

CHART

Community Hospital Acceleration,
Revitalization, and Transformation Program

Phase 1 — Hospital Factbook

June 2015

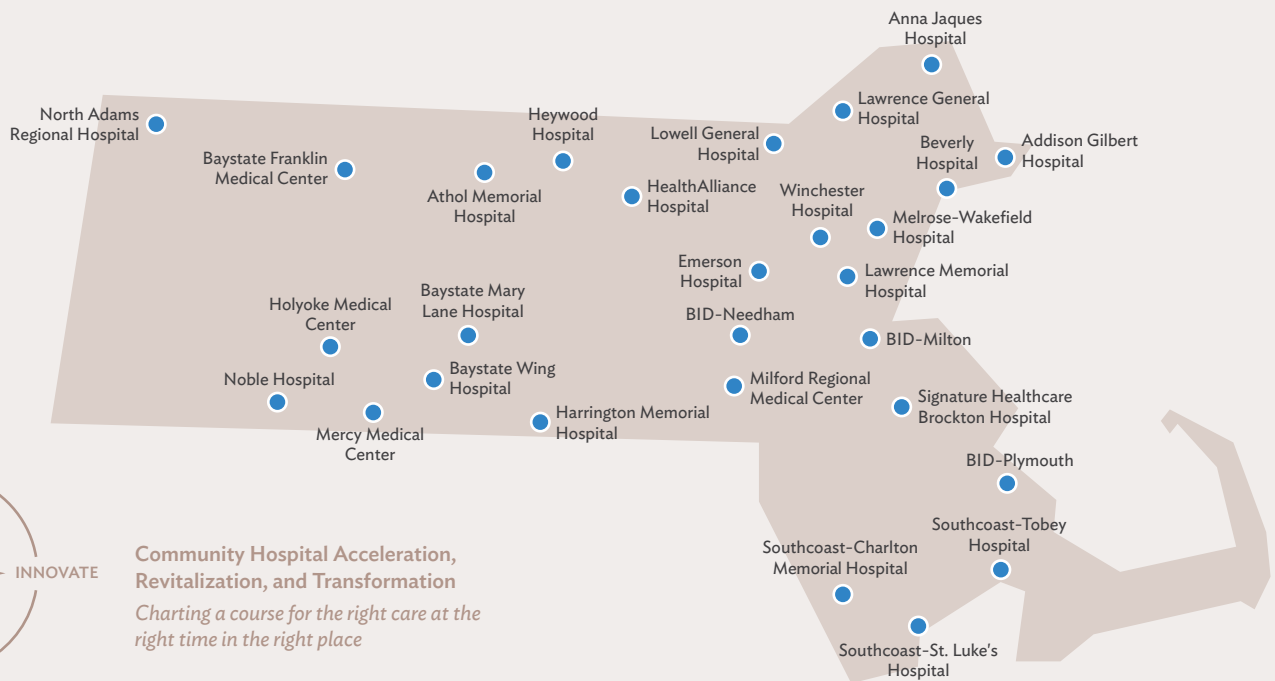


About the Health Policy Commission

Established through the Commonwealth of Massachusetts' landmark cost containment law, Chapter 224 of the Acts of 2012, the Health Policy Commission (HPC) is an independent state agency governed by an 11-member board with diverse experience in health care. The HPC is leading efforts to advance Chapter 224's ambitious goal of health care cost containment. The HPC's mission is to advance a more transparent, accountable, and innovative health care system through independent policy leadership and programs. Our goal is better health and better care at a lower cost across the Commonwealth. The HPC's various policy committees engage in health care market research through publication of the Annual Cost Trends Reports; market monitoring through Notices of Material Change and Cost and Market Impact Reviews; analysis of structure of the delivery system through the creation of criteria for Accountable Care Organizations and the Registration of Provider Organizations Program; and investment through the CHART and Health Care Innovation Investment Programs. Through these and other policy initiatives, the HPC strives to promote and incentivize the development of a high-value health care system in the Commonwealth.

About the CHART Investment Program

Established by Chapter 224, the Community Hospital Acceleration, Revitalization, and Transformation (CHART) Investment Program is a \$120 million reinvestment program funded by an assessment on large health systems and commercial insurers that will make phased investments for certain Massachusetts community hospitals to enhance their delivery of efficient, effective care. CHART hospitals share the common characteristics of being non-profit, non-teaching, and having relatively lower prices than many other hospitals. The goals of the program are to promote care coordination, integration, and delivery transformations; advance electronic health records adoption and information exchange among providers; increase alternative payment methods and accountable care organizations; and enhance patient safety, access to behavioral health services, and coordination between hospitals and community-based providers and organizations. In October 2013, the HPC solicited responses from eligible community hospitals to participate in CHART Phase 1. A total of \$10 million was distributed to 28 community hospitals to support short term, high-need expenditures. The HPC awarded a total of \$60 million in CHART Phase 2 funding in October 2014.



EXECUTIVE SUMMARY

Established by Chapter 224, the Community Hospital Acceleration, Revitalization, and Transformation (CHART) Investment Program supports the Commonwealth's aim of delivery system transformation by enhancing the ability of eligible community hospitals to meet current and future community need.

CHART is a \$120 million reinvestment program funded by an assessment on large health systems and commercial insurers. CHART will make phased investments in specific Massachusetts community hospitals to enhance delivery of efficient, effective care. CHART eligibility is defined by the characteristics of being non-profit, non-teaching and having lower relative prices than the state median. CHART's goals are broadly to:

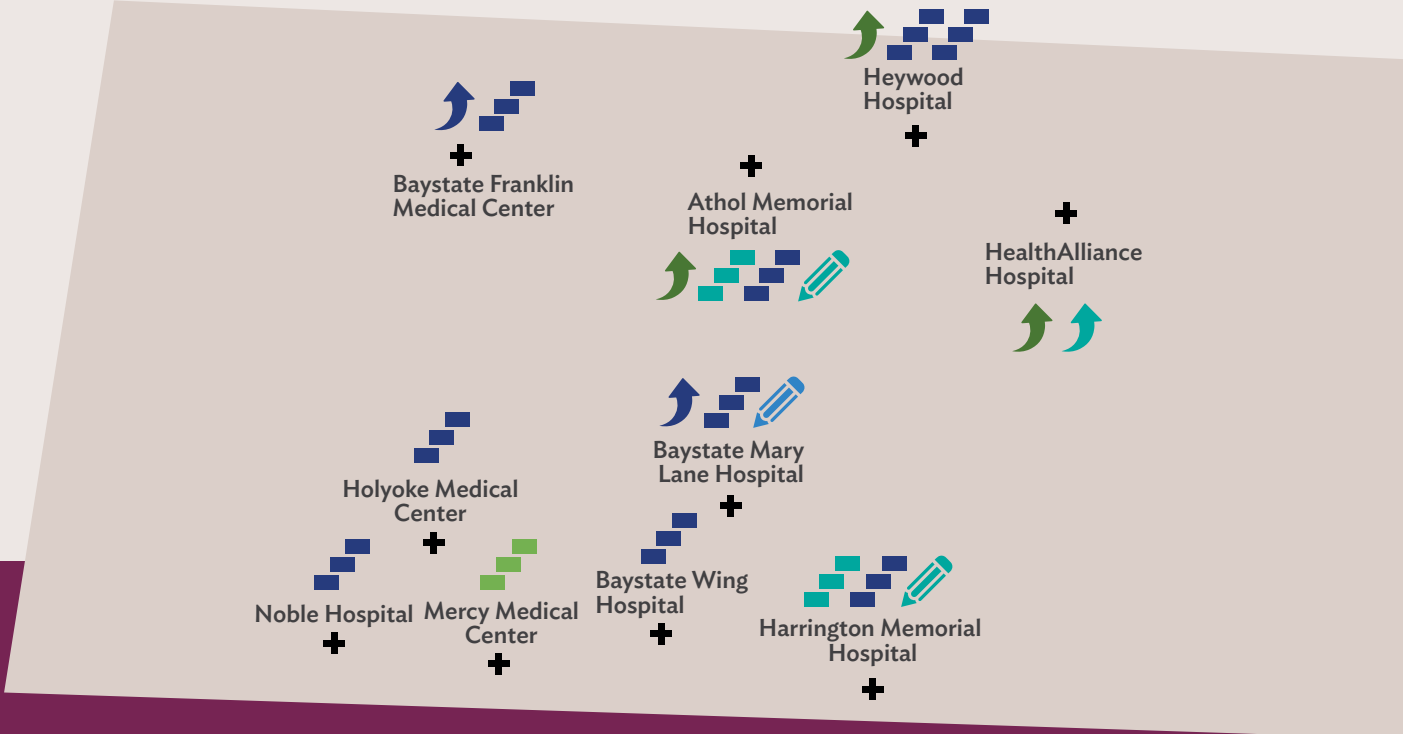
- Promote care coordination, integration and care delivery transformation;
- Advance electronic health records adoption and information exchange among providers;
- Increase use of value-based payment arrangements;
- Support eligible community hospitals in becoming accountable care organizations (ACOs); and

- Enhance patient safety, access to behavioral health services, and coordination between hospitals and community-based providers and organizations.

From February to September 2014, CHART supported \$10M in initial capacity building efforts across 28 community hospitals in Phase 1. Many hospitals chose to request investments in infrastructure development, such as electronic medical records, including electronic records in emergency departments, analytics tools, or care management platforms, others requested staff training in quality improvement or support for strategic planning, and a small number requested funding for clinical pilots to reduce readmissions, improve patient education, improve transitions in care, improve pain management and opiate prescribing practices, or link patients to services in the community.

CHART directly assisted hospitals in implementation of funded initiatives by providing expert support on clinical operations and technology implementation, access to data, reports on project progress and learning from other CHART hospitals, and data-driven, leadership-engagement opportunities.

To read the full summative report on CHART Phase 1, please visit our [website](#).



2,334

Hospital employees trained



400+

Hours of direct technical assistance to awardees



27 | 260

HOSPITALS

UNITS

Primed for transformation



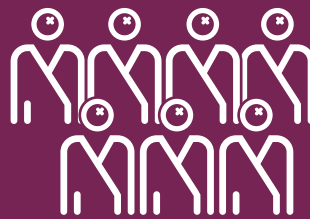
90%

of respondents believed that CHART Phase 1 moved their organization along the path to system transformation



316




Community partnerships formed or enhanced by awardees








167,000+

Patients impacted by Phase 1 initiatives



-  Rapid-Cycle Pilots
-  Capability and Capacity Building
-  Planning for Improvement

-  Reducing Readmissions and Improving Transitions to Post-Acute Care
-  Health Information Technology and Health Information Exchange
-  Process Improvement
-  Reducing ED Utilization
-  Integrating Behavioral Health

PHASE ONE

INVESTED \$9.2M IN MASSACHUSETTS COMMUNITY HOSPITALS

Addison Gilbert Hospital

GLOUCESTER, MA

\$291,581

AWARD EXPENDED

Patients with behavioral health and social needs in addition to physical health issues often both have worse outcomes and are more costly to the health care system compared to patients without these comorbidities. Addison Gilbert Hospital created a multidisciplinary team (high risk intervention team) to address gaps in the care of patients with complex social, behavioral and medical needs in its community. The pilot focused on improving quality of care and access to services for these patients, with the intent to reduce cost to the Commonwealth.

RAPID-CYCLE PILOT

149

PATIENTS SERVED.

7,040

ENCOUNTERS.

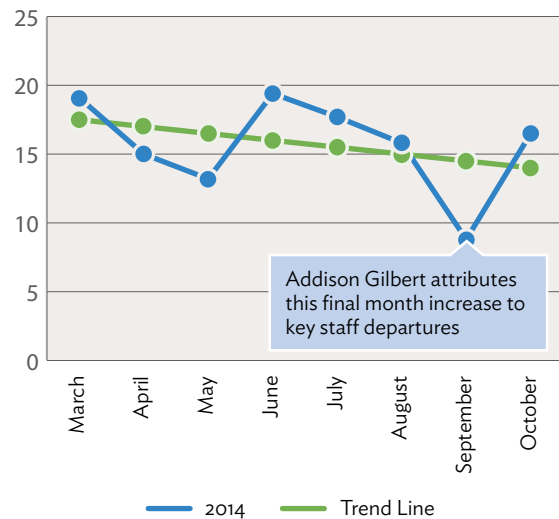
The high-risk intervention team's goal was to reduce 30-day readmissions by connecting patients to services after discharge from the hospital, coordinating care across settings — including more effective follow up — and by improving medication management both during an admission and post-discharge.

The Addison Gilbert Hospital team developed new procedures and workflows, established new relationships within the hospital and with community partners, and collected and analyzed data. A dedicated pharmacist reviewed medications for these patients, two-thirds of who used eleven or more, and solved several medication errors and omissions. Addison Gilbert Hospital measured the hospital-wide readmission rate in CHART Phase 1 to assess the impact of the pilot. The six-month readmission trend is promising; however, given the limited population served and the focus on an all-cause readmission rate, no definitive conclusions can be drawn.

