COMMONWEALTH OF MASSACHUSETTS
HEALTH POLICY COMMISSION

CHART

Community Hospital Acceleration, Revitalization, and Transformation Program

Phase 1 — Foundational Investments for Transformation

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.

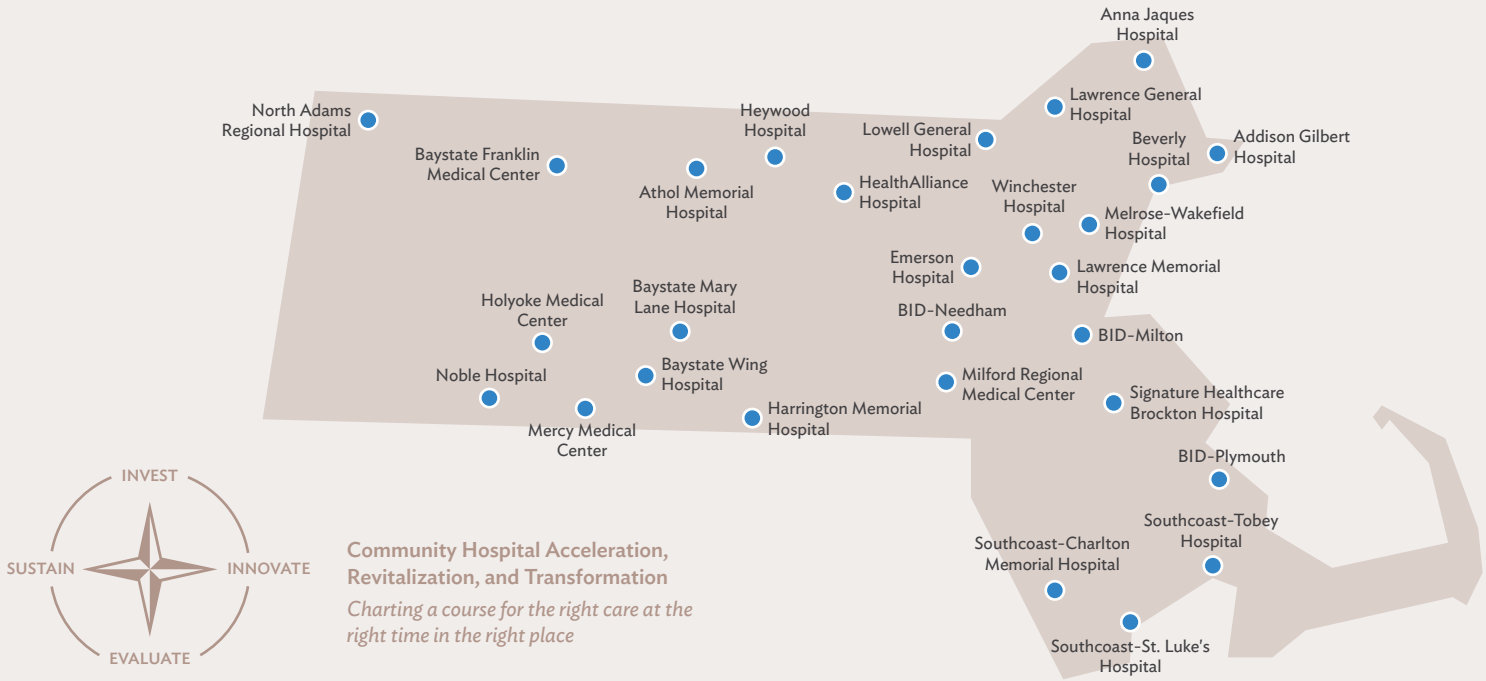
About the CHART Investment Program

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.

CHART

Community Hospital Acceleration, Revitalization, and Transformation Program

Phase 1 — Foundational Investments for Transformation



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.

Throughout Phase 1, the HPC observed and hospitals shared common experiences and challenges, captured in a series of program surveys and evaluation tools.

Lessons learned by the program include:

- *The composition of transformation teams matters.* Phase 1 initiatives ranged from care delivery pilots to strategic planning for transformation to technology implementation. The mix of skill sets needed to plan and successfully implement initiatives was diverse. Selecting the right people for a transformation team was critical to success.
- *Process improvement is key to improving efficiency.* Some CHART initiatives planned to incorporate process improvement approaches into their hospitals through training or use of lean methodologies, while others recognized the value of performance improvement only after encountering challenges in implementation. Improving care processes improved efficiency and often led to measureable outcomes.
- *Leadership and project management must engage throughout the lifecycle of initiatives.* Focused management at the project level, as well as leadership engagement to clear a path for meaningful project execution, were two qualities that stood out as promoting success of Phase 1 investments. Dedicated project managers were critical to the success of the most promising initiatives. Leadership awareness and involvement varied across the cohort, but was correlated with success of the initiatives.
- *Data analysis is essential to measure performance and drive improvement.* Data are perhaps the most critical factor for enabling improvement. Data are used to define a target population, monitor ongoing progress, continuously improve, and assess outcomes from interventions. CHART hospitals had varying degrees of success accessing and analyzing data for their initiatives; capabilities were highly variable across units and hospitals.
- *Community partnerships are challenging to build, but are essential to success in value-based care.* Hospitals had varying levels of engagement with community partners. Some were just beginning to explore opportunities to collaborate, while others were able to develop integrated work-flows or lend support to community partners by sharing staff.
- *Sustaining low-cost options for acute care is critical for maintaining a value-based system.* Developing and implementing a model for sustainability is one of the necessary factors for hospital transformation. Thus, CHART investees were encouraged to focus on building internal capacity and capability. Payment reform remains a primary barrier to sustainability of care delivery projects; lower volume can be a plus in a value-based world, but costly to hospitals under volume-based payment arrangements.

CHART hospitals are strongly focused on shifting their business, operational and strategic priorities to optimally meet the needs of their patients. This has led to a strong focus in the second phase of CHART Investments — $60 million awarded in October 2014 to 28 hospitals — on reducing hospital utilization and enhancing behavioral health care. Massachusetts has a rich history of collaborative approaches to solving important health care challenges. In CHART, the HPC has begun to level incentives, creating an environment in which interventions can be delivered payer blind. Demonstration of success here will support the Commonwealth's policy efforts to align incentives and delivery models across providers and payers. The HPC will continue to foster partnership, support spread of best practices between peers and experts, and push awardees to accelerate transformation.

Massachusetts has a rich history of collaborative approaches to solving important health care challenges.

OVERVIEW

Promoting High-Value Health Care

The Health Policy Commission (HPC) is an independent state agency established through Chapter 224 of the Acts of 2012, the Commonwealth's landmark cost-containment law. The HPC, led by an 11-member board with diverse experience in health care, is leading efforts to advance Massachusetts' ambitious goal of health care cost containment. Specifically, the HPC aims to align cost growth with the growth rate of the Massachusetts economy. The HPC's mission is to advance a more transparent, accountable, and innovative health care system through independent policy leadership and programs. The goal is better health and better care at a lower cost across the Commonwealth.

To bend the cost curve, Massachusetts must employ a variety of approaches to change the structures of the delivery system, incentivize providers to provide high quality, low cost care, and shift how purchasers and consumers determine where to access care. A key component must be maintaining the availability of high value — often low-cost—providers. The HPC invests in innovative care delivery and payment models to accelerate transformation of these providers.

HOSPITAL	CITY	AWARD SPENT ($)
Addison Gilbert Hospital	Gloucester	$291,581
Anna Jaques Hospital	Newburyport	$333,500
Athol Memorial Hospital	Athol	$478,413
Baystate Franklin Medical Center	Greenfield	$396,314
Baystate Mary Lane Hospital	Ware	$420,682
Baystate Wing Hospital	Palmer	$357,000
Beth Israel Deaconess Hospital-Milton	Milton	$128,385
Beth Israel Deaconess Hospital-Needham	Needham	$295,720
Beth Israel Deaconess Hospital-Plymouth	Plymouth	$243,153
Beverly Hospital	Beverly	$65,000
Emerson Hospital	Concord	$202,575
Hallmark Health System-Lawrence Memorial Hospital	Medford	$330,545
Hallmark Health System-Melrose-Wakefield Hospital	Melrose	$355,899
Harrington Memorial Hospital	Sturbridge	$491,600
HealthAlliance Hospital	Leominster	$410,000
Heywood Hospital	Gardner	$302,833
Holyoke Medical Center	Holyoke	$500,000
Lawrence General Hospital	Lawrence	$100,000
Lowell General Hospital	Lowell	$497,900
Mercy Medical Center	Springfield	$223,134
Milford Regional Medical Center	Milford	$453,306
Noble Hospital	Westfield	$328,574
Signature Healthcare Brockton Hospital	Brockton	$432,237
Southcoast-Charlton Memorial Hospital	Fall River	$311,493
Southcoast-St. Luke's Hospital	New Bedford	$294,313
Southcoast-Tobey Hospital	Wareham	$355,817
Winchester Hospital	Winchester	$286,500

Understanding the CHART Hospital Context

Massachusetts has long been characterized by substantial variation in the prices paid to different provider organizations.[1] Higher prices that are not tied to value represent significant costs to consumers, businesses, and the state budget. For example, a 2013 Center for Health Information and Analysis (CHIA) report found that some providers are paid more than six times as much as others for hospital services, and some are paid more than eight times as much as others for physician services.[2] Further, total payments for hospital services are highly concentrated among the more expensive providers across all payer networks. This level of concentration has remained virtually unchanged in the last three years as there has been no substantial change in the distribution of payments between higher and lower-priced providers. This substantial variation is particularly concerning given that increasing provider prices, not changes in utilization, have been the major driver of rising health care spending in the Commonwealth since at least 2007, when the Commonwealth began tracking these data.[3]

> Higher prices that are not tied to value represent significant costs to consumers, businesses, and the state budget.

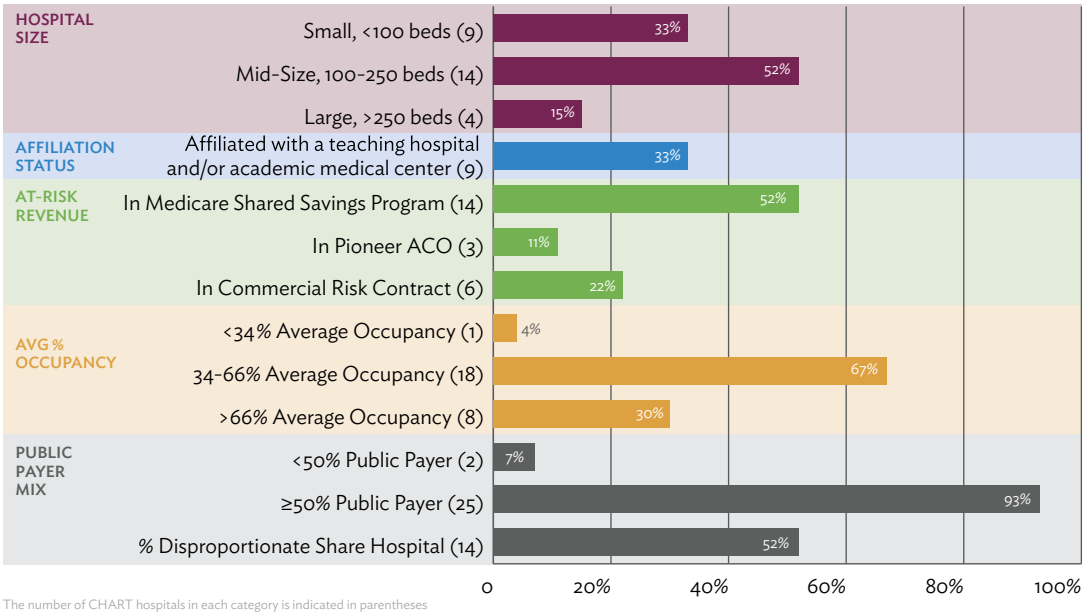
This significant price variation can impact the financial health of critical lower-cost community providers, which as a group tend to receive the lowest commercial rates. Indeed, lower-cost providers have attributed service line reductions and hospital closures to commercial price variation. Such closures of lower-cost providers not only have access implications for consumers, but also may exacerbate the trend

1 Office of Attorney General Martha Coakley. "Examination of Health Care Cost Trends and Cost Drivers" (Boston, MA: AGO, 2010)

2 Center for Health Information & Analysis. "Health Care Provider Price Variation in the Massachusetts Comercial Market: Results from 2011" (Boston MA: CHIA, 2013). Similar findings have been reported since 2010 by the Office of the Attorney General, the Division of Health Care Finance and Policy, and the 2011 Special Commission on Provider Price Reform.

3 Division of Health Care Finance & Policy "Massachusetts Health Care Cost Trends: Trends in Health Expenditures" (Boston, MA: DHCFP, 2011).

Characteristics of CHART hospitals at time of Phase 1 award

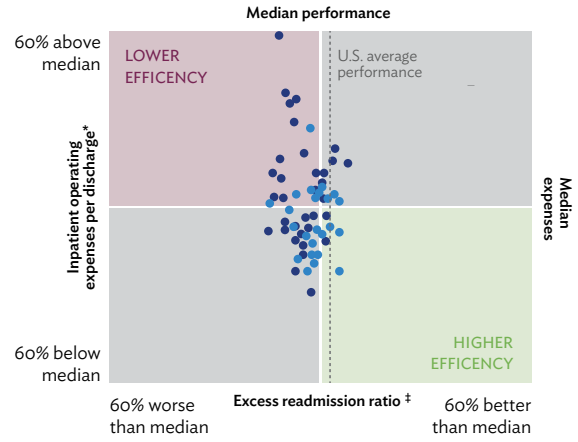


The number of CHART hospitals in each category is indicated in parentheses

of consumers obtaining care in more costly settings, further increasing health care spending.

Quality performance relative to inpatient operating expenses per admission

Excess readmission ratio versus dollars per case mix adjusted discharge*



● CHART hospitals †

* 2012 inpatient service expenses divided by inpatient discahrges. Adjusted for hospital case mix index (CHIA 2011) and area wage index(CMS 2012)
† Athol Memorial Hospital and Shriners Hospital are not displayed, as data were not available for measures shown.
‡ Composite of risk-standardized 30-day Medicare excess readmission ratios for acute myocardial infraction, heart failure, and pneumonia (2009-2011) The composite rate is a weighted average of the three condition-specific rates.
Source: Center for Health Information and Analysis; Center for Medicare & Medicaid Services; HPC analysis

Prior research by the Massachusetts Attorney General's Office, CHIA, and the HPC has demonstrated that the higher prices that some providers receive are not explained by better quality, higher patient acuity, or other indicators of high value care.[4] In fact, many community hospitals may be more efficient providers than higher priced teaching hospitals, offering low-cost and high-quality care.[5]

Across all payer networks in Massachusetts in 2013, higher priced acute hospitals (above the statewide median relative price) received 86 percent of total payments for inpatient services and 73 percent of total payments for outpatient services.[6] In 2012, these higher priced acute hospitals also accounted for 70 percent of total commercial discharges.[7] This combination of higher prices and volume contributes to the concentration of total payments in certain (non-CHART) acute hospitals. These services are not of higher value at the higher-paid hospitals; by contrast, price variation is closely associated with market leverage.

These historic rate inequities have impacted the ability of some community hospitals to invest in transformation. In some cases, community hospitals do not have access to capital to meaningfully invest in people, process, and technology to remain sufficiently competitive. CHART hospitals, for example, generally have substantially older physical plants than the state average and face substantial challenges in funding replacement projects. This further detracts from the ability to invest in new capabilities — development for analytics, population-health management and other capacities necessary for a value-based environment.

