sup> LTPAC leaders are conscious of the need for the sector to participate in the growing nationwide HIT infrastructure. Since 2005, a group of LTPAC associations and leaders (known as the LTPAC Health IT Collaborative) has been working together to set priorities, advance HIT, and align the LTPAC sector with national policy priorities. The collaborative publishes recommendations for action for LTPAC providers, policymakers and other stakeholders every two years. The 2010-2012 priorities are as follows:<sup>18</sup>

- Leverage existing programs and policies to engage LTPAC providers.
- Certify EHR vendor solutions for LTPAC providers to promote interoperability.
- Advance adoption and use of HIT and EHRs.
- Foster HIE that includes LTPAC.

<sup>17</sup> A Roadmap for Health IT in Long Term and Post Acute Care (LTPAC), 2010-2012. LTPAC Health IT Collaborative. AHIMA. [http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1\\_047579.pdf](http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_047579.pdf).

<sup>18</sup> Ibid.

- Prioritize technology that supports ToC and electronic prescribing to promote care coordination and continuity of care.
- Focus on person-centered health and health care.
- Showcase valuable and effective use of HIT to the LTPAC sector.
- Promote and disseminate research and best practices.

## **HIT and EHR Certification for LTPAC**

HITECH requires the use of certified EHR technology for certain providers (e.g., physicians and short-term acute care hospitals) to qualify for incentive payments under the Medicare and Medicaid EHR Incentive Programs (“Meaningful Use Programs”). For purposes of the Meaningful Use Programs, two types of certifications can be issued to EHR technology that meets certification criteria adopted by the Secretary of HHS: (1) Complete EHR, or (2) EHR Module. To be eligible for meaningful use incentive payments, eligible hospitals (EHs) and eligible professionals (EPs) must use EHR technology that has been certified by an entity authorized by ONC. To date, six ONC- Authorized Testing and Certification Bodies (ONC-ATCBs) have been authorized to test and certify EHR technology that can be used by eligible professionals and hospitals in the Meaningful Use Programs.<sup>19</sup> For example, EHR certification criteria include (but are not limited to) vocabulary standards (e.g., Systematized Nomenclature of Medicine (SNOMED), International Classification of Diseases (ICD), Logical Observation Identifiers Names and Codes (LOINC)) and content exchange standards (e.g., Clinical Document Architecture (CDA) and Continuity of Care Document (CCD)).

While some EHR technology certification criteria used for the Meaningful Use Program for EPs and EHs would be applicable to the workflow in LTPAC setting, there is growing concern and awareness that not all of the certification criteria are applicable to EHR technology used by LTPAC providers. For example, the capability to plot growth charts or submit to immunization registries would not be a typical feature of a LTPAC EHR technology. Additionally, the adopted EHR technology certification criteria do not reflect the requirements that are uniquely needed by LTPAC providers.

For several years, the LTPAC provider and vendor community worked with Health Level 7 (HL7) (a Standards Development Organization) to produce an EHR Functional Profile for LTPAC. This Profile was used by LTPAC stakeholders and the Certification Commission for Health Information Technology (CCHIT) to identify LTPAC EHR certification criteria.<sup>20</sup> It should be noted that the CCHIT LTPAC EHR Certification Program has not been recognized by ONC. While there is significant overlap in the

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<sup>19</sup> Establishment of the Permanent Certification Program for Health Information Technology. 45 CFR Part 70. 2011.

<sup>20</sup> The CCHIT is the only entity to date that has established criteria for LTPAC EHR products.

EHR criteria that have been adopted for the Meaningful Use Program and the LTPAC EHR Certification Criteria, there are also differences in the criteria that have been identified in these two programs. This misalignment has created confusion and uncertainty among LTPAC providers regarding whether they should purchase certified EHRs and if so, what type of certified EHR product would support the workflow of the LTPAC provider. ONC is aware of the uncertainties and questions regarding EHR certification confronting LTPAC and other providers that are ineligible under the Meaningful Use Programs and is working with stakeholders to better understand their EHR technology needs.

During the discussion at the 2011 LTPAC HIT Summit at the session on “Moving LTPAC Providers in the Nationwide Health IT Infrastructure,” providers and vendors concluded that there is likely a core set of EHR criteria that will be common across all EHR products (e.g., requirements related to privacy/security, medication reconciliation, problem list, etc.).<sup>21</sup> During this discussion, providers and vendors suggested that ONC consider: (1) meeting with LTPAC providers and vendors to identify what EHR certification criteria are needed to support the workflow in LTPAC; and (2) working with the Meaningful Use Workgroup of the Health IT Policy Committee to identify the types of HIE activities that are needed in and from LTPAC. The Longitudinal Coordination of Care Workgroup (LCCWG) created through the ONC-sponsored S&I Framework (described in more detail below) is beginning to examine the HIT standards needed to support HIE on behalf of persons receiving LTPAC. The HIE activities targeted in this S&I effort are expected to advance the meaningful use of EHRs and shed some light on some of the EHR certification criteria needed by LTPAC providers.

As discussed in the section further in this report “Leverage and Standardize Assessment Content to Engage LTPAC Providers in HIE,” experts interviewed noted that there is growing discussion about the need to integrate LTPAC providers in HIE activities to support quality, continuity, and collaborative care (Appendix A: Stakeholder Interview Summary). To support efficient and interoperable HIE, some LTPAC providers and EHR vendors believe that it is important to use EHR products that support at least some of the standards incorporated in certification criteria for the Meaningful Use Incentive Program. As reported at the 2011 LTPAC HIT Summit, some vendors expressed an interest in obtaining certification for their EHR products as either: (1) meeting the meaningful use requirements; and/or (2) complying with the LTPAC CCHIT comprehensive EHR criteria.<sup>22</sup> At least one LTPAC vendor has obtained hospital modular EHR certification (through an ONC-ATCB) for their product to support the interoperable and secure exchange of health information such as demographics, problem lists, physician order entry, medication lists, medication reconciliation, and advance directives. This LTPAC HIT vendor and one other have also obtained LTPAC CCHIT EHR certification.<sup>23</sup>

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<sup>21</sup> Harvell, J. Moving LTPAC Providers in the Nationwide Health IT Infrastructure Boardroom Session at the 2011 LTPAC HIT Summit. June 2011.

<sup>22</sup> 2011 CCHIT Certification for Long Term and Post Acute Care. <http://www.cchit.org/certify/2011/cchit-certified-2011-long-term-post-acute-care-ltpac-ehr>.

<sup>23</sup> ONC-ATCB ONC Certified Technology. CCHIT. Accessed at: <http://www.cchit.org/products/onc-atcb/all/2000>.

To support widespread adoption of appropriate and interoperable EHRs for LTPAC, the LTPAC HIT Collaborative recommended in the LTPAC 2010-2012 Health IT Roadmap<sup>24</sup> that policy guidance be provided for the EHR certification criteria needed to enable the exchange of health information between hospitals, physicians and LTPAC providers. The members of the Collaborative believe that such criteria would facilitate HIE with and by LTPAC providers, support the meaningful use of EHRs by a wide array of health care providers, and support the emerging nationwide HIT infrastructure.

At this time the ONC has not established a specialty EHR certification program (e.g., a certification and testing program for EHR products for LTPAC providers (or other specialty providers)) or identified EHR certification criteria that are unique to the workflow requirements in LTPAC or other specialty providers. Establishing such a program or identifying EHR certification criteria is complex, could be costly, and requires careful consideration of the advantages and disadvantages. An objective in the draft roadmap of the recently established LCCWG under the ONC-sponsored S&I Framework is to “develop certification requirements for EHR and LTPAC vendors in anticipation of LTPAC pilots.”<sup>25</sup>

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<sup>24</sup> A Roadmap for Health IT in Long Term and Post Acute Care (LTPAC), 2010-2012. LTPAC Health IT Collaborative. AHIMA. [http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1\\_047579.pdf](http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_047579.pdf).

