



Independent Nursing Home Health Information Technology Grant Program Assessment

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Craig P. Tanio, MD, Chair
Ben Steffen, Executive Director



Craig P. Tanio, MD, Chair
Chief Medical Officer ChenMed

John E. Fleig, Jr.
Chief Operating Officer
UnitedHealthcare
MidAtlantic Health Plan

Frances B. Phillips, RN, MHA
Health Care Consultant

Paul Fronstin, PhD
Director, Health Research and Education
Program
Employee Benefit Research Institute

Andrew N. Pollak, MD
Chair, Department of Orthopaedics
University of Maryland School of Medicine

Kenny W. Kan, CPA, FSA & CFA
Senior Vice President/Chief Actuary
CareFirst BlueCross BlueShield

Glenn E. Schneider, MPH
Chief Program Officer
The Horizon Foundation

Jeffrey T. Metz, LNHA, MBA
President and Nursing Home Administrator
Egle Nursing Home Management, Inc.

Diane Stollenwerk, MPP
President
StollenWerks, Inc.

Robert E. Moffit, PhD
Senior Fellow for Health Policy
The Heritage Foundation

Stephen B. Thomas, PhD
Professor of Health Services Administration,
School of Public Health
Director, Maryland Center for Health Equity
University of Maryland, College Park

Kathryn L. Montgomery, PhD, RN, NEA-BC
Associate Dean, Strategic Partnerships &
Initiatives, Associate Professor
University of Maryland School of Nursing

Adam J. Weinstein, MD
Medical Director
Nephrology and Transplant Services
Shore Health System

Ligia Peralta, MD, FAAP, FSAHM
President and CEO
Casa Ruben Foundation

Maureen Carr York, Esquire
Public Health Nurse and Health Care Attorney

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Background

The Maryland Health Care Commission (MHCC), in collaboration with the State-Designated health information exchange (HIE), the Chesapeake Regional Information System for our Patients (CRISP), implemented an *Independent Nursing Home Health Information Technology Grant Program* (grant program) between May 2013 and March 2014.^{1,2} The grant program aimed to facilitate the adoption and use of health information technology (health IT) among independent long term care (LTC) facilities, with a focus on HIE, to support improved transitions of care between hospitals and the LTC facilities. This report presents the findings of the grant program assessment (assessment). The assessment evaluated how the LTC facilities implemented the grant program and if the grant program created opportunities to enhance care coordination for improved patient care. Additionally, approaches to HIE use that could be broadly scaled for widespread deployment within the LTC community were assessed.

The MHCC and CRISP awarded competitive grants to the following independent LTC facilities: Berlin Nursing and Rehabilitation Center (BNRC); Ingleside at King Farm (IKF); and Lions Center for Rehabilitation and Extended Care (Lions) partnering with Egle Nursing and Rehab Center (Egle).³ To meet the aims of the grant program, the LTC facilities were required to:

- Use CRISP's Encounter Notification Service (ENS);⁴
- Receive electronic summary of care documents for timely access to residents' health information to improve transitions of care;
- Use the CRISP query portal to access residents' health information, such as discharge summaries, laboratory results, and radiology reports; and ⁵
- Receive technical and consultative services of a State-Designated Management Service Organization (MSO) to assist in implementing the grant program.⁶

In addition to using ENS, the CRISP query portal, and receiving electronic summary of care documents, the LTC facilities adopted other technologies to enhance their HIE efforts, as outlined in the following summary of awarded projects.⁷

¹ The grant program was initiated under the Challenge Grant awarded to MHCC by the Office of the National Coordinator for Health Information Technology (ONC). See Appendix A for more information.

² Request for Application is available at: mhcc.maryland.gov/mhcc/pages/hit/hit_hie/documents/HIT_CRISP_Req_Applica_Rpt_20140306.pdf.

³ Long term care facilities are also known as comprehensive care facilities.

⁴ The CRISP ENS sends providers secure email alerts regarding their residents' hospital admissions, hospital discharges, and emergency room visits. More information is available at: crisphealth.org/CRISP-HIE-SERVICES/Encounter-Notification-System-ENS.

⁵ The CRISP query portal enables appropriately authorized and authenticated individuals access to patient demographics, laboratory results, radiology reports, discharge summaries, operative and consult notes, and medication fill history through a web portal. More information available at: crisphealth.org/CRISP-HIE-SERVICES/Portal.

⁶ State-Designated MSOs provide consultative services and technical assistance to health care providers in their adoption and implementation of health IT. More information is available at: mhcc.maryland.gov/mhcc/Pages/hit/hit_mso/hit_mso.aspx.

⁷ See Appendix B for diagrams of the LTC facilities' health IT implementation work.

LTC Facility Health IT Projects

Berlin Nursing and Rehabilitation Center

BNRC, located in Maryland's Lower Eastern Shore, was awarded roughly \$123,150 to establish the *BNRC Care Continuum Health Data Exchange*. The project enabled clinical data exchange between BNRC's electronic health record (EHR), Five Star Physician Services' EHR (BNRC's contracted physician group), and Atlantic General Hospital (AGH).⁸ BNRC worked with Wavelength Information Services, Inc., a State-Designated MSO, to assist with health IT integration and project management.

Prior to the grant program, Five Star Physician Services was documenting resident encounters within its EHR and printing a copy for the resident's paper chart at BNRC. The grant program enabled the establishment of virtual private networks (VPNs) to support the electronic exchange of health information between BNRC, Five Star Physician Services, AGH, and CRISP.⁹ AGH was able to send patient reports, laboratory results, and radiology reports to Five Star Physician Services' EHR and BNRC's EHR, while Five Star Physician Services was able to send continuity of care documents (CCDs) to BNRC's EHR.¹⁰ CRISP ENS alerts were also sent to Five Star Physician Services' EHR and BNRC's EHR.

Increasing electronic access to and availability of residents' health information aimed to enable BNRC staff and Five Star Physician Services to better coordinate care based on a resident's health status as they transitioned from AGH to the BNRC. BNRC conducted an assessment to identify opportunities to incorporate use of the new technologies into staff workflows and provided staff training on the new technologies; new workflows were implemented based on the assessment. A privacy and security assessment was also completed.

King Farm Presbyterian Retirement Community, dba Ingleside at King Farm

IKF, located in Rockville, Maryland, was awarded approximately \$132,356 to fund *Health Information Exchange at Ingleside at King Farm*. IKF worked with the State-Designated MSO, Zane Networks LLC, to implement health IT initiatives under the grant program to improve care coordination as residents transition between the LTC facility and local hospitals.

The grant program enabled IKF to electronically access laboratory results and radiology reports from other providers, such as hospitals, and laboratory and radiology centers, using the CRISP query portal. IKF also worked with Quest Diagnostics to obtain laboratory results directly into their EHR from select hospitals through the Zane Networks community HIE.^{11, 12, 13}

⁸ BNRC's EHR is cueSHIFT, Five Star Physician Services' EHR is Prognosis.

⁹ A VPN creates a secure connection on a public unsecured network. The connection is encrypted, and the information sent or received is protected due to an encrypted tunnel established by the VPN.

¹⁰ The CCD is a standard document that fosters interoperability of clinical data by allowing physicians to send electronic medical information to other providers in a structured format to improve patient care.

¹¹ IKF's approach to obtain laboratory results via an interface from its partner hospital, Suburban Hospital, was not successful during the grant program due to competing priorities at the hospital and the time frame of the grant program.

¹² Zane Networks community HIE was used, as CRISP does not provide results delivery directly to EHRs.

¹³ IKF's EHR is Answers on Demand.

IKF was able to generate and send CCDs from their EHR to CRISP using Direct Messaging.¹⁴ Hospitals had access to these CCDs via the CRISP query portal to further enhance care coordination as residents transition from the LTC facility to the hospital. IKF conducted a workflow analysis and staff training on the new technologies, and incorporated the new technologies into staff workflows. A privacy and security assessment was also completed.

Lions Center for Rehabilitation and Extended Care

Lions in Western Maryland partnered with Egle and received about \$175,000 to develop the *Western Maryland Interoperability Project*. This project enabled the exchange of clinical data between Lions, Egle, and Western Maryland Health System. Lions and Egle worked with the State-Designated MSO, Zane Networks LLC, to assist with project management and technology implementation. The grant program enabled Lions and Egle to access CCDs and laboratory reports from the Western Maryland Health System. Lions and Egle were also able to receive radiology reports directly into their EHR system from the laboratory and radiology center, Mobilex.¹⁵

Lions and Egle conducted a workflow analysis, provided training to staff on use of the new technologies, and integrated the new technologies into staff workflows. Integration of the new technologies aimed to facilitate timely access to residents' health information and enhance care coordination.

Approach

The assessment included: an evaluation of quantitative measures that were assessed over the course of the grant program, as well as interviews with the LTC facility project managers, an online survey for the LTC facility project managers, and an online survey for State-Designated MSO project managers. The interviews and surveys were conducted after completion of the grant program to gather feedback regarding:^{16, 17}

- Services provided by State-Designated MSOs to implement the grant program;
- Use of HIE services by the LTC facilities and impact on care delivery;
- Implementation challenges and lessons learned to guide health IT implementation in other LTC facilities; and
- LTC facility plans to sustain health IT implementation after completion of the grant.

Limitations

The findings of the assessment are based on responses to the survey and interview questions by the LTC facilities and State-Designated MSOs, and may have been influenced by the respondent's perception of the questions. The responses were not audited for accuracy. Only short-term impacts of the grant program were evaluated as the assessment was conducted in the month following completion of the grant program.

¹⁴ Direct Messaging is secure electronic messaging that can be used to send patient health information, and is compliant with the Health Insurance Portability and Accountability Act (HIPAA) of 1996.

¹⁵ MatrixCare is the EHR for Lions and Egle.

¹⁶ See Appendix C for the LTC facility survey.

¹⁷ See Appendix D for the State-Designated MSO survey.

