Survey of State Health Information Exchanges Regarding Inclusion of Continuity of Care Documents for Long-Term Post-Acute Care (LTPAC) Patient Assessment

by Andrea Hassol, MSPH; Laura Goodman; Jim Younkin; Mary Honicker; Kimberly Chaundy; and James M. Walker, MD

Abstract

Objectives: This study aimed to measure awareness and interest among state health information exchanges (HIEs) in a tool that translates long-term post-acute care (LTPAC) patient assessment information to a Continuity of Care Document (CCD) format for sharing; whether any state HIEs currently integrate patient information from LTPAC providers; and the anticipated benefits and barriers to using such a tool.

Materials and Methods: The study consisted of an online survey of state HIEs.

Results: Responses were received from representatives of 29 of the 51 HIEs (57 percent). Eleven of the 29 respondents (38 percent) were aware of the LTPAC-to-CCD translation tool, and 24 (83 percent of respondents) were interested in it or felt LTPAC providers in their state would be interested. Twenty-one of the 24 interested respondents (88 percent) indicated a desire for more information about this technology.

Discussion: Skilled nursing facilities and home health agencies receive no incentives for adoption of electronic health record systems and are not commonly included in HIEs. These organizations do, however collect extensive structured data about their patients (Minimum Data Set for nursing facilities, Outcome and Assessment Information Set for home health agencies) and transmit the data electronically to the Centers for Medicare and Medicaid Services (CMS). A tool is now available that will intercept the transmissions to CMS, transform content extracted from patient assessments into CCDs, and send the CCDs to a designated HIE.

Conclusion: Responding HIEs reported almost no experience exchanging patient assessment information from LTPAC providers. Anticipated benefits include safer care transitions; anticipated barriers include information technology constraints in LTPAC settings.

Keywords: health information exchange, electronic patient assessments

Background

The 2009 American Recovery and Reinvestment Act (ARRA) included programs to incentivize hospitals and physicians to adopt and use electronic health records (EHRs) and a program to support states in developing health information exchanges (HIEs).[1, 2] Electronic patient information can be exchanged in myriad ways, and the Office of the National Coordinator for Health Information Technology (ONC) funded state HIEs to serve as central hubs for information exchange based on

consistent national standards. State HIEs vary in their design, services, and comprehensiveness; in addition, some states have regional HIEs that serve subsections of one or more states. Long-term post-acute care (LTPAC) providers were not specifically included in the ARRA programs. The importance of coordination and information sharing across care settings, including post-acute care, is recognized by the National Transitions of Care Coalition and the American College of Physicians, which recommend a transition-of-care record for electronic record sharing across care settings for possible implementation by HIEs.[3]

A literature search returned no national surveys of HIEs regarding the exchange of information with LTPAC providers, although local efforts have been made to include LTPAC providers in electronic health information exchange.[4] Participation of LTPAC providers in information exchange may be slowed by challenges in adopting electronic health record systems (EHRs) in those settings. Various national surveys estimate that fewer than half of nursing homes and home health agencies have adopted EHRs.[5–7]

The absence of an EHR need not, however, preclude exchange of electronic patient information. All Medicare-certified skilled nursing facilities (SNFs) and home health agencies (HHAs) collect and transmit electronic patient assessment information to the Centers for Medicare and Medicaid Services (CMS). SNFs send assessment information to CMS in the form of the Minimum Data Set (MDS), and HHAs transmit the Outcome and Assessment Information Set (OASIS). The MDS and OASIS include assessments of every patient upon admission to the SNF or HHA, upon resumption of care after inpatient stay, for recertification every 60 days that the patient remains in care, when a transfer occurs, and at discharge. Data elements include the patient's clinical, physical, and psychological status; functional status (including cognition); independence in activities of daily living; and life care wishes. Although this information is electronic, it has not previously been available to other healthcare providers or extracted into a form that can be readily shared via an HIE. A subset of relevant clinical information could be of substantial value to other care providers, especially during care transitions, which are common among LTPAC patients. Facts about baseline functional and mental status, or about life care wishes, are available in the MDS, but often are not conveyed when a patient is transferred from a nursing home to an emergency department.[8–12] Other mechanisms have been used to convey information from nursing facilities to emergency departments, such as transfer forms (sent electronically or delivered by ambulance staff), many of which predate the ARRA.[13–16] We found no examples in the literature of SNFs or HHAs sharing MDS or OASIS patient assessment data via an HIE.