<sup>25</sup> LCCWG, LTPAC WG Roadmap. ONC Standards & Interoperability Framework. <http://wiki.siframework.org/LTPAC+WG+Roadmap>.

## V. OPPORTUNITIES FOR ENGAGING LTPAC PROVIDERS IN HIE USING PATIENT ASSESSMENTS

The approach examined in this report would engage LTPAC providers in developing their capacity to exchange and use electronic clinical information in support of health care reform. It uses the federally required PAIs to establish an initial foundation for interoperability and electronic exchange. Laying the foundation will require developing a technical infrastructure and increasing LTPAC stakeholders' awareness of forthcoming demands.

As described below, the approach described in this report is built upon an existing asset -- the MDS 3.0, OASIS and electronic transmission capacity -- to jump-start the involvement of LTPAC providers in HIE activities. Applying HIT standards to widely used assessment documents and the individual data elements in these instruments creates opportunities for LTPAC to engage in interoperable HIE by re-using and exchanging standardized content in an assessment summary other types of documents.

Federally required PAIs can become an entrance point for LTPAC providers to participate in HIE activities and jump-start their use of more sophisticated interoperable EHRs.

### Leverage and Standardize Assessment Content to Engage LTPAC Providers in HIE

As described earlier in this report, LTPAC providers currently use limited but not interoperable information systems for clinical and administrative processes. Further, the sector lacks widespread awareness of the need to invest in and use interoperable EHRs that can support HIE. Experts identified two significant barriers for LTPAC providers to participate in HIE (Appendix A: Stakeholder Interview Summary):

- Most LTPAC providers are not ready and able to participate in interoperable electronic exchange of health information.
- The absence of funding and mandates for HIT/EHR adoption and use by LTPAC providers reduces the business case for investing in HIT. Specifically, stakeholders reported insufficient capital to upgrade existing systems or acquire new products that support electronic exchange of health information. Stakeholders expressed that the exclusion of LTPAC from federal HIT funding and mandates will result in a slower uptake of technology in LTPAC settings.

An alternative approach to jump-starting LTPAC providers' use of more sophisticated, interoperable EHRs is necessary because Congress did not make HITECH EHR Incentive funding available to this sector.

A starting point could be to build upon federally required PAIs that are in an electronic format and are electronically transmitted by LTPAC providers and apply accepted HIT vocabulary and exchange standards to these instruments. The nursing home and home health assessment instruments were selected for this study. The IRF-PAI was not selected given intellectual property constraints associated with the content of the instrument (see Appendix B: Using Patient Assessments to Advance Electronic Use and Exchange of Clinical Data). A benefit of this approach is that it builds on existing capabilities and would engage the majority of LTPAC providers. Once engaged, these LTPAC stakeholders could focus on building and using the technical infrastructure to support more sophisticated types of information exchange and sharing. The technical infrastructure for standardizing assessment content and exchanging this information is discussed in Supporting an Interoperable Nationwide Health Information Infrastructure that includes LTPAC.

## **Exchanging Standardized Assessment Content for Patient Assessment Summary Documents**

While leveraging patient assessment content and making it interoperable might be a low-cost and opportunistic approach to engaging LTPAC providers in HIE activities, it is not perfect for summary information needed at ToC. These assessments are completed at prescribed points in time during a person's LTPAC episode. Nursing home assessments can be up to 89 days old and home health agency assessments can be as old as 59 days. The concept of exchanging not just the full MDS 3.0 and OASIS, but also a more concise summary document (a subset of the most clinically relevant items) emerged from the expert interviews and discussions with the Keystone Beacon Community.

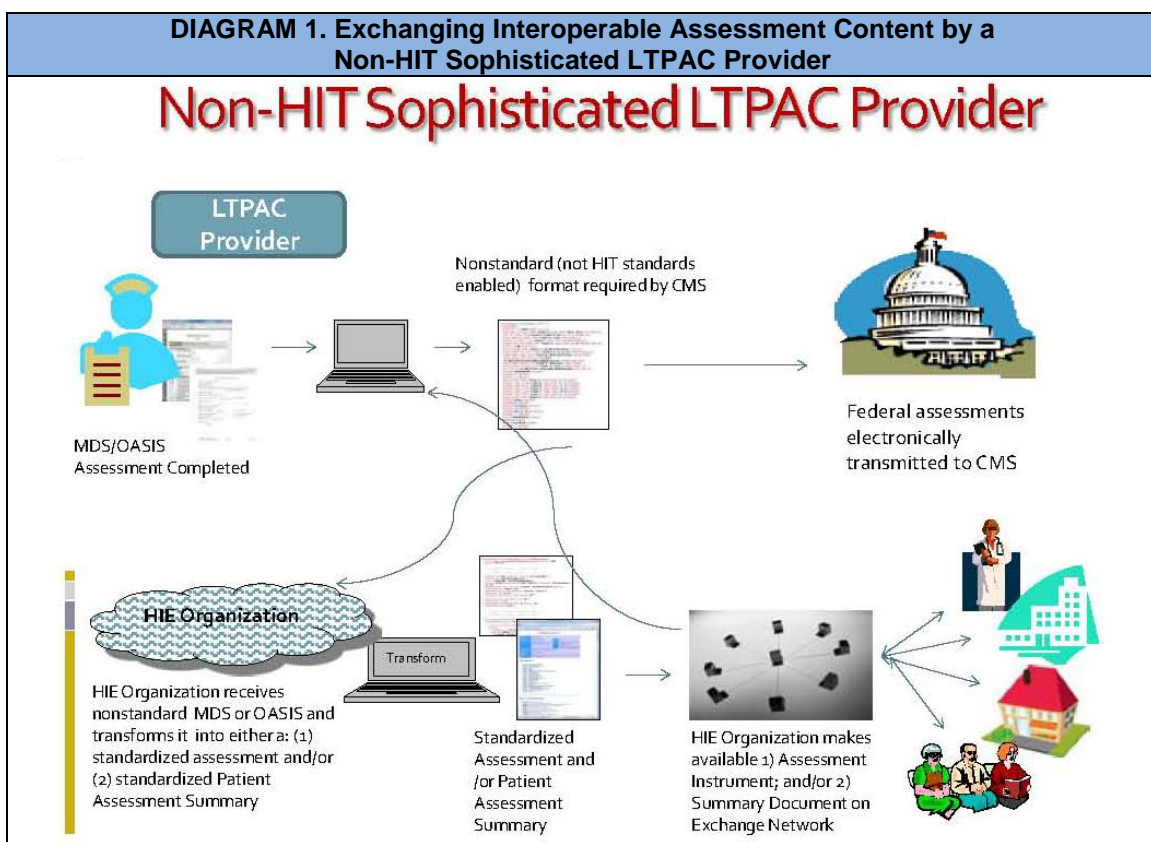
Clinical advisers to this study indicated that: (1) having dated information was better than having no information; and (2) assessment documents include data elements that are likely to be stable over time and clinically relevant at times of transitions/shared care. While less ideal for ToC, submitting patient assessment summary information to an HIE organization each time the MDS and OASIS is completed provides valuable information to support care coordination, shared care and case management processes.

Content for the MDS and OASIS assessment summary was identified as part of this study with input from clinicians (i.e., nursing home and home health agency providers, representatives from hospitals and integrated delivery systems, physicians, and nurses) (see Appendix J: Patient Assessment Summary for Health Information Exchange). The Keystone Beacon Community will be piloting the exchange of interoperable patient assessment summary documents using the HIT content standards identified and linked, under this study, to the MDS 3.0 and OASIS. Document exchange specifications for the exchange of assessment summary documents are under development at Keystone Beacon Community and their vendor partner GE, as well as in the ONC S&I Initiative LCCWG. The Keystone Beacon Community and the ONC S&I



Initiative LCCWG are using the MDS 3.0 and OASIS Rosetta Stone resources developed under this study (see Appendix D: MDS Rosetta Stone Spreadsheet, Appendix E: OASIS Rosetta Stone Spreadsheet, Appendix K: MDS Assessment Summary Rosetta Stone, and Appendix L: OASIS Assessment Summary Rosetta Stone).