> Historic rate inequities have impacted the ability of some community hospitals to invest in transformation.

The recent closure of two community hospitals in Massachusetts reinforces the need for targeted investment in critical low-cost community providers. Hospitals and health systems must adapt to new reimbursement models and changes in public funding, shifting demographics in their communities, and changes in care patterns from inpatient to outpatient settings. Investments that address the historic disparities in payment to community providers will facilitate renewed competition in a value-based payment environment.

4 Special Commission on Provider Price Reform. "Recommendations of the Special Commission on Provider Price Reform" (Boston, MA: 2011). Similar findings have been reported since 2010 by the Office of the Attorney General, CHIA, and the HPC.

5 For example, in the HPC's 2014 Cost Trends Report, the HPC found that hip and knee replacement spending ranged from $26,200 to $41,700 and from $22,300 to $38,000, respectively. Further, CHIA identified that prices paid for screening mammography to the highest-priced provider were 3.6 times higher than prices paid to the lowest-priced provider for this standard service, from $529 to $146.

6 Center for Health Information and Analysis. "Performance of the Massachusetts health care system series: Provider price variation in the Massachusetts health care market (CY 2013 data)" (Boston, MA: CHIA, Feb. 2015)

7 Center for Health Information and Analysis. "Annual Report on the Massachusetts Health Care Market: Data Supplement: 2012 Relative Price Data" (Boston, MA: CHIA, Feb. 2015)

Average age of plant

Many CHART hospitals have an older age of plant than the median for the state, reflecting the capital challenges these hospitals are facing in funding near term replacement of their physical plants

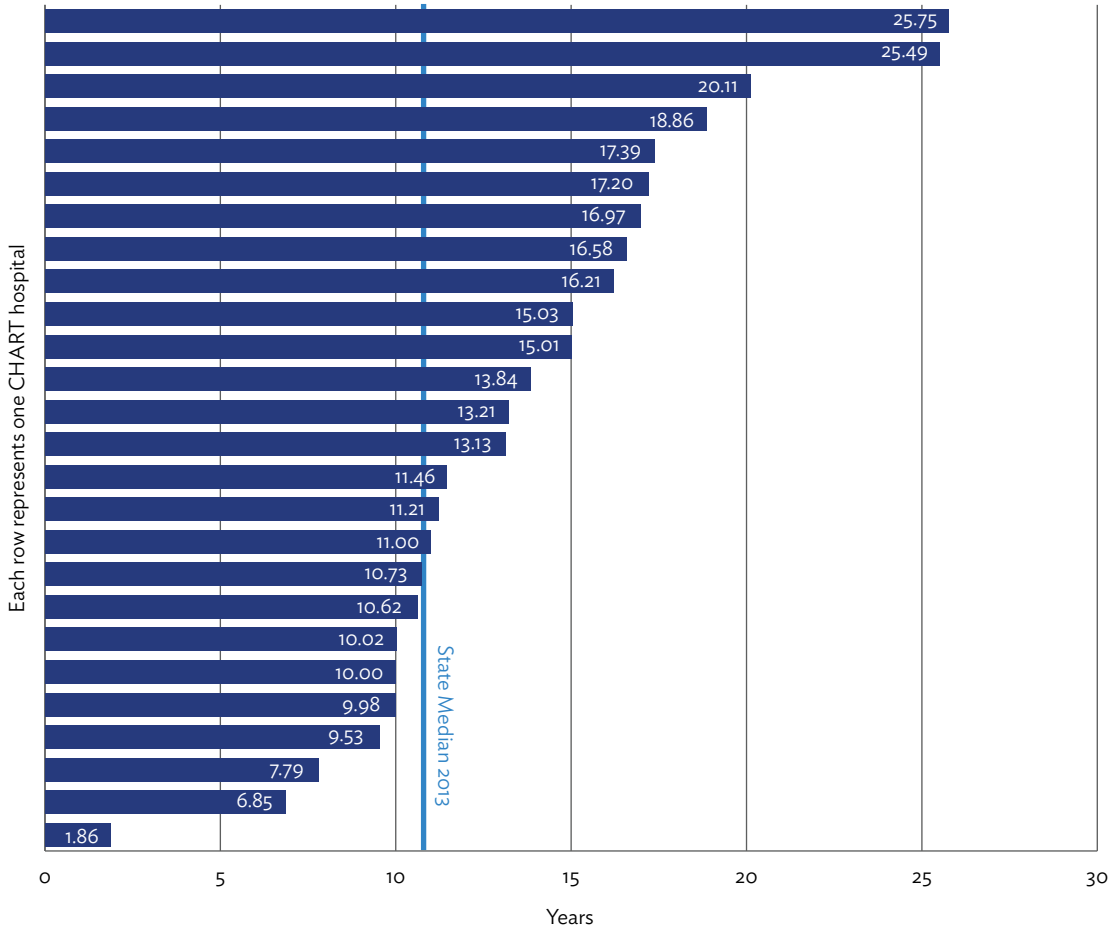


CHART — Supporting Efforts to Meet the Health Care Cost Growth Benchmark

The 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 in a rapidly changing health care environment.

As a heterogeneous group of small organizations, community hospitals are particularly sensitive to market change. Facing an unprecedented impetus to transform care, these hospitals often lack sufficient resources to develop the capabilities necessary to succeed in a value-based care delivery and payment environment. Investments in care management and coordination, data and analytics infrastructure, and workforce capacity are necessary to enable this transformation.

Appreciating that community hospitals are diverse in size, geographic location, population need, financial health, degree of integration with larger provider systems and previous experience with investment funds, and accordingly have varied resource needs, the HPC designed a phased approach to investments to be allocated over several years.

Through CHART-funded Phase 1 initiatives, the HPC supported the building of the foundation for system transformation by assessing the capability and capacity of participating institutions to lead and implement delivery system change, providing technical assistance to awardees and fostering engagement and learning

THE FUTURE OF COMMUNITY CARE

Across the nation, states are transforming towards increasingly community-oriented models of care delivery. In Massachusetts, the delivery system is heavily dominated by hospital-centered organizations, not only for inpatient care but also for outpatient services. Recognizing Massachusetts' provider structure, the HPC has focused on communities as hubs of local innovation, incentivizing community hospitals and their partners, both medical, behavioral health, and social service organizations, to create an opportunity to break the mold of current system design. The community hospital as a mini-tertiary care center is a model of the past in many settings. Instead, community hospitals must align to meet the community need of the future, providing outpatient-centric, whole-person care across settings and time.

CORE ELEMENTS OF SYSTEM TRANSFORMATION

- **Safety and Reliability.** As CHART hospitals strive to deliver care based on value, not volume, organizational focus on safety, reliability, and efficiency will be imperative.
- **Population Health.** The community orientation of CHART hospitals requires a primary focus on whole-person care across settings and time.
- **Business Transformation.** In parallel with operational transformation, CHART hospitals need to prepare themselves for success in a value-based payment environment.
- **Community Partnership.** Meaningful community engagement is required for successful transformation of CHART hospitals. Early engagement will foster long-term success.

among CHART-eligible hospitals. In turn, participating awardees designed and implemented capacity-building programs and marshaled internal leadership and resources to design initiatives. This report summarizes the investments and impacts from CHART Phase 1.

CHART Program Goals and Theory of Change

DEVELOPING A REGULATORY FRAMEWORK

The framework for CHART was established in Section 2GGGG in Chapter 29 of the Massachusetts General Laws by Chapter 224 "An Act Improving the Quality of Health Care and Reducing Costs through Increased Transparency, Efficiency and Innovation," which created the Distressed Hospital Trust Fund.[8] Funded through a one-time assessment on major providers (27 percent)[9] and surcharge payers (73 percent) in Massachusetts, the Distressed Hospital Trust Fund is a $119.08 million pool of dedicated funding to support community hospital transformation. Under Chapter 224, CHART-eligible hospitals must be non-profit, non-teaching, community hospitals with low relative price[10] compared to other hospitals in the state.

In early summer 2013, the HPC began a public process to develop the regulatory framework for disbursement of the Trust Fund. Reflecting the Commonwealth's transformative vision to fundamentally redefine community-based care — as opposed to simply propping up financially challenged hospitals — the HPC shifted nomenclature from 'grants' to 'investments' to emphasize CHART's focus on building for lasting change. The HPC's regulatory process further defined the program's mission as supporting community hospitals in charting a course for the right care at the right time in the right place.

Through development of the CHART enabling regula-

8 CHART's enabling statute is codified at M.G.L c. 29, § 2GGGG

9 Hospitals within the Partners HealthCare system, Boston Children's Hospital, and CareGroup (consisting of Beth Israel Deaconess Medical Center, Mount Auburn Hospital and New England Baptist Hospital) were required to pay stratified amounts based upon operating surplus. Boston Children's Hospital, Beth Israel Deaconess Medical Center, Mount Auburn Hospital, New England Baptist Hospital and Martha's Vineyard Hospital all received 50 percent mitigation of their assessment by the Commission. See "958 CMR 2.00. One Time Assessment on Certain Qualifying Hospitals and Qualifying Surcharge Payors," pursuant to Chapter 224 of the Acts of 2012, Section 241.

10 Relative price is a calculated metric that measures provider price variation in the Massachusetts health care market. It allows for comparison of different provider prices within a payer's network for a standard mix of insurance products (e.g. HMO, PPO, and Indemnity) to the average of all providers' prices in that network.

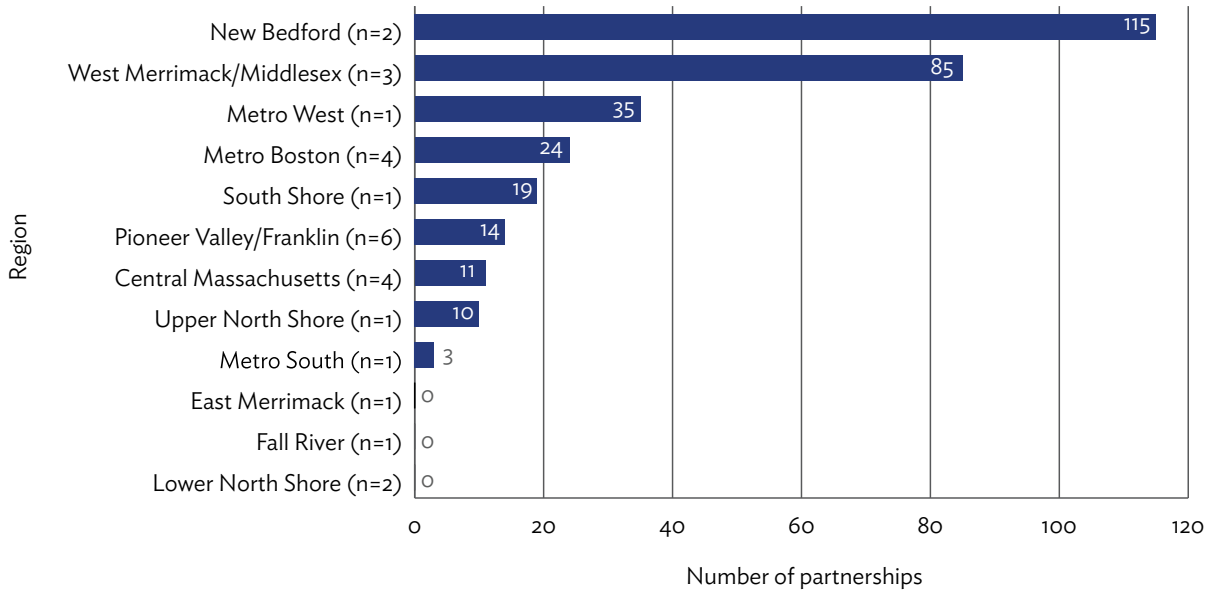
tion (958 CMR 5.00: Administration of the Distressed Hospital Trust Fund), the HPC further honed the program's focus on supporting community hospital readiness for accountable care, including participation in value-based payment arrangements.[11] Through this process, the HPC identified key priorities for investment, including maximizing appropriate use of hospitals, enhancing behavioral health care, improving hospital processes to reduce waste, and harnessing enabling technologies, use of locally derived data, community partnership, and strategic planning as tools to support this transformation.

CHART THEORY OF CHANGE

Defining a theory of change is an essential tool of performance improvement; it defines the building blocks required to bring about a long-term goal, in this case transformation of the health care delivery system. The CHART Investment Program theory of change aims to:

- Foster executive commitment to change and prioritize investments where such commitment is present;
- Provide meaningful infrastructure investments to build a foundation for change;
- Incentivize innovative delivery models; and
- Build a model for sustainability.

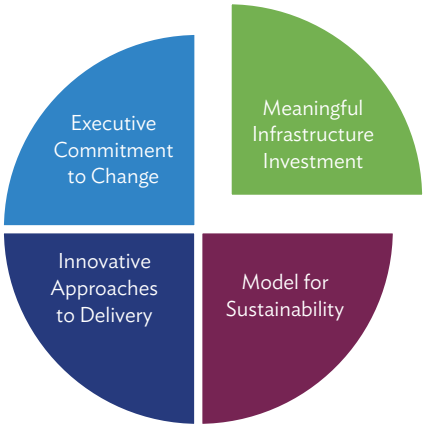
Partnerships formed by region



n=number of CHART hospitals in the region

11 The CHART regulation includes seven impact-oriented goals for these investment; full details can be seen in 958 CMR 5.00.

Necessary factors of change



Based upon this theory of change, the HPC launched Phase 1 of the CHART Investment Program with investments that focused on developing executive commitment to change and infrastructure investments to build a foundation for system transformation.

Seeking System Transformation

"I don't see any future for community hospitals. I think there's a fantastic future for community health systems that break the mold of patient care."

JOHN CHESSARE, *MD, President and CEO of Greater Baltimore Medical Center HealthCare*

In today's health care system, fragmentation of delivery and payment models creates competing priorities for patients, providers, and payers. Providers frequently do not communicate with one another, leading to duplication of services, medical errors and lack of insight for patients. Lack of coordinated care is a key cause of hospital readmissions, for example, a critical cost driver in Massachusetts.

System transformation is the process of assessing and continuously improving the way that health systems are structured and deliver care. This requires shifting incentives and payment away from compensating physicians and hospitals based on volume, and instead relying on evidence-based approaches to efficient, effective care with supportive payment models. True system transformation will occur when payers and providers embrace common goals of high value care, delivering effective care for all patients in the right setting at the right time. The HPC has identified four core elements of system transformation that will be supported through the CHART investments in safety and reliability, population health, business transformation and community partnership.

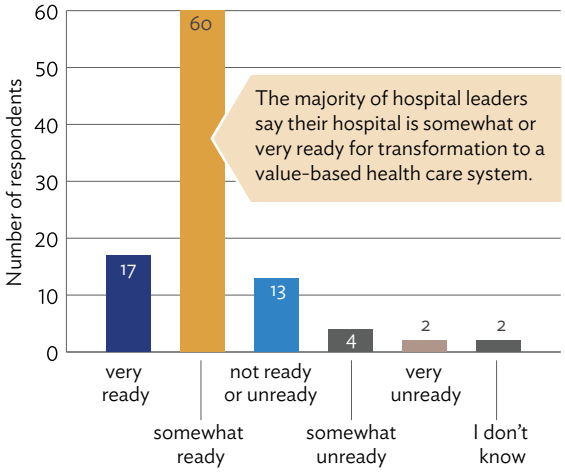
System transformation is the process of assessing and continuously improving the way that health systems are structured and deliver care.