Assessment Findings: LTC Facility Grant Program Measures and Results

The LTC facilities were required to evaluate their implementation progress over the course of the grant program through the assessment of five quantitative measures.¹⁸ The measures listed below were intended to evaluate the impact of using health IT in the LTC facilities on transitions of care. Three of these measures were specifically required by the grant program, and the remaining measures were developed by the LTC facilities and were unique to their individual health IT projects.¹⁹

Required Measures		
<ol style="list-style-type: none"> 1. Increase percentage of care transitions accompanied by an electronic summary of care document 2. Decrease average time to receive electronic care summary information²⁰ 3. Reduce hospital readmission rates²¹ 		
Project Specific Measures		
BNRC	IKF	Lions and Egle
4. Reduce percentage of long-stay high risk residents with pressure ulcers	4. Increase percentage of assisted living, independent living, and critical care unit patients admitted to the hospital for which an electronic history and physical note is available, during their hospital stay	4. Decrease average time for ordering provider to receive radiology results electronically (number of hours)
5. Reduce percentage of patients with adverse drug events	5. Reduce hospital admission rates for assisted living and independent living residents	5. Decrease average time for ordering provider to receive laboratory results electronically (number of hours)
	6. Increase percentage of laboratory results received electronically	

All three grantees achieved the first two measures. By the end of the grant program, all care transitions from the hospital to the LTC facility were accompanied by an electronic summary of care document. Additionally, the average time to receive electronic care summary information was decreased over the course of the grant program. Two of the three grantees met the third required measure of reducing hospital readmission rates. The third grantee was not able to meet the measure of reducing hospital readmission rates; however they had an overall small volume of readmissions. All three grantees met their self-identified project specific measures. The grantees were able to decrease the average time to receive electronic laboratory and radiology results,

¹⁸ IKF chose one additional quantitative measure that aligned to additional funding in the amount of \$30,000 out of the total \$132,356; the additional funding opportunity was made available to all three grantees.

¹⁹ The measures were evaluated for the three grantees; Lions and Egle were evaluated as a single grantee.

²⁰ From the hospital to the LTC facility.

²¹ Thirty-day readmission rates for the LTC facility residents.

reduce the percent of patients with adverse drug events, and reduce hospital admission rates for assisted living and independent living residents, among other things.

Assessment Findings: LTC Facility Responses to Survey

LTC Facilities' Use and Perception of State-Designated MSO Services

The State-Designated MSOs, Wavelength Information Services, Inc. and Zane Networks LLC, provided several health IT services to the LTC facilities, including project management; overseeing the technical implementations; and project coordination with partners, including hospitals, EHR vendors, and CRISP. They also provided health IT expertise, assessed existing and developed new workflows for staff, and trained staff on using the new technologies.^{22, 23}

The LTC facilities indicated the most valuable services provided by their State-Designated MSOs were: overseeing the technical implementations; project coordination with partners; providing health IT expertise, and project management. Most of the LTC facilities rated their State-Designated MSOs as very good or excellent in the health IT services provided. Overall, the feedback from the LTC facilities indicates that the assistance provided by their State-Designated MSOs was helpful in implementing the grant program requirements.

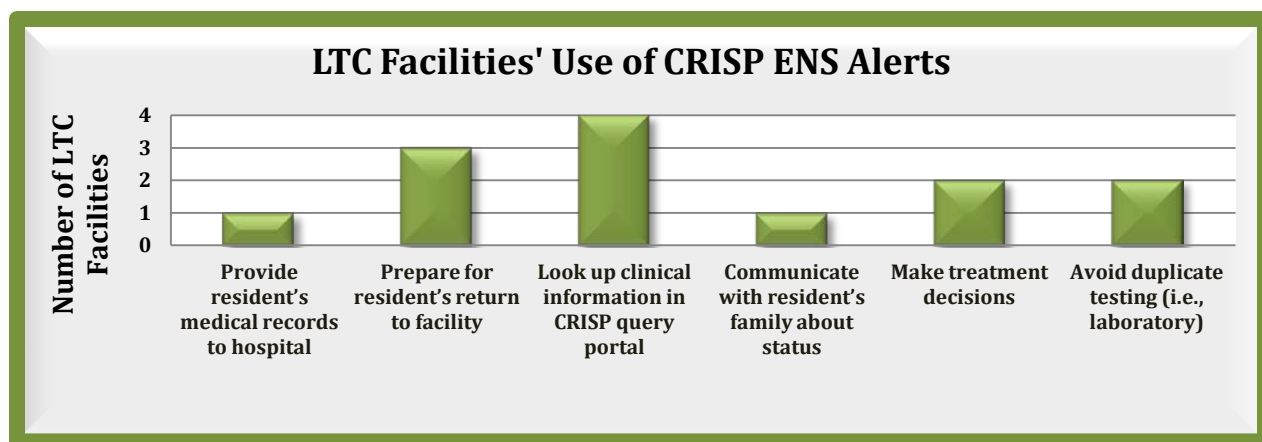
LTC Feedback Regarding State-Designated MSO Services <i>[1=Excellent, 2=Very Good, 3=Good, 4=Fair, and 5=Poor]</i>					
	BRNC	IKF	Lions	Egle	Average
Managing health IT projects	1	1	2	3	1.75
Technical implementation	1	1	2	3	1.75
Assistance to the LTC facility to continue health IT efforts after grant program	1	1	2	4	2.00

Implementation and Use of CRISP Services

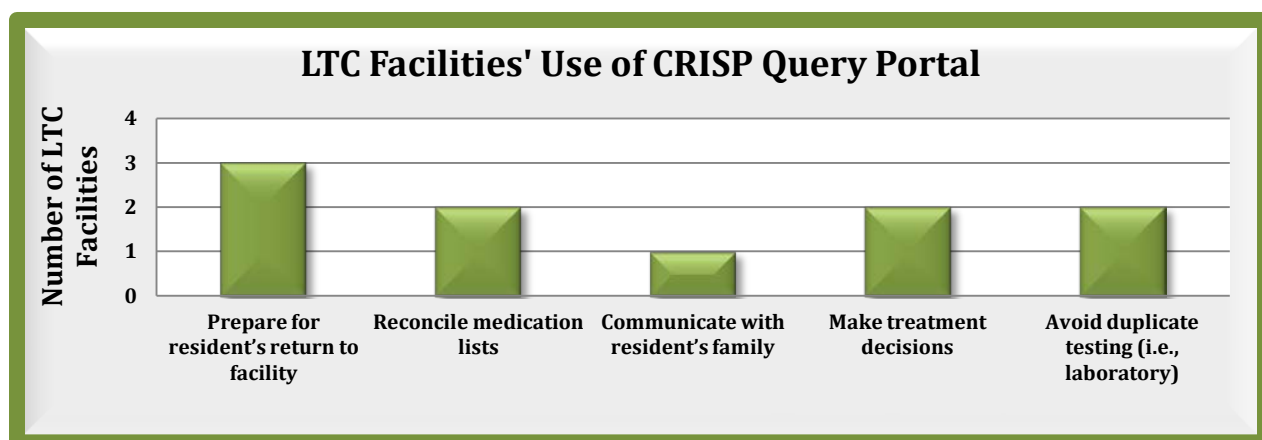
The LTC facilities provided feedback regarding their use of CRISP services, including CRISP ENS alerts and the CRISP query portal. The LTC facilities indicated that they used CRISP ENS alerts about their residents' hospital encounters to better manage residents' transitions between the hospital and the LTC facility. CRISP ENS alerts about residents' hospital admissions and discharges were primarily used to prompt staff to: look up clinical information in the CRISP query portal, better prepare for a resident's return to the LTC facility, make treatment decisions, and avoid duplicate testing. The key benefits of using CRISP ENS alerts were: increased care coordination; improved access to patient health information; and increased efficiency of staff workflow.

²² See Appendix E for responses from the LTC facilities to the online survey.

²³ Although Lions and Egle represent a single grantee, they provided individual responses to the online survey.



The LTC facilities indicated that they were using information available in the CRISP query portal to better manage their residents' transitions of care. Information in the CRISP query portal, including residents' discharge summaries, laboratory results, and radiology reports, were primarily used by the LTC facilities to: prepare for a resident's return to the LTC facility, reconcile medication lists, make treatment decisions, and avoid duplicate testing. The key benefits of using the CRISP query portal were: increased care coordination; improved access to patient health information; and increased efficiency of staff workflow.



Examples of the Impact of Use of CRISP Services on Patient Care

The following scenarios identified by the LTC facilities highlight how use of CRISP ENS alerts and the CRISP query portal have positively impacted workflows and care delivery to residents:

- The LTC facility staff was able to coordinate and evaluate residents' medications between the hospital and the LTC facility and reconcile any discrepancies;
- Supervisory staff was able to monitor residents' frequent transfers to and from the hospital, enabling staff to be more proactive in addressing clinical needs and potentially preventing hospital readmissions;
- Receiving ENS alerts informed the LTC facilities that a patient may soon need LTC facility services, which allowed the LTC facility to plan for bed availability; and

- Following receipt of an ENS alert from CRISP, a social worker was able to immediately follow up with the resident's caregiver to start planning alternate care options.