CHART PHASE 2 AWARD

Addison Gilbert Hospital will scale the high risk intervention team in CHART Phase 2 in a direct continuation and expansion of CHART Phase 1 activities, aiming to reduce 30-day readmissions for patients with a history of recurrent hospital or emergency department use, social complexity, and/or need for palliative care services. Addison Gilbert Hospital is also a participating site in a joint award in partnership with other Lahey Health community hospitals and Lowell General Hospital to enhance care for patients with behavioral health needs across the care continuum.

Hospital-wide 30 day readmission rate



Anna Jaques Hospital

NEWBURYPORT, MA

\$333,500

AWARD EXPENDED

Committing to organization-wide performance management through training and investment can help improve the quality of patient care. Anna Jaques Hospital developed infrastructure to support rapid improvement cycles through training and software implementation, with the goals of enhancing hospital communication with post-acute care providers, streamlining the discharge processes, and increasing quality of care delivered.

CAPABILITY AND CAPACITY BUILDING

67

LEADERS TRAINED.

29

IMPROVEMENT PROJECTS COMPLETED.

Anna Jaques Hospital trained its leadership team in fundamentals of reliability science and change management in order to encourage leadership to use this knowledge for focused process improvement projects within the hospital. Anna Jaques also sought to improve its planning and communication with post-acute providers through the implementation of a care management software tool. The hospital also upgraded its quality software capability to track the hospital's performance against national benchmarks.

Anna Jaques identified executive leaders, board members, directors, chiefs of departments, managers, and coordinators to be trained through CHART 1. Attendees launched improvement projects after training focused on topics such as enhancing communication between nursing homes and hospital staff, and the creation of a central line insertion checklist in the emergency department. Post-acute care facilities reported increased satisfaction with the accuracy and completeness of information exchanged after the implementation of the case management software and communication improvement initiatives.

CHART PHASE 2 AWARD

Anna Jaques Hospital will leverage human resource capacity and IT infrastructure developed in CHART Phase 1 to support effective implementation of CHART Phase 2 initiatives to reduce readmissions and emergency department revisits for high risk patients who overutilize hospital and ED services.

Care management software screenshot



Athol Memorial Hospital

ATHOL, MA

\$478,413*

AWARD EXPENDED

Athol Memorial Hospital initiated a multi-pronged approach to the treatment of medical and social needs among residents with behavioral health issues in its community. A behavioral health navigator and intensive care manager based in the emergency department connected high-risk patients with community-based services. The hospital also collaborated with the Athol-Royalston Regional School District to increase access to behavioral health care in the region. Athol Memorial also purchased and implemented an emergency department information system and worked with an external consultant to develop a telemedicine plan to enhance access to care across the region.

RAPID-CYCLE PILOT

A care coordinator and two clinicians worked in Athol's public schools to identify unmet behavioral health needs among students and to connect them and their families with resources in the community; the new staff was fully booked within one week of program launch. At the hospital, the emergency department behavioral health navigator connected patients to community-based behavioral health and social services, while increasing emergency department staff awareness of behavioral health needs and available supportive services. Athol Memorial Hospital recognized that several patients with serious mental illness required additional non-medical help and so it included an intensive care manager to connect these patients with social services outside of the hospital. The two emergency department positions work together to deliver a clinical response to best serve all patients with behavioral health needs in the emergency department.

School-based services flyer

School Care Coordinator Services

As a School Care Coordinator I work with students in school who have been referred to me by the guidance department to connect them to on-site behavioral health services. I also help families connect to various community resources available in the North Quabbin area.

These resources can include but are not limited to connections with the following organizations:

Please feel free to contact me with any questions you may have. I would be happy to explain each resource further and help make that connection for you and your family!

My offices are located at both APRS and Riverbend. My office hours are Monday-Friday 8-4.

Athol Hospital
Member of the Regional Healthcare Family

Wika Lemanick
School Care Coordinator
Phone: 578.249.2415
Phone: 578.249.2415
E-mail: wika@amh.org

- YMCA**
 - Financial Aid for Membership
 - Summer Camps
 - Parent Classes
 - Swim Lessons
 - Sports Teams
 - Summer Camps (including Camp Weeks and Camp Week)
 - YouthBuild Athol School Program
 - And More...
- North Quabbin Family**
 - Family Counseling Center (FREE counseling available to adults, teens, or school aged children)
 - Food Assistance
 - WIC/Supp Benefits
 - Food Stamps
 - Habitat Assistance
- Health Insurance**
 - Services at Athol Hospital can help make sure through the MassHealth application process
- Valley Our Children**
 - Family Support & Advisory
 - Parent Education
 - Father Resources
 - Grandparent Resources
 - Programs for families with children ages newborn - 2 years old
- Transportation**
 - Community based services are available for \$1.00 weekly
 - PT-1 Application/Transportation to medical appointments is available for MassHealth members
- Other Resources**
 - North Quabbin Community Coalition, the heart of the North Quabbin area for community connections
 - Adult Public Library
 - Salvage Army for clothing needs
 - Health Families can help with food resources and seasonal items
 - Substance Abuse Services
 - Tertiary Care Referrals
 - Dental Referrals
 - Summer Play groups for kids ages 4-12
- Behavioral Health Services**
 - Through the YCMA, certain on-site clinicians are available to any student in the Athol-Royalston School, Riverbend, and Sanders Street Schools based on referrals made by the guidance department

293

PATIENTS, STUDENTS,
AND FAMILIES IMPACTED.

81

BEHAVIORAL HEALTH OR COMMUNITY
RESOURCE REFERRALS GENERATED.

*Includes Regional Behavioral Health Funding

CAPABILITY AND CAPACITY BUILDING

At the time of CHART Phase 1 launch, Athol Memorial Hospital was one of the last remaining hospitals in the Commonwealth using paper medical records in its emergency department. The HPC funded the purchase of an emergency department information system (EDIS) to enhance overall quality of care by moving the department from a paper-based record system to an electronic one. The EDIS is a foundational element for care delivery transformation initiatives.

PLANNING

Athol Memorial Hospital engaged in extensive planning to enhance access to behavioral health care in Athol and surrounding communities.

Athol Memorial developed a comprehensive telemedicine plan for behavioral health telemedicine, which led to a pilot project, connecting local primary care patients to the behavioral health navigator from Athol Memorial Hospital's care delivery pilot.

CHART PHASE 2 AWARD

Heywood, Athol Memorial, and HealthAlliance Hospitals received a joint award in CHART Phase 2 to enhance behavioral health care across the North Central and North Quabbin communities. A multipronged approach including school-based care, emergency department high risk care teams, care-coordination, and enhanced inpatient and outpatient behavioral health services aims to reduce emergency department use by behavioral health patients. These initiatives enhance and scale the hospitals' CHART Phase 1 pilots as well as build out the services coordinated by the Regional Behavioral Health Collaborative developed by these hospitals and community partners in CHART Phase 1.

Athol Memorial, Heywood, and Health Alliance Hospitals

ATHOL, GARDNER, AND LEOMINSTER, MA

*FUNDED THROUGH HOSPITAL-SPECIFIC AWARDS

Athol Memorial, Heywood, and HealthAlliance hospitals are in neighboring communities and serve many shared patients who travel between the hospitals for care. Although Athol Memorial and Heywood are not connected with HealthAlliance through a formal affiliation, they collaborated with community partners to address the behavioral health needs of patients in the region. The joint initiative aimed to enhance coordination and cooperation across varying environments of behavioral health care throughout the hospitals' communities.

CAPABILITY AND CAPACITY BUILDING

7

REGIONAL BEHAVIORAL HEALTH COLLABORATIVE MEETINGS HELD DURING CHART PHASE 1.

The goal of the Regional Behavioral Health Collaborative was to provide a forum for dialogue across the North Central and North Quabbin communities to discuss and develop best practices to improve early identification of mental illness and to increase access to behavioral health care. Areas of focus included integrating primary and behavioral health services, improving care coordination, using technology for identification of high-risk patients and to enhance access, mapping community resources, and aligning advocacy activities.

The hospitals partnered closely with community organizations including Community Health Connections, Community Healthlink, Gardner Public Schools, and Athol Public Schools. The Collaborative created a universal patient consent form to enable care coordination and efficient information sharing among institutions. It also drafted a uniform individual care plan template as a resource for sharing up-to-date information on each patient that visits area organizations. The three emergency departments treated 471 high-risk patients in total during CHART Phase 1, further informing the regional planning activities.

CHART PHASE 2 AWARD

Heywood, Athol Memorial, and HealthAlliance Hospitals received a joint award in CHART Phase 2 to enhance behavioral health care across the North Central and North Quabbin communities. A multipronged approach including school-based care, emergency department high risk care teams, care-coordination, and enhanced inpatient and outpatient behavioral health services aim to reduce emergency department use by behavioral health patients. These initiatives enhance and scale the hospitals' CHART Phase 1 pilots as well as build out the services coordinated by the Regional Behavioral Health Collaborative developed by these hospitals and community partners in CHART Phase 1.

Universal patient consent form

*Athol Memorial Hospital's award dollars spent=\$478,413, Heywood Hospital's award dollars spent = \$302,833, and HealthAlliance Hospital's award = \$410,000

Baystate Franklin Medical Center

GREENFIELD, MA

\$ 396,314

AWARD EXPENDED

Creating mechanisms for community-based consultation with specialists can increase the amount of care that can effectively and efficiently be provided in community hospitals, rather than requiring a transfer to a higher-cost tertiary care center. Telemedicine is one tool to improve access to specialists. Baystate Franklin Medical Center developed telemedicine programs for four inpatient specialties: neurology, critical care, infectious disease, and geriatric and palliative care to keep care in the community. The hospital also connected three community-based primary care practices and three community skilled nursing facilities to the Pioneer Valley Information Exchange, a local, private health information exchange.

RAPID-CYCLE PILOT

The goals of the telemedicine pilot were to reduce length of stay (which was, in some departments, extended in order to accommodate specialists' availability to see patients) and to keep care in the community by avoiding transfers to tertiary care hospitals.

Baystate Franklin Medical Center developed clinical and operational workflows to support the integration of telemedicine across the organization. Neurology had the highest uptake of telemedicine encounters due to a strong physician champion; not all departments were as prepared to implement the program.

91%

TELEMEDICINE ENCOUNTERS THAT RESULTED IN A DIAGNOSIS.

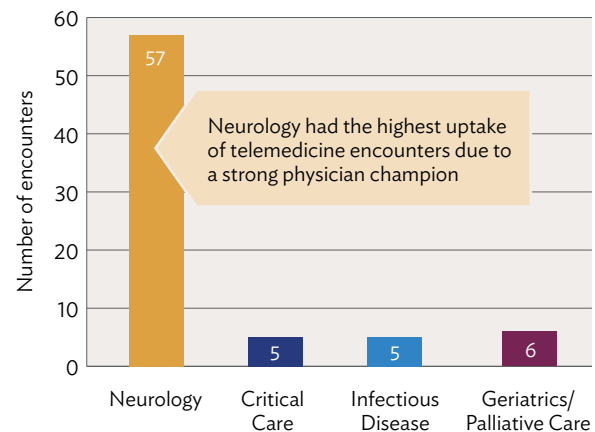
100%

REFERRING PHYSICIANS WHO WERE SATISFIED WITH USING TELEMEDICINE FOR THEIR CONSULT.

83%

PATIENTS OR FAMILIES WHO WERE SATISFIED WITH THE TELEMEDICINE ENCOUNTER.

Number of telemedicine encounters by specialty at Baystate Franklin Medical Center



CAPABILITY AND CAPACITY BUILDING

6

PROVIDER ORGANIZATIONS CONNECTED.

The goal of the Pioneer Valley Information Exchange expansion project was to enhance information sharing across key provider settings to support coordinated patient care.

Three community-based primary care practices and three community skilled nursing facilities were connected to the Pioneer Valley Information Exchange. The health information exchange integrations took longer than expected as a result of differences in the kinds of electronic medical record technologies being connected. In addition, trading partners required a higher level of technical support than initially anticipated. Despite delays, the connected providers reported that patient care has been enhanced through the exchange of patient information enabled by the Pioneer Valley Information Exchange.

CHART PHASE 2 AWARD

Baystate Franklin Medical Center aims to reduce 30-day readmissions for patients excessively admitted to the hospital, and emergency department revisits for patients who frequently visit the ED, as well as those with behavioral health conditions, critical gaps of care in Greater Greenfield. Along with the other Baystate Health community hospitals, Baystate Franklin Medical Center is also a participant in a \$900,000 joint award to increase the use of inpatient and outpatient telemedicine to increase access and reduce transfer to tertiary care settings. This initiative is a continuation and expansion of CHART Phase 1 activities.