**Diagram 1** illustrates the information flow for bringing almost all nursing homes and home health agencies into HIE activities in a cost-effective manner. In this scenario, non-HIT sophisticated LTPAC providers (they do not presently use interoperable HIT/EHR products) could transmit the federally required PAIs to the HIE organization who could transform it into an interoperable document and/or assessment summary that would be made available to authorized users.



The top half of **Diagram 1** shows the current state of HIE for most nursing homes and home health providers where federally required assessments are electronically transmitted to CMS. This exchange uses a format specified by CMS rather than industry-accepted HIT content and exchange standards (i.e., the assessment exchange is not interoperable).



The bottom half of Diagram 1 shows:

- How the LTPAC provider could transmit the same non-interoperable patient assessment document that is transmitted to CMS to a HIE organization.
- The HIE Organization could:
  - Transform the non-standard CMS assessment document into an interoperable assessment document (i.e., link the assessment items with HIT content standards); and/or
  - Generate an interoperable Patient Assessment Summary Document (a subset of assessment items that clinical experts indicate would be clinically useful to exchange at times of transitions in care and/or shared care).
- The HIE Organization could make available the standardized assessment document and/or the Patient Assessment Summary Document to authorized entities (such as physicians, hospitals, other LTPAC providers, patients/family members).

## **Opportunities to Re-Use Standardized Patient Assessment Content and Link with Other Data**

HIE activities are emerging in federal programs, state and private-sector initiatives that involve LTPAC providers. Some of these activities are using resources developed under this study by re-using standardized assessment content to support other types of interoperable HIE. These activities, briefly described below, can provide steps to increasingly sophisticated HIT use by LTPAC providers building from standardized assessment content:

- **Exchange of Transfer Documents.** Massachusetts received a Challenge Grant from ONC to advance interoperable HIE on behalf of LTPAC providers. Through this Challenge Grant, Massachusetts is leveraging their state HIE and implementing the IMPACT program. The program is developing tools to support decision-making and information sharing at the point of transfer to reduce unnecessary hospitalizations. The Massachusetts IMPACT program is working with the Longitudinal Care Coordination Workgroup of the ONC S&I Initiative to identify standards needed for the exchange of an interoperable UTF. The Massachusetts IMPACT program anticipates re-using a subset of interoperable MDS and OASIS assessment content to partially populate the interoperable UTF. The re-use of assessment content is expected to support HIE when individuals transfer from LTPAC providers to acute care hospitals, and between LTPAC

providers. In addition, the Massachusetts IMPACT program envisions re-using a subset of standardized MDS 3.0 and OASIS assessment data to support HIE with patients and family members.<sup>26</sup>

- **Exchange of Home Health Plan of Care.** The New York e-Health Collaborative is advancing work in collaboration with Visiting Nurse Services of New York (VNSNY), physician practice groups, and other stakeholders to create an interoperable plan of care document for home care that would be continuously updated and shared between the home care agency and a physician. The plan of care document that will be standardized in the NY project is the “485 form” formerly required by CMS and remains in widespread use by home health agencies. Although originating in New York, this project is gaining state and vendor support around the United States. The project is advancing its work through the Longitudinal Care Coordination Workgroup of the ONC S&I Initiative to identify and harmonize vocabulary and exchange standards. The VNSNY anticipates re-using a subset of interoperable OASIS assessment content to partially populate the interoperable home health plan of care.
- **Detecting potential adverse drug reactions (ADRs).** The University of Pittsburgh in Pennsylvania developed and evaluated a consensus list of laboratory, pharmacy, and MDS signals that can be used by EHR systems in nursing homes to detect potential ADRs. The results suggest that ADRs can be detected in nursing homes with a high degree of accuracy using an electronic clinical event monitor that employs a set of signals created from electronic laboratory, pharmacy, and MDS data.<sup>27</sup> This type of clinical decision support tool uses lab, pharmacy and MDS data to generate alerts of potential ADRs. While this electronic clinical decision tool has not been standardized, content standards are available for medications, laboratory results and as described in this study, MDS data.<sup>28</sup> The availability for content standards for lab results, medications and MDS data, could be used to develop standardized clinical decision support tools targeting ADR monitoring and prevention.

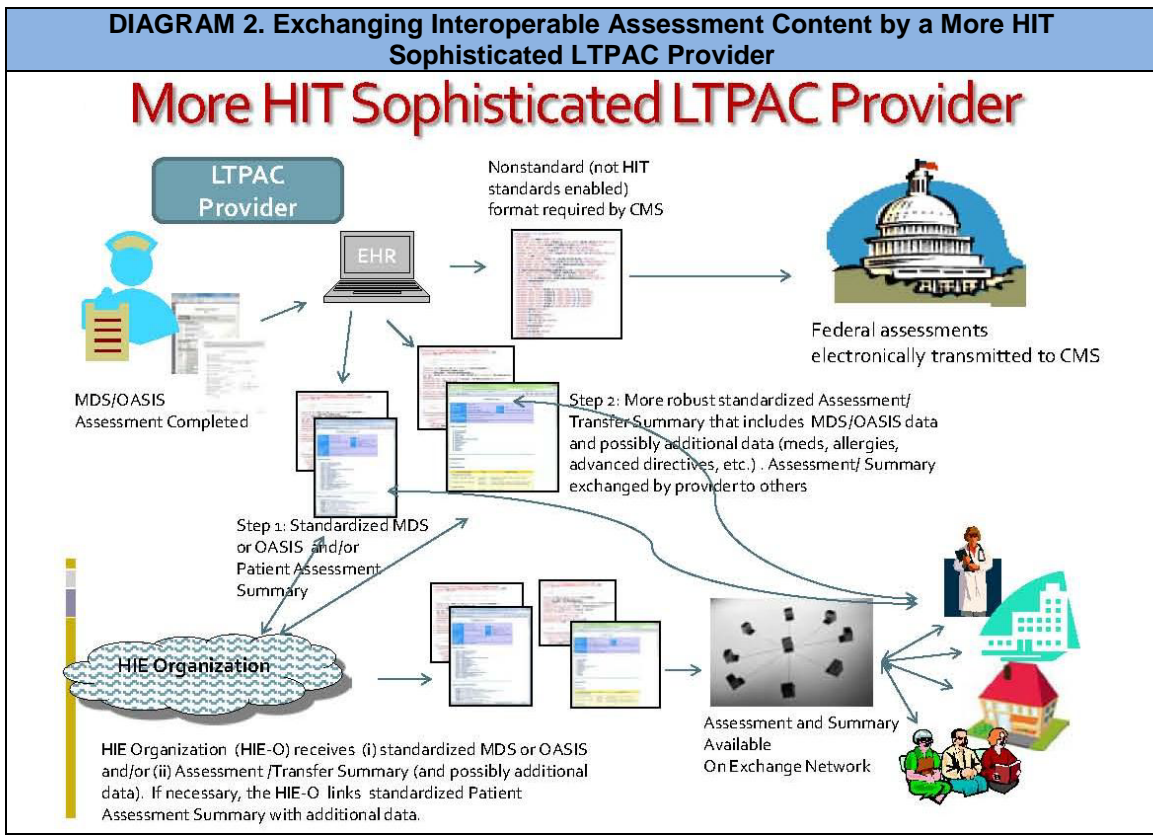
As LTPAC providers become more sophisticated in their HIT use (they use interoperable HIT/EHRs), it is anticipated that standardized assessments, assessment summaries and other information will be exchanged. **Diagram 2** depicts how nursing homes and home health agencies could exchange interoperable assessment documents/summaries and supplement it with additional EHR data (e.g., medication information) as their use of standardized technology becomes more mature.