Expanding Health Information Available through CRISP

The LTC facilities were asked if additional information through CRISP, would be helpful in enhancing care delivery and care coordination. The LTC facilities indicated that including a diagnosis description and diagnosis code in the CRISP ENS alerts would better inform the LTC facility staff about a resident's condition in preparing for their return to the facility.²⁴ The LTC facilities also indicated that access to advance directives and institutional pharmacy data through the CRISP query portal would assist in improving care coordination and care delivery for their residents.²⁵ Access to advance directives through CRISP would enable the LTC facility staff and hospital staff to securely access information about a resident's preferences regarding end of life care. Institutional pharmacies have electronic medication information about LTC residents, and making this information available through CRISP would ensure treating providers have a more complete medication history record when a resident is seen in an emergency department or admitted to the hospital.²⁶

Implementation Challenges and Lessons Learned

Key health IT implementation challenges are included below:

- Prioritizing health IT implementation above other competing LTC facility projects or needs²⁷
- Availability of LTC facility resources and expertise to manage health IT implementation efforts; State-Designated MSOs provided technical expertise, although the LTC facilities needed to manage the overall work effort
- Coordination with partners, as technology implementation and timelines had to be aligned to enable information exchange across several entities, including the LTC facility, hospital, CRISP, and State-Designated MSO

Lessons learned regarding health IT implementation are listed below:

- Use of ENS is fairly easy to implement and does not require having an EHR, although integrating ENS alerts into an EHR does make incorporating the information into workflows easier; LTC facility staff can see the ENS alerts when they are viewing the resident's EHR, and do not need to check a Direct Message or other secure email account for the ENS alert
- Use of health IT must be incorporated into staff workflows throughout the LTC facility, as various staff access residents' health information to coordinate care delivery; training was

²⁴ CRISP continues to work with hospitals to add the admit reason and discharge disposition to ENS alerts. For more information, see: crisphealth.org/FOR-PROVIDERS/Participating-Organizations.

²⁵ Since the assessment of the grant program, an advance directives registry has been made available through CRISP.

²⁶ CRISP continues to work with institutional pharmacies to make medication data available.

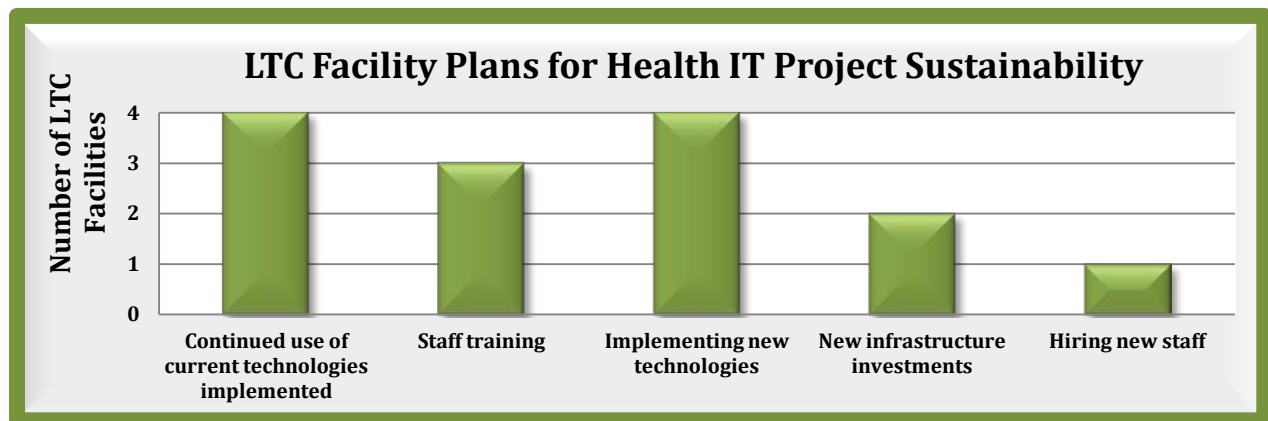
²⁷ This is consistent with research indicating health IT adoption is often not a priority within LTC facilities. For more information, see California HealthCare Foundation, *Health Information Technology: Are Long Term Care Providers Ready?* April, 2007; available at: chcf.org/~media/MEDIA%20LIBRARY%20Files/PDF/H/PDF%20HITNursingHomeReadiness.pdf.

provided on how to access and incorporate use of CRISP ENS alerts and the CRISP query portal into workflows²⁸

- LTC facilities are more likely to engage in HIE when it facilitates access to needed information that impacts their care decisions; for example, institutional pharmacy data is pivotal to ensuring patient safety when prescribing medications, and access to this kind of data would enhance the value of HIE for LTC facilities
- Use of ENS would be particularly useful for independent living facilities; generally, staff at these facilities are not immediately informed when a resident is transferred to a hospital; if the facility is receiving ENS alerts, staff can be informed of the transitions and better coordinate care and engage caregivers

Sustainability of the Health IT Projects

The LTC facilities were asked to identify how they plan to sustain their health IT implementation projects after completion of the grant program. All of the LTC facilities indicated their intention to continue using the technology implemented during the grant program, as well as implement new technology, such as additional EHR features and clinical data exchange with other organizations. Roughly half of the LTC facilities indicated that they have allocated funds to sustain efforts of the grant program.



Assessment Findings: State-Designated MSO Responses to Survey

In addition to the LTC facilities, the State-Designated MSOs—Wavelength Information Services, Inc. and Zane Networks LLC—provided feedback regarding implementation of the grant program.²⁹ Their feedback focused on lessons learned based on their management of the technical implementations; the lessons learned are listed below:

- Obtaining institutional buy-in at the LTC facility from executive leadership, staff, and LTC facility residents is important for successful implementation and optimized use of health IT

²⁸ The LTC facilities provided online and in-person training, as well as a training manual to their staff.

²⁹ See Appendix F for responses from the State-Designated MSOs to the online survey.

- Coordination with all stakeholders responsible for resident health information helps ensure efficient flow of data; (e.g., chart sign off process at the hospital was streamlined to ensure resident discharge information was published to CRISP in a timely manner)
- Commitment from all partners on project deliverables and timeframes is critical for HIE projects; (e.g., hospitals must prioritize LTC facility HIE projects and be willing to share data bi-directionally)
- Software and technology for LTC facilities is less advanced than in the acute care environment, and lack of certification standards contributes to interoperability challenges³⁰

Both State-Designated MSOs indicated that they intend to continue providing services to the LTC facilities after completion of the grant program; they also plan to offer health IT services to other LTC facilities. One of the State-Designated MSOs indicated the grant program enabled them to work in the LTC community; they would not have worked with an LTC facility absent this grant award.

Remarks

The health IT implementation activities by the LTC facilities in the grant program increased access to residents' health information and improved care coordination. The lessons learned are applicable to LTC facilities pursuing other similar projects. One of the most notable findings of the grant program was the value of LTC facilities receiving ENS alerts. Potentially the simplest piece of health IT to implement, ENS alerts were in some ways the most powerful tool for the LTC facilities. Notification that patients will be discharged to the LTC facility enabled the facility to appropriately prepare for the transition. Overall, the grant program demonstrated that health IT broadly diffused within the LTC community provides a necessary framework for improving care delivery.

³⁰ Certification standards are defined by the government and are focused on EHRs for eligible hospitals and professionals to meet meaningful use. Meaningful use sets specific objectives that eligible providers must achieve to qualify for Centers for Medicare & Medicaid Services Incentive Programs; LTC facilities are not eligible for meaningful use.

Appendix A: Health Information Exchange Challenge Grant Background Information

The MHCC was awarded a grant by the Office of the National Coordinator for Health Information Technology (ONC) under the Health Information Exchange Challenge Grant Program (Challenge Grant). The purpose of the Challenge Grant was to support innovative technology development and approaches for HIE that could be scaled to other communities and states to increase interoperability of health IT.³¹ The MHCC, in collaboration with CRISP, proposed to facilitate adoption and use of health IT among independent LTC facilities to support improved transitions of care between hospitals and the LTC facilities. The MHCC and CRISP released a Request for Application (RFA) in February 2013 inviting Maryland independent LTC facilities to apply for funding through the Challenge Grant.³² Sixteen LTC facilities responded to the RFA and submitted proposals detailing how they intended to use the funds to advance health IT adoption, including HIE use. Grants were awarded to the following LTC facilities: BNRC, IKF, and Lions partnering with Egle.

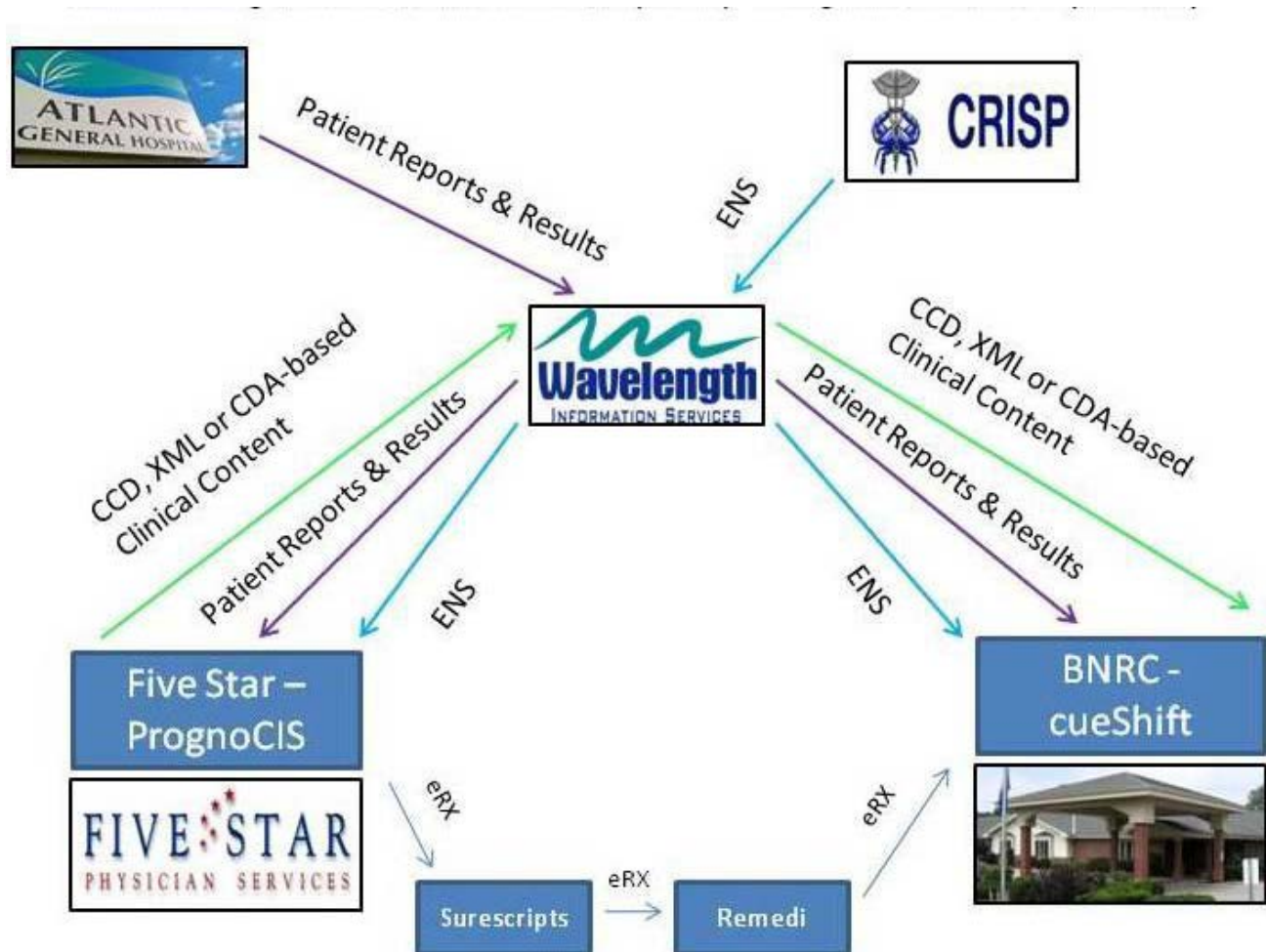
³¹ HealthIT.gov. *Health Information Exchange Challenge Grant Program*. Available at: healthit.gov/providers-professionals/health-information-exchange-challenge-grant-program.