Baystate Mary Lane Hospital

WARE, MA

\$420,682

AWARD EXPENDED

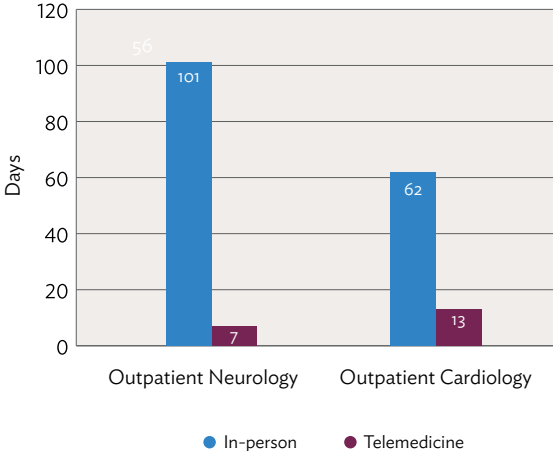
Baystate Mary Lane Hospital developed telemedicine programs in outpatient neurology, inpatient and outpatient cardiology, inpatient speech therapy and outpatient behavioral health to increase patient access to specialists. The hospital also funded connection of two community physician practices to the Pioneer Valley Information Exchange, improving the exchange of medical information for patients treated by these providers. Finally, the hospital used a planning grant to analyze health care needs in the community in order to identify ways to repurpose underused acute care beds at the hospital.

RAPID-CYCLE PILOT

The goal of the telemedicine pilot was to increase access to specialty services in both inpatient and outpatient settings.

Baystate Mary Lane Hospital has increased access to outpatient services by making telemedicine appointments available earlier than in-person appointments and has no reported adverse events. Staff and patients reported great satisfaction with the use of technology. The hospital developed extensive clinical and operational workflows to support the integration of telemedicine across the organization. Baystate Mary Lane Hospital had strong telemedicine buy-in from outpatient neurology and behavioral health and inpatient speech, but the uptake was less than the hospital had originally anticipated. Notably, inpatient cardiology did not deliver teleconsults despite developing new protocols and workflows.

Time to third next appointment (days)



40

PATIENT ENCOUNTERS USING THE TELEMEDICINE TECHNOLOGY.

CAPABILITY AND CAPACITY BUILDING

Baystate Mary Lane Hospital connected practices to the Pioneer Valley Information Exchange with the goal of the enhancing behavioral health and primary care transitions and coordination for patients.

Baystate Mary Lane connected two practices to exchange clinical results with trading partners through the Pioneer Valley Information Exchange. There were some delays in initiating health information exchange connections and trading partners needed more support than expected. Despite these challenges, partners now have a robust view of a patient's health record that allows informed clinical decision-making.

PLANNING

The goal of the post-acute planning grant was to explore options for repurposing underutilized inpatient beds. Baystate Mary Lane Hospital's inpatient utilization trend has decreased at a faster pace than its peer cohort, leading the hospital to seek alternative uses for inpatient beds. Baystate Mary Lane developed a proposed plan for repurposing acute care beds to instead care for patients after hospital discharge (post-acute care).

Strategies for repurposing underutilized inpatient beds

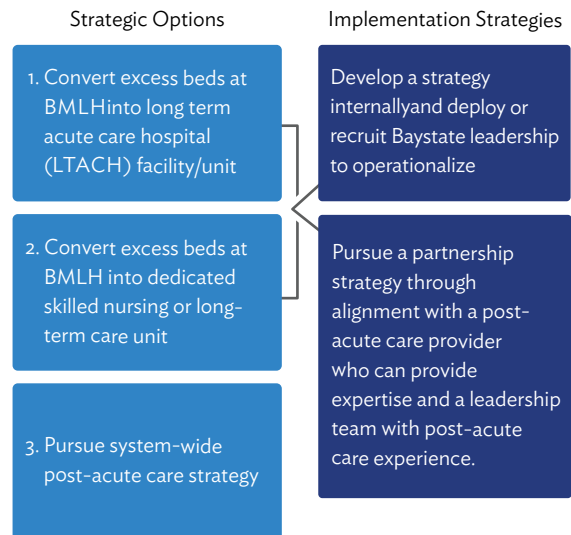


CHART PHASE 2 AWARD

In a continuation and expansion of CHART Phase 1 activities, and along with the other Baystate Health community hospitals, Baystate Mary Lane Hospital is a participant in a joint award to increase the use of inpatient and outpatient telehealth to increase access and reduce transfer to tertiary care settings.

Baystate Wing Hospital

PALMER, MA

\$357,000

AWARD EXPENDED

Meaningful Use is a federal incentive program to promote the utilization of electronic health records in a manner that improves patient care through quality and safety. Using its CHART Phase 1 grant, Baystate Wing Hospital developed the capacity needed to meet Meaningful Use Stage 1 requirements, including recording, storing, and reporting clinical quality measures. This involved upgrading the hospital's electronic health record system to a certified, compliant platform and developing new procedures to meet all required measures.

CAPABILITY AND CAPACITY BUILDING

Electronic health information systems enable hospitals to monitor quality of care delivered and inform improvement initiatives. Baystate Wing Hospital developed current and future state process flows for workflows affected by Meaningful Use Stage 1 and had high performance rates on all measures. Despite delays due to a competing technology project and the hospital's acquisition by Baystate Health, CHART Phase 1 prepared Baystate Wing Hospital to attest for Meaningful Use Stage 1.

500

STAFF TRAINED IN NEW ELECTRONIC HEALTH RECORD WORKFLOWS TO MEET MEANINGFUL USE STAGE 1 REQUIREMENTS.

CHART PHASE 2 AWARD

In CHART Phase 2, Baystate Wing Hospital will reduce 30-day readmissions for patients with life limiting conditions, complex social needs or behavioral health conditions. Along with the other Baystate Health community hospitals, Baystate Wing Hospital is also a participant in a joint award to increase the use of inpatient and outpatient telemedicine to increase access and reduce transfers to tertiary care settings, continuing and expanding CHART Phase 1 activities.

Performance against Meaningful Use measures

MEASURE	PERFORMANCE RATE
Use CPOE for medication orders directly entered	100.0%
Alternate use CPOE for medication orders directly entered	100.0%
Maintain patient problem list	100.0%
Maintain patient active medication list	100.0%
Maintain patient active medication allergy list	99.7%
Record patient demographics	100.0%
Record patient growth charts and vital signs	99.3%
Record smoking status for patients 13 yrs+	99.3%
Provide patients the ability to view online, download, and transmit information about a hospital admission	93.8%
Record advance directives for patients 65 yrs+	99.2%
Incorporate clinical lab results in EHR	99.8%

Beth Israel Deaconess Hospital-Milton

MILTON, MA

\$128,385

AWARD EXPENDED

Access to medical interpreter services is a critical component of care for patients with limited English proficiency. Interpreter services increase communication and build trust between patients and caregivers and make it more likely that patients will understand and comply with treatment. BID-Milton replaced a contracted, on-call Vietnamese translation service with an on-site staff member who provided interpreter services and served as a patient navigator. The hospital created patient materials in Vietnamese, Spanish and Haitian Creole and translated its website into these languages. With the goal of further enhancing communication across care settings between the hospital and the community, BID-Milton developed a focused information exchange linking the hospital and a community-based practice serving Vietnamese patients. BID-Milton's CHART Phase 1 initiatives contributed to a more patient-centered care delivery model.

CAPABILITY AND CAPACITY BUILDING

The goal of introducing patient materials in multiple languages and hiring a Vietnamese medical interpreter/patient navigator was to improve linguistically and culturally appropriate patient care and communication throughout the hospital. The medical interpreter/patient navigator role improved the patient-clinician connection by optimizing patient comfort and understanding in the clinic setting and by introducing cultural awareness to clinicians' care. From a financial perspective, this position also decreased the cost per hour of translation services and extended these services to all providers within the hospital's campus.

The new interface between the hospital's electronic health record and the target community practice gave hospital-based providers and specialists electronic access to key medical information contained at the community practice level and vice versa.

3

NON-NATIVE LANGUAGES IN THE COMMUNITY WITH TRANSLATED MATERIALS.

13

NEW PRINT EDUCATION AND CONSENT MATERIALS AVAILABLE FOR PATIENTS.

Cost of Vietnamese translation services per hour



\$84.44

Without on-site navigator



\$42.00

With on-site navigator

CHART PHASE 2 AWARD

BID-Milton received a CHART Phase 2 award to substantially reduce boarding of long stay emergency department patients with behavioral health conditions. This is a critical need of the hospital, with boarding challenges exacerbated by the precipitous closure of Quincy Medical Center in late 2014.

Beth Israel Deaconess Hospital-Needham

NEEDHAM, MA

\$ 295,720

AWARD EXPENDED

Case management has been shown to decrease emergency department overutilization by enabling more efficient, coordinated care for patients with complex diagnoses. BID-Needham placed case managers in its emergency department and made them available to all patients screened by a physician. This created an opportunity for early identification of patients who could be better served by referral to primary care, home care, or admission to a skilled nursing facility, preventing unnecessary hospital admissions and observation stays. Expanded case management services also allowed for timely consideration and review of potential transfers to other acute care facilities for specialty services, and the ability to ensure all transfers were appropriate and necessary. Further, this pilot project supported the development of patient education protocols and materials on important topics like observation status. With its award, BID-Needham also developed a system to log and track patients covered under risk contracts and implemented a system for tracking adverse events.

RAPID-CYCLE PILOT

Prior to CHART Phase 1 implementation, BID-Needham employed case management only at the point of admission to an inpatient unit. BID-Needham's case management pilot increased and improved coordination for patients beginning in the emergency department. Case managers worked directly with emergency department patients to help manage, plan, and coordinate care in tandem with inpatient case managers from the initial point of service, throughout the hospital stay, and post-discharge. In addition to providing direct patient services, the case managers' work in conjunction with hospital care teams, quality representatives, administrators, external patient care management organizations, and other health care facilities to develop and improve programs and policies focused on care coordination.

720

PATIENTS SERVED.

1,470

PATIENT HOURS OF CASE MANAGEMENT.

Pamphlet created to explain observation status



CAPABILITY AND CAPACITY BUILDING

As part of BID-Needham's participation in the Beth Israel Deaconess Care Organization (BIDCO), the hospital implemented a tagging system that allows for identification of patients participating in risk contracts early in their hospital visit in order to leverage resources available to these patients through their primary care providers and the Accountable Care Organization (ACO). BID-Needham also adopted an electronic tool for reporting, investigating, and monitoring quality and safety events throughout the hospital. This electronic tool increases convenience of reporting and efficiency of follow up, and allows for better data tracking and trending to recognize areas for quality improvement.

Although coordination with outside vendors resulted in delayed implementation of training and deployment of these programs, both the ACO tagging and improved event reporting systems are currently in use and staff training is ongoing as needed.

The upgraded quality reporting software includes specific forms for reporting various types of quality and safety events



Beth Israel Deaconess Hospital-Plymouth

PLYMOUTH, MA

\$243,153

AWARD EXPENDED

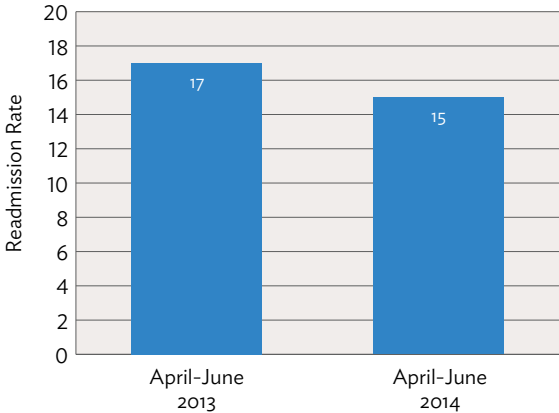
Patients with behavioral health and social needs in addition to physical health issues often both have worse outcomes and are more costly to the health care system compared to patients without these comorbidities. BID-Plymouth sought to meet the needs of its high-risk, high-cost patients with complex social, behavioral and medical needs. Consequently, BID-Plymouth developed a multifaceted patient program for certain high-risk Medicare patients and dual-eligible beneficiaries who were part of their accountable care organization. Targeted patients were dually eligible for Medicare and Medicaid or diagnosed with end stage renal disease, and were seen in the home, at skilled nursing facilities, in physician offices, or in urgent care settings to preempt unnecessary acute hospital utilization.

RAPID-CYCLE PILOT

The goals of the complex patient program were to reduce costs and unnecessary hospital utilization.

BID-Plymouth built a team comprised of a nurse practitioner, a case manager, a social worker and a community resource specialist. The team focused on actively managing patients to identify potential issues before they were exacerbated to the point of requiring an emergency department visit or inpatient admission. BID-Plymouth reported readmission rates for months they had claims data, compared to the same months in the previous year. The reliance on claims data with substantial time lag prevented the team from having and using data for quality improvement and program management.

Readmission rates for target population during 3 months of period of performance compared to the previous year



397

PATIENTS SERVED.

1,923

ENCOUNTERS.