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<sup>26</sup> Massachusetts IMPACT presentation to the S&I ToC LTPAC WKGRP: [http://wiki.siframework.org/file/view/IMPACT%20High%20Level%20Process%20Flow\\_Terry%20Malley\\_1011.pdf](http://wiki.siframework.org/file/view/IMPACT%20High%20Level%20Process%20Flow_Terry%20Malley_1011.pdf).

<sup>27</sup> Handler, S.M., Hanlon, J.T., Perera, S., Rourmani, Y.F., Nace, D.A., Fridsma, D.B., Saul, M.I., Castle, N.G., Studenski, S.A. “Consensus List of Signals to Detect Potential Adverse Drug Reactions in Nursing Homes.” *JAGS*, 2008, 56: 808-815.

<sup>28</sup> Work is needed to develop a standardized implementation guide for this electronic medication monitoring clinical decision support tool.



The top part of **Diagram 2** shows the same current state of HIE for most nursing homes and home health providers as depicted in Diagram 1 (i.e., electronic transmission of non-interoperable federally required assessments from the provider to CMS). The middle of **Diagram 2** depicts the “more HIT sophisticated” LTPAC provider using their software to:

- Transform the non-standard CMS assessment document into an interoperable assessment document by linking the assessment items with HIT content standards and transforming it into the HL7 CDA format (an industry-accepted exchange format).
- Generate a Patient Assessment Summary Document (using accepted HIT content and exchange standards) and possibly linking additional EHR data (such as medication data) to the Patient Assessment Summary Document.
- Transmit these documents to the HIE Organization or directly to the receiving provider/patient/family member. If transmitted to the HIE Organization, the organization would make this information available to authorized entities.

Building on the standardized assessment content and exchange formats developed under this study, LTPAC providers will be positioned to more readily

implement the advancements envisioned by the Massachusetts IMPACT program, New York e-Health Initiative and others to improve information sharing and re-use.

## VI. SUPPORTING AN INTEROPERABLE NATIONWIDE HEALTH INFORMATION INFRASTRUCTURE THAT INCLUDES LTPAC

In order for the interoperable exchange of assessment content to occur in the manner illustrated in Diagram 1 and Diagram 2 above, a technical approach and tools would have to be developed consistent with HITECH requirements and industry standards. This study, in consultation and collaboration with several technical experts (see [Study Methods](#) for names of experts), examined and identified both content and exchange format standards for the MDS and OASIS instruments and content for patient assessment summary documents that could be an entrance point for interoperable HIE on behalf of LTPAC providers. The standards are explained in the next subsections.

To leverage the MDS or OASIS assessment instrument, LTPAC providers need a technical infrastructure and tools that are consistent with HITECH requirements and existing industry standards.

### Content Standards for MDS and OASIS Assessment Instruments

For the MDS or OASIS content to be interoperable (machine-readable), the assessment instruments must be linked to existing content standards and vocabularies. Interoperable content facilitates the efficient re-use of assessment data in different EHR systems and across different applications in a single EHR product. Experts reviewed the MDS and OASIS and identified the following content standards applicable data elements in the instruments:

- Logical Observation Identifiers Names and Code (**Clinical LOINC<sup>®</sup>**), used for common laboratory tests and clinical observations.
- Systematized Nomenclature of Medicine - Clinical Terms (**SNOMED CT**), a comprehensive clinical terminology.
- International Classification of Diseases, 9th revision, Clinical Modification (**ICD-9-CM**); for future implementation, ICD-10 relates to the 10th edition.
- HL7 administrative code sets for gender and marital status.

The content standards mapped (linked) to the individual MDS and OASIS items were compiled in a Rosetta Stone spreadsheet for each instrument (Appendix D: MDS Rosetta Stone Spreadsheet, and Appendix E: OASIS Rosetta Stone Spreadsheet). The Rosetta Stones used the CMS data dictionary for the assessment items and provides a reference by MDS and OASIS item to the applicable LOINC name and code, SNOMED concept and code, ICD-9-CM code and/or ICD-10-CM code. The process and mapping

rules for developing the Rosetta Stones are discussed in detail in Appendix C: Rosetta Stone Mapping Guidelines and Heuristics.

Clinical experts used the MDS and OASIS Rosetta Stones to identify a clinically relevant subset of items for the Patient Assessment Summary Documents. Stakeholders were solicited to identify an initial set of items which were validated through a consensus process. The process for identifying and validating the subset of items in the assessment summary is discussed in Appendix J: Patient Assessment Summary for Health Information Exchange. Based on the input from clinical stakeholders and experts, Rosetta Stones were also created for the MDS and OASIS Patient Assessment Summary Documents (Appendix K: MDS Assessment Summary Rosetta Stone, and Appendix L: OASIS Assessment Summary Rosetta Stone).

## Exchange Architecture for the MDS and OASIS

The ability to exchange patient assessment information will require LTPAC providers to use the standardized exchange formats that are widely accepted by the industry. Lantana Consulting Group was engaged to recommend and develop technical tools to support the exchange of interoperable MDS and OASIS assessment content. There are two primary exchange formats recommended for the MDS and OASIS:

- **Health Level 7 Clinical Document Architecture (HL7 CDA)** is a standard that allows clinical documents and its content to be exchanged.
- **Health Level 7 Continuity of Care Document (HL7 CCD)** is a form of the CDA standard that is focused on the most relevant administrative, demographic, and clinical information about a patient. It is based on the American Society for Testing and Materials E2369-05 Standard Specification for Continuity of Care Record and provides a means for one health care provider to summarize patient data and forward it to another provider to support continuity of care.

To enable the interoperable exchange of assessment instruments, Lantana Consulting Group facilitated the development and balloting of a new HL7 CDA standard for assessment instruments (HL7 Implementation Guide for CDA Release 2: CDA Framework for Questionnaire Assessments, Release 1 standard<sup>29</sup>). This implementation guide highlights the application of this standard to the MDS 3.0 as an example.

To ensure providers and vendors are able to properly convert and validate non-interoperable MDS 3.0 to an interoperable format consistent with the HL7 CDA implementation guide for Patient Assessments, Lantana developed technical tools focusing on the MDS 3.0.

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<sup>29</sup> See <http://www.hl7.org/dstucomments/showdetail.cfm?dstuid=38>.

Lantana Consulting Group provided guidance on using the CCD exchange format for summary records. Although technical tools were not developed under this study, the work is being advanced by the Keystone Beacon Community and under the S&I Framework Longitudinal Coordination of Care Patient Assessment Summary Document Sub-Workgroup (see [Advancing the Technical Infrastructure through the S&I Framework](#) for more information on the initiative).

## Summary of Technical Tools and Resources Developed

This study developed several tools, highlighted in **Table 3**, to facilitate the application, widespread use, and dissemination of content standards related to the MDS or OASIS assessment information.

<b>TABLE 3. Resources to Support Application of Content and Exchange Standards to MDS and OASIS</b>		
<b>Implementation Resource</b>	<b>Description</b>	<b>Appendix</b>
<b>Content Standardization</b>		
Rosetta Stone Mapping Guidelines and Heuristics	This resource offers the guidelines and rules that were used to map recognized HIT vocabularies -- specifically, LOINC <sup>®</sup> and SNOMED CT -- to the MDS and OASIS assessments, and the use of coded vocabularies in an HL7 messaging standard (the CDA Patient Assessment Questionnaire Implementation Guide) to enable the interoperable transmission of these assessments. The exchange standard enables assessments to be represented as intended by assessment developer (using a "model of use" format) and enables the re-use of assessment content (i.e., using the model of meaning format).	C: Rosetta Stone Mapping Guidelines and Heuristics
MDS 3.0 Rosetta Stone	This resource maps each MDS 3.0 question and answer to applicable terminologies and code sets including LOINC <sup>®</sup> , SNOMED, ICD-9-CM and ICD-10. This is expected to be a useful reference for nursing home EHR vendors and HIE organizations.  The MDS value set of diagnosis concepts file provides a set of SNOMED concepts to illustrate how the MDS problem/diagnosis section could be semi-populated from the EHR.	D: MDS 3.0 Rosetta Stone  D: MDS Value Set of Diagnosis Concepts
OASIS Rosetta Stone	This resource maps each OASIS question and answer to applicable terminologies and code sets including LOINC <sup>®</sup> , SNOMED, ICD-9-CM and ICD-10. This is expected to be a useful reference for home health EHR vendors and HIE organizations.	E: OASIS Rosetta Stone
Rosetta Stone for MDS Assessment Summary	A technical resource in Excel which identifies the MDS item selected for the summary, the related SNOMED concept, LOINC code, CCD Section, and analyzed compatibility with HITSP C32 requirements.	K: MDS Assessment Summary Rosetta Stone
Rosetta Stone for OASIS Assessment Summary	A technical resource in Excel which identifies the OASIS item selected for the summary, the related SNOMED concept, LOINC code, CCD Section, and analyzed compatibility with HITSP C32 requirements.	L: OASIS Assessment Summary Rosetta Stone