³² Request for Application is available at: mhcc.maryland.gov/mhcc/pages/hit/hit_hie/documents/HIT_CRISP_Req_Applica_Rpt_20140306.pdf.

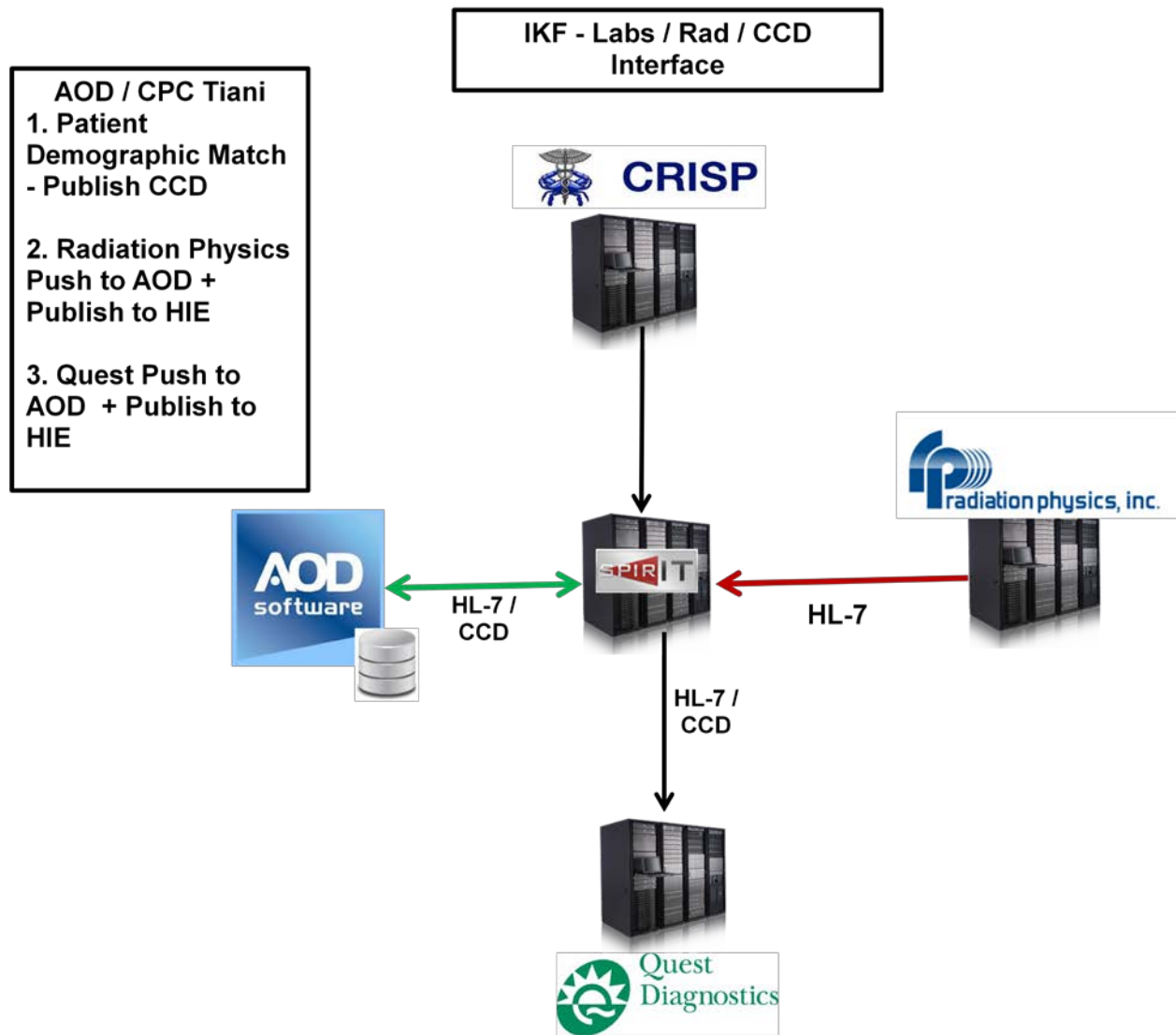
Appendix B: Health IT Implementation Diagrams

The diagrams below illustrate the health IT implementation projects for the LTC facilities: BNRC, IKF, and Lions and Egle. The illustrations indicate the flow of information between the LTC facilities and their partners, which include hospitals, CRISP, and laboratory and radiology centers, among others.

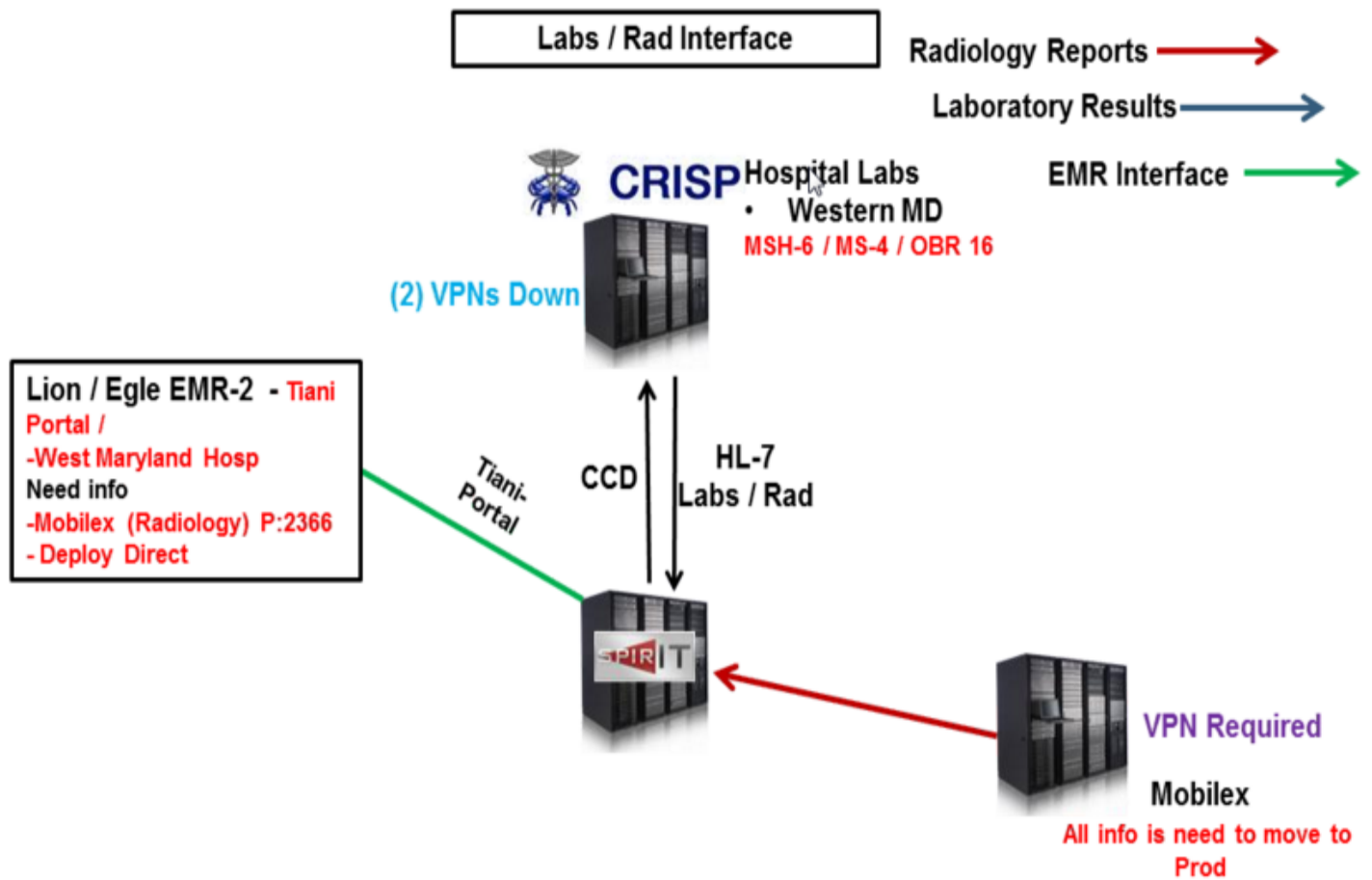
BNRC



IKF



Lions and Egle



Appendix C: LTC Facility Survey

The following survey was administered online to the long term care (LTC) facilities participating in the *Independent Nursing Home Health Information Technology Grant Program* (grant program) to gather their feedback regarding the grant program.