CHART PHASE 2 AWARD

BID-Plymouth received a CHART Phase 2 award to expand CHART Phase 1 activities and provide cross-continuum enhanced services to patients with complex needs, including patients dually eligible for Medicare and Medicaid, patients with behavioral health needs, and high utilizers. The Integrated Care Initiative will align allied health providers, social workers, behavioral health programs, and doctors in a coordinated model — in the hospital and the community — to address substance use challenges, in particular opioid abuse.

Beverly Hospital

BEVERLY, MA

\$65,000

AWARD EXPENDED

Beverly Hospital's CHART Phase 1 award was used to plan for clinical and business changes necessary to address the needs of the hospital's most complex, high-risk, high-utilizing patients. Beverly Hospital engaged hospital staff to develop a service delivery transformation business and operational plan to reduce unnecessary acute care utilization.

PLANNING

Beverly Hospital's planning goal was to develop a service delivery transformation business and operational plan to reduce unnecessary acute care utilization through evidence-based care for high-risk patients. Beverly's plan focused on increasing cost efficiency, enhancing access to social services, improving clinical interventions, and optimizing care coordination to provide patient care in the most appropriate setting and to effectively engage patients and their families. Beverly conducted a comprehensive data analysis during their planning initiative to identify the most effective target population for intervention. Contrary to prior assumptions, Beverly found that patients with behavioral, medical, and social complexity were the primary driver of readmissions, not chronic disease. Beverly Hospital conducted a root cause analysis to identify common causes of readmissions through this fish bone diagram before planning how to address the needs of their patients and reduce acute care utilization in CHART Phase 2.

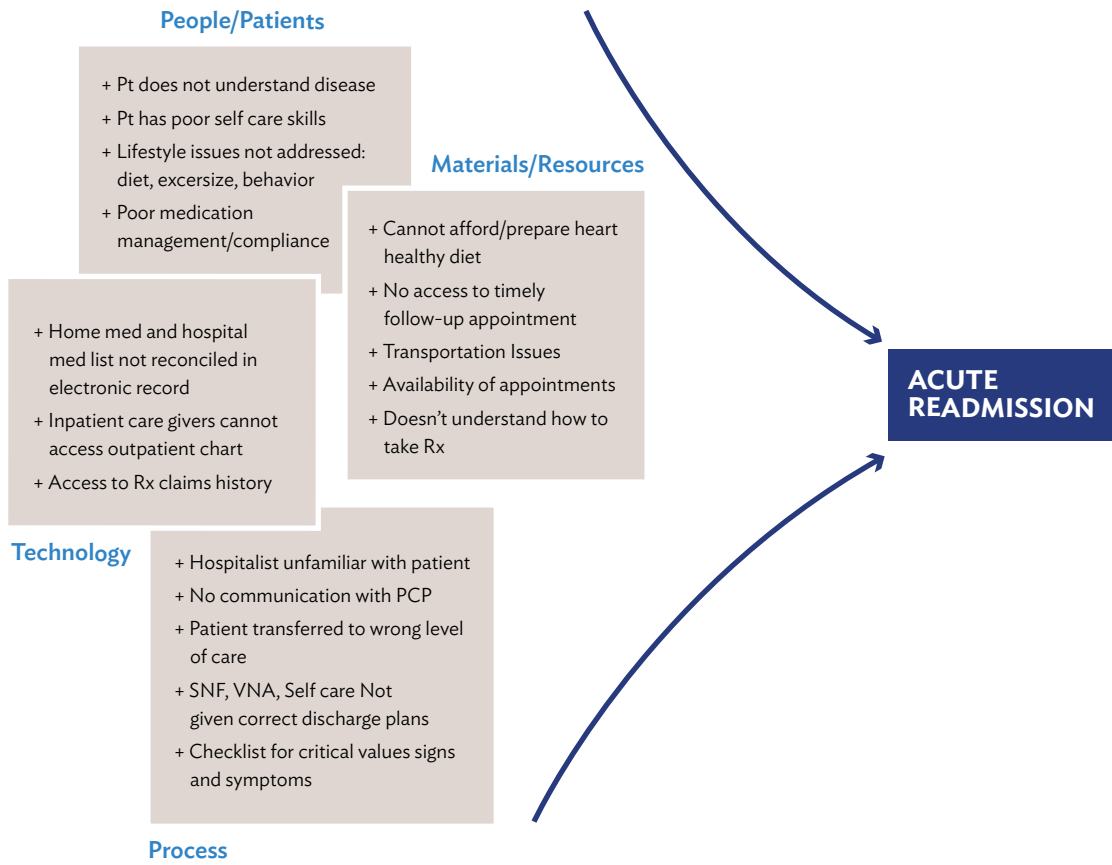
1,379

NUMBER OF 30-DAY READMISSIONS IN 2013.

CHART PHASE 2 AWARD

Beverly Hospital received a CHART Phase 2 award to leverage CHART Phase 1 planning activities and scale Addison Gilbert Hospital's CHART Phase 1 pilot. Beverly Hospital seeks to reduce 30-day readmissions for patients with a personal history of recurrent acute care utilization, social complexity or in need of palliative care. Beverly Hospital is also a participating site in a joint award in partnership with other Lahey Health community hospitals and Lowell General Hospital to enhance care for patients with behavioral health needs across the care continuum.

Common causes of readmissions at Beverly Hospital



Emerson Hospital

CONCORD, MA

\$202,575

AWARD EXPENDED

Despite Massachusetts' leadership in health information technology adoption, many hospitals and other providers continue to lack the ability to share information across settings. Achieving interoperability of information systems is critical to facilitate information exchange and care coordination. Emerson Hospital implemented new technology to improve data sharing between community physicians and acute care providers at the hospital, including both a portal that seamlessly displays data from community physicians' electronic health records within the hospital's electronic health record system, and development of clinical summaries in both systems that can be shared across their local health information exchange.

CAPABILITY AND CAPACITY BUILDING

The goal of the Emerson Portal was to improve data sharing and increase access to health information.

Seventy-five percent of physicians surveyed reported that the Portal increased their ability to care for their patients. Hospital providers, when assessed three weeks after implementation of the Portal, viewed eighty-one percent of eligible patients' records. The project required a complicated custom Mass HIway connection, which led to delays, but during CHART Phase 1 the hospital was able to share clinical summaries across the health information exchange.

75%

OF PHYSICIANS SURVEYED REPORTED THAT THE PORTAL INCREASED THEIR ABILITY TO CARE FOR THEIR PATIENTS.

Emerson Hospital portal view

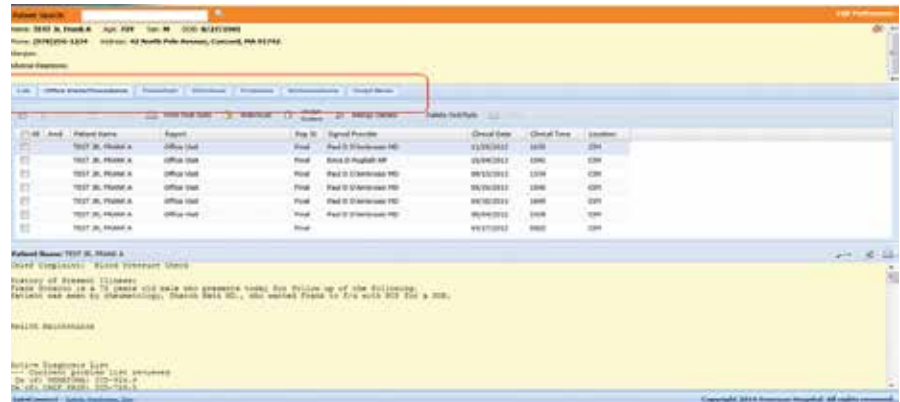


CHART PHASE 2 AWARD

Emerson Hospital received a CHART Phase 2 award to reduce 30-day readmissions for high risk patients. Emerson Hospital will additionally provide access to palliative care services and coordinate care across settings.

Hallmark Health System

MEDFORD AND MELROSE, MA

\$355,899

Melrose-Wakefield Hospital

AWARD EXPENDED

\$330,545

Lawrence Memorial Hospital

AWARD EXPENDED

As with so many areas across the Commonwealth, the communities served by Hallmark Health System are struggling with an epidemic of opioid addiction and abuse; the health system's most recent community health needs assessment prioritized substance use disorder as the primary health concern for this area. In CHART Phase 1, Hallmark Health focused on addiction prevention and treatment by overhauling the prescribing of pain medication in the emergency department. Hallmark Health developed standardized clinical practice guidelines for pain management patients presenting with lower back pain in the Lawrence Memorial and Melrose-Wakefield Hospitals' emergency departments and the system's urgent care

centers. These guidelines required physicians to document clinical necessity for ordering radiology imaging and prescribing opioids. The guidelines also mandated the use of the Massachusetts Prescription Drug Monitoring Program (MA PMP), an online database that tracks the prescribing and dispensing of controlled substances. Additionally, Hallmark Health System trained its providers on substance use disorders, pain management, and alternatives to opioid prescribing.

CAPABILITY AND CAPACITY BUILDING

The goal of the CHART Phase 1 award was to create an intervention geared towards physicians to ensure best practices in the prescribing of opioids; training providers on substance use, pain management, and alternatives to opioid use; increasing the use of the MA PMP; decreasing radiology imaging for patients with back pain; and enhancing communication between primary care providers and emergency department physicians.

Adherence to guideline protocols was tracked by individual physicians and trended week-over-week to monitor compliance. Opioid prescription use decreased by 26% from baseline at Melrose-Wakefield Hospital and by 43% at Lawrence Memorial Hospital, and use of the MA PMP increased from 2.2% at baseline to 36% at Melrose-Wakefield and from 1.4% at baseline to 60% at Lawrence Memorial for patients with lower back pain who received an opioid prescription.

Percentage of physicians at Lawrence Memorial and Melrose-Wakefield Hospitals utilizing the Prescription Drug Monitoring Program database

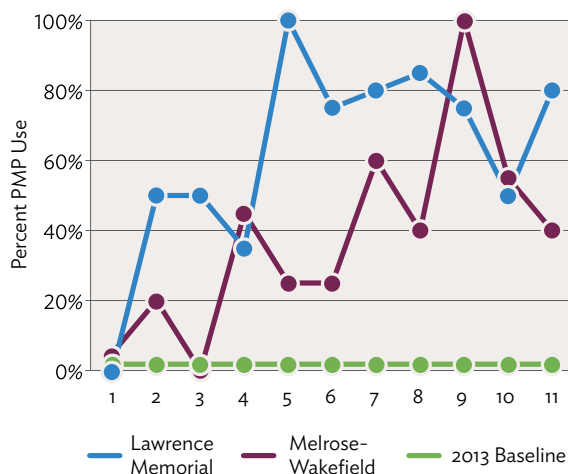


CHART PHASE 2 AWARD

Melrose-Wakefield and Lawrence Memorial Hospitals received a joint award in CHART Phase 2 to enhance care and reduce utilization of patients with behavioral health conditions. These CHART Phase 2 initiatives will directly draw upon Hallmark's CHART Phase 1 successes in reducing opioid prescriptions and enhancing emergency department care protocols.

Harrington Memorial Hospital

STURBRIDGE, MA

\$491,600

AWARD EXPENDED

While many hospitals and other providers lack the ability to share information across settings, behavioral health providers are among the earliest in information technology maturity curves. Harrington Memorial Hospital facilitated health information exchange adoption for Harrington-affiliated physician groups and the hospital, with a focus on behavioral health providers. The hospital also redesigned its behavioral health electronic record to increase efficiency and trained the behavioral health staff on new workflows to include use of the new information system. Additionally, the hospital developed a strategic plan for optimizing behavioral health services in South Central Massachusetts with the assistance of an external consultant.

CAPABILITY AND CAPACITY BUILDING

15

AFFILIATED PRACTICES AND THE HOSPITAL CONNECTED TO THE MASS HIWAY.

The goal of the health information exchange connections through the Mass HIway was to enable more efficient communication across care settings. The goal of the behavioral health redesign was to increase the efficiency of staff using the technology and improve the functionality of patient information systems.

Harrington Memorial Hospital connected the hospital and 15 affiliated practices to the Mass HIway.

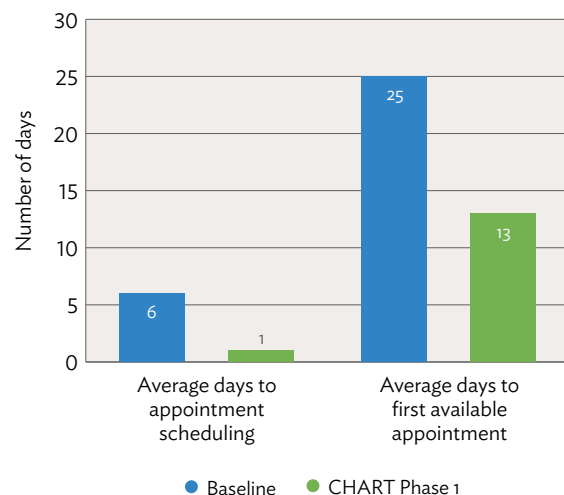
Harrington Memorial Hospital reduced the time it took administrative staff to book follow-up appointments from between 5-7 days to less than 24 hours for all patients, resulting in increased likelihood that patients will seek follow-up care. Decreased booking times led to faster follow-up appointments for patients; patients saw the wait time for the next available appointment drop from an average of 25 days to 13 days.