Collectively, transformation across these four elements will position CHART hospitals as ready partners for local innovation with other community providers. CHART hospitals will be well positioned to align their strategies and resources to meet the community needs of the future — which will largely be community-oriented, with whole-person care across settings and time. This change in business and strategic priority will require hospitals to find effective new ways to build will and partnerships.

The majority of hospital leaders say their hospital is somewhat or very ready for transformation to a value-based health care system. At the same time, these leaders believe that payment shifts will make a value-based health care system a reality within the next five years.[12]

12 Health Policy Commission. "A Report on the Proceedings of the Community Hospital Acceleration, Revitalization, & Transformation (CHART) 2014 Leadership Summit" (Boston, MA: HPC, Sept. 2014)

How ready is your hospital for transformation? (n=98)



Health care is on a path to move from volume to value. How long will it be before >50% of your business will be under a risk-arrangement? (n=92)

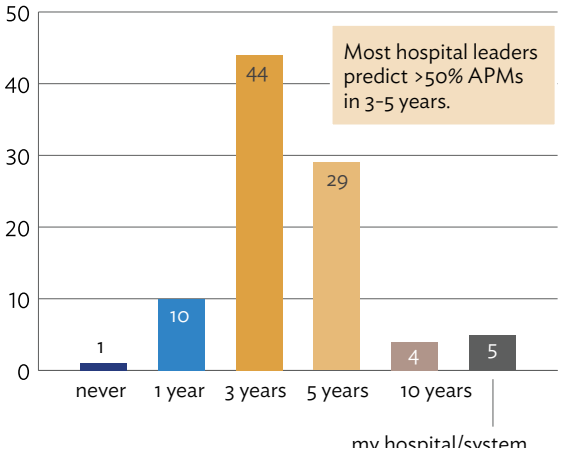


CHART provides incentives for hospitals to transform to value in an environment that does not yet sufficiently reward them for doing so. CHART, for example, promotes the shift from hospital-based to community-oriented models of care. In addition, CHART focuses on tests of change within multi-disciplinary project teams or across a small set of community partners in order to build effective models that can work in a community setting. Through this process, CHART hospitals can scale that learning throughout their organizations and to other providers having worked out operational, financial and other considerations successfully in a focused environment.

CHART's Phase 1 projects launched in February 2014. Through *Foundational Investments in System Transformation*, the HPC assessed awardees for capability and capacity for performance improvement. It targeted investments to build organizational infrastructure, enhance workforce capacity and test key segments of care delivery reforms, such as care for complex patients with multifactorial needs. Throughout Phase 1, the HPC also fostered sharing of best practices among CHART-funded hospitals.

The HPC Investment Approach: Building a Foundation for Transformation

On October 23, 2013, the HPC issued a Request for Proposals (RFP) for *Foundational Activities to Prime System Transformation*, focused on building new baseline capability and capacity to enable CHART hospitals to engage in future value-based care delivery and payment initiatives. At the time of issuance of the RFP, 31 community hospitals were eligible to apply. The RFP specified a competitive application process for investments in which each hospital could receive up to $500,000, with a total funding cap for the phase of $10 million. The RFP allowed hospitals to compete for investments in one or more of three specified pathways, creating an opportunity to address a variety of needs across the cohort while also aligning investments to the HPC's strategic priorities. These pathways included:

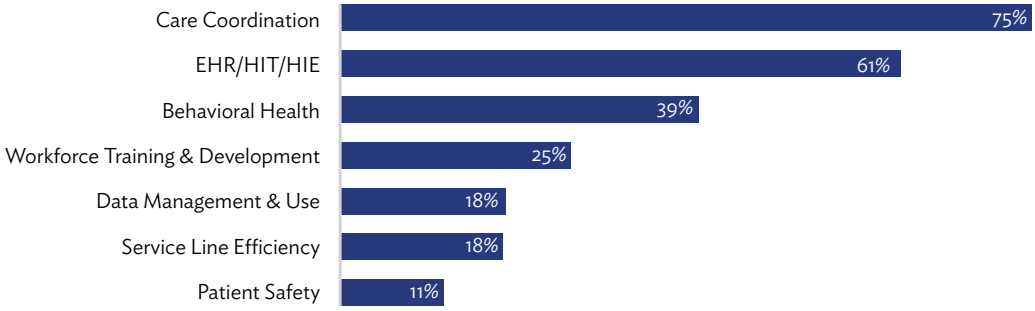
1. **Rapid-Cycle Pilots.** Investments in rapid tests of change around hospitals' adaptive capacity, leading to meaningful learning about the organizations' capacity for transformation, as well as early test results to inform delivery redesign activities.
2. **Capability and Capacity Building.** Investments in one or more high-need priorities directly tied to hospitals' plans for transformation. These included process improvement and skill-based trainings for staff as well as the acquisition and implementation of enabling technology.
3. **Planning for Improvement.** Investments in strategic and operational planning activities supportive of system transformation work.

The HPC received applications from 28 hospitals totaling $13,450,429 in requested funding.[13] The HPC staff, commissioners, key content experts, and representatives of the Massachusetts Executive Office Health and Human Services and the Massachusetts Office of Medicaid (MassHealth) participated in review and selection of awardees.

CHART hospitals' proposals identified care coordination, health information technology and information exchange, and care for patients with behavioral health conditions as areas of highest priority for investment. All CHART-eligible hospitals that applied received awards, ranging from $65,000 to $500,000. The average award was $355,559 (the average funding request was $480,373) and the total funding allocated for Phase 1 was $9,955,642.[14] Considerations driving relative size of awards included the hospitals' financial health and affiliations, the project's alignment with an identified community-oriented, population-health need, and the amount of money and scale of initiative the hospital requested.

Some hospitals received awards for multiple initiatives across multiple pathways, while others focused their activities on a single initiative. The actual total expended during the period of performance was **$9,202,723**, more than $750,000 less than the total amount awarded due to project scope changes or to HPC-funded costs falling short of budget projections.[15] The funds expended in each pathway are illustrated to the right along with an accounting for type of expenditure.

Strategic areas for investment identified by CHART hospitals

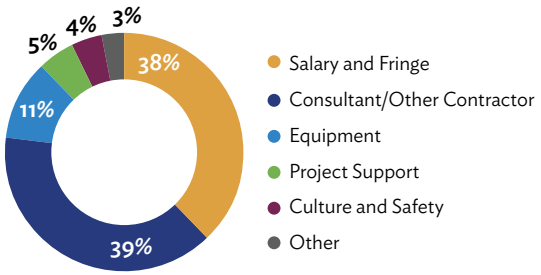


13 Shriners Hospital for Children, New England Baptist Hospital, and UMass Memorial — Marlborough Hospital did not submit Phase 1 applications.

14 North Adams Regional Hospital (NARH) was among the 28 hospitals that received funding in Phase 1; however, the hospital closed in March 2014. This amount includes 80% of a Phase 1 award allocation made to NARH. Furthermore, for the purposes of this report, the CHART Investment Program defines its cohort as 27 hospitals.

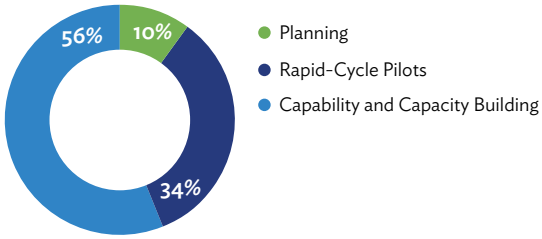
15 Fourteen hospitals spent under the award cap. Commonly reported reasons for underspending include equipment and/or consulting services costing less than anticipated; staff positions left unfilled did not accrue salary and benefit costs; and reduced scope for initiatives.

The amount of the awards spent in each category



Other refers to money dispersed to NARH

The amount of the awards spent in each pathway



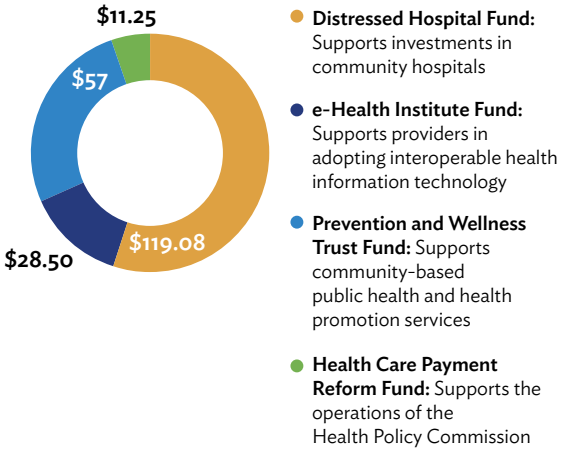
ALIGNMENT WITH OTHER INVESTMENT PROGRAMS

"The CHART investment at Holyoke Medical Center directly aligns, supports, and enhances our Delivery System Transformation Initiative (DSTI) projects to transform health care within the Holyoke community. This investment allows the hospital to continue with expansion and utilization of computerized health information systems that will improve patient/provid- partnerships to track diagnostic testing, consultations, and follow up appointments after each ED visit."

CARL CAMERON, *Vice President of Operations and CIO, Holyoke Medical Center*

The HPC recognizes and embraces that CHART is part of a larger investment framework in Massachusetts. The Commonwealth's commitment to health care investment is broad, and hospitals and health centers can access multiple programs to meet their varying needs. Chapter 224 alone created nearly one-quarter of a billion dollars in provider investments from 2013 to 2017.

Foundational investments in system transformation



Where possible, the HPC has sought alignment with other investment programs to maximize impact. In particular, four CHART hospitals (Holyoke Medical Center, Lawrence General Hospital, Mercy Medical Center, and Signature Healthcare) receive substantial investments through the Delivery System Transformation Initiative (DSTI), a segment of the Massachusetts 1115 Waiver from the Centers for Medicare and Medicaid Services (CMS) to support certain safety-net hospitals. In addition, 11 CHART hospitals have received EHR-incentive funding from the Massachusetts e-Health Institute,[16] while many others received funding from Infrastructure and Capacity Building Grants.

16 MeHI. "Massachusetts eHealth Institute at MassTech Awards $2.35 Million in Grants to Accelerate Connections to Statewide Health Information Exchange" Available: http://mehi.masstech.org/press-releases/massachusetts-ehealth-institute-masstech-awards-235-million-grants-accelerate

The following state and federal funding programs currently operate in Massachusetts.

PROGRAM	ADMINISTRATOR	OBJECTIVE
Health Care Workforce Transformation Trust	Labor and Workforce Transformation	To increase health care worker retention, address critical health care workforce shortages, improve professional development and education, and create opportunities for community members to enter the health care field
Prevention and Wellness Trust Fund	Department of Public Health	To support community-based chronic illness prevention by addressing health disparities and promoting healthy behavior
Delivery System Transformation Initiatives	MassHealth	To improve health care quality, increase access to care, reduce costs, and support innovative population health care models at safety net hospitals
Infrastructure and Capacity Building Grants	MassHealth	To support quality improvement efforts, decrease cost of care, increase health care efficiencies, and assist in HIT implementation
Primary Care Payment Reform Initiative	MassHealth	To support primary care providers through the introduction of behavioral health integration and care coordination and management, thereby increasing quality, safety, efficiency, and access to care
Massachusetts e-Health Institute (MeHI) HIway Grants	MeHI	To support collaboration across health care organizations to implement Mass HIway statewide, enhancing communication, coordination, and safety
State Innovation Model Grant	EOHHS/ MassHealth	To increase quality of care, care integration, and enhance HIT by supporting the design and testing of new care models
Centers for Medicare and Medicaid Innovation Programs	Centers for Medicare and Medicaid Services	To improve health and decrease cost of care through testing new delivery and payment models through the Pioneer ACO Program, Health Care Innovation Awards, and the Community-Based Care Transitions Program
Small Rural Hospital Performance Improvement Program	Health Resources and Services Administration	To assist small hospitals (<50 beds) with implementing prospective payment systems, compliance with federal health care privacy regulations, and to improve quality

Many CHART participants receive supplemental funding from the programs described depicted here. 89 percent of CHART participants are involved with at least one additional investment program and 59 percent of these hospitals receive funding from at least two non-CHART investment programs. After CHART, the most common investment program within the cohort is the Massachusetts e-Health Institute HIway Implementation grant program, followed by the Infrastructure and Capacity Building Grant and the Health Care Workforce Transformation Trust.

ALIGNMENT OF HOSPITAL INVESTMENTS

LAWRENCE GENERAL HOSPITAL	SIGNATURE HEALTHCARE BROCKTON HOSPITAL	HOLYOKE MEDICAL CENTER	SOUTHCOAST-CHARLTON MEMORIAL HOSPITAL
SOUTHCOAST-ST LUKE'S HOSPITAL	SOUTHCOAST-TOBEY HOSPITAL	BAYSTATE WING HOSPITAL	ANNA JAQUES HOSPITAL
ATHOL MEMORIAL HOSPITAL	BAYSTATE MARY LANE HOSPITAL	HEYWOOD HOSPITAL	MERCY MEDICAL CENTER
MILFORD REGIONAL MEDICAL CENTER	NOBLE HOSPITAL	BID-PLYMOUTH	LOWELL GENERAL HOSPITAL
ADDISON GILBERT HOSPITAL	BAYSTATE FRANKLIN MEDICAL CENTER	BEVERLY HOSPITAL	HARRINGTON MEMORIAL HOSPITAL
LAWRENCE MEMORIAL HOSPITAL	MELROSE-WAKEFIELD HOSPITAL	WINCHESTER HOSPITAL	BID-MILTON
BID-NEEDHAM	EMERSON HOSPITAL	HEALTHALLIANCE HOSPITAL	

- Community Hospital Acceleration, Revitalization and Transformation
- Delivery System Transformation Initiatives
- Health Care Workforce Transformation Trust*
- Infrastructure and Capacity Building Grants
- Massachusetts e-Health Institute HIway Grants
- Prevention and Wellness Trust Fund
- Primary Care Payment Reform Initiative
- Small Rural Hospital Performance Improvement Program
- State Innovation Model Grant

Note: The Healthcare Workforce Transformation Trust supports the Southcoast Physicians Group.

HOSPITAL INITIATIVES

Foundations for Change

The HPC supports care delivery redesign at CHART hospitals, prioritizing the development of plans and testing change, as well as the acquisition of tools and trainings to improve the quality and efficiency of care. Early in the design of CHART Phase 1, hospitals and other stakeholders interviewed by the HPC identified a variety of areas in need of investment, including care transitions and coordination within the hospital's emergency department and inpatient units and with community partners; integration of behavioral and physical health services; technology infrastructure enhancements; and operating efficiency.

From February to September 2014, CHART supported nearly $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 the ED, 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, transitions in care, improved pain management and opiate prescribing practices, or linking patients to services in the community.

The following sections review key areas for delivery system transformation, describing both the systemic challenges faced by CHART hospitals and the Commonwealth as well as detailing CHART-funded initiatives that sought to drive improvement. Gains were made in these areas in Phase 1 and they remain priorities in Phase 2. These priority domains include:

- Reducing readmissions and improving transfers to post-acute care;
- Reducing unnecessary ED utilization;
- Enhancing behavioral health care;
- Building the technological foundation necessary for patient safety, quality and efficiency.