Maryland Health Care Commission Independent Nursing Home Health Information Technology Grant Program Assessment Data Collection Tool for Long Term Care Facilities

Introduction

The Maryland Health Care Commission (MHCC) is conducting an assessment of the Independent Nursing Home Health Information Technology (Health IT) Grant Program (grant program) to assess the implementation and outcomes of the grant program. This survey is intended for completion by the long term care (LTC) facility participating in the grant program. To maintain the integrity of responses, we ask that you not confer with the State-Designated MSO when completing this data collection tool. The findings from the LTC facilities will be compiled and presented in an information brief.

Please complete the survey online by 5pm Tuesday, February 11th. Questions about the survey should be directed to Cindy Friend at cfriend@beaconpartners.com.

1. Facility Name: _____

Implementation

2. Select the top three challenges you encountered with regard to the technical implementations conducted during the grant program. [indicate the top three, with 1 being the most challenging, followed by 2, then 3]
 - ☐ Competing priorities (e.g., other LTC facility projects or needs)
 - ☐ Availability of facility resources to manage implementations
 - ☐ Coordination with partners (e.g., hospitals, State-Designated MSOs, electronic health record (EHR) vendors, Chesapeake Regional Information System for our Patients (CRISP))
 - ☐ Privacy and security concerns
 - ☐ Incorporating use of new technologies into staff workflows
 - ☐ Training staff to use new technologies
 - ☐ Other (please specify)
3. List at least three lessons about implementing technology your LTC facility has learned during the grant program.
 - i.
 - ii.
 - iii.

MSO Services

4. How has the State-Designated MSO supported your LTC facility's health IT implementation efforts? [select all that apply]
 - ☐ Providing health IT expertise
 - ☐ Project management of implementations
 - ☐ Conducting the technical implementations
 - ☐ Facilitating implementation efforts with partners (e.g., hospitals, EHR vendors, CRISP)

- ☐ Redesigning staff workflows
 - ☐ Training staff to use new technologies
 - ☐ Other (please specify)
5. What were the three most valuable services provided by the State-Designated MSO? [with 1 being the most valuable, followed by 2, then 3]
- ☐ Providing needed health IT expertise
 - ☐ Project management of implementations
 - ☐ Conducting the technical implementations
 - ☐ Facilitating implementation efforts with partners (e.g., hospitals, EHR vendors, CRISP)
 - ☐ Redesigning staff workflows
 - ☐ Training staff to use new technologies
 - ☐ Other (specify)
6. Could your facility have completed this project without the services of the State-Designated MSO? [select one]
- ☐ Yes
 - ☐ No
7. Would you recommend services of the State-Designated MSO to other LTC facilities? [select one]
- ☐ Yes
 - ☐ No
8. Rate your State-Designated MSO on performance with managing the grant program. [select one]
- ☐ Excellent
 - ☐ Very Good
 - ☐ Good
 - ☐ Fair
 - ☐ Poor
9. Rate your State-Designated MSO on performance of the technical implementation of the grant program. [select one]
- ☐ Excellent
 - ☐ Very Good
 - ☐ Good
 - ☐ Fair
 - ☐ Poor
10. Rate your State-Designated MSO on how well it has assisted your facility to continue its health IT efforts post grant. [select one]
- ☐ Excellent
 - ☐ Very Good
 - ☐ Good
 - ☐ Fair
 - ☐ Poor

Workflow Integration

11. Prior to implementing your health IT tools for this grant program, did you perform a workflow analysis? [select one]
- ☐ Yes
 - ☐ No
12. How does your facility use the information received from the CRISP encounter notification service (ENS) alerts? [select all that apply]
- ☐ Provide resident's medical records to the hospital
 - ☐ Prepare for the resident's return to the facility
 - ☐ Look up additional clinical information in the CRISP query portal
 - ☐ Communicate with the resident's family about the resident's status
 - ☐ Make treatment decisions
 - ☐ Avoid duplicate testing (i.e. laboratory)
 - ☐ Other (please specify)
13. Describe how your facility trained staff on using the CRISP ENS alerts. [select all that apply]
- ☐ Conducted in-person training
 - ☐ Conducted online training
 - ☐ Developed training manual
 - ☐ Other (please specify)
14. How does your facility use the information in the health information exchange (HIE) Portal? [select all that apply]
- ☐ Prepare for the resident's return to the facility
 - ☐ Reconcile medication lists
 - ☐ Communicate with the resident's family about the resident's status
 - ☐ Make treatment decisions
 - ☐ Avoid duplicate testing (i.e. laboratory)
 - ☐ Other (please specify)
15. Describe how your facility trained staff on using the HIE Portal. [select all that apply]
- ☐ Conducted in-person training
 - ☐ Conducted online training
 - ☐ Developed training manual
 - ☐ Other (please specify)

Outcomes

16. What are the top three benefits of the CRISP ENS alerts through the grant program? [indicate the top three, with 1 being the most beneficial, followed by 2, then 3]
- ☐ Improved access to patient health information
 - ☐ Increased care coordination
 - ☐ Increased efficiency of staff workflow
 - ☐ Increased staff productivity
 - ☐ Decreased medical errors
 - ☐ Decreased duplicative tests
 - ☐ Improved health of residents

- ☐ Improved patient experience
- ☐ Improved family/caregiver experience
- ☐ Other (please specify)

17. What information included in the CRISP ENS alerts has been most helpful in coordinating care?

[indicate the top three, with 1 being the most helpful, followed by 2, then 3]

- ☐ Notice of emergency admission
- ☐ Notice of inpatient admission
- ☐ Notice of intra-hospital transfer
- ☐ Notice of emergency discharge
- ☐ Notice of inpatient discharge
- ☐ Hospital name
- ☐ Time of event
- ☐ Reason for admission
- ☐ Other (please specify)

18. What additional clinical information would be helpful to receive in the ENS alerts to improve care delivery? [select all that apply]

- ☐ Diagnosis code
- ☐ Diagnosis description
- ☐ Discharge disposition (type of facility where patient was discharged)
- ☐ Discharge location (name of facility where patient was discharged)
- ☐ Death indicator
- ☐ Insurance information
- ☐ Summary of previous hospital encounters
- ☐ Other (please specify)

19. What are the top three benefits of the HIE Portal through the grant program? [indicate the top three, with 1 being the most beneficial, followed by 2, then 3]

- ☐ Improved access to patient health information
- ☐ Increased care coordination
- ☐ Increased efficiency of staff workflow
- ☐ Increased staff productivity
- ☐ Decreased medical errors
- ☐ Decreased duplicative tests
- ☐ Improved health of residents
- ☐ Improved patient experience
- ☐ Improved family/caregiver experience
- ☐ Other (please specify)

20. What information accessed through the HIE Portal has been most helpful in coordinating care?

[indicate the top three, with 1 being the most helpful, followed by 2 then 3]

- ☐ Patient demographics
- ☐ Laboratory results
- ☐ Radiology reports
- ☐ Discharge summaries
- ☐ Medication fill history
- ☐ Allergies

- ☐ Medical history
- ☐ Operative notes
- ☐ Consults
- ☐ Other (please specify)

21. What additional information would be helpful to receive in the HIE Portal to improve care delivery?

[select all that apply]

- ☐ Advance directives
- ☐ Institutional pharmacy data
- ☐ Information regarding telemedicine providers
- ☐ Other (please specify)

22. Without providing patient identifying information, provide an example where access to ENS alerts had a positive impact on patient care.

23. Without providing patient identifying information, provide an example where access to the HIE had a positive impact on patient care.

Collaboration

24. How did your EHR vendor provide support in your implementation of the grant program? [select all that apply]

- ☐ Interface
- ☐ Engineering
- ☐ Additional features added
- ☐ Other (please specify)

Sustainability

25. In which of the following ways does your facility intend to sustain the efforts funded through the grant program, post grant funds? [select all that apply]

- ☐ Continued use of current technologies implemented
- ☐ Staff training
- ☐ Implementing new technologies
- ☐ New infrastructure investments
- ☐ Hiring new staff
- ☐ None of the above
- ☐ Other (please specify)

26. Has your facility allocated a budget to sustain the efforts funded through the grant program? [select one]

- ☐ Yes
- ☐ No

27. What types of additional technologies is your facility planning to implement? [select all that apply]

- ☐ Additional features of EHRs – Identify [text box]
- ☐ Clinical data exchange with other organizations – Identify [text box]
- ☐ Remote resident services (telemedicine) – Identify [text box]
- ☐ None of the above
- ☐ Other (please specify)

Recommendations

28. What guidance (e.g., planning, training, workflow, managing, monitoring, maintaining, etc.) would you have for other facilities interested in pursuing the implementation of health IT (i.e. EHR and HIE, including HIE portals and ENS) to ensure their efforts are successful?

Program Impact

29. Overall, how satisfied are you with the access to clinical information exchange as a result of the grant program? [select one]
- ☐ Very satisfied
 - ☐ Somewhat satisfied
 - ☐ Somewhat dissatisfied
 - ☐ Very dissatisfied
30. Overall, how satisfied are you with the impact to patient care as a result of the grant program? [select one]
- ☐ Very satisfied
 - ☐ Somewhat satisfied
 - ☐ Somewhat dissatisfied
 - ☐ Very dissatisfied
31. Would you have implemented these health IT projects absent the grant award? [select one]
- ☐ Yes
 - ☐ No
 - ☐ Undecided
32. Is there anything else you would like to share about the technical implementations of the grant projects?

Appendix D: State-Designated MSO Survey

The following survey was administered online to the State-Designated Management Service Organizations (MSOs) participating in the Independent *Nursing Home Health Information Technology Grant Program* (grant program) to gather their feedback regarding the grant program.