TABLE 3 (continued)		
Implementation Resource	Description	Appendix
<b>Exchange Format Standardization</b>		
Current Standards Landscape	A discussion about the current standards and their application to assessment content and enabling re-use of health information. This resource could be used by LTPAC providers and vendors to facilitate their awareness and understanding.	F: Current Standards Landscape
Interoperability Toolkit	This appendix document provides a summary of the technical tools available in the toolkit.	G: Interoperability Toolkit
HL7 CDA Implementation Guide	This guide describes how to represent questions and answers in PAIs as an HL7 CDA document. The implementation guide represents the MDS 3.0 as an example of a CDA patient assessment document.	G: Interoperability Toolkit CDA Implementation Guide for Assessment Instruments
MDS Conversion/Validation Utilities	Various tools for transforming the MDS from a CDA format to the CMS transmission format and tools to validate the conversion.	G: MDS Transform Tool and Validator
CCD Guidance and Considerations	This document provides general information on how to design a valid CCD document using patient assessment content from the MDS.	G: MDS CCD Design Document
Standards Development and Adoption Recommendations	Provides recommendations for advancing and accelerating the use of HIT and EHRs in the LTPAC industry based on existing standards and known gaps. Discusses the relationship of existing and potential national policy strategies in relating to the standards recommendations.	H: Standards Development and Adoption Recommendations

## Advancing the Technical Infrastructure through the S&I Framework

The content and exchange standards that have been applied to PAIs and the resources summarized in Table 3 are being used in the ONC S&I Initiative. The LCCWG has been created as a community-led initiative to support HIE on behalf of LTPAC stakeholders and address potential gaps in the S&I Transitions of Care work products to support engagement of LTPAC providers in HIE activities. The LCCWG has established three sub-workgroups. Each of these three sub-workgroups has expressed their intent to re-use standardized MDS and/or OASIS assessment data to support their use. The following describes the workgroup charges:

1. **Patient Assessment Summary Document Sub-Workgroup**<sup>30</sup>
  - a. Validate and refine, as needed, a subset of MDS 3.0 and OASIS content that could be clinically useful to exchange with hospitals, physicians, other LTPAC providers, and/or family members. The subset that of MDS 3.0 and OASIS content that will be targeted is that which was identified through this

<sup>30</sup> S&I Framework LCCWG, Patient Assessment Summary Document Sub-Workgroup Charter: <http://wiki.siframework.org/Patient+Assessment+Summary+SWG+Charter>.



ASPE study (see Appendix K: MDS Summary Rosetta Stone; and Appendix L: OASIS Summary Rosetta Stone).

- b. Re-use the standardized MDS 3.0 and OASIS assessment content provided by this ASPE study (see Appendix D: MDS 3.0 Rosetta Stone; and Appendix E: OASIS Rosetta Stone).
- c. Provide input and guidance on the transformation tool being developed by the Geisinger Keystone Beacon Community to transform the non-interoperable MDS 3.0 and OASIS into an interoperable clinical document that can be made available for HIE.
- d. Develop a CDA implementation guide and schema leveraging work under way by the Geisinger Keystone Beacon Community to enable the interoperable exchange of Patient Assessment Summary Documents.
- e. Ensure that work undertaken by this Sub-Workgroup is coordinated with HL7.

## 2. Longitudinal Care Plan Sub-Workgroup<sup>31</sup>

- a. Validate and refine, as needed, the content that is to be included on the home care POC (formerly 485-form).
- b. Identify content and format standards needed to represent content of the home care POC (formerly 485-form). The Sub-Workgroup will take into account and re-use previous standards identified through the ToC Initiative for the home care POC (formerly 485-form).
- c. Re-use, as feasible, standardized OASIS assessment content provided by this ASPE study (see Appendix E: OASIS Rosetta Stone).
- d. Keep aware of and provide feedback on the standards being identified and piloted by the VNSNY, home care electronic medical record vendors, home care agencies, and hospitals/physicians exchanging an interoperable home care POC (formerly 485-form).
- e. Develop a CDA implementation guide and schema leveraging work under way by the VNSNY home care POC pilot to enable the interoperable exchange of home care POC (formerly 485-form).
- f. Ensure that work undertaken by this Sub-Workgroup is coordinated with HL7.

## 3. LTPAC Care Transition Sub-Workgroup<sup>32</sup>

- a. Develop a priority list of acute/post-acute transitions based on volume, clinical instability and acuity of the required information.
- b. Develop standard clinical content defined by the receiving clinicians for all high-priority transitions.

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<sup>31</sup> S&I Framework LCCWG, Longitudinal Care Plan Sub-Workgroup Charter: <http://wiki.siframework.org/Patient+Assessment+Summary+SWG+Charter>.

<sup>32</sup> S&I Framework LCCWG, LTPAC Care Transitions Sub-Workgroup Charter: <http://wiki.siframework.org/Exchange+of+LTPAC+Care+Transition+Data+SWG+Charter>.

- c. Develop resources to support interoperability of all clinical content across all sites of care.
- d. Re-use of selected data elements from OASIS and MDS to populate the transitions data sets from home health agencies and skilled nursing facilities/extended care facilities.

The three sub-workgroups of the Longitudinal Coordination of Care initiative are expected to use standardized content from assessment instruments to support LTPAC's inclusion in HIE and improve shared care and transitions. Standardizing the MDS and OASIS creates the foundation for LTPAC providers and vendors to build more sophisticated, interoperable HIT systems.

## **Issues Requiring Further Consideration**

Individuals served by LTPAC providers often have chronic illnesses and disabilities resulting in physical and cognitive functional limitations. They interact routinely with multiple providers. The ability to communicate functional status between providers and caregivers is crucial to ongoing care planning and treatment. This study calls out an important gap that could be addressed by the industry.

Currently there is not a uniform definition, assessment method or scale for functional status to be communicated consistently across care settings. This creates challenges for representing functional status in a standardized vocabulary to support continuity of care, information exchange and re-use. Functional status information is important to assessing an individual's level of functioning and providing appropriate and needed health and supportive services. Functional status impacts the individual's quality of life, wellness, and ability to care for self, and is often a factor in public and private payment methodologies as well as in quality management and clinical outcome measurement.

Work is needed to enable the inclusion of functional status content to support the meaningful use of EHRs across the health care continuum. Specification of the HIT content and messaging standards related to functional status will enable the exchange of critical information to support quality and continuity of care.

Appendix I: Recommendations for Functional Status provides more specific suggestions for addressing the standards related to functional status.

## VII. NEXT STEPS -- ENGAGING STATES AND LTPAC PROVIDERS

This report describes many important initiatives under way that are building the infrastructure for LTPAC providers to become meaningful users of HIT and participate in HIE activities.