PLANNING

The goal of the planning portion of the award was to identify ways to increase access to behavioral health services and to mitigate challenges to integration of behavioral health and medical services.

Harrington Memorial Hospital worked with a consultant to project both community need (largely through demographic analysis) and behavioral health service need in the Harrington Memorial Hospital service area to inform a strategic behavioral health plan for the hospital.

IT systems were extensively redesigned to improve timely access to care



Estimated 2014 and projected 2019 adult, older adult, and geriatric psychiatric bed need, HHS market

AGE GROUP	2014 POPULATION	PERCENT INPATIENT PSYCHIATRIC SERVICES (1)	ESTIMATED INPATIENTS	ESTIMATED PATIENT DAYS	ESTIMATED BED NEED
18 to 54 Years	153,085	2.83%	4,330	17,320	48
55 to 64 Years	36,770	2.97%	1,090	5,450	15
65 Years & Older	40,445	4.00%	1,620	12,960	36
Total	330,290		7,040	35,730	98

AGE GROUP	2019 POPULATION	PERCENT INPATIENT PSYCHIATRIC SERVICES (1)	ESTIMATED INPATIENTS	ESTIMATED PATIENT DAYS	ESTIMATED BED NEED
18 to 54 Years	149,070	2.83%	4,220	16,880	46
55 to 64 Years	40,155	2.97%	1,190	5,950	16
65 Years & Older	47,255	4.00%	1,890	15,120	41
Total	236,480		7,300	37,950	103

Footnote: (1) "Percent Inpatient Psychiatric Services" is based on the calculation of the prevalence rate of acute mental illness in the population and the historical inpatient utilization rates for the specific age group. This is the percentage of the total age cohort population receiving acute inpatient psychiatric services.

Source: U.S. Department of Health and Human Services, Mental Health: A Report of the Surgeon General, National Institute of Mental Health, 1999, pages 46 through 48.

CHART PHASE 2 AWARD

Moving from behavioral health planning to implementation, Harrington Memorial Hospital received a CHART Phase 2 award focused on reducing readmissions and emergency department revisits for patients with behavioral health conditions. Harrington Memorial Hospital is pursuing an array of interventions, including expansion of inpatient treatment capacity, enhanced partial hospitalization and intensive outpatient services, improved care in the emergency department, and screening and treatment in the primary care setting.

HealthAlliance Hospital

LEOMINSTER, MA

\$410,000

AWARD EXPENDED

HealthAlliance Hospital's catchment area has higher rates of self-inflicted injuries than the state average. Recognizing the complex needs of these patients, along with patients with other behavioral health diagnoses, HealthAlliance Hospital partnered with local community providers to develop an Emergency Department Navigator Care Coordination Model for patients with serious mental illnesses. The pilot aimed to connect all served patients with a primary care provider and to increase communication across all care settings.

RAPID-CYCLE PILOT

196

PATIENTS SERVED.

The goal of the Emergency Department Navigator Care Coordination Model was to decrease unnecessary behavioral health emergency department visits and overall length of stay in the emergency department by facilitating warm hand-offs, building relationships with patients that extend into the community, and collaborating with

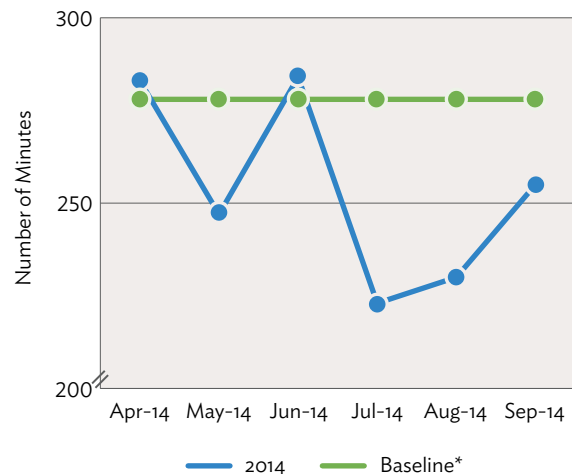
community providers, Community Health Connections, the local community health center and Community HealthLink, the emergency services provider.

HealthAlliance Hospital measured emergency department length of stay for behavioral health patients to identify whether the intervention was successful; HealthAlliance observed a downward trend in length of stay (from 283 minutes in the first month of intervention to 255 minutes in the final month) but also so substantial fluctuation month-by-month. Collecting a comprehensive baseline and setting performance targets will be necessary to fully evaluate this promising model.

CHART PHASE 2 AWARD

HealthAlliance Hospital aims to reduce emergency department revisits and length of stay for all patients with behavioral health conditions. In partnership with community-based organizations, HealthAlliance Hospital will provide intensive case management, shared individual care plans across settings, and both hospital and community-based clinical services. These initiatives build upon similar activities during CHART Phase 1.

Length of stay for emergency department visits for behavioral health reasons



Baseline is average length of stay April-Sept 2013

Heywood Hospital

GARDNER, MA

\$302,833

AWARD EXPENDED

Heywood Hospital's 2011 community health needs assessment identified behavioral health and substance abuse disorders as primary areas of concern within the hospital's catchment area. Seeking to fill the gap in care for this population, Heywood Hospital collaborated with the Gardner School District to embed a care coordinator and two clinicians contracted through a local behavioral health agency in the schools. The hospital also added a behavioral health navigator to its emergency room to connect patients with local primary care providers and clinical and community services and contracted with a behavioral health provider to add an intensive care manager to connect patients with serious mental illnesses to needed services. Additionally, the hospital connected Heywood Medical Group to the Mass Hlway, established a Regional Behavioral Health Collaborative with key partners, and conducted a comprehensive behavioral health needs assessment for the region.

RAPID-CYCLE PILOT

The goals of the care delivery pilots included increasing access to behavioral health care in the region through embedding school-based care coordinators; referring the patients who need them out to behavioral health and social services; and increasing emergency department staff awareness to behavioral health needs.

500

PATIENTS, STUDENTS, AND FAMILIES SERVED.

187

BEHAVIORAL HEALTH OR COMMUNITY RESOURCE REFERRALS.

CAPABILITY AND CAPACITY BUILDING

The goal of connecting Heywood Medical Group to the Mass Hlway was to develop timely information exchange across the Regional Behavioral Health Collaborative, supporting care coordination and enhanced transitions of care.

Heywood Hospital successfully piloted the Mass Hlway Webmail service with Heywood Medical Group and is seeking to expand its use to enhance follow-up after discharge.

School-based care flyer

WHAT'S NEW AT GARDNER MIDDLE / HIGH SCHOOLS

HEYWOOD HEALTHCARE / SCHOOL-BASED CARE CONNECTION PROGRAM
Connecting youth and families to behavioral health services and community based resources

School-Based Care Coordinators	Clinical Counseling Services
<ul style="list-style-type: none">• Hands-on case management with families• Connect families and children to clinical counseling services• Connect families to community providers	<ul style="list-style-type: none">• On-site health assessment and therapy• Enhanced community connections to at risk youth

For more information, please contact Beth Edwards by phone at (508) 539-3000 ext. 3000 or (508) 539-3000 or edwards@heywoodhosp.com

Heywood Healthcare
After Hospital / Heywood Hospital

PLANNING

The goal of the planning grant was to develop a behavioral health needs assessment for the area.

With the planning grant, Heywood Hospital conducted a behavioral health needs assessment to identify means to expand access to behavioral health care in the region. The planning process included interviewing a variety of behavioral health and community resource providers to gain more insight into the needs of the community as a whole, including social determinants of health as well as medical complexity.

Several large communities in Heywood Hospital’s Service area have lower incomes and higher rates of poverty than the average for the state, known as key social determinants of health.

CITY/TOWN IN HEYWOOD SERVICE AREAS	TOTAL POPULATION	HOUSEHOLDS WITH FOOD STAMP/SNAP BENEFITS IN THE PAST 12 MONTHS	ALL PEOPLE WITH WHOSE INCOME IN THE PAST 12 MONTHS IS BELOW POVERTY LEVEL	MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS	% OF INDIVIDUALS 25 YEARS OR OLDER WHO HAVE A BACHELOR’S DEGREE OR HIGHER
Ashburnham	5,991	1.5%	5.4%	\$80,000	34.8%
Ashby	2,987	1.2%	4.2%	\$80,143	29.9%
Athol	11,559	10.2%	9.1%	\$47,099	14.3%
Fitchburg	40,214	14.8%	19.4%	\$47,019	20.7%
Gardner	20,386	12.0%	11.4%	\$46,333	19.5%
Hubbardston	4,310	1.1%	9.5%	\$82,443	28.0%
Leominster	40,941	8.8%	9.9%	\$55,695	23.5%
Lunenburg	9,985	2.1%	5.5%	\$86,568	33.6%
Orange	7,795	14.3%	11.8%	\$42,809	18.0%
Phillipston	1,849	6.8%	3.5%	\$70,493	20.3%
Royalston	1,101	4.2%	4.1%	\$60,385	29.5%
Templeton	7,801	5.2%	8.1%	\$66,138	17.4%
Townsend	8,871	4.3%	5.2%	\$76,533	29.0%
Warwick	547	0.8%	5.4%	\$67,554	29.2%
Westminster	7,225	4.4%	4.5%	\$79,073	31.4%
Winchendon	10,212	8.50%	9.80%	\$58,582	19.30%
CHNA 9	262,605	5.3%	7.8%	\$65,011	26.0%
Massachusetts	6,587,536	9.5%	10.7%	\$65,981	22.1%

CHART PHASE 2 AWARD

Heywood, Athol Memorial, and HealthAlliance Hospitals received a joint award in CHART Phase 2 to enhance behavioral health care across the North Central and North Quabbin communities. A multipronged approach including school-based care, emergency department high risk care teams, care-coordination, and enhanced inpatient and outpatient behavioral health services aim to reduce emergency department use by behavioral health patients. These initiatives enhance and scale the hospitals’ CHART Phase 1 pilots as well as build out the services coordinated by the Regional Behavioral Health Collaborative developed by these hospitals and community partners in CHART Phase 1.

Holyoke Medical Center

HOLYOKE, MA

\$500,000

AWARD EXPENDED

Prior to CHART Phase 1, Holyoke Medical Center was one of the last remaining hospitals in the Commonwealth using paper medical records in its emergency department (ED). As part of CHART Phase 1, Holyoke Medical Center identified and implemented an electronic emergency department physician documentation system. An electronic emergency department information system is a foundational element for care delivery transformation initiatives.

CAPABILITY AND CAPACITY BUILDING

The goal of implementing the emergency department physician documentation system was to streamline the recording of healthcare information and to provide capabilities to transmit emergency department medical information to surrounding community providers including other acute care facilities, behavioral health facilities, primary care and behavioral health providers in order to decrease ED revisits.

Holyoke Medical Center implemented the electronic ED physician documentation system prior to the conclusion of CHART Phase 1. In addition, the hospital mapped how use of the electronic system, along with clinical processes, and in the future will help patient care teams flag high-risk patients, analyze their medical information and ultimately improve their care to reduce readmissions for that population.

101

NURSES AND MEDICAL STAFF WERE TRAINED ON AN INTERVIEW PROTOCOL AND DATA COLLECTION FORM IN THE NEW SYSTEM TO EVALUATE REASONS FOR READMISSION TO THE ED WITHIN 30 DAYS OF DISCHARGE.

ED physician documentation system screenshot



This example represents sample data on a fictional patient.

CHART PHASE 2 AWARD

In CHART Phase 2, Holyoke Medical Center will provide a broad array of enhanced behavioral health services. With key community partners, Holyoke Medical Center will provide cross-continuum care management for patients with behavioral health conditions, centered on a high risk care team in a redesigned emergency department. Together, these initiatives will support the goal of reducing 30-day emergency department revisits by patients with primary or secondary behavioral health conditions.

Lawrence General Hospital

LAWRENCE, MA

\$100,000

AWARD EXPENDED

Lawrence General Hospital developed a plan for improving cross-continuum care management that included a readmissions assessment, an outline of best practices to reduce high emergency utilization, assessing medication management in primary care practices, and assessments of information flow tools. The hospital developed a social work and nurse case management hybrid model of transitional care, with tiered service intensity for patient risk segments. The plan included a budget and financial impact forecast.

PLANNING

11,797

PATIENTS IDENTIFIED WITH NON-EMERGENT EMERGENCY DEPARTMENT VISITS IN A YEAR.