Maryland Health Care Commission Independent Nursing Home Health Information Technology Grant Program Assessment Data Collection Tool for State-Designated Management Service Organizations

Introduction

The Maryland Health Care Commission (MHCC) is conducting an assessment of the Independent Nursing Home Health Information Technology (Health IT) Grant Program (grant program) to assess the implementation and outcomes of the grant program. This survey is intended for completion by the State-Designated Management Service Organization (MSO) participating in the grant program. To maintain the integrity of responses, we ask that you not confer with the LTC facility when completing this data collection tool. The findings will be compiled and presented in an information brief.

Please complete the survey online by 5pm Tuesday, February 11th. Questions about the survey should be directed to Cindy Friend at cfriend@beaconpartners.com.

1. Facility Name: _____
2. State-Designated MSO: _____

Implementation

3. Select the top three challenges you encountered with regard to the technical implementations conducted during the grant program. [indicate the top three, with 1 being the most challenging, followed by 2 then 3]
 - ☐ Competing priorities (e.g., other LTC facility projects)
 - ☐ Availability of LTC facility resources to manage implementations
 - ☐ Coordination issues with partners (e.g., LTC facility, hospital, electronic health record (EHR) vendor, Chesapeake Regional Information System for our Patients (CRISP))
 - ☐ Privacy and security concerns
 - ☐ Incorporating use of new technologies into staff workflows
 - ☐ Training staff to use new technologies
 - ☐ Other (specify) _____
4. List at least three lessons about implementing technology with LTC facilities your State-Designated MSO has learned.
 - i.
 - ii.
 - iii.

MSO Services

5. Prior to the grant program, did you provide State-Designated MSO services to the LTC facility? [select one]
 - ☐ Yes
 - ☐ No

6. What State-Designated MSO services did you provide to the LTC facility as a result of the grant program? [select all that apply]
- ☐ Providing health IT expertise to LTC facilities
 - ☐ Project management of implementations to LTC facilities
 - ☐ Architecting technical implementations for LTC facilities
 - ☐ Facilitating implementation efforts with new partners (e.g., hospitals, EHR vendors, CRISP)
 - ☐ Redesigning staff workflows in LTC facilities
 - ☐ Training staff to use new technologies in LTC facilities
 - ☐ Other (specify) _____
7. How much of an impact has the grant had on your business model financially? [select one]
- ☐ High
 - ☐ Moderate
 - ☐ Low
8. How much of an impact has the grant had on the services that your State-Designated MSO offers? [select one]
- ☐ High increase in services
 - ☐ Moderate increase in services
 - ☐ Low increase in services
 - ☐ No increase in services

Recommendations

9. From a consultative perspective, what guidance (e.g., planning, training, managing, monitoring, maintaining, etc.) would you have for LTC facilities interested in pursuing the implementation of health IT (i.e. EHR and HIE, including HIE portals and encounter notification service)?
10. What guidance would you have for other State-Designated MSOs that are working with or considering working with LTC facilities in implementing health IT?

Plans

11. Do you plan to continue working with the LTC facility? [select one]
- ☐ Yes
 - ☐ No
12. If yes to the previous question, what MSO services do you plan to provide to the LTC facility? [select all that apply]
- ☐ Providing health IT expertise
 - ☐ EHR assistance
 - ☐ HIE assistance
 - ☐ Telemedicine assistance
 - ☐ Project management of implementations
 - ☐ Conducting the technical implementations
 - ☐ Facilitating implementation efforts with partners (e.g., hospitals, EHR vendors, CRISP)
 - ☐ Redesigning staff workflows
 - ☐ Training staff to use new technologies
 - ☐ Other (specify)

13. Do you plan to offer MSO services to other LTC facilities? [select one]
- ☐ Yes
 - ☐ No
14. If yes to the previous question, what MSO services do you plan to provide to other LTC facilities?
[select all that apply]
- ☐ Providing health IT expertise
 - ☐ EHR assistance
 - ☐ HIE assistance
 - ☐ Telemedicine assistance
 - ☐ Project management of implementations
 - ☐ Conducting the technical implementations
 - ☐ Facilitating implementation efforts with partners (e.g., hospitals, EHR vendors, CRISP)
 - ☐ Redesigning staff workflows
 - ☐ Training staff to use new technologies
 - ☐ Other (specify)
15. Would you have worked in the LTC community absent this grant funding? [select one]
- ☐ Yes
 - ☐ No
16. Is there anything else you would like to share about the technical implementations of the grant projects?

Appendix E: Detailed Responses to LTC Facility Survey

The table below presents the responses of the LTC facilities to the online survey, which was used to gather LTC facility feedback regarding the grant program. The table includes responses from BNRC, IKF, and Lions and Egle. While three grantees were funded through the grant program, Lions and Egle provided individual responses, which yielded a total of four sets of responses.

LTC Facility Survey Results						
Question	Response Options	LTC Facility				
		Berlin	IKF	Egle	Lions	
1 Select the top three challenges you encountered with regard to the technical implementations conducted during the grant program. [indicate the top three, with 1 being the most challenging, followed by 2, then 3]	Competing priorities (e.g. other LTC facility projects or needs)	1	1	1	3	
	Availability of facility resources to manage implementations	2		3	1	
	Coordination with partners (e.g., hospitals, State-Designated MSOs, electronic health record (EHR) vendors, Chesapeake Regional Information System for our Patients (CRISP))		2	2		
	Privacy and security concerns		3		2	
	Incorporating use of new technologies into staff workflows					
	Training staff to use new technologies					
	Other	3				
	(please specify)	Staffing changes of key personnel				
2 List three lessons about implementing technology your LTC facility has learned during the grant program.	Open-Ended Response	1. Integration of lab results, discharge summaries, and imaging reports in our EHR provides high clinical value and improved workflow. 2. In some cases, the CRISP HIE portal and CRISP ENS notifications can provide information that might not	1. Flexibility and open-mindedness in the process of implementing any technology. 2. Technology implementation is a team effort. 3. Training is essential during any change, including technology implementations.	1. Our lack of understanding of the immense technology challenges at all levels. 2. A realization that the State of Maryland has a monumental task at hand. 3. Implementation takes time and has a long	1. It's a very slow, technical process. 2. You need guidance from someone with a technology background. 3. There is no "perfect" solution.	

LTC Facility Survey Results					
Question	Response Options	LTC Facility			
		Berlin	IKF	Egle	Lions
		otherwise be available. learning curve. 3. Integration projects require strong sponsorship and involvement of key personnel			
3	How has the State-Designated MSO supported your LTC facility's health IT implementation efforts? [select all that apply]	Providing health IT expertise	X	X	
		Project management of implementations	X	X	X
		Conducting the technical implementations	X	X	X
		Facilitating implementation efforts with partners (e.g., hospitals, EHR vendors, CRISP)	X	X	X
		Redesigning staff workflows	X	X	
		Training staff to use new technologies	X	X	
		Other (please specify)	X		
4	What were the three most valuable services provided by the State-Designated MSO? [with 1 being the most valuable, followed by 2, then 3]	Providing needed health IT expertise	3	1	
		Project management of implementations		3	1
		Conducting the technical implementations	1	2	2
		Facilitating implementation efforts with partners (e.g., hospitals, EHR vendors, CRISP)	2	3	2
		Redesigning staff workflows			
		Training staff to use new technologies			
		Other			
		(please specify)			
5	Could your facility have completed this project without the services of the State-	Yes or No	No	No	No

LTC Facility Survey Results						
Question		Response Options	LTC Facility			
			Berlin	IKF	Egle	Lions
	Designated MSO?					
6	Would you recommend services of the State-Designated MSO to other LTC facilities?	Yes or No	Yes	Yes	Yes	Yes
7	Rate your State-Designated MSO on performance with managing the grant program.	Excellent, Very Good, Good, Fair, Poor	Excellent	Excellent	Very Good	Good
8	Rate your State-Designated MSO on performance of the technical implementation of the grant program.	Excellent, Very Good, Good, Fair, Poor	Excellent	Excellent	Very Good	Good
9	Rate your State-Designated MSO on how well it has assisted your facility to continue its health IT efforts post grant.	Excellent, Very Good, Good, Fair, Poor	Excellent	Excellent	Very Good	Fair
10	Prior to implementing your health IT tools for this grant program, did you perform a workflow analysis for the integration projects of this grant?	Yes or No	Yes	No	Yes	Yes
11	How does your facility use the information received from the CRISP encounter notification service (ENS) alerts? [select all	Provide resident’s medical records to the hospital	X			
		Prepare for the resident’s return to the facility	X	X	X	X
		Look up additional clinical information in the CRISP query	X	X	X	X

LTC Facility Survey Results					
Question	Response Options	LTC Facility			
		Berlin	IKF	Egle	Lions
that apply]	portal				
	Communicate with the resident's family about the resident's status		X		
	Make treatment decisions		X	X	
	Avoid duplicate testing (i.e. laboratory)		X		X
	Other (please specify)				
12 Describe how your facility trained staff on using the CRISP ENS alerts. [select all that apply]	Conducted in-person training	X		X	X
	Conducted online training	X	X	X	X
	Developed training manual				
	Other (please specify)	"How to" document provided by MSO			
13 How does your facility use the information in the health information exchange (HIE) Portal? [select all that apply]	Prepare for the resident's return to the facility		X	X	X
	Reconcile medication lists		X	X	
	Communicate with the resident's family about the resident's status		X		
	Make treatment decisions		X	X	
	Avoid duplicate testing (i.e. laboratory)		X		X
	Other (please specify)	Look for information not otherwise available			
14 Describe how your facility trained staff on using the HIE Portal. [select all that apply]	Conducted in-person training	X	X	X	X
	Conducted online training	X	X	X	X
	Developed training manual				
	Other (please specify)				
15 What are the top three benefits of using the CRISP	Improved access to patient health information	2	3	1	2