### **National Governors Association (NGA) Issue Brief: HIT Integration in Long-Term Care**

There is great promise for electronic exchange of health information to reduce fragmentation, especially for long-term care patients. It can improve the quality of care delivery and is a potential mechanism for reducing health care costs by reducing duplicative tests and services. Many LTCFs already use technology in their care settings, but connecting with broader state HIE efforts is just beginning. Although states understand the value of integrating HIT and long-term care, many challenges remain.<sup>33</sup>

ASPE is funding additional work, to be completed in 2012, of the HIE activities underway in state and other programs that target LTPAC (and behavioral health) providers and identify gaps, barriers, and opportunities to advance HIE and the use of HIT by these providers. This work includes:

- Conducting an environmental scan of ONC State HIE grant and Beacon Community Programs, state Medicaid programs, and other initiatives to identify HIE activities underway and/or needed that focus on LTPAC (and behavioral health) providers, including identifying opportunities that could support quality and continuity of care through the efficient re-use of standardized assessment content.
- Identifying and supporting the adoption of content and messaging standards, implementation specifications and EHR certification criteria needed to engage LTPAC and behavioral health providers.
- Using the HIT Policy and Standards committees and ONC's standard-setting framework (the S&I Framework) to support and accelerate electronic HIE and use by LTPAC and behavioral health providers.
- Identifying a method/mechanism to maintain and update HIT standards linked to PAIs as these instruments and standards evolve over time.
- Identifying and addressing gaps in HIT standards needed to support HIE on behalf of LTPAC and behavioral health patients (e.g., functional and cognitive status).

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<sup>33</sup> State Health Information Exchange Cooperative Agreement Program. <http://statehieresources.org/>.

Additional activities to advance HIE on behalf of LTPAC providers include understanding and overcoming the issues and challenges states and LTPAC providers face.

## Engage States

The changes on the horizon for delivery and payment of health care services including LTPAC necessitate changes in how information is shared across the health care spectrum. A number of efforts are underway to support states' ability to engage LTPAC in exchange activities and address the challenges discussed above. A number of state grant programs highlight the need to address LTPAC or focus funding.

- **ONC State HIE Cooperative Agreement Program:** Through ONC, states were eligible for grants to facilitate the secure movement of health information using nationally recognized standards. The grants supported the development and implementation of a state HIT plan to support the exchange and use of health information in the state and focus efforts primarily on those providers eligible for meaningful use incentive payments. Fifty-six states and territories were eligible and received grants.<sup>34</sup>
- **ONC Challenge Grants:** As described in section III: HITECH Focuses on Key Priorities for HIT, ONC issued four Challenge Grants to states to focus on improving LTPAC transitions. These efforts can provide a model to other states for engaging LTPAC in HIE.<sup>35</sup>
- **ONC Beacon Community Cooperative Agreement Program:** As described in section III: HITECH Focuses on Key Priorities for HIT, ONC awarded 17 grants to several communities to use HIT and HIE capabilities to improve care coordination, quality of care and slow growth of care spending. A few Beacon Community Programs -- Rhode Island, Maine and Pennsylvania -- include a focus on LTPAC providers. Pennsylvania's Geisinger Keystone Beacon is focusing on connecting their community including nursing homes and home health agencies to improve care coordination, quality and efficiency by using the Patient Assessment Summary discussed in section V: Exchanging Standardized Assessment Content for Patient Assessment Summary Documents.<sup>36</sup>
- **CMS State Medicaid HIT Plans (SMHPs):** As part of the HITECH Medicaid Incentive Program, state Medicaid agencies were directed to begin conversations with a range of stakeholders to develop solutions for how the Medicaid EHR

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<sup>34</sup> State Health Information Exchange Cooperative Agreement Program. <http://statehieresources.org/>.

<sup>35</sup> Health Information Exchange Challenge Grant Program. <http://healthit.hhs.gov/portal/server.pt?open=512&mode=2&objID=3378>.

<sup>36</sup> Beacon Community Cooperative Agreement Program. <http://healthit.hhs.gov/portal/server.pt?open=512&mode=2&objID=3378>.

Incentive Program will operate in the context of larger health systems and statewide efforts. States were asked to develop an SMHP which serves as the Medicaid HIT vision document. The SMHP integrates the statewide HIT plan developed under the ONC grant program and contains at least four components: A current landscape assessment, a vision of the state's HIT future, specific actions necessary to implement the EHR incentive program, and an HIT roadmap. To accomplish this plan, states will initiate discussions and activities with a diverse group of individuals, organizations and institutions from within the state government (including long-term care) and with persons outside the state government.<sup>37</sup>

Other tools and resources have been developed or are under development to assist states with addressing how to engage LTPAC in HIT plans and HIE activities. ONC posted a "Vulnerable Population Report" on the State HIE Resources web site.<sup>38</sup> The Vulnerable Population Report, produced by ASPE and private sector representatives, describes LTPAC (and behavioral health) population and providers, how states could engage these providers and support the meaningful use program and eligible providers and eligible hospitals.

Further, ONC sponsored a five-year study with the NGA Center for Best Practices to better understand the states' HIE needs with respect to long-term care. NGA conducted a technical expert panel meeting and coordinated meetings with state HIT officials in conjunction with ONC Regional Extension Center and Beacon Communities meetings. NGA published an issue brief summarizing the findings and concluded that there is great promise for electronic exchange of health information for improving quality and potentially reducing health care costs once LTCFs begin connecting to broader state HIE activities.<sup>39</sup> The NGA issue brief highlighted the following common challenges identified by states to integrate long-term care into HIE efforts:<sup>40, 41</sup>

- **Lack of funding/payment incentives to adopt HIT and EHRs:** States have generally prioritized their focus on incentivized providers. Although they understand the value of engaging LTPAC providers, the path to greater integration is largely unclear and not uniform among states.
- **Inaccessibility of data:** Inadequate information in an inconsistent structure is a significant barrier. Clinical data in LTPAC is often fragmented due to antiquated record systems that collect only a portion of a patient's health information.

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<sup>37</sup> CMS SMHP. [https://www.cms.gov/MLNProducts/downloads/STATE\\_MEDICAID\\_HIT\\_PLAN\\_SMHP.pdf](https://www.cms.gov/MLNProducts/downloads/STATE_MEDICAID_HIT_PLAN_SMHP.pdf).

<sup>38</sup> ONC Vulnerable Populations and HIE Report. Available on the State HIE Resources website at: [http://statehieresources.org/wp-content/uploads/2010/12/Vulnerable\\_Populations\\_and\\_HIE.pdf](http://statehieresources.org/wp-content/uploads/2010/12/Vulnerable_Populations_and_HIE.pdf).

<sup>39</sup> NGA Center for Best Practices. *Issue Brief: Health Information Technology Integration in Long-Term Care: Challenges, Best Practices, and Solutions for States*. 2011.

<sup>40</sup> NGA Center for Best Practices. *Issue Brief: Health Information Technology Integration in Long-Term Care: Challenges, Best Practices, and Solutions for States*. 2011.

<sup>41</sup> Summary Report from NGA State Alliance for E-Health Regional State Health IT Consultations. July-August 2011.

Information such as the MDS is reported to CMS in real-time, but that data cannot be shared across care providers and may not include all relevant information.

- **Workforce issues:** To effectively use and deploy HIT, staff in LTPAC settings need to be skilled and well trained. The ability to attract skilled information technology workers is a challenge. The information technology workforce in LTPAC frequently has high turnover rates and typically lower education and health care training.
- **Lack of standardization of EHRs:** There is a lack of standardized data collection methods in the various LTPAC settings that leads to challenges in care coordination functions such as treatment history, referrals and transfers. CCHIT has certified EHR programs unique to LTPAC but adoption by LTPAC vendors has been low.
- **Multiple and competing state health initiatives running in parallel:** States are coordinating multiple initiatives including sustaining Medicaid, implementing health care reform, and controlling health care costs. As a result, state HIT efforts have largely focused on the meaningful use incentive program for eligible providers and hospitals. The result has been fewer resources for ineligible providers such as LTPAC.