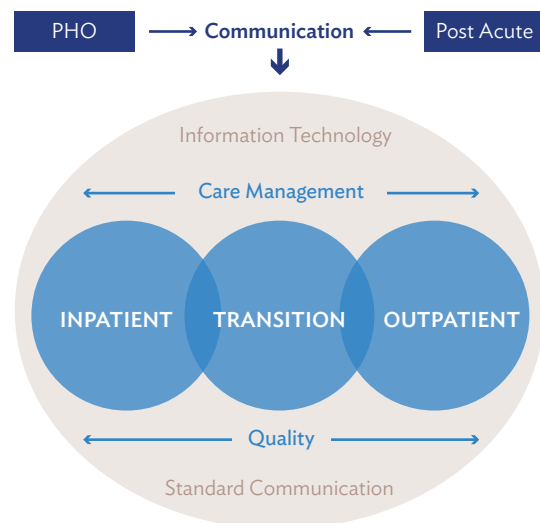
The goal of Lawrence General's planning initiative was to develop a detailed business and operational blueprint for a care management system for patients served by the hospital. Lawrence General has a long history of delivery system transformation initiatives, but used CHART 1 to bring focus and prioritization to their overall strategic approach.

Lawrence General Hospital's plan was developed from the model shown. The plan includes care management across settings ranging from primary care and post-acute care to community social service organizations. The plan also articulates specific needs for information technology enhancement and standard communication platforms and protocols across care settings. Lawrence General's plan also reflects an understanding of principles of quality improvement; the plan is adaptive and scales up over time, built upon frequent, focused small tests of change that build towards full implementation.

CHART PHASE 2 AWARD

Lawrence General Hospital will implement their CHART Phase 1 plan to reduce 90-day readmissions for patients with medically and/or socially complex needs through social work and nurse case management-based transitional care, linkage to elder services, and a focus on leveraging technology.

Cross continuum care management model



Lowell General Hospital

LOWELL, MA

\$497,900

AWARD EXPENDED

Sharing patient medical information across health care organizations and service providers can increase the quality and safety of care. Lowell General Hospital implemented a direct messaging solution or Cerner Direct (health information exchange variant) message solution with a community family medicine practice. The hospital also implemented 65 electronic health record hubs in affiliated practices to facilitate information exchange. Finally, the hospital also engaged in planning for population health in areas served by the hospital and its physicians.

CAPABILITY AND CAPACITY BUILDING

The goal of the direct messaging solution and electronic health record hubs was to accelerate the ability to electronically exchange health information with other providers.

69% of physicians surveyed reported that health information exchange tools improved their overall experience of providing care. 62% of physicians surveyed reported that the system reduced the amount of paper their office uses. The Direct message solution simplified exchange of information to Lowell General Hospital physicians from the participating community practice.

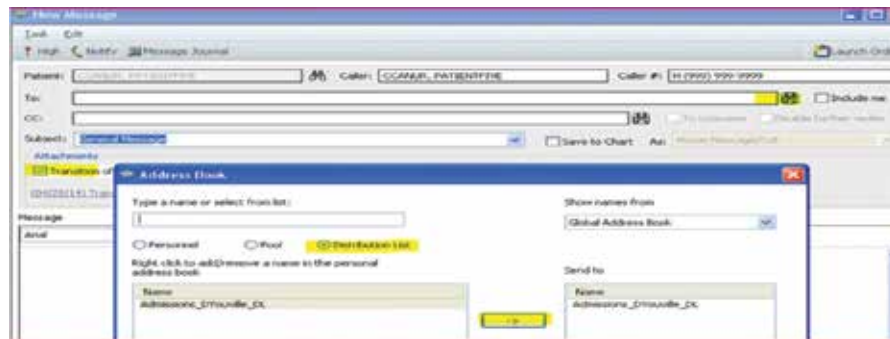
69%

OF PHYSICIANS SURVEYED REPORTED THAT HEALTH INFORMATION EXCHANGE TOOLS IMPROVED THEIR OVERALL EXPERIENCE OF PROVIDING CARE.

62%

OF PHYSICIANS SURVEYED REPORTED THAT THE SYSTEM REDUCED THE AMOUNT OF PAPER THEIR OFFICE USES.

Direct messaging solution screenshot



PLANNING

The goal of Lowell General Hospital's planning grant was to produce a comprehensive strategy and implementation plan for population health in Greater Lowell.

To guide planning activities, Lowell General Hospital developed a Population Health Innovation Council co-chaired by the Chief Medical Officer and the Vice President of External Affairs. The Council included both hospital leadership and community providers. Notably, Lowell General Hospital did not produce an actionable, measurable plan for population health to the Health Policy Commission during CHART Phase 1. However, at the time of publication of this report, Lowell General Hospital is currently developing a promising CHART Phase 2 initiative, providing population health services to reduce 30-day readmissions for high utilizers.

CHART PHASE 2 AWARD

Lowell General Hospital aims to reduce readmissions among high acute utilizer patients, through transitional care coordination with a focus on palliative care. Lowell General is also a participating site in a joint award in partnership with the three Lahey Health community hospitals to enhance care for patients with behavioral health needs across the care continuum.

Mercy Medical Center

SPRINGFIELD, MA

\$223,134

AWARD EXPENDED

Mercy Medical Center launched three training programs to enhance quality, safety, and overall improvement efforts among hospital leadership and management. Training topics included Lean/Six Sigma and Just Culture. Additionally, the hospital reviewed system-wide human resources, risk management, and clinical operations policies to ensure consistency with Just Culture principles.

CAPABILITY AND CAPACITY BUILDING

The goal of Mercy Medical Center’s training programs was to enhance the culture of safety, efficiency, and continuous improvement by training a critical mass of hospital employees to ultimately shift towards a highly reliable, safe delivery system.

66 employees completed an 8-week ‘Lean in Health Care’ training, 112 employees completed a Just Culture training program, 19 employees completed training in Culture of Safety, 7 health system leaders completed Six Sigma certificate training, and 47 senior leaders and middle managers completed a day-long Lean primary; the staff that completed these trainings subsequently led more than 75 individual improvement initiatives. For example, one hospital team reduced orthopedic length of stay through from a baseline of 3.24 days to 2.98 days by reviewing equipment used.

CHART PHASE 2 AWARD

Mercy Medical Center will reduce emergency department length of stay and enhance services for patients with a behavioral health condition. Activities will include an emergency department based high risk care team. Mercy Medical Center will leverage the developed through extensive staff training in CHART Phase 2 to apply process improvement skills to optimize CHART Phase 2 activities.

Mercy Medical Center trainings



Milford Regional Medical Center

MILFORD, MA

\$453,306

AWARD EXPENDED

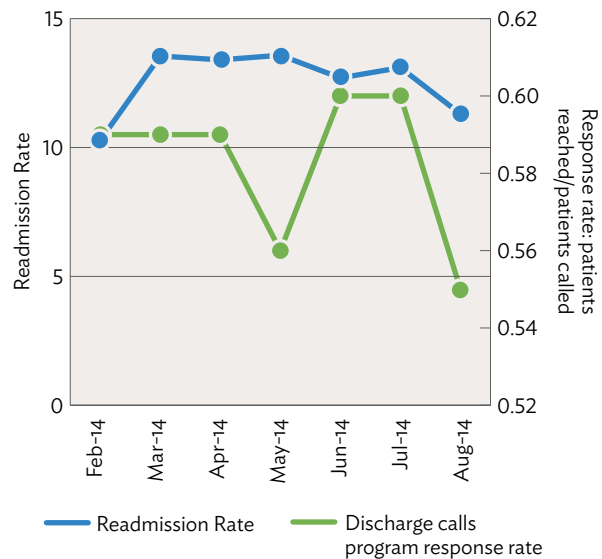
Recognizing that its readmission rate was higher than the national average, Milford Regional Medical Center sought to decrease readmissions by enhancing communication across the continuum of care and during transitions of care. Milford Regional Medical Center worked with external consultants to develop a care redesign plan and a health information exchange strategy for its readmission reduction program. The readmission reduction team was formed to bridge the gaps in care as identified in the care redesign plan. The team engaged in real-time improvements at the point of care, including the use of electronic notifications for the care of high-risk patients.

RAPID-CYCLE PILOT

The readmission reduction team's primary goal was to support improved care coordination by way of enhanced communication and technology. The team partnered with an area elder services agency where patients were referred to engage in the Care Transitions Intervention ("Coleman coaching™"). The team also utilized the hospital's discharge call program which sends automated phone calls to all patients discharged to home, within 24-72 hours following discharge, and records responses by the patient or family, which can subsequently trigger further follow-up.

Milford Regional Medical Center collected both process (call response rate) and outcome (readmissions) measures. The call response rate for the discharge phone program fluctuated over the period of performance of CHART Phase 1; this mirrors early findings in the CMS Community-based Care Transitions Program. Future work, including in CHART Phase 2, will work to increase patient engagement in the program. No notable change in readmissions was seen during CHART Phase 1.

All cause readmissions and response rate for the discharge call program



251

REFERRALS TO THE LOCAL ELDER SERVICES AGENCY FOR TRANSITIONAL CARE.

CHART PHASE 2 AWARD

Milford Regional Medical Center will continue activities to reduce readmissions among inpatient high utilizers through a hospital-based, community-oriented high risk care team.

Noble Hospital

WESTFIELD, MA

\$328,574

AWARD EXPENDED

Prior to CHART Phase 1 implementation, Noble Hospital scheduling staff relied on a number of disconnected tools to schedule patient appointments (e.g., operating room, MRI, room scheduling, etc.) in the inpatient setting. The lack of sufficient technical infrastructure contributed to substantial scheduling errors and inefficiencies. Noble Hospital adopted a universal scheduling system and Central Scheduling Hub for all departments across the hospital. The new system enabled staff to eliminate the use of Microsoft Outlook Calendars, Excel spreadsheets, and paper systems for scheduling purposes.

CAPABILITY AND CAPACITY BUILDING

10

MINUTES LESS TIME ON AVERAGE TO SCHEDULE A PATIENT FOR AN MRI.

The goal of the Central Scheduling Hub was to streamline the scheduling process throughout the hospital, allowing a more efficient workflow and ultimately improving patients' experiences of care.

Noble Hospital decreased the time to schedule an MRI appointment from an average of 17 minutes per patient to an average of seven minutes.

Scheduling system workflows

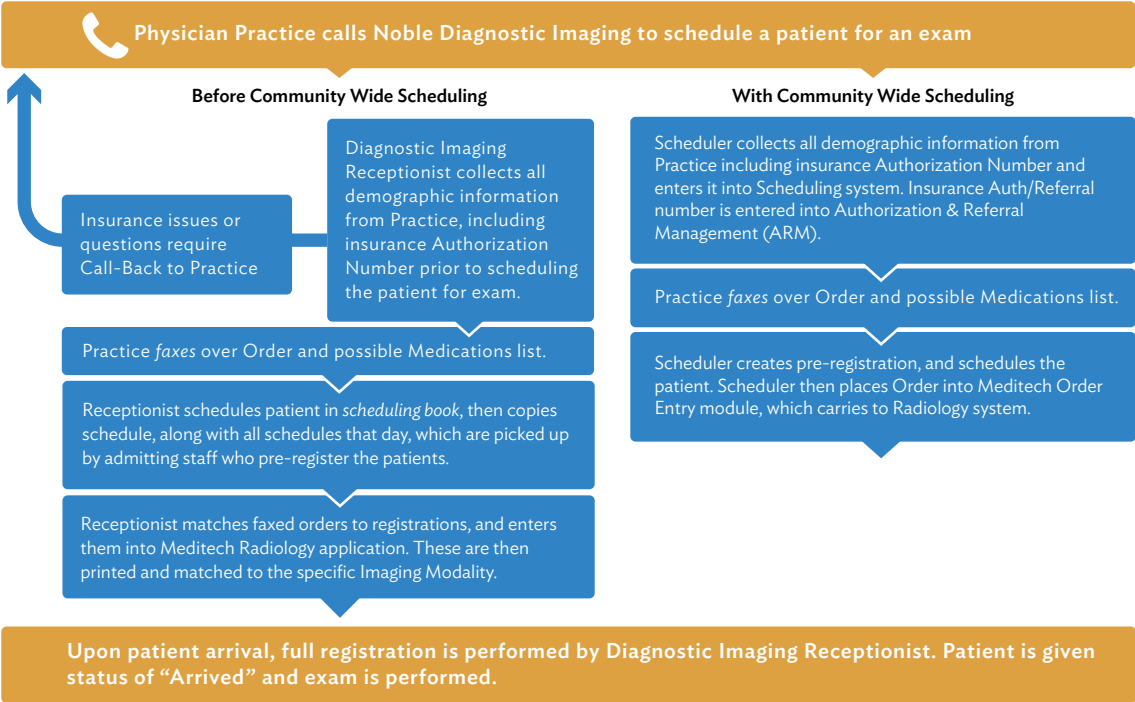


CHART PHASE 2 AWARD

Shifting to activities to reduce a different type of waste — overutilization — Noble Hospital received a CHART Phase 2 award to reduce readmissions and emergency department revisits for high risk patients. Noble will implement a high risk care team coordinated closely with community providers, in particular focused on behavioral health care.