A tool is available that, when downloaded and installed by a SNF or HHA, intercepts each electronic MDS or OASIS transmission to CMS, transforms the transition-relevant clinical content into a standard Continuity of Care Document (CCD), and publishes that CCD to a designated HIE. This tool, called KeyHIE Transform, was developed by staff and contractors at Geisinger Health System. The MDS and OASIS CCD offers clinicians a view of the patient's LTPAC assessments and contains information about problems and diagnoses, functional status and cognition, activities of daily living, procedures such as use of restraints, pain regimen, medication class, immunizations, care planning, and risks of problems such as pressure ulcers. The KeyHIE Transform LTPAC-to-CCD translation tool was developed using nationally vetted specifications published through Health Level 7 (HL7). The specifications for programming the tool are available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=291 (one must register with HL7, then log in to download a .zip file).

The purpose of this study is to obtain a national snapshot of the degree to which state HIEs include information from LTPAC providers, as well as their awareness of and interest in an automated tool for extracting MDS and OASIS data for sharing via an HIE.

Objectives

Objectives of the study were as follows:
1.   To measure the awareness of and interest among state HIEs in a LTPAC-to-CCD translation tool.
2.   To measure whether any state HIEs currently integrate patient information from LTPAC providers.

3.   To measure HIE representatives' opinions about anticipated benefits of and barriers to using this new tool.

Methods

A one-time online survey was conducted with 50 state HIEs and one HIE from the District of Columbia. No previously published instrument was suitable for this study, and a new questionnaire was created. The survey asked about the following topics:

- whether respondents were aware of KeyHIE Transform or were interested in a LTPAC-to-CCD translation tool;
- what information respondents currently import from LTPAC providers and how common this approach is in their state;
- what barriers and benefits respondents anticipate might occur in using such a tool; and
- what types of information respondents believe clinicians are likely to want about their patients from LTPAC providers.

The survey instrument was programmed using software designed for online surveys, reviewed and approved by an institutional review board, and pretested by a physician informaticist and two HIE professionals. A list of state HIE contacts was provided by ONC, and an e-mail invitation was sent to the director of each HIE containing a link to the survey with a unique user ID. The invitation could be forwarded to another individual at the HIE if the recipient felt a colleague could better answer the questions, but only one response per HIE was accepted. Four e-mail reminders were sent to encourage response.

Results

Responses were received from representatives of 29 of the 51 HIEs (57 percent). Eleven of the 29 respondents (38 percent) were aware of the LTPAC-to-CCD translation tool, and 24 respondents (83 percent) were interested in it or felt that LTPAC providers in their state might be interested. Twenty-one of the 24 interested respondents (88 percent) indicated a desire for more information about this technology. The results presented below are from the 24 respondents that expressed interest in this technology.

Respondents were asked if their HIE had experience receiving CCDs (of any type) from nursing homes or HHAs. One of the 24 respondents (4 percent) had experience receiving CCDs from nursing homes, and reported receiving CCDs from fewer than five nursing homes. Three respondents (12 percent) had experience receiving CCDs from HHAs (one of these three was the HIE that also had experience with nursing home CCDs); two of these HIEs reported receiving CCDs from fewer than five HHAs, and one received CCDs from more than five HHAs.

When asked whether nursing homes or HHAs routinely exchange other information through the HIE (for example, admission/discharge/transfer notifications), four respondents (17 percent) responded affirmatively. Types of information exchanged included care plans, admission/discharge/transfer notifications, and insurance (Medicaid) preauthorization requests.

Respondents were asked about the information they believe clinicians would most like to have about patients who are receiving care from a nursing home or HHA. As shown in Figure 1, all 24 respondents stated that clinicians would like to have information about patient allergies and medications. More than half also listed cognitive functioning, activities of daily living, pain status, advance directives, family member/caregiver contact information, and immunizations as information they believed clinicians would like to have about LTPAC patients. Some, but not all, of this information is available in the MDS and OASIS patient assessments and via the LTPAC-to-CCD translation tool.

Respondents were also asked about potential benefits of the use of this new tool. As Figure 2 shows, 22 of the 24 respondents (92 percent) that expressed interest in this technology anticipated benefits from incorporating nursing home and home health CCDs into their HIE. Benefits included safer transitions across care settings and the inclusion of SNFs and HHAs in the health information ecology in the state.