LTC Facility Survey Results					
Question	Response Options	LTC Facility			
		Berlin	IKF	Egle	Lions
ENS alerts implemented through the grant program? [indicate the top three, with 1 being the most beneficial, followed by 2, then 3]	Increased care coordination	1	1	2	1
	Increased efficiency of staff workflow	3	2	3	
	Increased staff productivity				
	Decreased medical errors				
	Decreased duplicative tests				3
	Improved health of residents				
	Improved patient experience				
	Improved family/caregiver experience				
	Other				
	(please specify)				
16 What information included in the CRISP ENS alerts has been most helpful in coordinating care? [indicate the top three, with 1 being the most helpful, followed by 2, then 3]	Notice of emergency admission	1	1	1	
	Notice of inpatient admission	2		2	1
	Notice of intra-hospital transfer				
	Notice of emergency discharge		2		
	Notice of inpatient discharge			3	2
	Hospital name				
	Time of event				3
	Reason for admission	3	3		
	Other				
	(please specify)				
17 What additional clinical information would be helpful to receive in the ENS alerts to improve care delivery? [select all that apply]	Diagnosis code	X		X	X
	Diagnosis description	X	X	X	X
	Discharge disposition (type of facility where patient was discharged)		X		X
	Discharge location (name of facility where patient was discharged)		X		X
	Death indicator	X			X
	Insurance information				X
	Summary of previous				X

LTC Facility Survey Results					
Question	Response Options	LTC Facility			
		Berlin	IKF	Egle	Lions
18 What are the top three benefits of using the HIE Portal implemented through the grant program? [indicate the top three, with 1 being the most beneficial, followed by 2 then 3]	hospital encounters				
	Other (please specify)				
	Improved access to patient health information	2	3	1	2
	Increased care coordination	1	1	2	1
	Increased efficiency of staff workflow	3	2	3	3
	Increased staff productivity				
	Decreased medical errors				
	Decreased duplicative tests				
	Improved health of residents				
	Improved patient experience				
	Improved family/caregiver experience				
	Other				
	(please specify)				
19 What information accessed through the HIE Portal has been most helpful in coordinating care? [indicate the top three, with 1 being the most beneficial, followed by 2, then 3]	Patient demographics				
	Laboratory results	1	2	1	2
	Radiology reports	2	3	2	3
	Discharge summaries	3	1		1
	Medication fill history				
	Allergies				
	Medical history			3	
	Operative notes				
	Consults				
	Other				
20 What additional information would be helpful to receive in the HIE Portal to improve care delivery? [select	Advance directives		X		X
	Institutional pharmacy data		X	X	X
	Information regarding telemedicine providers				

LTC Facility Survey Results					
Question	Response Options	LTC Facility			
		Berlin	IKF	Egle	Lions
all that apply]	Other (please specify)	The information we are getting directly through integration with the hospital (as a result of this project) is the most useful. Peninsula Regional Medical Center's participation within the CRISP HIE, would likely increase the value of the HIE Portal to us.			
21 Without providing patient identifying information, provide an example where access to ENS alerts had a positive impact on patient care.	Open-Ended Response	BNRC has not been receiving ENS notifications for a long enough period of time to measure the benefits.	A resident was discharged from the Comprehensive Care Unit and returned to hospital in 24 hours. Social worker was able to follow up with the resident responsible party immediately following the ENS alert and start planning alternate care.	We were able to coordinate and evaluate medications between hospital/nursing facility use and any discrepancies.	It has provided our supervisory staff the tool to monitor frequent transfers to and from the hospital. This in turn has led to better follow through for monitoring residents that have reached a "frequent" transfer status, hopefully allowing us to be more proactive in addressing clinical needs.
22 Without providing patient identifying information, provide an example where access to the HIE Portal had a positive impact on patient care.	Open-Ended Response	Have not had the opportunity as yet.	Having the knowledge that someone may soon need Comprehensive Care Unit services, allows us to plan bed availability and services.	We do not have a specific instance as of yet.	It has provided our supervisory staff the tool to monitor frequent transfers to and from the hospital. This in turn has led to better follow through for monitoring residents that have reached a "frequent" transfer status, hopefully allowing us to be

LTC Facility Survey Results					
Question	Response Options	LTC Facility			
		Berlin	IKF	Egle	Lions
					more proactive in addressing clinical needs.
23 How did your EHR vendor provide support in your implementation of the grant program? [select all that apply]	Interface	X	X	X	X
	Engineering	X	X	X	
	Additional features added				
	Other (please specify)		Training/education		
24 In which of the following ways does your facility intend to sustain the efforts funded through the grant program, post grant funds? [select all that apply]	Continued use of current technologies implemented	X	X	X	X
	Staff training	X	X		X
	Implementing new technologies	X	X	X	X
	New infrastructure investments		X		X
	Hiring new staff		X		
	None of the above				
	Other (please specify)				
25 Has your facility allocated a budget to sustain the efforts funded through the grant program?	Yes or No	Yes	Yes	No	No
26 What types of additional technologies is your facility planning to implement? [please specify]	Additional EHR features [please specify below]		X	X	X
	Clinical data exchange with other organizations [please specify below]	X	X	X	
	Remote resident services (e.g., telemedicine) [please specify below]		X		
	Other [please specify below]		X		

LTC Facility Survey Results						
Question		Response Options	LTC Facility			
			Berlin	IKF	Egle	Lions
		Please specify	Direct receipt of laboratory results, radiology results, discharge summaries, and continuity of care documents are in place through the grant project.	Workflow Management, Interface with Pharmacy, Connect to DC HIE, Improve Care Coordination, Medication Management.	Power Cube Matrix, Coordinate with Western Maryland Health System more efficiently.	Have access to Power Cube, a reporting tool we will use for data analytics.
27	What guidance (e.g., planning, training, workflow, managing, monitoring, maintaining, etc.) would you have for other facilities interested in pursuing the implementation of health IT (i.e. EHR and HIE, including HIE portals and ENS) to ensure their efforts are successful?	Open-Ended Response	Get help from an experienced MSO and engage key staff in the project while providing appropriate expectations.	Have a dedicated project manager. Have support from the management. Include interdisciplinary clinical team members in decision making. Provide training in steps. Monitor daily budget accordingly; Flexibility during implementation.	Have plenty of technology support available.	Take a slow, thorough approach and evaluate your needs and wants. Try to match a vendor to your goals so that you will be successful. There is no one "right" EHR that is one size fits all. You need to know what you want the product to do before you purchase it.
28	Overall, how satisfied are you with the access to clinical information exchange as a result of the grant program?	Very Satisfied, Somewhat Satisfied, Somewhat Dissatisfied, Dissatisfied	Very Satisfied	Very Satisfied	Somewhat Satisfied	Somewhat Satisfied
29	Overall, how satisfied are you with the impact to patient care as a result of the grant program?	Very Satisfied, Somewhat Satisfied, Somewhat Dissatisfied, Dissatisfied	Very Satisfied	Very Satisfied	Very Satisfied	Somewhat Satisfied
30	Would you have implemented these health IT projects absent the grant award?	Yes or No	No	No	No	No

LTC Facility Survey Results

Question	Response Options	LTC Facility			
		Berlin	IKF	Egle	Lions
31 Is there anything else you would like to share about the technical implementations of the grant projects?	Open-Ended Response	The rushed nature of the administration of the grant program led to some misunderstandings and frustrations. We see immediate benefits of clinical systems integration as a result of the project. Patient's clinical results and medication information stored within the EHR save staff time. Key information like last dose administered is immediately available to clinical staff. Within the EHRs, the lab values enable lab-drug safety checks for contraindicated medications.	IKF is very grateful to ZaneNet, our MSO and Answers on Demand, our electronic health records vendor. They provided valuable technical support in areas that IKF does not have expertise and resources, thus effectively evolving the relationship from vendors to partners. This stresses the importance of partnerships on complex projects such as health information exchange.	The State has a monumental task of tying all facilities together with CRISP and developing effective interchanges given the sheer number of different EHR products out there.	At times it felt like a disconnect when speaking from the technical terminology side. Each industry has acronyms in their language and it was difficult to follow at times. We need to respect each other's expertise and remember to use basic terms until all sides come up to speed with the different languages of each industry.

Appendix F: Detailed Responses to State-Designated MSO Survey

The table below presents the responses of the State-Designated MSOs to the online survey used to collect feedback regarding the grant program. The table includes responses from Zane Networks, LLC and Wavelength Information Systems. Zane Networks LLC provided two sets of responses, one for each grantee with which they worked.

State-Designated MSO Survey Results					
Question	Response	State-Designated MSO			
		Zane Networks LLC	Wavelength Information Services	Zane Networks LLC	
1	Name of long term care (LTC) facility partner:	Open-Ended Response	Lions Center for Rehabilitation and Extended Care in partnership with Egle Nursing and Rehab Center	Berlin Nursing and Rehabilitation Center	Ingleside at King Farm
2	Select the top three challenges you encountered with regard to the technical implementations conducted during the grant program. [indicate the top three, with 1 being the most challenging, followed by 2, then 3]	Competing priorities (e.g., other LTC facility projects)			
		Availability of LTC facility resources to manage implementations	3	3	
		Coordination issues with partners (e.g., LTC facility, hospital, electronic health record (EHR) vendor, Chesapeake Regional Information System for our Patients (CRISP))	1	2	1
		Privacy and security concerns	2		3
		Incorporating use of new technologies into staff workflows			2
		Training staff to use new technologies			
		Other		1	
		(please specify)		EHR vendor turnaround time for interface engineering tasks	