REDUCING READMISSIONS AND IMPROVING TRANSFERS TO POST-ACUTE CARE

Patient readmission to a hospital soon after discharge is common and costly. In some situations, readmission is necessary and appropriate. However, nearly one in every five elderly patients who are discharged from the hospital is rehospitalized within 30 days.[1] Many of these rehospitalizations are avoidable, and thus reflect a failure in the continuum of care, including coordination of care across settings and, in particular, care transitions. Avoiding preventable readmissions represents a win-win opportunity for patients and families, payers, health care purchasers, and providers—with potential for improved quality of care and reduced cost.

1 Centers for Medicare and Medicaid Services. "Hospital Compare" (Washington, DC: Centers for Medicare and Medicaid Services; [cited 2015 May 4]) Available from: http://www.medicare.gov/hospitalcompare/search.html

Reducing readmissions is a key priority for Massachusetts. The Commonwealth performs worse than the national average, behind all but four states and the District of Columbia on Medicare readmission rates, with the eighth-highest average hospital readmission penalty rate in the nation.[17] In federal fiscal year 2015, CMS will penalize 55 Massachusetts hospitals, representing 80 percent of all hospitals in the Commonwealth, for higher-than-expected Medicare readmission rates for certain conditions. The HPC has further estimat-

17 2014 Cost Trends Report: Health Policy Commission "2014 Cost Trends Report" (Boston, MA: HPC, 2014)

ed wasteful spending in the Commonwealth due to excess hospital readmissions at $700 million annually; patients living in low-income neighborhoods in the Commonwealth are 24 percent more likely than others to be readmitted, even after adjusting for demographic characteristics and clinical conditions.[18,19]

Studies of best practices[20,21] in care delivery have shown that hospital readmissions can be prevented through interventions aimed at higher quality care during the initial hospitalization, effective discharge planning, adequate post-discharge follow up, and improved coordination between inpatient and outpatient health care teams, making these types of investments a priority for Phase 1.

Phase 1 allowed hospitals to plan for and test approaches to readmissions reduction. Early indications from these pilots were promising, but given the small populations served and the focus on all-cause, hospital-wide readmission rates which dilute measurable impact, no definitive conclusions about lasting impact could be drawn. Many pilots will be implemented at scale in Phase 2, using findings and experiences from Phase 1 to expand high-risk care teams and improve transitions to post-acute care providers.

FEATURED HOSPITAL

Addison Gilbert Hospital

Addison Gilbert Hospital worked in CHART Phase 1 to test implementation of a High Risk Intervention Team (HRIT) to provide patient education, medication management and discharge planning to patients at risk for readmission. The goals of the HRIT were to reduce all-cause 30-day readmissions, hospital length of stay, and medication errors while increasing the number of follow-up appointments scheduled within seven days of discharge. The team intervened when a patient was readmitted to an Addison Gilbert Hospital inpatient or observation stay unit. The HRIT consisted of a nurse navigator with expertise in chronic-disease management, a social worker with training in mental health counseling, a clinical pharmacist who conducted medication reconciliation and education, a diabetes educator who was deployed for pertinent patients, and an access services representative who coordinated and tracked primary care and specialist visits post-discharge.

The Addison Gilbert HRIT collected information, including patient insurance status and coverage, drug, alcohol and nicotine dependencies, and rates of medication prescribing and reported medication errors, in order to design and adjust interventions. In cases where interventions revealed that the hospital was not the best site of care for a patient, the team referred the patients to post-acute facilities, home care, social services agencies, or behavioral health providers in the community.

THE HEALTHY GLOUCESTER COLLABORATIVE

A key feature of Addison Gilbert's Phase 1 initiative was close alignment with the Healthy Gloucester Collaborative, previously formed through the Gloucester Health Department in reaction to a series of related issues that were affecting the hospital and community. These included frequent and inappropriate use of the ED due to opiate abuse in the community, significant churn between a local shelter and the ED, and public safety officials' frustration with the number of transports to the ED from a local shelter.

The Healthy Gloucester Collaborative has brought together physicians, hospital officials, addiction-treatment providers, shelter representatives, law enforcement officials, and emergency medical services (EMS) providers. The group addresses medical and behavioral health issues alongside social and educational challenges to address the problem of opiate abuse. In particular, the HRIT relied heavily on the Healthy Gloucester Collaborative as a clearinghouse of community resources for referral to services, and coordinated support of patients with complex behavioral and social needs in addition to a chronic disease.

18 Health Policy Commission. "2014 Cost Trends Report" (Boston, MA: HPC, 2014

19 "Readmissions Penalties by State: Year 3," Kaiser Health News, Oct. 2, 2014

20 A. Boutwell and S. Hwu, "Effective Interventions to Reduce Rehospitalizations: A Survey of the Published Evidence" (Cambridge, MA: Institute for Health Care Improvement, Oct. 2, 2014)

21 Agency for Healthcare Research and Quality. "Hospital Guide to Reducing Medicaid Readmissions" (Rockville, MD, Aug. 2014)

PATIENT STORY

A homeless patient, living in a vehicle, was a frequent and predictable user of one CHART hospital emergency department for respite. In one year, this patient spent more than 100 days admitted to an inpatient unit in the hospital. During the same period, the patient also accessed multiple skilled nursing facilities for over 150 days and used ED services on numerous occasions.

The Addison Gilbert Hospital HRIT attempted to deploy many interventions to assist this patient during Phase 1, including access to transportation, individual therapy, connections to MassHealth, primary care, housing support, nutritional services and legal services, and enrollment in the Program of All-Inclusive Care for the Elderly (PACE).

Because of the efforts implemented in Phase 1, this patient — including their complex social, medical, and behavioral health needs — became well known to the care team inside AGH and at community partner sites. Although these interventions failed to make a permanent change in the patient's hospital utilization patterns, coordinated tracking of these failures led the HRIT to identify that a more intensive and lasting intervention was necessary.

Given the patient's declining medical status and inability to manage self-care day-to-day, the patient's family decided the patient would permanently reside in a long term care facility. The HRIT social worker collaborated with the inpatient social work team and the long term care facility to assist the patient and the patient's family with legal guardianship and property transfer needs.

The HRIT served 149 patients in the first nine months, using a combination of phone calls to the patient or the patient's primary caregiver; collaboration with other community-based clinicians treating the patient; medication reconciliation; and referrals to social or behavioral health services. In a small number of cases, this level of service exceeded 100 touch points per patient. Patients with the highest number of touch points (140, 148, and 167) had some commonalities: substance use disorders (SUDs), mental health conditions, unstable housing, and poverty.

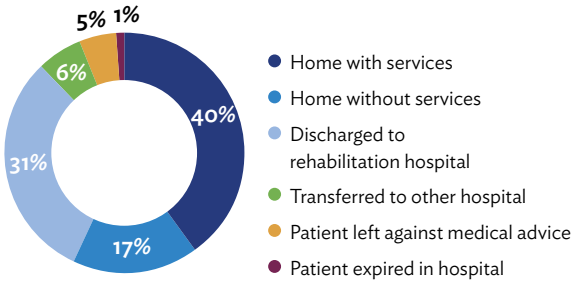
Through Phase 1, Addison Gilbert observed that all-cause readmissions for the hospital had declined from 19 percent (March 2014) to 8.8 percent (September 2014). However, in the final month of performance, readmissions rebounded to nearly 15 percent (October 2014). Addison Gilbert attributes this final month increase to key staff departures. But, given the small sample size (Addison Gilbert's discharge volume is small) and short run-time of this initiative, these trends warrant further examination in Phase 2.

Deploying a HRIT is one approach to reducing readmissions. Another involves improving the quality of care transitions from the hospital to post-acute care settings — including skilled nursing facilities, inpatient rehabilitation facilities, home health care, or discharge of patients to home without post-acute services and instead schedule a follow up primary care visit within seven days. In Massachusetts, 39 percent of patients received post-acute care following a hospital discharge in 2011, compared to 27 percent nationwide, although there is wide variation in discharge practice patterns among Massachusetts hospitals.[22] Despite higher rates of post-acute care, Massachusetts' hospitals have higher than average hospital readmissions rates; analysis by the HPC found no correlation between use of post-acute care and readmissions (or hospital length of stay). Some hospitals in CHART Phase 1 chose to work on improving care transitions to skilled nursing facilities with the goal of reducing readmissions.

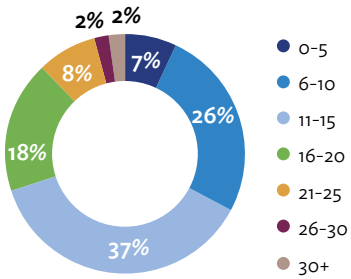
22 Health Policy Commission. "2014 Cost Trends Report" (Boston, MA: HPC, 2014)

The patients served by Addison Gilbert Hospital Phase 1 pilot included patients predominantly on public insurance who had a history of substance use, whose conditions required multiple medications to treat and who required ongoing health care visits in the home after leaving the hospital.

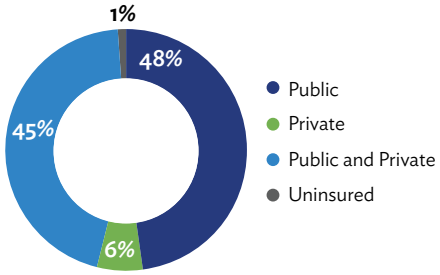
Discharge Disposition



Number of Medications



Patient Insurance Information

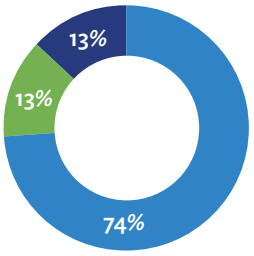


7 of 10 patients treated had a nicotine dependency

3 of 10 patients treated had a drug and/or alcohol dependency

Addison Gilbert Hospital also collected data on their process and outcomes.

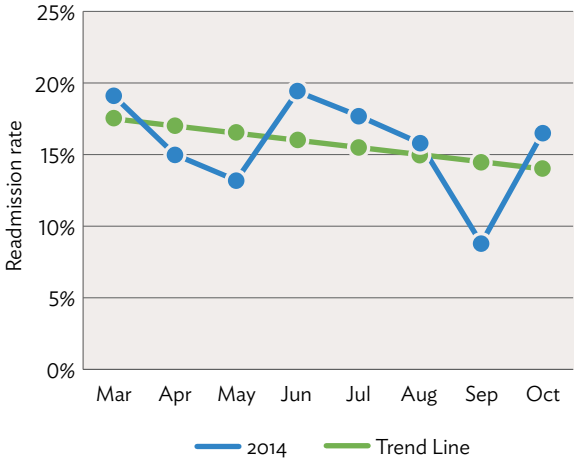
Patient medication discrepancies found by pharmacist's review



The high-risk care team's clinical pharmacist recommended changes to patient medication lists in 9 out of 10 cases

- Found omission or error
- Found prescribed medications the patient was not taking
- Found no omissions or errors

Hospital-wide 30 day readmission rate



FEATURED HOSPITAL

Winchester Hospital

Winchester Hospital worked to increase the quality of transitions from the hospital to post-acute care by developing a warm hand-off protocol for the hospital. A hospital inpatient unit's direct care nurse delivered a phone report to a nurse in the post-acute facility, typically a skilled nursing facility or inpatient rehabilitation facility. The warm hand-off included information such as a brief overview of the patient's hospitalization, cognition, pertinent lab values, high-risk medications, pain management, allergies, special dressings, intravenous medications and social information about the patient and family.

The warm hand-off was designed to ensure every facility to which a Winchester Hospital adult inpatient was transferred would be appraised of the patient's condition, requirements and special needs prior to his or her arrival. This protocol replaced a paper-based process, which often lagged the patient transfer and, as a result, missed the window of time for an effective hand-off. This real-time communication between the discharging hospital nurse and receiving post-acute nurse ensured that care needs could be addressed promptly and meaningful information was not lost in the transition. In the last month of the pilot, Winchester Hospital's warm hand-off protocol reached 93 percent of adults discharged from their inpatient units, an increase of 13 percent from the pilot's first month of operation.

In addition Winchester Hospital developed a care management program that followed all patients discharged to home and to skilled nursing facilities to ensure attention was paid to medication reconciliation, patient and family education, family involvement and palliative care needs. Winchester Hospital assigned 334 patients to the care management team in Phase 1. Winchester Hospital also implemented an ED-based pilot where the care manager rounded during the days and evenings to proactively identify patients who could be appropriately and safely transferred to SNFs or sent home with services in lieu of being admitted; home care liaisons also interviewed potential patients in the ED rather than waiting for referrals. Twenty-four patients were transferred to SNFs or discharged home with services because of this intervention. Both of these interventions coupled with the warm hand-off improved the transition of patients to post-acute care. Winchester Hospital will continue to collect data to determine if the protocols are effective in reducing readmissions for patients transferred to post-acute facilities.

OTHER HOSPITALS TO HIGHLIGHT:

The readmissions reduction team at **Milford Regional Medical Center** utilized an elder-services agency to which they referred eligible patients for transitional care. The team also initiated automated calls to all patients discharged to home within 24-72 hours following discharge in order to identify candidates for further follow-up. 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.[23]

BID-Plymouth Hospital focused on reducing readmissions for their Medicare Shared Savings Program patients who were dually eligible for Medicare and Medicaid or diagnosed with end-stage renal disease. The care management team saw patients wherever necessary — in the home, at skilled nursing facilities, in physician offices or urgent-care settings — to preempt unnecessary hospital readmissions. The team served 397 complex patients in more than 1,923 encounters.

"I remember going out on a home visit to see a patient about to lose very tenuous, substandard housing who needed medical supplies and assistance with food and housing. I provided brief counseling and assessment, and also resources and information on how to access what she needed. Most importantly, I let her know that I would continue to call her to make sure she got what she needed and assist if any problems arose. She was surprised to hear this and said, "I won't get a bill? I'm

23 Tri-Valley Elder Services provided data demonstrating a 28 percent readmission rate from a similar cohort from 2012.

already in counseling, but my counselor can't use our time to help me with this." I assured her this assistance was covered and it was important that she had all the help and resources she needed. Having the flexibility to see patients where and when it works for them is critical. It's the cornerstone of patient centered care and the bridge back to primary care."

EMILY DAVERN, *Supervisor Community Social Work, Beth Israel Deaconess Hospital-Plymouth*

Southcoast-Charlton Memorial Hospital aimed to reduce readmissions by embedding care managers in three primary care practices to identify high-risk patients and coordinating their care. These care managers engaged 150 patients in the three primary care areas including more than 350 encounters with registered nurses.

Southcoast-Tobey Hospital created a specialized care management team that adopted the Cleveland Clinic's model for diabetes management and trained registered nurses in advanced diabetes care to reduce readmissions for patients with diabetes. Recognizing that noncompliance with care plans after discharge was a risk factor for readmissions with this patient group, Southcoast-Tobey Hospital hired community health workers to meet with patients in their homes at regular intervals, and encourage the lifestyle changes in diet, stress and exercise necessary to successfully manage their diabetes. These community health workers made 265 home visits to patients with diabetes. In addition, with the team prioritized follow-up care after a hospital admission with 82 percent of patients in the target population receiving follow-up care within seven days of discharge.

"I have learned so much [about how to manage my diabetes]. Now I can do this and I know if I have any questions I can call "my team" whenever I need assistance."