As Figure 3 shows, 18 of the 24 respondents (75 percent) interested in this technology anticipated technical barriers at nursing homes and HHAs; all 24 of these respondents (100 percent) felt that insufficient technology, connectivity, or expertise at nursing homes and HHAs would be a barrier. Sixteen of the 24 (67 percent) were concerned about the cost to nursing homes and HHAs of implementing the technology. Fewer than half of HIE respondents were concerned about readiness, programming, or other internal costs to the HIE; managing patient authorizations for information coming from nursing homes and HHAs; inadequate relationships with their local nursing homes and HHAs; insufficient demand among clinicians; or the lack of EHRs in nursing home settings.

Conclusions

LTPAC providers are not yet part of the health information ecology. In our survey of state HIEs, few reported experience exchanging patient information with LTPAC providers: only one respondent (4 percent) had experience receiving CCDs from nursing homes, and this one plus two others (12 percent) had experience receiving CCDs from HHAs. State HIE representatives see considerable value in including LTPAC patient assessment information in their exchanges, such as safer transitions across care settings (stated by 95 percent of respondents). The disconnect between the widespread interest in including LTPAC providers in the information ecology and the very little progress that has been made in this direction deserves attention from policy makers, ONC, and the LTPAC community to overcome challenges related to constrained technology, connectivity, and expertise. Incorporating LTPAC patient assessment information into the health information ecology is a first step and will require that HIEs establish additional relationships with nursing homes and HHAs and address patient authorization requirements in the absence of EHR infrastructure. A more comprehensive policy solution could incentivize the adoption and meaningful use of EHRs in LTPAC settings and inclusion of LTPAC information in HIEs to ensure that all members of the patient care team—including those working in LTPAC settings—have access to accurate and up-to-date information about their patients.

Acknowledgments

Andrea Hassol, MSPH, is a principal associate at Abt Associates, Inc., in Cambridge, MA.

Laura Goodman was an associate analyst at Abt Associates, Inc., in Cambridge, MA.

Jim Younkin is the director of KeyHIE at Geisinger Health System in Danville, PA.

Mary Honicker is an IT lead system analyst at Geisinger Health System in Danville, PA.

Kimberly Chaundy is the director of KeyHIE operations at Geisinger Health System in Danville, PA.

James M. Walker, MD, is a principal health informatician at Siemens in Malvern, PA.

Notes

1. American Recovery and Reinvestment Act, HITECH provision. Available at http://www.healthit.gov/sites/default/files/hitech_act_excerpt_from_arra.pdf (accessed August 14, 2013).
2. Office of the National Coordinator for Health Information Technology. *Get the Facts about State Health Information Exchange Program.* Available at http://www.healthit.gov/sites/default/files/pdf/fact-sheets/get-the-facts-about-state-hie-program.pdf (accessed August 14, 2013).
3. National Transitions of Care Coalition. *Improving Transitions of Care: Findings and Considerations of the "Vision of the National Transitions of Care Coalition."* September 2010. Available at http://www.ntocc.org/Portals/0/PDF/Resources/NTOCCIssueBriefs.pdf (accessed August 9, 2014).
4. Kerm, L. M., A. B. Wilcox, J. Shapiro, K. Yoon-Flannery, E. Abramson, Y. Barron, and R. Kaushal. "Community-based Health Information Technology Alliances: Potential Predictors of Early Sustainability." *American Journal of Managed Care* 17, no. 4 (2011): 290–95.
5. Hsiao, C. J., and E. Hing. "Adoption of Health Information Technology among U.S. Ambulatory and Long-term Care Providers." National Conference on Health Statistics. August 8, 2012. Available at http://www.cdc.gov/nchs/ppt/nchs2012/SS-03_HSIAO.pdf (accessed August 20, 2013).
6. Bercovitz, A. R., E. Park-Lee, and E. Jamoom. "Adoption and Use of Electronic Health Records and Mobile Technology by Home Health and Hospice Care Agencies." *National Health Statistics Reports* 66 (May 20, 2013): 1–11.
7. Kramer, A., A. A. Richard, A. Epstein, D. Winn, and K. May. *Understanding the Costs and Benefits of Health Information Technology in Nursing Homes and Home Health Agencies: Case Study Findings*. Washington, DC: US Department of Health and Human Services, Office of Disability, Aging and Long-Term Care Policy, 2009. Available at http://aspe.hhs.gov/daltcp/reports/2009/HITcsf.htm (accessed August 20, 2013).
8. Lahn, M., B. Friedman, P. Bijur, M. Haughey, and E. J. Gallagher.. "Advance Directives in Skilled Nursing Facility Residents Transferred to Emergency Departments." *Academic Emergency Medicine* 8, no. 12 (2001): 1158–62.
9. Madden, C., J. Garrett, and J. Busby-Whitehead. "The Interface between Nursing Homes and Emergency Departments: A Community Effort to Improve Transfer of Information." *Academic Emergency Medicine* 5, no. 11 (1998): 1123–26.
10. Pauls, M. A., P. A. Singer, and I. Dubinsky. "Communicating Advance Directives from Long-Term Care Facilities to Emergency Departments." *Journal of Emergency Medicine* 21, no. 1 (2001): 83–89.
11. Cwinn, M., A. Cwinn, A. Forster, G. Hebert, L. Calder, and I. G. Stiell. "Prevalence of Information Gaps for Seniors Transferred from Nursing Homes to the Emergency Department." *Canadian Journal of Emergency Medicine* 11, no. 5 (2009): 462–71.
12. Stier, P., B. Giles, M. Olinger, et al. "Do Transfer Records for Extended Care-Facility Patients Sent to the Emergency Department Contain Essential Information?" [abstract]. *Annals of Emergency Medicine* 38, no. 4 (suppl.) (2001): S102.
13. Davis, M., V. Brumfield, S. Smith, S. Tyler, and J. Nitschman. "A One-Page Nursing Home to Emergency Room Transfer Form: What a Difference It Can Make during an Emergency!" *Annals of Long Term Care Clinical Care and Aging* 13, no. 11 (2005): 34–38.