Signature Healthcare Brockton Hospital

BROCKTON, MA

\$432,237

AWARD EXPENDED

In an effort to increase reliability and rapid response to the needs of complex patients, Signature Healthcare Brockton Hospital integrated two new functionalities into its existing technology infrastructure. The hospital added a tool to its electronic medical record system to measure and alert clinicians to declines in patient health status, PeraTrend. Signature Healthcare Brockton Hospital also integrated a population health data analytics tool to extract from its data warehouse, which integrates claims data and electronic health record information. Finally, the hospital engaged with two external consultants to develop a five-year master plan for the adoption and utilization of lean management strategies and culture change.

CAPABILITY AND CAPACITY BUILDING

20,686

ROTHMAN INDICES
WERE CALCULATED FOR

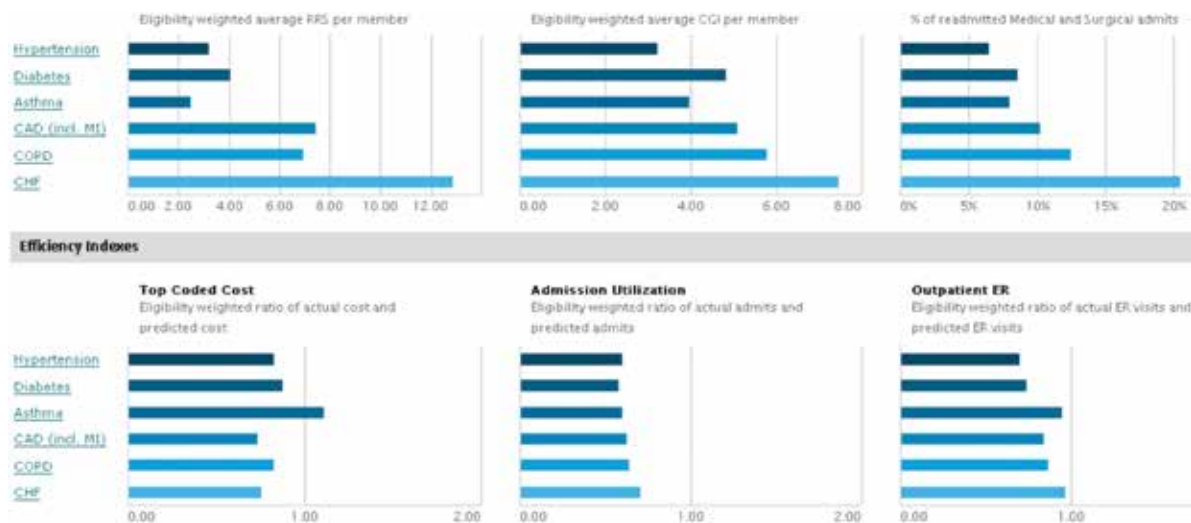
792

PATIENTS OVER A
TWO-MONTH PERIOD.

The goal of using Verisk Health software as an analytics overlay on Signature Healthcare's data warehouse was to use predictive science, business intelligence tools, and clinical insight to enable Signature Medical Group to interpret and manage the risk of patients in alternative payment contracts. The Verisk Health software is used to identify patients and clinical trends which can lead to opportunities to close quality gaps in care as well as to improve the cost of managing a population.

PeraTrend software is an electronic medical record-compliment that uses 26 clinical variables from nursing assessments, vital signs, and lab results to create an early warning system (the Rothman index) of patient decline for more effective clinical decision support. PeraTrend is intended to increase early rescue, decrease mortality, and increase use of palliative care.

Sample of Verisk Population Health Summary



PLANNING

Signature Healthcare developed a five-year master plan for achieving a high reliability organization; this plan is focused on spreading and sustaining a culture of lean, safety, and reliability throughout the organization.

Signature Healthcare Brockton Hospital has a five-year lean management plan that follows the implementation phases below and includes quantifiable goals and benchmarks.

Operational excellence implementation phases

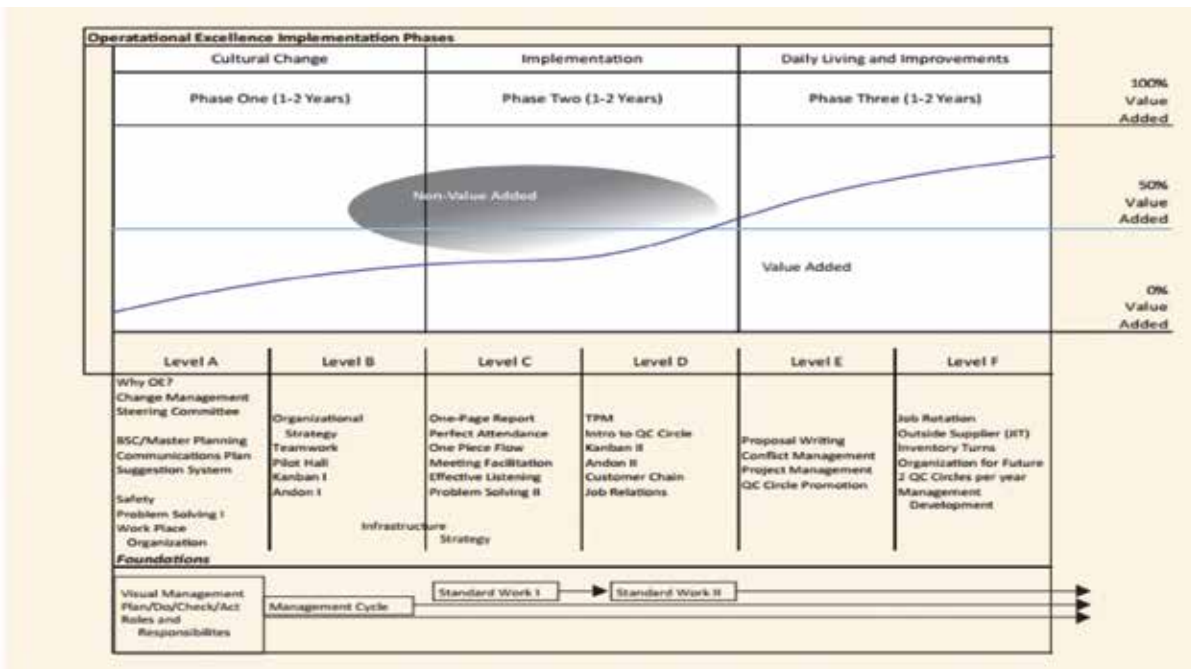


CHART PHASE 2 AWARD

In CHART Phase 2, Signature Healthcare Brockton Hospital will reduce 30-day readmissions for all hospital patients, decrease emergency department length of stay during select shifts, enhance hospital culture, and improve early intervention when patients' condition declines. Several of these CHART Phase 2 initiatives draw from CHART Phase 1 experiences, including scaling PeraTrend across the hospital, and expanding use of lean approaches to process improvement developed in CHART Phase 1.

Southcoast Charlton Memorial Hospital

FALL RIVER, MA

\$311,493

AWARD EXPENDED

With the goal of improving population health by way of identifying patients as high-risk and supporting them through care management services, Southcoast Charlton Memorial Hospital hired three registered nurse care managers and embedded them within three primary care practices to coordinate care for the hospital's highest risk patients. In addition, the hospital leveraged Medicare Shared Savings Program claims data to identify its highest risk patients to more efficiently deploy care management services.

RAPID-CYCLE PILOT

150

PATIENTS ENGAGED IN CARE MANAGEMENT.

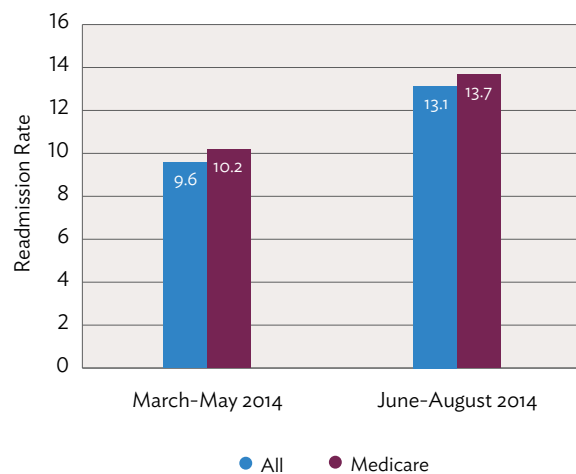
369

ENCOUNTERS WITH A REGISTERED NURSE.

The goal of the care management program was to transform care coordination beyond the hospital by embedding care managers into three Southcoast primary care physician practices. Southcoast Charlton Memorial Hospital developed workflows to use clinical criteria from the electronic medical record disease registry to flag the patients' electronic medical records and on the daily appointment schedule.

Charlton Memorial reported a quarterly readmission rate. Grouping the data points in quarters did not allow Charlton Memorial to trend this data over for CHART Phase 1. The hospital had challenges reporting on self-proposed metrics.

Quarterly readmission rate



PLANNING

The goal of Charlton Memorial's planning initiative was to build infrastructure to be able to rapidly identify high-risk patients to engage them in care management services.

Southcoast successfully implemented a new population health analytics tool to be used to assess claims data. However, the Medicare Shared Savings Plan claims anticipated by Southcoast were delayed during CHART Phase 1. Once the data were received, questions about data integrity further delayed their use. Southcoast Charlton Memorial Hospital is now using these data to create reports for population health management, including reports for the Care Management department used to prioritize patients for outreach and engagement in comprehensive population health management services.

CHART PHASE 2 AWARD

The three hospitals in Southcoast Health System collectively received a CHART Phase 2 joint award to enhance care for patients with behavioral health conditions and high utilizers. Specifically, Southcoast will focus on reducing emergency department revisits for behavioral health patients, and reducing 30-day readmissions for inpatient high utilizers. These complex programs will draw from CHART Phase 1 activities, including utilization of the Southcoast Asset Map of community providers as well as operational insights from experiences in CHART Phase 1 pilots.

Southcoast St. Luke's Hospital

NEW BEDFORD, MA

\$294,313

AWARD EXPENDED

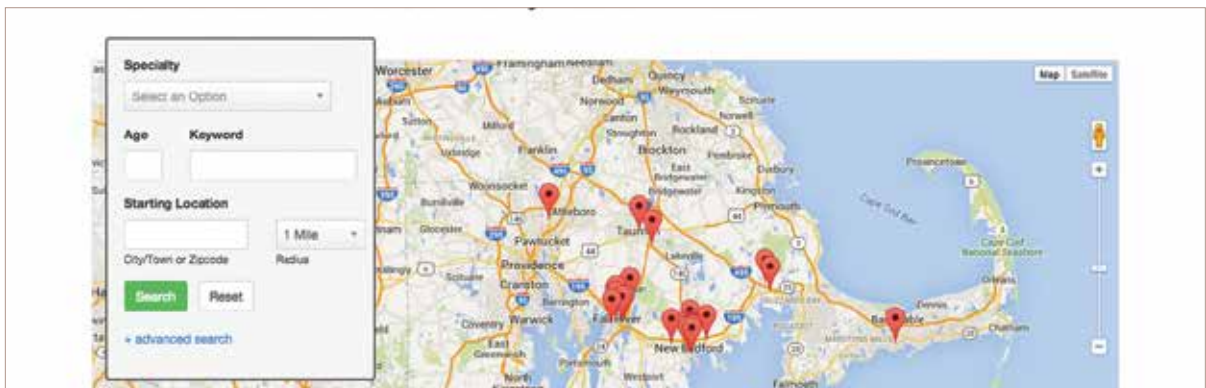
In order to properly coordinate care for their patients, hospitals must be aware of supportive medical, behavioral, and social services resources available to patients in their communities; further, hospitals must have mechanisms and protocols to connect patients with these services. Southcoast St. Luke's Hospital reviewed behavioral health and social service community resources in order to identify gaps in referrals to inpatient and outpatient services in its catchment area. With the goal of bridging these gaps, particularly with regard to behavioral health, Southcoast St. Luke's Hospital created an electronic, publicly available asset map to assist in identifying resources, enabling communication among care settings, and connecting patients to those resources.

CAPABILITY AND CAPACITY BUILDING

The goal of the asset map was to increase communication among providers, better link regional behavioral health services, and facilitate better coordination of care and improved access to inpatient and outpatient services.

Southcoast St. Luke's Hospital gathered data from more than 100 community partners to be included in its resource locator. It took a large amount of work, dedicated time, and iterations to decide what information to collect and to develop the asset map. This level of effort may not be easily replicable. Southcoast Health has committed to sustaining this work by adding two community benefit coordinators to their community benefits department to ensure proper distribution and updating of the asset map and to work with community partners on identified service gaps.