50+-YEAR OLD PATIENT *treated by a certified diabetes educator and a community health worker at Southcoast-Tobey Hospital*

Beverly Hospital used the funding and guidance provided in Phase 1 to develop a plan to reduce readmissions. The CHART program encouraged the Beverly team to analyze its readmissions data as a key component of planning activities across a variety of domains — including discharge diagnosis, readmissions by discharge disposition (e.g., skilled nursing facility, home with services, home without services), payer and comorbid behavioral health conditions. The HPC provided the project team with a template to populate with data across the various domains, including an analysis of high-utilizers (patients who were hospitalized three or more times in the prior 12 months). This led to the realization that prior areas of focus for readmission reduction goals — older chronic disease patients — represented only a small portion of readmissions reduction opportunity. Instead, Beverly developed a plan focusing on patients with behavioral health needs (47 percent of readmitted patients at Beverly Hospital had a behavioral health comorbidity) and high utilizers (284 Medicare patients were hospitalized on average 5.2 times per year, and 71 Medicaid patients were hospitalized on average 5.0 times per year).[24]

Lawrence General Hospital developed a plan to reduce readmissions by first conducting an assessment that included analyzing data and evaluating current strategies. The hospital then gathered information on best practices for reducing unnecessary hospital utilization and on medication management. The hospital consulted academic studies on readmissions reduction, its own data and stakeholders to develop a plan for an intervention model including both clinical and non-clinical services, with tiered service intensity based on patient risk. This planning phase led to a highly rated Phase 2 proposal, which was fully funded by the HPC to address care gaps for high-need patients with social complexities.

24 Health Policy Commission. "CHART Case Study: Use of Locally Derived Data to Design, Develop, and Implement Population Health Management Interventions" (Boston, MA: HPC Feb 11, 2015)

REDUCING UNNECESSARY EMERGENCY DEPARTMENT USE AND ENHANCING BEHAVIORAL HEALTH CARE

Emergency departments play a critical role in the health care safety net. They are designed to treat the most critically ill and injured patients — but often treat patients with routine health needs who would be better served by less acute providers. One significant driver of visits to the ED is lack of sufficient and easily accessible behavioral health care for patients with mental illness and substance use disorders.

Massachusetts ranks 20th in the U.S. for the rate of ED visits per 1,000 residents, and residents use the ED 12 percent more than the U.S. average. HPC research found that almost half of ED visits were avoidable in 2012, and rates of overall ED use varied by a factor of two across regions of the state. The wasteful spending estimate of avoidable emergency department visits in MA in 2012 was $550 million, counting visits to the emergency room that were either non-emergent, treatable in a primary care setting, or preventable given timely and effective primary care. Among the reasons a non-emergently ill patient might visit an ED are inability to pay another provider and convenient, 24-hour access to care.[25]

Patients with non-emergent needs that seek care in the ED increase the likelihood of overcrowding. Overcrowding is associated with reduced quality and patient safety, and can lead to increased waiting times

25 The Emergency Medical Treatment and Labor Act (EMTALA) requires hospitals, unlike other providers, to provide screening and stabilization services to all patients regardless of their ability to pay. See Emergency Medical Treatment and Active Labor Act (EMTALA) 42-USC-1395-dd.

for needed medications and greater mortality.[26] The growth in behavioral health ED visits is a commonly cited contributor to overcrowding.[27] As EDs are often insufficiently equipped to provide comprehensive care for patients with complex behavioral health needs, this may lead to severe delays in access to care as well as challenges with patient flow across the ED.

While growth in visits for most categories of ED use remained relatively flat between 2010 and 2012, visits for behavioral health conditions (including mental health and substance use disorders (SUDs)) grew at about five percent per year; in 2012, patients with a primary behavioral health diagnosis totaled about six percent of all ED visits.[28] This six percent of ED visits accounts for 50 percent of boarding,[29] the practice of holding patients in the emergency department after they have been admitted to the hospital, because no inpatient beds or alternative diversionary services are available.

One significant driver of visits to the ED is lack of sufficient and easily accessible behavioral health care for patients with mental illness and substance use disorder. Massachusetts, like the nation, is faced with a crisis in reaching residents with mental health or SUD needs and in channeling their care to the right providers. Of the estimated 428,000 adults with mental illness in Massachusetts, roughly half received mental health treatment or counseling within the year prior to being surveyed.[30] Adults that did seek treatment often did so at a hospital. In 2011, the Massachusetts chapter of the American College of Emergency Physicians surveyed all state ED medical directors and found that the mean occupancy of ED beds by behavioral health patients was 16.25 percent, with one institution reporting that 52 percent of its beds were occupied by behavioral health patients.[31]

In addition to high prevalence of mental health conditions in the Commonwealth, SUDs (especially opioid abuse) and related deaths are growing to epidemic proportions. One-third of all injury deaths among Massachusetts' residents were poisonings; among these, 69 percent were unintentional opioid overdoses. The rate of unintentional opioid overdose deaths per 100,000 residents increased by an average of 8 percent between 2000 and 2006, and remained relatively constant from 2006 to 2011.[32] In 2013, the number of opioid deaths reached a level previously unseen in Massachusetts, rising to 14.5 deaths per 100,000 residents, which represents a 273 percent increase from the rate of 5.3 deaths per 100,000 residents in 2000.[33]

Because of the high number of avoidable ED visits and the growth of visits for behavioral health conditions in the ED, the HPC and CHART hospitals had a joint interest in testing ED-based interventions, especially those focused on patients with behavioral health conditions. Below are descriptions of Phase 1 initiatives that examined ways to reduce avoidable ED visits. Learning from Phase 1 will help hospitals implement robust ED care management interventions in Phase 2 and offer insights for other providers in the Commonwealth.

FEATURED HOSPITAL

HealthAlliance Hospital

HealthAlliance Hospital partnered with local community providers, including Community Health Connections and Community HealthLink, to develop an ED Navigator Care Coordination Model for patients with serious mental illnesses (SMI). The intervention aimed to connect all patients with a behavioral health condition to a primary care provider and to increase communication across all service areas by facilitating warm hand-offs, building relationships with patients in the community and collaborating with community providers. The pilot enrolled 75 patients.

26 S. Goodell, D. Delia and T.C. Cantor, "ED Utilization and Capacity," Robert Wood Johnson Foundation, July 2009

27 J. A. Olshaker and N.K. Rathlev, "ED Overcrowding and Ambulance Diversion: The Impact and Potential Solutions of Extended Boarding of Admitted Patients in the ED," Journal of Emergency Medicine 30, no 3 (2006): 351–356.

28 Notably, behavioral health conditions are thought to be commonly under-coded, implying that the burden of disease is much greater than previously reported. CHART Phase 2 analyses have substantiated this perspective.

29 Health Policy Commission "2013 Cost Trends Report, July 2014 Supplement" (Boston, MA: HPC, 2014)

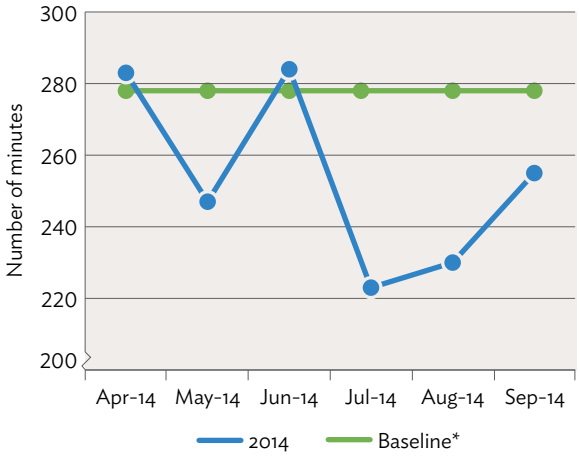
30 Substance Abuse and Mental Health Services Administration, "Behavioral Health Barometer: Massachusetts, 2013" (Rockville, MD: HHS Publication No. SMA-13-4796MA, 2013).

31 N. Rathlev, "Psychiatric Patient Boarding in Massachusetts EDs: 'A Point in Time.'" MACEP, https://host2.firewebsitehosting.com/~macep/index.php?option=com_content&view=article&id=209:psychiatric-patient-boarding-in-massachusetts-eds-a-point-in-time&catid=67:whats-new&Itemid=27

32 Massachusetts Department of Public Health Bureau of Substance Abuse Services, "Opioid Overdose Response Strategies in Massachusetts" (Boston, MA: Mass. DPH, April 2014).

33 Massachusetts Department of Public Health Bureau of Substance Abuse Services," Data Brief: Fatal Opioid-related Overdoses among MA Residents" (Boston, MA: Mass. DPH, April 2015).

Length of stay for emergency department visits for behavioral health reasons



*Baseline is average length of stay April-Sept 2013

"Our CHART 1 Behavioral Health project provided a glimmer of hope for our patients, the community and the Behavioral Health staff in the HealthAlliance ED. For patients being discharged back into the community, I now can connect them with a Primary Care or a Behavioral Health Services appointment before leaving the ED instead of just giving them a list of providers. I feel like I am actually helping them beyond the ED visit."

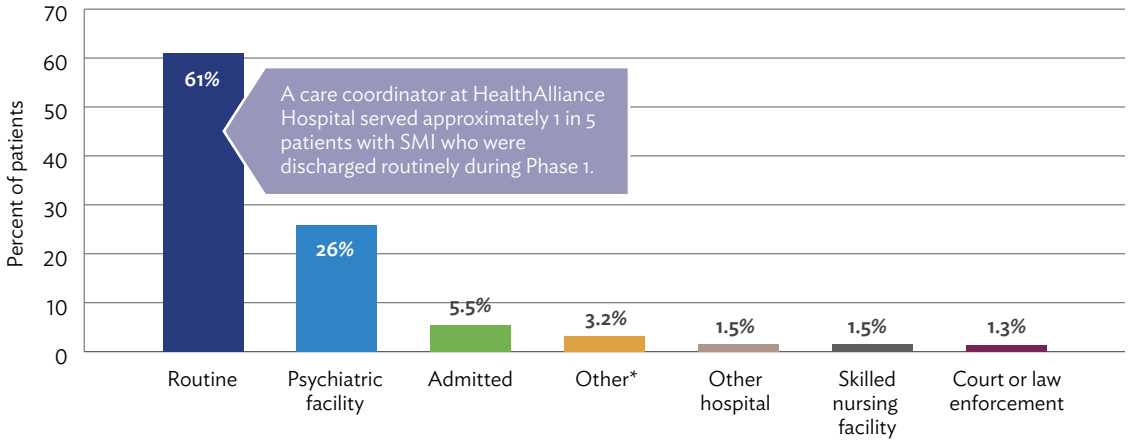
JOANNE HARRIS, *Behavioral Health Nurse and CHART ED Navigator, HealthAlliance Hospital*

HealthAlliance Hospital began examining where its ED physicians were referring patients with SMI after a visit to the ED. Over 60 percent of these patients were discharged routinely, either to their home or a community provider. HealthAlliance Hospital recognized it needed to focus on this patient population.

By using a nurse navigator to counsel patients with SMI on options for their care in the community, and by linking patients directly with community providers, HealthAlliance helped patients utilize community providers for their care. HealthAlliance Hospital collected data to monitor progress over the course of Phase 1. From these data, it found that 60 percent of patients without a PCP were referred to one as a result of the pilot and 31 percent of these patients followed through with the PCP appointment arranged by the ED care coordinator. Through care coordination services, 29 percent of patients attended an appointment with a behavioral health provider. This limited uptake of engagement with post-hospital services informed continued development of a higher intensity model as Phase 1 went on.

In addition to the number of revisits to the ED, the length of stay for visits for behavioral health conditions informed HealthAlliance about its performance in serving patients with SMI. Patients that presented in the ED with SMI at HealthAlliance Hospital tended to wait longer than those with emergent medical conditions. While the length of stay for this population of patients was trending downward, HealthAlliance Hospital will to continue to measure length of stay in order to assess the long-term impact of the intervention on better serving patients with SMI.

Discharge dispositions of patients with a serious mental during Phase 1



*Other includes patients who were transferred to detox, died in care or left the hospital before being discharged. This exhibit reflects average percentages for the Phase 1 period of performance, April-September 2014.

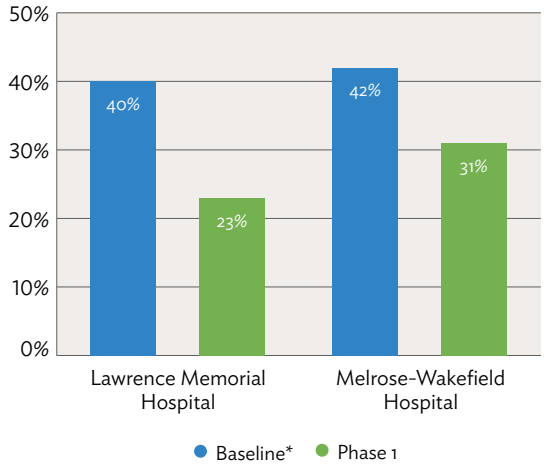
FEATURED HOSPITAL

Hallmark Health System

Hallmark Health System developed standardized clinical practice guidelines for patients with lower back pain in EDs at both its hospitals — Lawrence Memorial and Melrose-Wakefield Hospitals — and urgent-care centers. These guidelines, based upon an extensive review of more than 1,100 patient medical records, required that providers document the reasons for ordering imaging and prescribing opioids. They also required the documentation of use of the Massachusetts Department of Public Health's secure prescription-drug monitoring program (PMP) prior to writing an opioid prescription. Additionally, Hallmark trained its providers on SUDs, pain management and alternatives to opioid prescribing. The hospitals developed weekly provider and program dashboards for the project team to measure adherence to all components of the new clinical guidelines.

Hallmark Health System documented substantial reduction in use of opioids for low-back pain management, lowering the rate of prescriptions by 26 and 43 percent in EDs at its two hospitals.

Opioid prescribing rates in the Melrose-Wakefield and Lawrence Memorial Hospital EDs

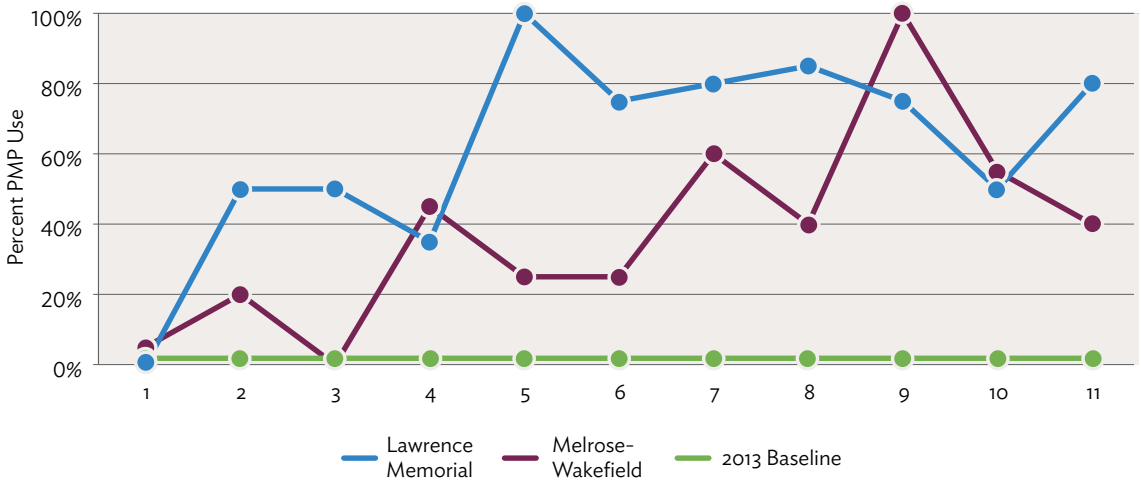


* Baseline is April–June 2013

OTHER EXAMPLES OF ED OR BEHAVIORAL HEALTH INTERVENTIONS:

Heywood Hospital conducted a behavioral health needs assessment in the local community to inform a strategic plan for the hospital. Through recommendations made by community partners, the hospital built a plan for integration of its services with other behavioral health and community providers in the region. **Heywood, Athol Memorial, and HealthAlliance Hospitals** further worked together to build a robust regional behavioral health collaborative.