State-Designated MSO Survey Results

Question	Response	State-Designated MSO		
		Zane Networks LLC	Wavelength Information Services	Zane Networks LLC
3 List three lessons about implementing technology with LTC facilities your State-Designated MSO has learned.	Open-Ended Response	<p>1. Buy-in and support from the EHR vendor is important in delivering on a successful interoperability project. Since EHR vendors have other competing priorities, the project timeline and scope was not aligned with the vendor's, therefore certain features were scrapped because of the lack of cooperation from the vendor.</p> <p>2. Data flow can be delayed if the human aspect is not streamlined. The hospital chart sign off process was a bottleneck, which we had to address in order to get the data published in a timely manner to the State HIE, therefore incorporating all stakeholders who are responsible for the patient data is important.</p> <p>3. Hospital relationship with LTC is often established by the medical director who has admitting privileges at the hospital and therefore lab orders and results are completed by the hospital and if the hospital priorities change, it can have a significant impact on the LTC's business.</p>	<p>1. Unique workflow in LTC facilities</p> <p>2. Staff perceptions of importance of technology</p> <p>3. Ability of staff to find time to participate in technology projects</p>	<p>1. A strong leader at the LTC is the difference between a successful technical implementation and grant management as they will effectively communicate the goals and objectives of the initiative throughout their organization to obtain institutional buy-in and participation at all levels from executives to LTC residents.</p> <p>2. Ingleside's EHR handles more than just their clinical charting needs, and in-fact is the LTC's information system that handles all aspects of their business needs from billing, to beds management for their skilled nursing facility and clinical charting.</p> <p>3. Hospital relationship with LTC is often established by the medical director who has admitting privileges at the hospital and therefore lab orders and results are completed by the hospital and if the hospital priorities change, it can have a significant impact on the LTC's business. Ingleside was forced to change to a commercial lab vendor, in this case it was Quest.</p>

State-Designated MSO Survey Results					
Question	Response	State-Designated MSO			
		Zane Networks LLC	Wavelength Information Services	Zane Networks LLC	
		Hospital's technology projects takes priority over interoperability project with the nursing home, this causes delays in communication and project deliverables.			
4	Prior to the grant program, did you provide State-Designated MSO services to the LTC facility?	Response	No	Yes	No
5	What State-Designated MSO services did you provide to the LTC facility as a result of the grant program? [select all that apply]	Providing health IT expertise to LTC facilities	X	X	X
		Project management of implementations to LTC facilities	X	X	X
		Architecting technical implementations for LTC facilities	X	X	X
		Facilitating implementation efforts with new partners (e.g., hospitals, EHR vendors, CRISP)	X	X	X
		Redesigning staff workflows in LTC facilities		X	
		Training staff to use new technologies in LTC facilities	X	X	X
		Other (please specify)	Assist with vendor contract negotiations such as labs and other services.	Initial grant application, project management, and clinical workflow	
6	How much of an impact has the grant had on your business model financially?	Response	Moderate	Low	High
7	How much of an impact has the grant had on the	Response	Moderate increase in services	Low increase in services	High increase in services

State-Designated MSO Survey Results

Question	Response	State-Designated MSO		
		Zane Networks LLC	Wavelength Information Services	Zane Networks LLC
services that your State-Designated MSO offers?				
8 From a consultative perspective, what guidance (e.g., planning, training, managing, monitoring, maintaining, etc.) would you have for LTC facilities interested in pursuing the implementation of health IT (i.e. EHR and health information exchange (HIE), including HIE portals and encounter notification service)?	Open-Ended Response	Selecting the right EHR partner is critical to a successful implementation and to assure that the LTC can keep up the pace of change in the marketplace. Be sure that your vendor will prioritize on interoperability and be willing to share data bi-directionally with HIEs and integrate with other health IT systems. When planning an interoperability project, ensure that all data generating stakeholders are in support of the project so that data flow can be streamlined at all levels.	Engage with an experienced health care IT consulting firm who has both clinical and IT skill-sets. Set appropriate expectations for project accomplishments and timelines. Evaluate current and future state clinical workflows and consider the impact of workflow changes throughout the organization.	Selecting the right EHR partner is critical to a successful implementation and to assure that the LTC can keep up the pace of change in the marketplace. Be sure that your vendor will prioritize on interoperability and be willing to share data bi-directionally with HIE's and integrate with other health IT systems.
9 What guidance would you have for other State-Designated MSOs that are working with or considering working with LTC facilities in implementing health IT?	Open-Ended Response	Conduct a thorough assessment of the LTC's practice and business. Ensure that you have identified a leader at the LTC that will manage their part of the implementation, bring together other leaders within the organization and have the buy in of the executive team at the organization. Listen to needs of the organization prior to offering solutions.	Long-Term and Post-Acute Care (LTPAC) facilities are not hospitals and they are not ambulatory practices; they offer a unique set of challenges. It is unlikely a firm (MSO) who had only dealt with physician offices would be successful within a LTPAC project. Generally LTPAC software & technology is less advanced, certainly when measured against the acute care	Conduct a thorough assessment of the LTC's practice and business. Ensure that you have identified a leader at the LTC that will manage their part of the implementation, bring together other leaders within the organization and have the buy in of the executive team at the organization. Listen to needs of the organization prior to offering solutions.

State-Designated MSO Survey Results					
Question	Response	State-Designated MSO			
		Zane Networks LLC	Wavelength Information Services	Zane Networks LLC	
			environment. The lack of Federal certification standards for LTPAC software enables variability in interoperability that must be factored in. Realistic project timelines must take into account actual facility resource availability & commitment.		
10	Do you plan to continue working with the LTC facility?	Response	Yes	Yes	Yes
11	If yes to the previous question, what MSO services do you plan to provide to the LTC facility? [select all that apply] If no, select not applicable.	Providing health IT expertise	X	X	X
		EHR assistance		X	X
		HIE assistance	X	X	X
		Telemedicine assistance	X	X	X
		Project management of implementations	X	X	X
		Conducting the technical implementations	X	X	X
		Facilitating implementation efforts with partners (e.g., hospitals, EHR vendors, CRISP)	X	X	X
		Redesigning staff workflows		X	
		Training staff to use new technologies	X	X	X
		Not applicable			
		Other (please specify)		On-going health IT support and future integration	0
12	Do you plan to offer MSO services to other LTC facilities?	Response	Yes	Yes	Yes
13	If yes to the previous question, what	Providing health IT expertise	X	X	X
		EHR assistance	X	X	X

State-Designated MSO Survey Results				
Question	Response	State-Designated MSO		
		Zane Networks LLC	Wavelength Information Services	Zane Networks LLC
MSO services do you plan to provide to other LTC facilities? [select all that apply] If no, select not applicable.	HIE assistance	X	X	X
	Telemedicine assistance	X	X	X
	Project management of implementations	X	X	X
	Conducting the technical implementations	X	X	X
	Facilitating implementation efforts with partners (e.g., hospitals, EHR vendors, CRISP)	X	X	X
	Redesigning staff workflows	X	X	X
	Training staff to use new technologies	X	X	X
	Not applicable			
	Other (please specify)	Patient Centered Medical Home and data reporting	Any health IT service needed	0
14	Would you have worked in the LTC community absent this grant funding?	Response	No	Yes
				No

State-Designated MSO Survey Results

Question	Response	State-Designated MSO		
		Zane Networks LLC	Wavelength Information Services	Zane Networks LLC
15 Is there anything else you would like to share about the technical implementations of the grant projects?	Open-Ended Response	<p>We learned that to successfully deliver on all technical elements, vendor cooperation is crucial. An EHR vendor who understands the value of interoperability and dedicates resources to support such efforts will immensely improve the success of the LTC. The level of effort from the LTC staff has been remarkable considering their core competency of running nursing homes, not as technology implementers. However, without grant funding and additional MSO assistance, an LTC would not consider taking on such projects.</p>	<p>Wavelength managed the grant effort to adopt and use health IT to support transitions of care between BNRC and hospitals. It is clear from multiple national studies that the volume and complexity of patient clinical data associated with transactions is massive. In this project, clinical data integration was successfully implemented between four entities and multiple applications. Workflow discussions and improvements spanned the flow of the patient clinical data across these entities to improve not only interoperability, but the value of the content. For example, national studies point to “last dose administered” information during care transitions as a contributing factor in patient outcomes. Wavelength worked with the hospital staff to identify system changes needed (e.g., change control, provider workflow, education, etc.) to enable the hospital system to send the last dose info via the discharge summary.</p>	<p>The project manager at the LTC facility saw the value of the grant program from the onset, got the entire organization mobilized, and facilitated necessary meetings with vendors, hospitals, internal clinical teams and more. The leadership allowed our team to manage the grant and technical deliverables and even as priorities changed at both CRISP and Suburban hospital where Ingleside receive their labs, we were able to make adjustments and not negatively impact Ingleside’s business continuity nor the grant’s outcome. CRISP will have to re-visit its policy regarding access to the Query portal, since many LTC’s are staffed by nurses who work under direction of a part-time consultant medical director. If RN’s are not considered providers eligible to query CRISP and if medical directors are not comfortable having RN’s access CRISP as staff members under them, particularly for patients that they do not have a direct treating relationship with, it may become a barrier to LTC use of ENS for necessary transition of care purposes.</p>

State-Designated MSO Survey Results

Question	Response	State-Designated MSO		
		Zane Networks LLC	Wavelength Information Services	Zane Networks LLC
			<p>2,395 lab results, 35 imaging reports, 67 discharge summaries, 489 CRISP ENS notifications received by systems providing BNRC patient care. Results received are tallied individually within cueShift and Prognosis. Other statistics include 1,191 ADTs sent to CRISP, 76 percent of ENS notifications from the hospital included within this project (AGH). While we did not meet the hospital readmission rates objective (even when adjusting for ventilator unit patients), all of the other grant project quality objectives were met including: percentage of care transitions that are accompanied by an electronic summary of care document, decrease average time to receive electronic care summary information (number of business days), reduce percent of long-stay high risk residents with pressure ulcers, and reduce percentage of patients with adverse drug events. The reporting period was extremely short; improvement in many of these areas would typically be measured over a longer period.</p>	<p>While we were successful in demonstrating successful exchange of CCDs between the EHR and the Zane Networks community HIE, automating the process will be key to successful adoption by the LTC staff, currently the process is a manual process that requires a staff member to publish the document into the exchange and then once in the exchange, it requires another staff member to send the CCD document to CRISP via DIRECT secure messaging. We will need to assess this process further and continue to automate the process to minimize additional workload by staff.</p>



4160 Patterson Avenue
Baltimore, MD 21215
410-764-3460
mhcc.maryland.gov