As part of its study on integrating long-term care in HIT, the NGA noted that despite the challenges, states are taking steps to engage LTPAC providers and made the following recommendations to states:<sup>42</sup>

- **Understand the LTPAC Environment and Engage Stakeholders:** NGA recommended that states conduct an environmental scan of LTC facilities, providers, care centers and others to understand their landscape and key challenges. For example, some states have conducted a survey of the LTPAC providers and their readiness/interest in HIE activities. States could bring LTPAC stakeholders into workgroups and planning efforts to identify specific actions for change.
- **Incorporate Long-Term Care into Ongoing State Strategic HIT Plans:** States could look for opportunities to establish goals and bring LTPAC into their state strategic and operational plans as well as their HIE outreach plans.
- **Utilize Regulatory and Policy Levers:** States could use their regulatory process to develop and advance HIE across the state including LTPAC; attempt to drive the market using purchasing from state programs and Medicaid; and

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<sup>42</sup> NGA Center for Best Practices. *Issue Brief: health Information Technology Integration in Long-Term Care: Challenges, Best Practices, and Solutions for States*. 2011.

convene payers to make a case for better integration of long-term care and HIE to help push the market toward adoption.

In addition, ONC has convened meetings to raise awareness about the need to exchange health information across the health care enterprise, including the LTPAC sector. ONC convened a town hall meeting at the 2011 LTPAC HIT Summit<sup>43</sup> to make available information regarding state HIE activities that include LTPAC providers. In October 2011, ONC and private sector foundations hosted a working meeting -- Putting the IT in TransITions<sup>44</sup> -- of innovators, policymakers, and HIT experts, providers, and others to identify how HIT could be used to support some of the challenges in transitions in care. In addition, in November 2011, ONC hosted a meeting for State Health IT Coordinators, Beacon Communities, and other entities. A session during this meeting was focused on increasing awareness of and opportunities and methods for engaging LTPAC providers in HIE activities.

The work developed under this study and described in this report provides important information, resources and tools that states could leverage to address some of the challenges identified by the NGA and advance HIE on behalf of LTPAC patients and providers. As described, the MDS 3.0 and OASIS are electronic data sets collected on persons served by most nursing homes and home health agencies. When content and exchange standards are applied to the MDS 3.0 and OASIS assessments, the data can be re-used and shared with other health care providers in an efficient and cost-effective manner. The ability to exchange other clinical information (such as medication information) beyond the MDS and OASIS is a critical step, and can be linked with widely available assessment information to support more robust HIE opportunities.

## Engage LTPAC Providers

As the NGA observed in their issue brief, "many LTC facilities already use technology in their care settings, but connecting with broader state HIE efforts is just beginning."<sup>45</sup> The lack of availability, adoption and use of interoperable EHRs by the LTPAC providers is a critical barrier. The stakeholder experts interviewed as part of this study believe HITECH and the ACA will alter market pressures and eventually force LTPAC providers to adopt EHRs and HIT, albeit at a slower rate than had incentives been made available to these providers (Appendix A: Stakeholder Interview Summary). At this time, LTPAC providers have limited awareness of ongoing HIT activities and the anticipated increase in HIE demands. This lack of understanding could threaten quality and continuity of care improvements envisioned in health care reform and ultimately the viability of the LTPAC provider in the new emerging health care delivery systems.

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<sup>43</sup> State and Regional HIE Initiatives Town Hall at the 2011 LTPAC HIT Summit. June 2011.

<sup>44</sup> Putting the IT in TransITions. <http://xnet.kp.org/newscenter/pressreleases/nat/2011/101111caretransitions.html>.

<sup>45</sup> NGA Center for Best Practices. *Issue Brief: Health Information Technology Integration in Long-Term Care: Challenges, Best Practices, and Solutions for States*. 2011.



CMS recognizes the need to support LTPAC providers in the adoption and use of HIT. Towards this end, CMS is planning a special project as part of its 10<sup>th</sup> scope of work for the quality improvement organization program. The special project will seek to support the use of HIT by health care providers that are ineligible for EHR incentive payments. The project will support and encourage the meaningful use of HIT to improve quality and continuity of care.

In addition, the LTPAC HIT Collaborative<sup>46</sup> and its member organizations are considering and/or pursuing several activities to address some of the challenges the LTPAC sector is experiencing. The Collaborative is:

- Engaging provider, professional, and vendor associations that serve the LTPAC community to prioritize interoperable HIT and HIE for their members through several activities including:
  - Development and implementation of strategic initiatives that focus on participation in national, state and local HIT/HIE activities; and
  - Delivery of educational efforts that focus on EHR use and the imperative for engaging in HIE.
- Connecting with policymakers (federal and state) to align the HIT and HIE priorities including advancing the:
  - Use of certified EHRs for and by LTPAC providers; and
  - Interoperable HIE on behalf of persons who receive LTPAC services.
- Publishing an updated LTPAC Health IT Roadmap for 2012-2014 that promotes the use of HIT/EHRs and participation in HIE activities to support quality, continuity and coordination of care. The Collaborative will advance the new Roadmap and priorities at the 2012 annual LTPAC HIT Summit. The updated Roadmap will:
  - Align priorities and activities in the ONC 2011-2015 Federal Health IT Strategic Plan;
  - Advance the readiness of the LTPAC sector in using technology to support health care reform goals; and
  - Serve to inform public and private sector entities engaged in health care reform activities about how technology can be used to support the inclusion of LTPAC in service delivery system changes and quality improvement activities.

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<sup>46</sup> LTPAC Health IT Collaborative is a consortium of public and private representatives that advance HIT for the LTPAC community of providers. <http://www.ltpachealthit.org>.



## VIII. CONCLUSION

The value of LTPAC providers adopting HIT and engaging in HIE is widely accepted yet challenges must be overcome. While the LTPAC provider is presently not eligible for CMS EHR incentive payments, it is arguably in the interests of eligible hospitals and eligible professionals to exchange information with LTPAC providers (in order to meet meaningful use requirements). Further, it is in the interests of LTPAC providers to participate in HIE activities to support quality and continuity of care, and engage in new service delivery models emerging through health care reform. The ONC and ASPE continue to direct resources to advance the participation in HIE activities by LTPAC providers, including supporting the dissemination and use of the free tools developed under this study. Work is needed to extend these tools and enable additional opportunities for the re-use of standardized assessment content to improve quality and continuity of care in LTPAC.

The goals of HITECH and ACA cannot be achieved without successfully engaging LTPAC providers in HIT and HIE policies and initiatives. Leveraging federally required PAIs and patient assessment summary documents provides a cost-effective entrance point for this sector to participate in interoperable HIE through the nationwide HIT infrastructure and build a pathway towards more sophisticated HIE and meaningful use of EHRs. There will be some costs of converting the non-interoperable assessments into interoperable assessment documents and/or re-using interoperable assessment content for various purposes, and at this time it is unclear who will bear these costs. These costs could be borne by the provider and/or organizational HIE entities (e.g., state HIT grantees, Beacon Community programs, etc.). The HIE entity may (or may not) charge a fee for the transformation and exchange of this content. Nonetheless, because this approach builds from currently available electronic health information the cost is expected to be relatively modest.

Implementation of the approach and interoperability tools provided in this report creates an opportunity and strong foundation for LTPAC providers to begin using modern technologies to take steps to improve the quality and coordination of care in today's fragmented health care environment and achieve the seamless information sharing envisioned with health care reform.

# APPENDIX OVERVIEW

The appendices provide essential background information, documentation, and tools to support the approach proposed in this report. Several provide the research and in-depth technical analyses that form the backbone of this study. These include a summary of stakeholder interviews (Appendix A) and the environmental assessment of the existing standards landscape (Appendix F). Appendices B through E offer the methods and results of careful technical analyses of existing standards for application with PAIs. Two appendices (Appendix H and Appendix I) provide more details about the recommendations for needed HIT standards. Appendix G is a practical implementation toolkit for LTPAC providers and vendors. Appendices J through L provide guidance on the patient assessment summary. Appendix M provides a glossary of key terms and abbreviations used in this report.