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



*Baseline is average PMP use in 2013

PATIENT STORY

To truly support patients with complex medical and behavioral health conditions, care from a variety of providers and social organizations must come together to deliver the right care at the right time in the right place. For some patients, like the young person described in the story below, this care is not primarily delivered in the hospital, but in a setting close to home.

Through the CHART Program, Heywood Hospital located a physician in the local public schools to identify unmet health care needs of families in the community. One student helped by the school-based program had a debilitating medical condition and extreme anxiety. The student had a troubling history of frequent hospitalizations and extended absences from school as a result these conditions, putting the student at risk for dropping out of school. The school guidance counselor and Heywood clinician developed a plan to reduce the student's absences: the student's school schedule would be modified to include daily one-on-one meetings with a therapist before classes. The school-based clinician met with the student's parent to understand what support was needed to care for the child's conditions and referred the parent to community support programs. Finally, a behavioral health care provider and the patient's primary care provider were brought in by the clinician to review and make changes to the student's prescription medications. To date, the student has only missed a handful of school days for excused absences. With the support of a therapist that the student trusts and knows, a school administration which has been flexible and supportive, and an involved parent, the student has begun to live a more fully productive and richer life.

"CHART has allowed for three major organizations to break down the walls that separate them, come together to problem solve, and make a significant impact on the health care of emergency department patients. In the seven years that I have been working in here, I have never seen this level of collaboration; each organization bending and opening themselves up to break the mold, doing what is best for the patient as a team. Patients coming to the emergency department for mental health evaluations are now getting so much more. They have a team on their side that is going to ensure they get the supports they need."

JENNIFER CRUICKSHANK, *Director of Behavioral Health Services, Community Health Connections*

The goal of the 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. The hospitals engaged community partners in the collaborative, such as Community Health Connections, Community HealthLink, Gardner Public Schools, and Athol Public Schools. Areas of focus included integration

To truly support patients with complex medical and behavioral health conditions, care from a variety of providers and social organizations must come together to deliver the right care at the right time in the right place.

of primary and behavioral health care; improved care coordination; using technology for identification and access; and resource identification and sharing. In Phase 1, the hospitals and their community partners created a universal patient consent form to enable

efficient data sharing among institutions and began creating individual care plans to use in each ED in the region. **Heywood and Athol Memorial Hospitals** collaborated with local school districts to embed care coordinators and clinicians in the schools to connect students to behavioral health and community resources, such as housing and food supports. The program assisted 322 students and families with 96 referrals to behavioral health providers and 172 referrals to community resources.

Beth Israel Deaconess-Needham Hospital created a care coordination pilot in the ED to increase coordination across the continuum of care. Prior to implementation, a patient only received care management after admission. The new ED case managers worked with patients and other hospital care teams to help manage, plan and coordinate care from their initial point of service, during the inpatient stay and after discharge. The team served 720 patients with over 1,470 hours of care management services delivered.

The Heywood and Athol Memorial Hospitals' program helped 322 students and families connect to behavioral health and community resources.

As a result of a system redesign piloted through CHART, patients of **Harrington Memorial Hospital** were able to book an appointment within 24 hours, an efficiency gain of five days, facilitating a nearly 50 percent reduction in time to appointment. The hospital also developed a plan for future behavioral health services through analysis of demographic and behavioral health needs in the Harrington community.

Southcoast-St. Luke's Hospital planned for implementation of a medication clinic for patients taking psychotropic medications. However, St. Luke's discovered through patient interviews that the optimal way to reach their target patients was by integrating psychiatric services beyond just a medication clinic in local primary care practices, an initiative they are currently undertaking. The hospital also developed an online "asset map" of behavioral health and community resources in the region, listing appropriate sites of care for behavioral health, elder-care services, SUD treatment centers and other services.

BUILDING TECHNOLOGY FOUNDATIONS

Health information technology (HIT) is a broad framework used to describe the comprehensive management of health information across computerized systems and its secure exchange between patients, providers, payers and other organizations. As such, the use of health information technology (HIT) is strategically important for reducing hospital readmissions, enhancing behavioral health care and improving hospital efficiency. HIT has the potential to broaden care coordination among providers in a hospital setting and in the community.

"Phase I of CHART permitted us to test pilot electronic communication with our community partners including the Visiting Nurse Association (VNA) and the Elder Services agency, in the interest of more coordinated care, including care delivered effectively in the home to prevent rehospitalization. As part of the model, the ED-based case manager was able to pinpoint what gaps needed to be filled in an integrated way in the non-hospital setting — by the VNA, an elder services coach, or an extender from the primary care practice — in order to prevent an expensive and frustrating re-admission. In this way population management approaches tried under CHART 1 worked in the interest both of the patient, and the larger health care delivery system whose costs need to go down."

DELIA O'CONNOR, *President & CEO, Anna Jaques Hospital*

HIT aims to make information accessible, actionable, timely, customizable and portable. HIT can facilitate care coordination through the collection, sharing and analysis of patient-centered information among patients, families and care providers. The adoption of EHRs and information systems can enable more effective care coordination, especially when extended

to other providers through HIEs, the "highways" for health information across the health care system. Rapid access to information also creates efficiencies in care by eliminating redundancies in testing and procedures and in collecting patient histories.

In Massachusetts, implementation of health information technology and health data exchange is widespread. Eighty-nine percent of Massachusetts' physicians are using an EHR or electronic medical record system, ranking the state first in the nation. Fifty-six percent of eligible health care providers in Massachusetts have received Meaningful Use payments, ranking it second in the United States. Sixty-two percent of Massachusetts office-based providers have adopted a certified EHR system and 89 percent of acute-care hospitals in Massachusetts have a certified EHR system.[34] However, despite this high penetration of HIT, some CHART-eligible hospitals struggle to obtain and maintain necessary technology infrastructure. CHART Phase 1 helped 14 hospitals invest in HIT and solidify the foundations for HIE with community providers.

Mass HIway status among CHART Phase 1 awardees

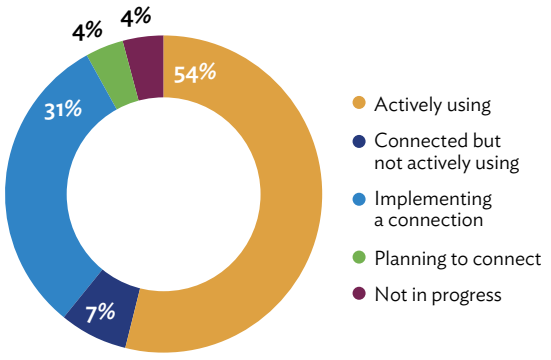


CHART Phase 1 connected 20 practices, three skilled nursing facilities, a medical group, hospital-based physician services and a hospital to a statewide or regional HIE. In addition, three solutions were built to connect hospitals and community practices — BID-Milton, Emerson, and Lowell General. And 65 electronic hubs were implemented at organizations affiliated with Lowell General Hospital to connect disparate systems for the distribution of clinical data to providers and consumers.

Among the more dramatic improvements, two hospitals, Holyoke Medical Center and Athol Memorial Hospital, moved from paper-based ED records to electronic-information systems that enabled the hospitals to integrate patient information with other technology platforms. Complementary HIT investments at other hospitals included a care-management system at Anna Jaques Hospital, an adverse event tracking system at BID-Needham Hospital to enhance patient safety, and a scheduling system at Noble Hospital to improve efficiency.

> Eighty-nine percent of Massachusetts' physicians are using an EHR or electronic medical record system, ranking the state first in the nation.

CHART also made investments in software to enhance current information systems, including upgrading quality software at Anna Jaques Hospital; supporting a behavioral health electronic health system redesign at Harrington Memorial Hospital; integrating the PeraTrend clinical decision support tool into Signature Healthcare Brockton Hospital's EHR; ACO participant tagging at BID-Needham Hospital; and supporting Stage 1 Meaningful Use attestation at Baystate Wing Hospital. Finally, CHART purchased claims-analytics platforms for two hospitals and a telehealth platform for two others.

In addition to investing in core HIT infrastructure within the hospitals, CHART helped create new linkages with community groups through the expansion of HIEs. Twenty-four percent of Massachusetts' providers have joined a health-information exchange and 39 percent plan to connect to one in the near future.[35] The majority

34 Massachusetts e-Health Institute (presentation at Boston Regional Meeting, Oct. 29, 2013)

35 Massachusetts e-Health Institute (presentation at Health IT Roundtable EHR Adoption, Jan. 29, 2014)

PATIENT STORY

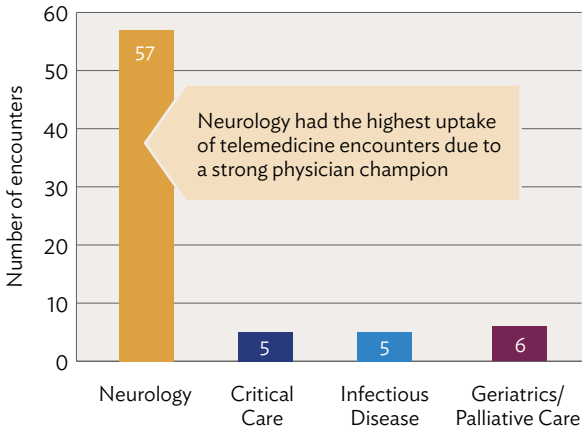
A patient was seen by an off-site neurologist via telemedicine at Baystate Mary Lane Hospital in Ware, rather than waiting three months for an in-person visit. The patient required immediate treatment at Massachusetts General Hospital. Had he waited, his condition probably would have deteriorated quickly resulting in serious permanent health consequences including possible death.

of CHART hospitals are either connected to the Mass HIway, the statewide health-information exchange, or are in the process of doing so.

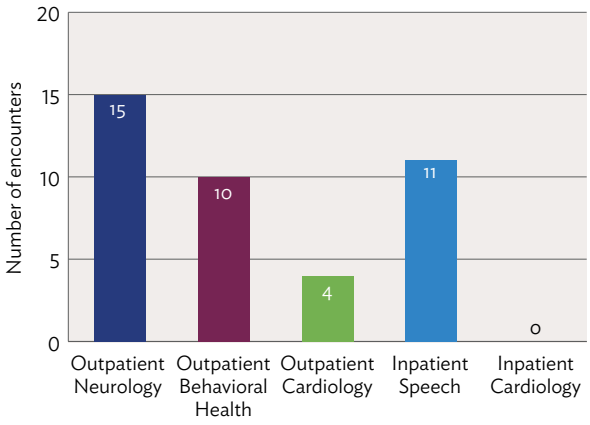
Baystate Mary Lane Hospital and **Franklin Medical Center** conducted telehealth pilots. Baystate Mary Lane developed telemedicine programs in outpatient neurology, inpatient speech, inpatient and outpatient cardiology, and outpatient behavioral health to increase patient access to specialty providers. Baystate Franklin Medical Center developed telemedicine programs for four inpatient specialties: neurology, critical care, infectious disease and geriatric/palliative care to reduce tertiary transfers and keep care in the community. The hospitals found unanticipated variation in the extent to which the departments were ready to use telemedicine, as seen in the accompanying charts.

> Among the more dramatic improvements, two hospitals, Holyoke Medical Center and Athol Memorial Hospital, moved from paper-based ED records to electronic-information systems that enabled the hospitals to integrate patient information with other technology platforms.

Number of telemedicine encounters by specialty at Baystate Franklin Medical Center



Number of telehealth encounters by specialty at Baystate Mary Lane



"Our community hospitals are essential participants in our regional system of care, with critically important roles to play in supporting health and wellness in our local western Massachusetts communities. Increasing access to specialty care in communities such as Greenfield, Ware and Palmer is a major priority for Baystate Health."

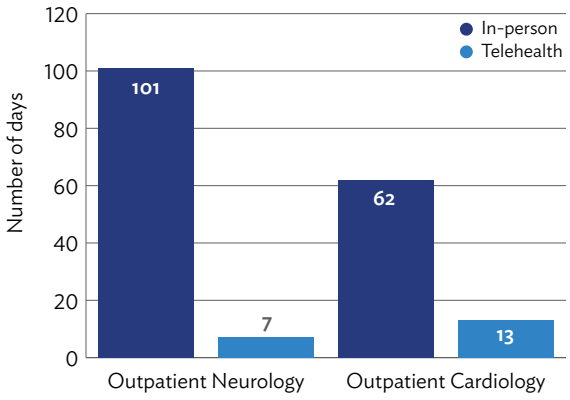
MARK A. KEROACK, *MD, MPH, president and CEO of Baystate Health*

Despite the variation in uptake, Baystate Mary Lane Hospital increased access to outpatient specialties through telehealth by reducing patients' wait times for appointments.[36] The graph below shows the average number of days a patient would wait for the third next available

36 Institute for Healthcare Improvement. "Measures: Time to Third Next Available Appointment." IHI, http://www.ihi.org/resources/Pages/Measures/ThirdNextAvailableAppointment.aspx

appointment either to be seen in person or remotely via telehealth. (The third next available appointment is a more sensitive reflection of appointment availability than the next available appointment, which is subject to cancellations and other chance occurrences.)

Time to third next available appointment (number of days) at Baystate Mary Lane Hospital



Holyoke Medical Center used the CHART investment to implement an ED information system, along with concurrent process improvement. Holyoke Medical Center held a "lean event" to map the current paper process used by the ED and made changes to eliminate waste as they converted to an electronic system. This will help improve efficiencies within the hospital and make information more readily available at the point of care.

Anna Jaques Hospital implemented a care-management platform as well as a quality improvement tool that will track a variety of outcomes alongside comparative benchmarks. The hospital indicated that implementing these new technologies has better prepared them for taking on risk-based payment from payers. Payers see the increased capabilities to assist patients when they transition out of the hospital and to use data more effectively to manage patients as critical building blocks to accepting performance-based incentives.

Noble Hospital implemented a universal scheduling system for all departments that reduced scheduling time. For example, the average time to schedule an MRI decreased from an 17 to seven minutes and decreased possibilities for error by limiting the number of people involved in the scheduling process.

Consumer Attitudes

MeHI, an advisor to CHART hospitals implementing technology projects, found in a 2014 survey of consumer and provider attitudes towards HIT that consumers are very supportive of expanding the use of HIT in their care.

Communication with physician is easier electronically

76%

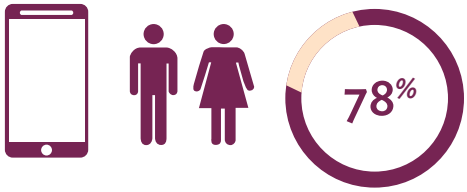
Positive about sharing data with consent

87%

46%

Asked a question electronically they would not have otherwise

If all doctors used EHRs instead of paper records it improve care



78%

MeHI MASSACHUSETTS eHEALTH INSTITUTE at the MassTech Collaborative

*Based on a survey of 807 Massachusetts residents. See 2014 MeHI Provider and Consumer Health IT Research Study.

THE CHART ENGAGEMENT MODEL

The HPC built the CHART provider engagement model on the principle of active partnership with hospitals through monitoring and advising. The CHART Investment Program staff, along with subject matter experts and strategic advisors, engaged in technical assistance that included over 140 monthly coaching and monitoring phone calls, 54 site visits, and two day-long learning symposia representing over 400 hours of direct provider engagement (or more than 53 person-days of contact) throughout Phase 1.