14. Terrell, K. M., E. J. Brizendine, W. F. Bean, B. K. Giles, J. R. Davidson, S. Evers, P. A. Stier, and W. H. Cordell. "An Extended Care Facility–to–Emergency Department Transfer Form Improves Communication." *Academic Emergency Medicine* 12, no. 2 (2005): 114–18.
15. Hustey, F. M., and R. M. Palmer. "An Internet-based Communication Network for Information Transfer during Patient Transitions from Skilled Nursing Facility to the Emergency Department." *Journal of the American Geriatrics Society* 58, no. 6 (2010): 1148–52.
16. Gaddis, G. M. "Elder Care Transfer Forms." *Academic Emergency* Medicine 12, no. 2 (2005): 160–61.

Figure 1

Information Health Information Exchange Representatives Believe Clinicians Would Most Like to Have about Patients in Long-Term Post-Acute Care (LTPAC) Settings (*N* = 24)
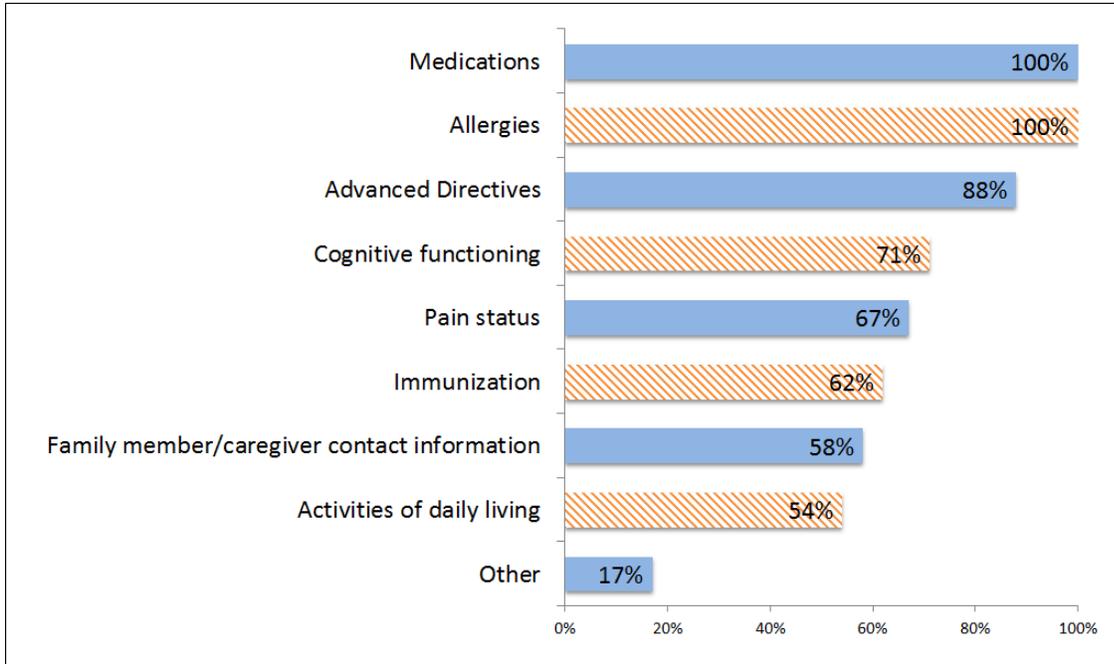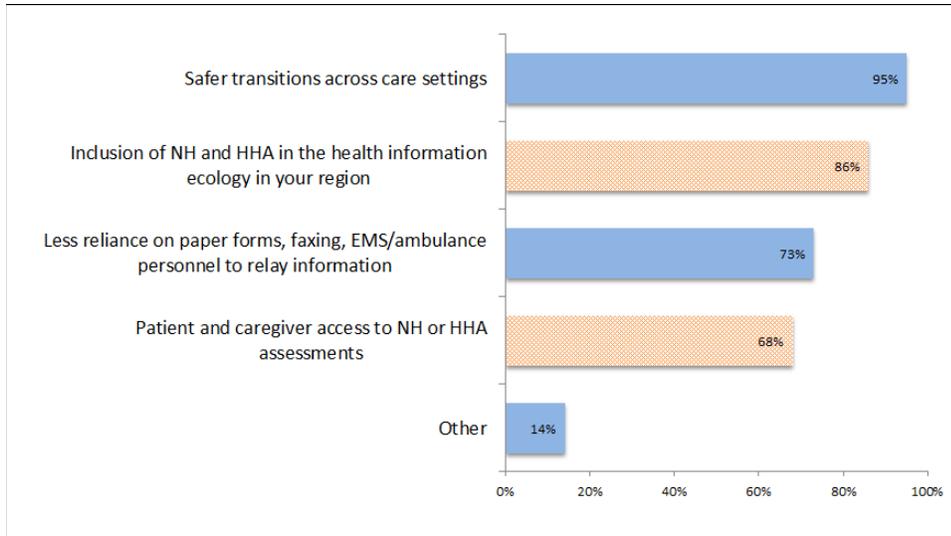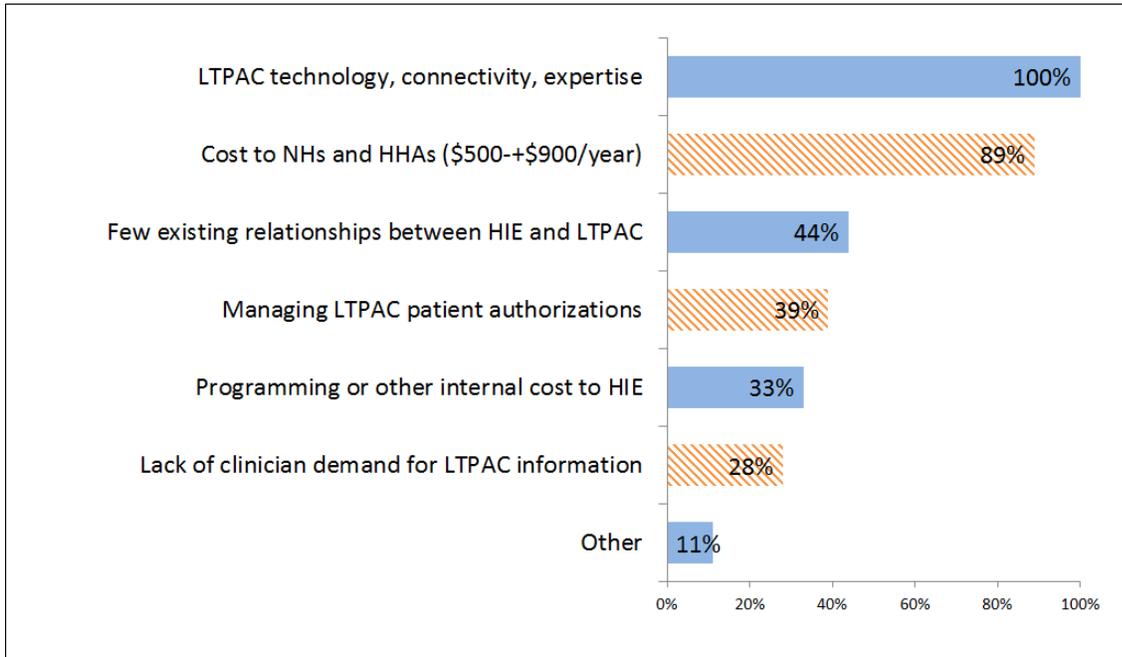
Figure 2

Benefits Anticipated by Health Information Exchange Representatives ($N = 22$)

Figure 3

Barriers Anticipated by Health Information Exchange Representatives ($N = 24$)

HIE, health information exchange; LTPAC, long-term post-acute care.