## ***A: Stakeholder Interview Summary***

Summary of stakeholder interviews conducted to discuss incentives for and barriers to adoption. The interviews also explored implications of limited HIT interoperability and gathered insights on how to advance the use and exchange of electronic clinical information in LTPAC settings. The stakeholder interviews were instrumental in developing the approach identified in this report.

## ***B: Background Report on Intellectual Property and the Dissemination of Standardized Federally Required Patient Assessments***

This report identifies and evaluates potential intellectual property issues that emerge and need to be considered with the application of HIT content standards to federally required assessment instruments. Assessment instrument developers should consider intellectual property implications that will arise with the free dissemination of HIT content standards that will be necessary to facilitate re-use and exchange of assessment information.

## ***C: Rosetta Stone Mapping Guidelines and Heuristics***

This resource offers the guidelines and rules that were used to map recognized HIT vocabularies -- specifically, LOINC<sup>®</sup> and SNOMED CT -- to the MDS and OASIS assessments, and the use of coded vocabularies in an HL7 messaging standard (the CDA Patient Assessment Questionnaire Implementation Guide) to enable the interoperable transmission of these assessments. The exchange standard enables assessments to be represented as intended by assessment developer (using a "model of use" format) and enables the re-use of assessment content (i.e., using the model of meaning format).

#### ***D: MDS Rosetta Stone Spreadsheet***

This resource maps each MDS 3.0 question and answer to applicable terminologies and code sets including LOINC<sup>®</sup>, SNOMED, ICD-9-CM and ICD-10. This is expected to be a useful reference for nursing home EHR vendors and HIE organizations.

#### ***MDS Value Set of Diagnosis Concepts***

The MDS value set of diagnosis concepts file provides a set of SNOMED concepts to illustrate how the MDS problem/diagnosis section could be semi-populated from the EHR.

#### ***E: OASIS Rosetta Stone Spreadsheet***

This resource maps each OASIS question and answer to applicable terminologies and code sets including LOINC<sup>®</sup>, SNOMED, ICD-9-CM and ICD-10. This is expected to be a useful reference for home health EHR vendors and HIE organizations.

#### ***F: Current Standards Landscape***

A discussion about current standards and their application to assessment content and enabling re-use of health information. This resource could be used by LTPAC providers and vendors to facilitate their awareness and understanding.

#### ***G: LTPAC Interoperability Toolkit and Tools***

This appendix document provides a summary of the technical tools available in the toolkit.

#### ***CDA Assessment Implementation Guide for MDS and Tools***

This guide describes how to represent questions and answers in PAIs as an HL7 CDA document. The implementation guide represents the MDS 3.0 as an example of a CDA patient assessment document.

#### ***MDS Transform Tools and Validator***

Various tools for transforming the MDS from a CDA format to the CMS transmission format and tools to validate the conversion.

#### ***MDS CCD Design Guide***

This document provides general information on how to design a valid CCD document using patient assessment content from the MDS.

### ***H: Standards Development and Adoption Recommendations***

Provides recommendations for advancing and accelerating the use of HIT and EHRs in the LTPAC industry based on existing standards and known gaps. Discusses the relationship of existing and potential national policy strategies in relating to the standards recommendations.

### ***I: Recommendations for Functional Status***

Defines functional status in the context of HIT standards and the importance of the data to support the continuity of care for persons with chronic illnesses and disabilities. Recommends an approach for addressing gaps in standards to address functional status content and representation.

### ***J: Patient Assessment Summary for Health Information Exchange***

Describes the project and methodology for developing a patient assessment summary for the MDS and OASIS in collaboration with Keystone Beacon Community.

### ***K: MDS Assessment Summary Rosetta Stone***

A technical resource in Excel which identifies the MDS item selected for the summary, the related SNOMED concept, LOINC code, CCD Section, and analyzed compatibility with HITSP C32 requirements.

### ***L: OASIS Assessment Summary Rosetta Stone***

A technical resource in Excel which identifies the OASIS item selected for the summary, the related SNOMED concept, LOINC code, CCD Section, and analyzed compatibility with HITSP C32 requirements.

### ***M. Terms and Acronyms***

A resource that lists the terms and acronyms used in this report.

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# OPPORTUNITIES FOR ENGAGING LONG-TERM AND POST-ACUTE CARE PROVIDERS IN HEALTH INFORMATION EXCHANGE ACTIVITIES: EXCHANGING INTEROPERABLE PATIENT ASSESSMENT INFORMATION

## Files Available for This Report

<b>Main Report</b>	[54 PDF pages] <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng.htm">http://aspe.hhs.gov/daltcp/reports/2011/StratEng.htm</a> <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng.pdf">http://aspe.hhs.gov/daltcp/reports/2011/StratEng.pdf</a>
<b>APPENDIX A:</b> Stakeholder Interview Summary	[13 PDF pages] <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-A.htm">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-A.htm</a> <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-A.pdf">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-A.pdf</a>
<b>APPENDIX B:</b> Background Report on Intellectual Property Issues and the Dissemination of Standardized Federally-Required Patient Assessments	[89 PDF pages] <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-B.htm">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-B.htm</a> <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-B.pdf">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-B.pdf</a>
<b>APPENDIX C:</b> Rosetta Stone Mapping Guidelines and Heuristics	[19 PDF pages] <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-C.htm">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-C.htm</a> <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-C.pdf">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-C.pdf</a>
<b>APPENDIX D:</b> Rosetta Stone MDS and OASIS and Value Sets for MDS Full Appendix	[518 PDF pages] <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D.htm">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D.htm</a> <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D.pdf">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D.pdf</a>
Toolkit Overview, Model of Use, Model of Meaning, and Supporting EHR Observation [135 PDF pages]	<a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D1.htm">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D1.htm</a> <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D1.pdf">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D1.pdf</a> <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D1.xlsx">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D1.xlsx</a>
MDS Value Sets (Separate Excel files accessible through links within HTMLs and PDFs) [381 PDF pages]	
<i>Alzheimer's Disease through Cirrhosis</i> [184 PDF pages]	<a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D2a.htm">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D2a.htm</a> <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D2a.pdf">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D2a.pdf</a>
<i>Coronary Artery Disease through Wound Infection</i> [197 PDF pages]	<a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D2b.htm">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D2b.htm</a> <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D2b.pdf">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-D2b.pdf</a>
<b>APPENDIX E:</b> Rosetta Stone OASIS	[71 PDF pages] <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-E.htm">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-E.htm</a> <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-E.pdf">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-E.pdf</a> <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-E.xlsx">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-E.xlsx</a>
<b>APPENDIX F:</b> Current Standards Landscape for Exchanging Interoperable Patient Assessment Information	[9 PDF pages] <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-F.htm">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-F.htm</a> <a href="http://aspe.hhs.gov/daltcp/reports/2011/StratEng-F.pdf">http://aspe.hhs.gov/daltcp/reports/2011/StratEng-F.pdf</a>

**APPENDIX G:** LTPAC Interoperability Toolkit for Exchanging Interoperable Patient Assessment Instruments [9 PDF pages]  
Overview <http://aspe.hhs.gov/daltcp/reports/2011/StratEng-G.htm>  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-G.pdf>

Several attachments are listed separately at the end of this Appendix.

**APPENDIX H:** Standards Development and Adoption Recommendations [6 PDF pages]  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-H.htm>  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-H.pdf>

**APPENDIX I:** Functional Status Standardization Recommendations [13 PDF pages]  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-I.htm>  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-I.pdf>

**APPENDIX J:** Overview of Patient Assessment Summary [23 PDF pages]  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-J.htm>  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-J.pdf>

**APPENDIX K:** Rosetta Stone MDS Summary [162 PDF pages]  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-K.htm>  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-K.pdf>  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-K.xlsx>

**APPENDIX L:** Rosetta Stone OASIS Summary [127 PDF pages]  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-L.htm>  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-L.pdf>  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-L.xlsx>

**APPENDIX M:** Terms and Acronyms [6 PDF pages]  
<http://aspe.hhs.gov/daltcp/reports/2011/StratEng-M.htm>  
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