Monthly phone calls with each hospital included coaching from experts in care delivery and HIT, as needed. The HPC CHART Investment Program staff team and subject matter experts conducted site visits to all hospitals. In a break from traditional government approaches to grant management, the HPC structured CHART to be close enough to the work and the real-time lessons of hospital pilot teams to be able to understand and sanction modifications to project plans in a near-seamless process that did not place funder approval between clinicians and real-time improvement opportunities.

In addition, CHART invested in safety and culture assessments at each hospital to measure the depth of collaboration and common values among staff. The HPC shared findings with hospital leaders at a day-long executive leadership summit in September 2014.[37] The summit brought together senior leaders from CHART hospitals to focus on principles of quality improvement, strategic and operational planning for system transformation, and change management, including the impact that culture has on safety and performance. Over 175 senior executives, directors, and managers — hospital board members, CEOs and other chief officers and directors responsible for key clinical and administrative functions — gathered in Worcester to participate in the Leadership Summit. In addition

37 Health Policy Commission. "A Report on the Proceedings of the Community Hospital Acceleration, Revitalization, & Transformation (CHART) 2014 Leadership Summit" (Boston, MA: HPC, Sept. 2014)

to interactive content-delivery sessions led by subject matter experts, CHART awardees led smaller breakout sessions through which participants had the opportunity to share lessons from ongoing transformation efforts.

Hospitals noted that the ongoing partnership with CHART contributed meaningfully to implementation of initiatives, with 90 percent reporting the program moved their organization along the path to transformation.[38]

Hospitals said they found it most helpful when they worked with clinical operations experts engaged by the HPC and with participants at the Leadership Summit. Examples of gains achieved through technical assistance included improved ability to measure patient outcomes and interpret their own data, improved project execution skills and effective approaches to continuous process improvement.

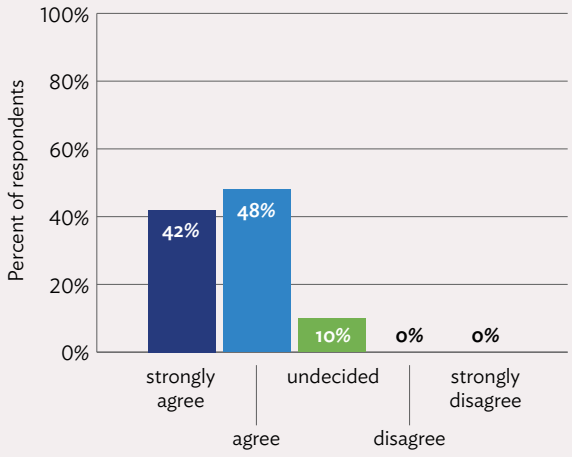
90%

HOSPITAL LEADERS REPORTED THE PROGRAM MOVED THEIR ORGANIZATION ALONG THE PATH TO TRANSFORMATION

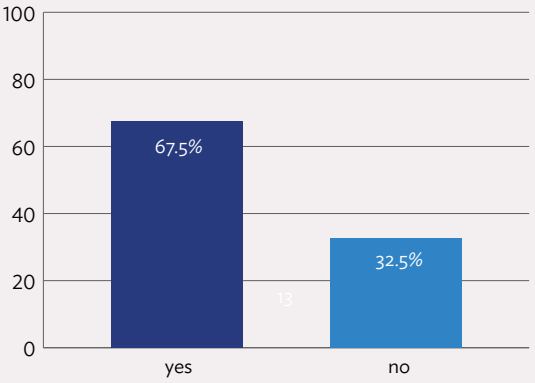
The foremost finding that supports CHART's program design from this first round of investment is that substantial organizational change can be achieved and new approaches to care delivery learned within a brief period of time. Although outcomes are limited given the six month period of operation, new models of care emerged that will have lasting impact, including carrying forward into Phase 2 initiatives. Pilot teams simultaneously designed and launched clinical service delivery models even as they learned from their data, refined their staffing models, and experimented with the intensity and type of services required to achieve target outcomes. The CHART program encouraged this kind of adaption and celebrated learning.

38 The HPC sent an anonymous survey to all CHART awardees at the end of Phase 1 to assess the program and suggest enhancements for Phase 2.

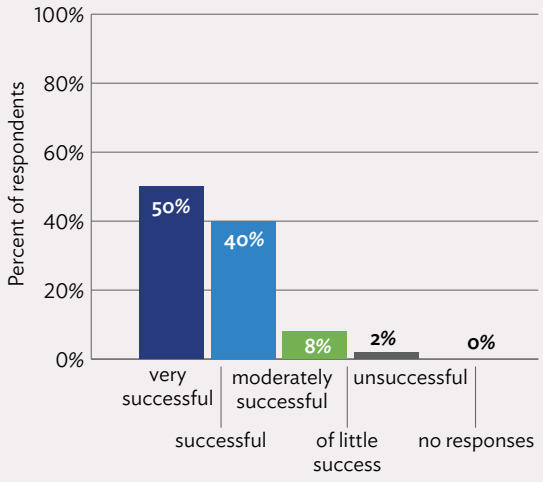
Hospital respondents self-reported their belief that CHART Phase 1 moved their organization along the path to system transformation (n=52)



Was the CHART investment program design and structure different from investment or grant funding you have received in the past? (n=40)



Hospital respondents self-rated their performance on Phase 1 initiatives (n=52)



LESSONS LEARNED

Lessons Learned from Phase 1 Initiatives

Throughout Phase 1, the HPC observed and hospitals shared common experiences and challenges, captured in a series of program surveys and evaluation tools. The following section outlines these observations and provides an account of hospital experiences in each area.

LESSON 1

The composition of transformation teams matters. Phase 1 initiatives ranged from care-delivery pilots to strategic planning for transformation to technology implementation. The mix of skill sets needed to plan and successfully implement initiatives was diverse. Selecting the right people for a transformation team was critical to success.

LESSON 2

Process improvement is key to improving efficiency. Some CHART initiatives planned to incorporate process improvement approaches into their hospitals through training or use of lean methodologies, while others recognized the value of performance improvement only after encountering challenges in implementation. Improving care processes improved efficiency and often led to measureable outcomes.

LESSON 3

Leadership and project management must engage throughout the lifecycle of initiatives. Focused management at the project level, as well as leadership engagement to clear a path for meaningful project execution, were two qualities that stood out as promoting success of Phase 1 investments. Dedicated project managers were critical to the success of the most promising initiatives. Leadership awareness and involvement varied across the cohort, but was correlated with success of the initiatives.

LESSON 4

Data analysis is essential to measure performance and drive improvement. Data are perhaps the most critical factors for enabling improvement. Data are used to define a target population, monitor ongoing progress, continuously improve, and assess outcomes from interventions. CHART hospitals had varying degrees of success accessing and analyzing data for their initiatives; quality improvement capabilities were highly variable across units and hospitals.

LESSON 5

Community partnerships are challenging to build, but are essential to success in value-based care. Hospitals had varying levels of engagement with community partners. Some were just beginning to explore opportunities to collaborate, while others were able to develop integrated work-flows or lend support to community partners by sharing staff.

LESSON 6

Sustaining low-cost options for acute care is critical for maintaining a value-based system. Developing and implementing a model for sustainability is one of the necessary factors for hospital transformation. Thus, CHART investees were encouraged to focus on building internal capacity and capability. Payment reform remains a primary barrier to sustainability of care delivery projects; lower volume can be a plus in a value-based world, but costly to hospitals under volume-based payment arrangements.

LESSON 1

FORMING A TRANSFORMATION TEAM

Overview. Building a team with the right skill set to design and to execute a project was essential for all CHART initiatives — whether planning investment, training for capacity building, technology implementation or a care delivery pilot. Forming an effective team sometimes required changing role responsibilities or considering non-clinical and non-nursing roles less frequently seen in care-management programs. At other times, forming a team required training existing staff for new roles or hiring new people with different skills.

"I think my growing relationship with the ED staff has been what is most important to me lately. Now that many of them know what I do, they include and request my input regarding patients. With my role as a navigator I am able to more effectively collaborate and share resources with nurses and doctors on behalf of our behavioral health patients. I feel included as part of the team, though I like feeling that my role is different. I like to build relationships with patients and staff, I like that I am not here medically, I am able to get the "why" regarding behavioral health patients. I think the role is needed in the ED to model equal patient care and to decrease stigma with behavioral health patients because they do tend to present more externally, which I think can be frustrating for people."

SONYA BROCK, *ED Navigator, Heywood Hospital*

Planning. For the 11 hospitals with planning grants, choosing the right project team was critical. Beverly and Lawrence General Hospitals formed teams within their hospitals, with representation from different areas. Lowell General Hospital created a "Population Health Innovation Council" to ensure executive-level oversight of the planning process. Harrington Memorial and Heywood Hospitals did not have in-house expertise to plan for regional behavioral health needs, and so included outside consultants on their teams.

Finding the right people. Heywood and Athol Memorial Hospitals had trouble hiring the registered nurse navigator they had envisioned for their EDs. Then they realized that they might not need a registered nurse and expanded their search to other health care workers. They quickly found that a social worker could adequately fill the role. Over time, in fact, the hospitals realized that the skills of the social worker were beneficial for the position. BID-Milton saw the need for culturally sensitive care and so hired a Vietnamese navigator to assist both the patients to understand and feel comfortable at the hospital and the hospital staff to understand the needs of this population.

"It was humbling to see the care coordination gaps that exist when patients and providers don't have access to a person at the bedside who can provide culturally sensitive interpretation. It was eye opening to witness firsthand the warmth and trust that developed between our patients and the interpreter."

LYNN CRONIN, *Vice President of Nursing/Chief Nursing Officer, Beth Israel Deaconess Hospital-Milton*

Team composition. Southcoast-Tobey Hospital created a team of community health workers to work with 45 patients with diabetes. The community health workers made 265 face-to-face visits to review dietary guidelines, encourage exercise and schedule appointments with hospital-based clinicians. Through regular and repeated visits with patients, the community health workers were able to assess patients' physical and psychological safety in the home and report unusual results back to the clinical team. When patients left the hospital, post-acute support provided by community-health workers freed up the clinical staff to work with patients that required more intensive care.

Training. At Southcoast-Charlton Memorial Hospital, inpatient nurses transitioned to work on the new care-management team in primary care practices, where they coordinated care for high-risk patients. Southcoast-Charlton Memorial Hospital provided nurses with training on care transitions and population health management. These care managers met the hospital's goal of engaging 150 patients during the period of performance.

Challenges. Building a team was a challenge for many CHART hospitals. One-third of hospitals within the cohort had trouble hiring for a position on the team, especially for newly high-demand professions such as behavioral health. These challenges included difficulty in sourcing qualified applicants, human resources delays and lengthy on-boarding that took more time to resolve than the hospitals expected. BID-Needham Hospital, for example, was delayed six months as a result of challenges hiring an ED case manager. There is clear opportunity for investments to support development of additional workforce to support functions necessary for effective care management and other community based non-clinical functions. However, many organizations also overlooked partnering with existing services in the community as opposed to 'buying' new service delivery teams. More successful organizations developed such meaningful partnerships.

Deciding on what skill set to include on the team was also a challenge. Addison Gilbert Hospital designed a high-risk care team that included licensed nurses and a pharmacist to complete the work. The hospital noted, in retrospect, that it would have liked to have further added staffing resources at a lower skill mix to allow for flexibility and maximize patient support across diverse situations; in particular, these additional team members would have substantially increased the number of home visits completed. In addition, two hospitals were unable to involve necessary team members. At one hospital, the project team could not get the ED chief involved in its ED-focused initiative, leading to substantial delays in planning and implementation. At another awardee, there was competition between the community hospital physicians in the service line implementing a pilot intervention and their peers at the affiliated academic medical center, which was cited as a substantial barrier to implementation of a transformation project. In future phases of CHART, early leadership buy-in and ongoing engagement can help alleviate some of these challenges.

LESSON 2

STRENGTHENING CARE-DELIVERY PROCESSES

Overview. Some CHART initiatives aimed to incorporate process-improvement methodologies into their hospitals through training or use of lean methodologies, while others saw this as a benefit only after they began implementing technology. In both cases, improving care processes improved efficiency and led to measureable outcomes.

Introducing or expanding process-improvement methodologies.

"Holyoke Medical Center implemented the electronic documentation system on July 29, 2014 and we have found that the system has significantly improved our patient care over the past four months. The electronic documentation allows us to effectively communicate our findings and care plans with community physicians, improving collaboration and continuity of care. We are able to more effectively follow up on our ED patients in terms of addressing pending lab work and [radiology] reports"

JENNIFER MARK, *MD, Emergency Department, Holyoke Medical Center*

Hospitals were in different stages at the outset of Phase 1. Mercy Medical Center trained 251 employees in lean, Six Sigma and Just Culture.

Building staff capacity for process improvement at Mercy Medical Center

>75 individual improvement initiatives across Mercy Medical Center

1. Reduce Orthopedic LOS through Effective Equipment Management

   Reduced LOS from baseline of 3.24 days to 2.98 days

2. Improve Documentation of Assessment and Intervention to Ensure Appropriate Service Utilization

   Improved compliance to >95% from baseline of 71.4% for target service line

It engaged the newly trained employees in process-improvement initiatives focusing on care-transition communication; payment reimbursement; delay reduction; new operational processes; and standardization, quality of care, and patient satisfaction. These projects had measurable results: length-of-stay for orthopedic patients was reduced from 3.24 days to 2.98 days.

"The financial and technical support provided by the HPC Chart Team allowed Mercy to move forward with process improvement and organizational culture education that ultimately had real and sustained impact on employee engagement, patient satisfaction and quality of care. We appreciate of the opportunity to partner the Health Policy Commission through the CHART program to help support the transformation that is occurring at Mercy Medical Center."

DANIEL P. MOEN, *President and CEO of Sisters of Providence Health System/Mercy Medical Center*

Both HealthAlliance Hospital and Holyoke Medical Center used lean approaches to understand current processes. HealthAlliance Hospital mapped the flow of its ED to maximize team effectiveness, while Holyoke Medical Center had a lean event to understand current processes and workarounds before implementing a new ED information system. Signature Healthcare Brockton Hospital developed a five-year plan for implementing lean throughout the organization, with measurable outcomes and benchmarks.

Technology that leads to process improvement. Both Harrington Memorial and Noble Hospitals removed inefficiencies in their systems. Harrington Memorial Hospital redesigned its behavioral health information system to reduce processing times for appointments from an average of six days to less than a day; the wait time to see a provider dropped from 25 to 13 days. Noble Hospital created a centralized scheduling system. Patients and providers could call one phone number to schedule appointments, including lab work, and seek pre-approval for hospital visits. The system decreased processing times and reduced errors.

Technology that facilitates process improvement. As noted earlier, Anna Jaques Hospital supplemented its quality reporting and case-management software with access to data and benchmarks from other hospitals to better measure themselves as they engage in rapid-cycle improvement.

Challenges. Not all hospitals incorporated process-improvement methodologies into their initiatives. For those that did, training in process improvement needs to be reinforced through an organization-wide commitment and sustained practice by teams. In many other organizations, the HPC observed that process improvement skills and capabilities would have benefited Phase 1 initiatives, but the hospital had no such staff capacity.