Behavioral health and community resource locator screenshot



PLANNING

The goal of the planning component was to develop a blueprint for the operations of a medication management clinic to support patients prescribed psychotropic medications.

Southcoast St. Luke's Hospital surveyed 132 patients with a primary psychiatric complaint or patients who presented with a chief medical complaint and were identified as having a co-morbid mental health condition in its emergency department while planning for the medication clinic and found that 14.4% of patients did not have a primary care physician, while 24.4% of patients were prescribed psychotropic drugs by a primary care provider. Having identified high prescription rates in primary care settings, St. Luke's changed its plan from developing a free-standing medication clinic to integrating services into a primary care office. This change added complexity to the planning work, with the addition of primary care practices as new stakeholders, but the team felt this model would better serve patients' needs.

Psychotropic medication problems identified

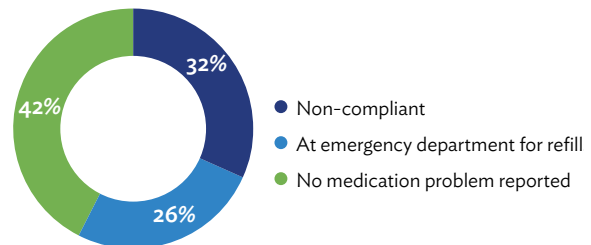


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Southcoast Tobey Hospital

WAREHAM, MA

\$355,817

AWARD EXPENDED

In an effort to enhance its disease management program and improve care management for chronic diseases, Southcoast Tobey Hospital created a diabetes care management team modeled on the Cleveland Clinic's approach to diabetes management. It trained registered nurses at the hospital in advanced diabetes care. The hospital hired a diabetes nurse navigator and four community health workers to support diabetes patients and their families in the community through primary care sites.

RAPID-CYCLE PILOT

The goal of the care delivery pilot was to improve patient engagement and patient activation for individuals with diabetes, as well as reduce the readmission rate for diabetes-related diagnoses and increase access to diabetes resources in the community.

Eighty-two percent of patients participating in the inpatient program had a follow-up appointment within 7 days of discharge. The readmission rate for the target population was 12.07 in CHART Phase 1. Tobey Hospital did not report a month to month readmission trend for the target population because of the small sample size.

316

PATIENTS SERVED.

265

COMMUNITY HEALTH WORKER HOME VISITS.

Number of new patients receiving case management services

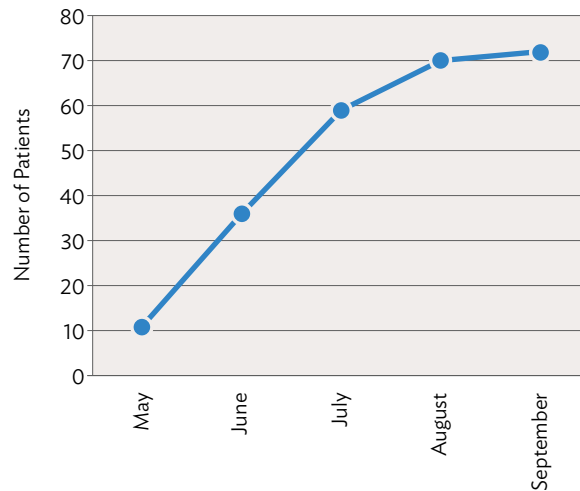


CHART PHASE 2 AWARD

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Winchester Hospital

WINCHESTER, MA

\$286,500

AWARD EXPENDED

Winchester Hospital's CHART Phase 1 initiatives focused on decreasing readmissions for high-risk patients with conditions for which 30-day readmissions are penalized by Medicare. Some of these conditions have relatively few readmissions, for example Winchester Hospital had only one patient with acute myocardial infarction who was readmitted in 30-days, making this a very small target population. Winchester Hospital created a care management team to coordinate care through medication reconciliation, involving family caregivers in patient education and in introducing the concept of using palliative care services to eligible patients. The hospital also implemented care management services in their emergency department. Additionally, the hospital enhanced warm handoff transitions to skilled nursing facilities, with the goal of reducing readmissions.

RAPID-CYCLE PILOT

1,406

PATIENTS SERVED
ACROSS THE THREE
PROGRAMS.

The goal of the care delivery pilots was to reduce inpatient hospital readmissions for adult patients through enhancing communications and extending clinical support resources at vulnerable points in the care transition process.

Winchester Hospital created a *warm-handoff* process with skilled nursing facilities in its region. A warm-hand off is a verbal report on patient care needs from the inpatient hospital direct care nurse to the nurse in the post-acute facility. The implementation included training and nursing competency assessment, and the warm handoffs have continued beyond CHART Phase 1. Although the hospital reported increased satisfaction among providers as a result of this pilot, Winchester Hospital was unable to quantify its impact on quality or costs at the end of CHART Phase 1.

CHART PHASE 2 AWARD

Winchester Hospital received a CHART Phase 2 award to reduce 30-day readmissions for high utilizers and all discharges to post-acute care services. These initiatives draw extensively from Winchester's CHART Phase 1 readmission reduction activities, including warm handoffs with post-acute providers and enhanced coordination between emergency department clinicians and hospitalists to reduce admissions from the ED. Winchester is also a participating site in a joint award in partnership with other Lahey Health community hospitals and Lowell General Hospital to enhance care for patients with behavioral health needs across the care continuum.

Process flow for patients discharged to a skilled nursing facility

Patient requires SNF care after discharge

Inpatient Case Manager offers the patient choice of SNF which will best meet the patient's needs

Patient selects preferred SNF

SNF liaison screens the patient for admission eligibility

SNF accepts patient for transfer

Staff Nurse calls SNF for warm hand off on the day of discharge and documents handoff in patient chart

Acknowledgements

Commissioners

Dr. Stuart Altman, *Chair*

Dr. Wendy Everett, *Vice Chair*

Dr. Carole Allen

Mr. Martin Cohen

Dr. David Cutler

Dr. Paul Hattis

Ms. Kristen Lepore

Secretary of Administration and Finance

Mr. Rick Lord

Ms. Marylou Sudders

Secretary of Health and Human Services

Ms. Veronica Turner

Executive Director

Mr. David Seltz

Cecilia Gerard, Deputy Director of Policy for Care Delivery Innovation and Investment, along with Kathleen Moran, Senior Policy Associate for Care Delivery Innovation and Investment prepared this report with the guidance of Iyah Romm, Director of Policy for Care Delivery Innovation and Investment, with significant contributions from Margaret Senese, Senior Manager for Care Delivery Innovation and Investment.

Commission staff made contributions to the preparation of this report. Aurelie Cordier, Mary Ann Fitzgerald, Todd Foy, Brady Fish, Griffin Jones, Gabriel Malseptic, and Lauren Melby conducted research and provided content for this report. Coleen Elstermeyer, Lisa Snelings, and Sara Sadownik reviewed the contents and provided comments.

The Commission wishes to acknowledge the strategic and technical support provided by Collaborative Healthcare Strategies throughout the CHART Investment Program and in preparation of this report. The

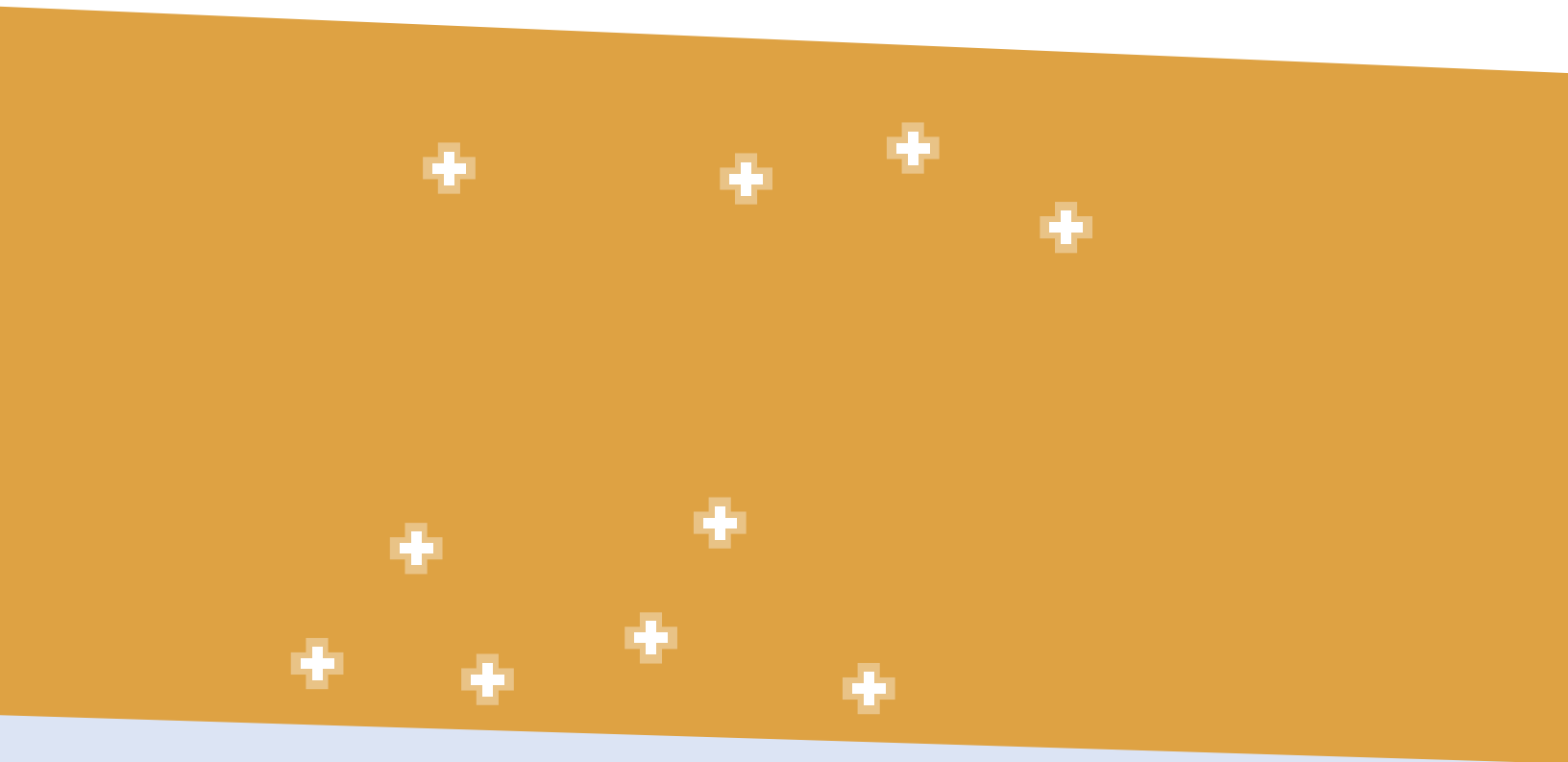
Commission also wishes to acknowledge Safe and Reliable, LLC, whose analyses of culture and management practices are included in this report. The Commission wishes to acknowledge Opus Design, who laid out this report under the guidance of Kelly Mercer and Cecilia Gerard.

The Commission would like to thank the CHART hospitals, their leaders, their staff, and their community partners, who provided much of the information contained within this report in the form of submissions to the HPC.

Finally, the Commission acknowledges the input of consumers and stakeholders to the CHART Investment Program, both through development of the regulatory framework and on an ongoing basis through the HPC's Advisory Council. We hope that this report provides useful information for providers, insurers, policy makers and the public.

Index of Acronyms

ACO — Accountable Care Organization	HSOPS — Hospital Survey on Patient Safety
AHRQ — Agency for Healthcare Research and Quality	IPP — Implementation Planning Period
APM — Alternative Payment Method	IT — Information Technology
BID — Beth Israel Deaconess	MeHI — Massachusetts eHealth Institute
CEO — Chief Executive Officer	MRI — Magnetic Resonance Imaging
CHART — Community Hospital Acceleration, Revitalization, and Transformation	PACE — Program of All-Inclusive Care for the Elderly
CMS — Centers for Medicare and Medicaid Services	PCMH — Patient-Centered Medical Home
DSTI — Delivery System Transformation Initiative	PCP — Primary Care Physician
ED — Emergency Department	PMP — Prescription Monitoring Program
EHR — Electronic Health Record	RFP — Request for Proposals
EMS — Emergency Medical Services	SBS — School Based Services
EMTALA — Emergency Medical Treatment and Labor Act	SMI — Serious Mental Illness
HIE — Health Information Exchange	SNF — Skilled Nursing Facilities
HIT — Health Information Technology	SRH — Safe and Reliable Healthcare, LLC
HPC — Health Policy Commission	SUD — Substance Use Disorder
HRIT — High Risk Intervention Team	VNA — Visiting Nurse Association
	WMS — World Management Survey



HEALTH POLICY COMMISSION

617.979.1400

HPC-Info@state.ma.us

50 Milk Street, 8th Floor | Boston, MA 02109

www.mass.gov/HPC

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