LESSON 3

ENGAGING LEADERSHIP AND MANAGEMENT WHILE UNDERSTANDING AND IMPROVING ORGANIZATIONAL CULTURE:

"Phase 1 of the Health Policy Commission's CHART program allowed Southcoast Health and community partners to enhance the delivery of care for our patients in some of the most vital areas of the health care industry, including chronic disease and behavioral health management. The intervention models that we were able to implement helped improve the quality of care by identifying at-risk patients and providing them with efficient, coordinated, services throughout Southeastern Massachusetts. We are excited to build on our successes as we move into Phase 2 of CHART."

RENEE CLARK, *Senior Vice President and Chief Operating Officer, Southcoast Hospitals Group*

Overview. CHART hospitals and the HPC found that strong project management and executive leadership played major roles in planning and successfully implementing projects. Culture is a critical component of driving organizational transformation. An assessment of the CHART hospitals funded by the HPC, described below, indicated that each CHART hospital has an opportunity to enhance culture, across units and in the organization as a whole (notably across the nation most health care organizations are grappling with challenges of culture change as they seek to transform their business and operational models). Similarly, management capabilities vary across hospitals and within hospitals. In a survey sent to the hospitals, eighty-three percent of hospital respondents noted that they perceived an executive commitment to transformation in their organization and 81 percent believed that hospital leadership was committed to and supported CHART projects.

CULTURE FOR QUALITY IMPROVEMENT

Research on reducing central line-associated bloodstream infections (in Michigan) showed intensive care units with better cultures substantially reduced infection rates.[1] Other high-performing hospitals showed that consistently working to improve organizational culture improved acute myocardial infarction care.[2] Researchers have noted that improvements in culture correlated with better operational efficiency, better surgical outcomes and lower rates of harm in a study of 74 VA hospitals.[3] Lastly, a lower 30 day readmission rate for cardiac disease has been observed in clinical units with higher safety culture scores.[4]

1 D.W. Hudson B.J. Sexton, E.J. Thomas, S.M. Bernholtz, "A safety culture primer for the critical care clinician: the role of culture in patient safety and quality improvement, Contemp Crit Care 7 (2009): 1-14.
2 L.A. Curry, E. Spatz, E. Cherlin et al., "What Distinguishes Top-Performing Hospitals in Acute Myocardial Infarction Mortality Rates?," Ann Intern Med. 154 (2011): 384-390.
3 J. Neily, P.D. Mills, X.Y. Young et al., "Association between implementation of a medical team training program and surgical mortality," Journal of the American Medical Association, 304, no 15 (2010): 1693–700.
4 L. Hansen, M.Williams and S. Singer, "Perceptions of hospital safety climate and incidence of readmission," Health Serv Res.;46, no. 2 (Apr. 2011):596-616.

Cohort-wide culture surveys — a novel approach. An increasingly large body of data demonstrates the relationship between culture and organizational performance and reliable care of patients — and that operationally efficient organizations have common cultures. Culture is the social glue that allows organizations to operate coherently and consistently deliver quality care. High-performance cultures are collaborative, providing consistency in clinical-care processes.[39] This enables a social infrastructure for problem solving and process improvement.[40] This includes a clearly defined set of rules that apply to everyone in the organization, and a relentless focus to enhance organizational culture.[41]

39 L.L. Berry, and K.D. Seltman, "Management Lessons from the Mayo Clinic" (NewYork: McGraw-Hill, 2008).
40 E.H.Schein, "Organizational culture and leadership" (San Francisco: Jossey-Bass, 2004).
41 T.R. Krause, "Leading with safety" (Hoboken, NJ: Wiley-Interscience; 2005).

SRH SOCIOTECHNICAL FRAMEWORK

The SocioTechnical scale offers a framework to grade management of people, workflow, technology, organization values and external influences along an evolutionary scale, characterized by specific activities and attributes.

Safe & Reliable Healthcare has applied this framework in many health care environments and observed face-validity as individual clinicians and units often unanimously characterize themselves with similar grades on the scale. *Unmindful* health care provider organizations and units are those in which individuals make decisions that are not safety conscious. This situation occurs when groups working together have different values or interests, are not working cohesively, or have little or no unifying leadership direction. *Reactive* provider organizations and units are those in which awareness of risk and safety is mostly or solely dependent on individual interest and attention. *Reactive* organizations are aware of risk and safety issues but have limited activities to address them, or the impact of activities is limited. *Systematic* provider organizations or units have effectively standardized processes, are able to analyze risk and safety using process improvement methods and make changes based on evidence. A systematic assessment suggests that these activities are occurring, but are not widespread. *Proactive* provider organizations are characterized by senior leadership strategically supporting the efforts of managers to create robust learning systems in every area of the organization or amongst all personnel on a unit in organizations. *Generative* health care provider organizations or units are cultures that radiate situational awareness and mindfulness. To move from proactive to generative requires whole organizational activity including effective bidirectional communication techniques that link senior leadership and frontline personnel to ensure a common understanding of risk and safety at any point in time.

Safe and Reliable Healthcare, LLC (SRH) assessed the culture and organizational behavior of Phase 1 hospitals to identify key areas of opportunity to inform both hospital improvement initiatives and ongoing development of the CHART program and the technical supports it provides to awardees. The objective of this study was to evaluate these hospitals with regard to their ability to transform and provide sustainable, high quality, efficient community-based care. The assessment methodology used was a combination of on-site qualitative interviews of multiple cohorts of providers within each organization and analysis of culture surveys conducted in each hospital.

Day-long interviews were conducted by SRH at each of the 27 CHART hospitals (using SRH's SocioTechnical framework) (see sidebar) to understand the context in which hospital staff work — and how they perceive the environment, positive and negative, to providing high quality care. SRH aimed to interview as many front line caregivers as possible to provide a broad perspective and examine concordance between different roles.[42] At the end of each on-site visit, SRH conducted a debriefing session with a senior hospital leadership group to validate findings and provide feedback for improvement.

These on-site safety culture assessments revealed a spectrum of capability across the CHART hospitals. Most were graded as reactive; none fell in the unmindful category. Teamwork scores showed great variability, indicating opportunity to invest in improvement in this domain. Senior leadership plays a critical role in driving a culture of safety and improvement.[43,44,45] The subset of hospitals where senior leadership spent time in the clinical environments on a regular basis received a proactive or generative rating.

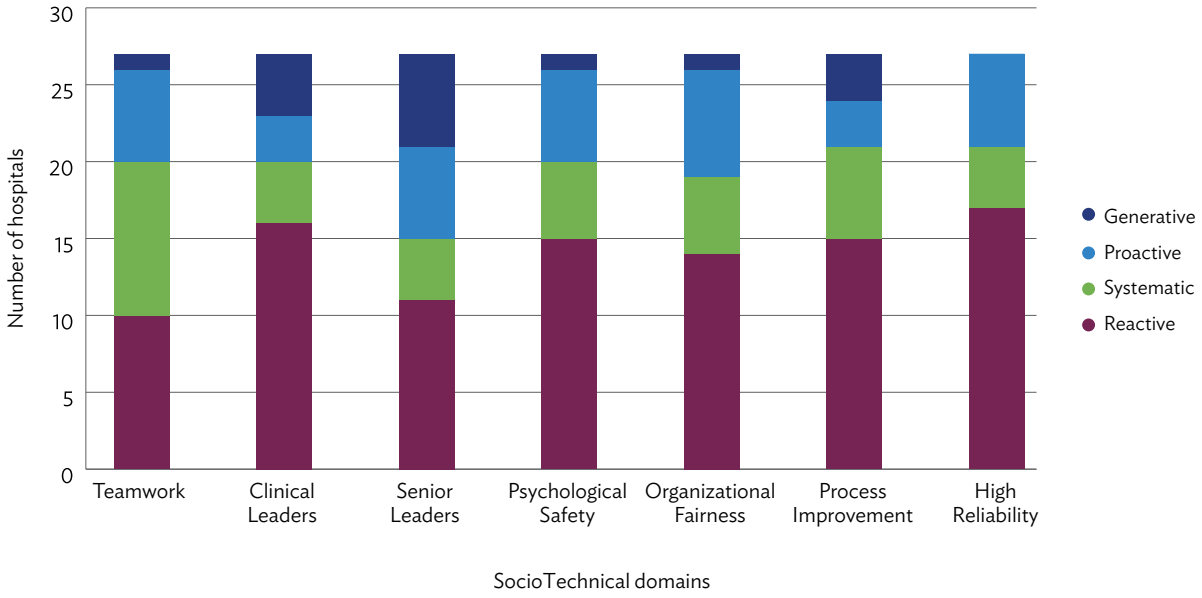
42 D. Parker, M. Lawrie, P. Hudson, "A framework for understanding the development of organizational safety culture," Safety Science 44 (2006): 551-562.

43 M.W. Leonard and A.S. Frankel, "Role of effective teamwork and communication in delivering safe, high quality care," Mt Sinai J Med 78, no 6 (2011): 820-6.

44 A. Frankel, S.P. Grillo, M. Pittman et al., "Revealing and resolving patient safety defects: the impact of leadership WalkRounds on frontline caregiver assessments of patient safety," Health Serv Res. 43, no.6 (Dec. 2008): 2050-66.

45 R. Schwendimann, J. Milne, K. Frush et al., "A closer look at associations between hospital leadership walkrounds and patient safety climate and risk reduction: a cross-sectional study," Am J Med Qual 28 no. 5 (Sept.-Oct 2013): 414-21.

27 CHART hospitals were assessed through stakeholder interviews in seven SocioTechnical domains



Similarly, psychological safety is a necessary component for safe, effective care.[46,47,48] Organizational fairness originates from the ability to learn from errors and near misses. SRH encourages clarity around the balance between individual accountability and system derived failures; it suggests that lacking this accountability reduces organizations' ability to learn from mistakes and reduce avoidable patient harm.

SRH found that most of the CHART hospitals need to embed a systematic model of organizational fairness. Only a small group of CHART hospitals have achieved high levels of reliability and process-improvement capability that have been prioritized by senior leadership. Capability in this area is essential to sustainable processes.

SRH also reviewed safety-culture surveys for each of the 27 CHART hospitals: 11 hospitals surveyed using the SRH-derived SCORE survey while 16 hospitals had existing internal safety-culture data, predominantly the AHRQ HSOPS survey, which SRH deemed sufficiently representative. These surveys are administered broadly across hospital staff so that the perceptions of all caregivers (clinical and non clinical) are captured. Each hospital's data were examined for performance trends and compared with on-site assessments. Here we report the themes from the 11 hospitals completing the SCORE survey (similar findings were seen across the additional 15 hospitals).

When considering culture survey scores, a 60 percent response or lower indicates improvement is needed; an 80 percent or higher response higher generally indicates a positive safety culture. Of the 11 CHART hospitals, none met the goal of 80 percent goal, and three hospitals fell below 60 percent.[49]

46 D. Parker, M. Lawrie, P. Hudson, "A framework for understanding the development of organizational safety culture," Safety Science 44 (2006): 551-562.

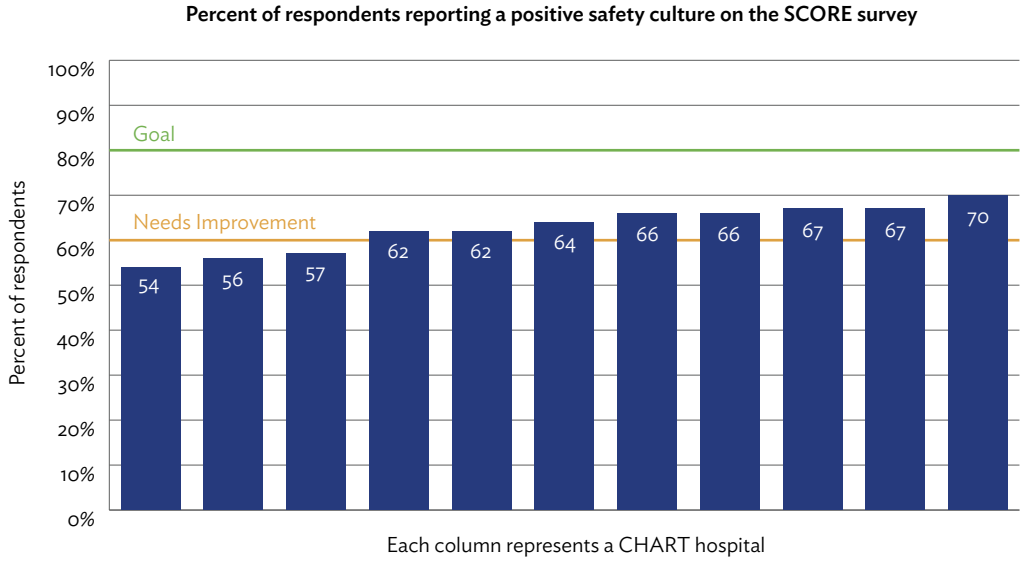
47 A.C. Edmondson, "Teaming: How Organizations Learn, Innovate, and Compete in the Knowledge Economy," (Cambridge MA: Harvard Business School Press, 2012).

48 A.C. Edmondson, "Managing the risk of learning: psychological safety in work teams," working paper, Harvar Business School, Cambridge MA, www.hbs.edu/research/facpubs/workingpapers/papers2/0102/02-062.pdf

49 Pronovost PJ, Goeschel CA, Marsteller JA, Sexton JB, Pham JC, Berenholtz SM. Framework for patient safety research and improvement. Circulation 2009; 119: 330–7

SCORE survey results by hospital

Eleven CHART hospitals reported results from the SCORE survey. None met the goal of 80% of respondents reporting a positive safety culture. Three hospitals fell below 60%, which indicates improvement is needed.



Across the cohort there was a wide variation in the percentage of respondents who reported a positive safety culture — both between hospitals, and across departments within the same hospital

Despite the wide variance in demographics and resources across CHART hospitals, SRH observed several common challenges: (1) integrating care with community PCPs; (2) organizing care within the hospital to reliably provide routine services such as accurate medication reconciliation or return of patients to PCPs; and (3) difficulty appropriately diagnosing and treating behavioral health patients.

SRH found that three factors underlie these common challenges: (1) lack of awareness and prioritization across all levels of staff regarding the importance of integrating care and minimizing fragmentation; (2) lack of resources in smaller communities; and (3) lack of physician alignment with goals of integrated care.

To overcome these challenges, SRH suggested that all CHART hospitals should strategically align resources to the aim of the well-being of their communities. Specifically, SRH recommended that CHART hospitals:

- Align resources in the community and the hospital to integrate care and transitions for effective population health, and train middle management on how to create, manage and sustain the learning environments that will support operational excellence.
- Build coherent and collaborative hospitalist structures. SRH noted that few CHART hospitals have fully integrated hospitalist services. Many others are characterized by fragmented hospitalist services in which there is a clear divide between part time hospitalists and hospital staff; these environments create cultural and operational challenges to high reliability care.
- Increase visibility and engagement of senior leaders. Presence of leaders in clinical units clearly models desired organizational behaviors and values. A common observation across higher performing hospitals is that leaders and middle managers created dedicated time to interact with patients and care providers (e.g., walk rounds or daily huddles). Conversely, SRH observed adverse cultural impacts at the CHART hospitals where leaders have limited visibility.
- Develop a culture of safety. SRH observed that only a few CHART hospitals have focused on building a culture of safety, characterized by re-

spect, psychological safety and the needs of the patient as the primary priority. In many hospitals, SRH made specific recommendations for operational improvement through teamwork mechanisms such as multidisciplinary rounding and debriefings. Consistent with themes seen by the HPC throughout CHART Phase 1, SRH suggested that development of skilled physician, nurse and operational middle managers would benefit development of organizational cultures and operational reliability.

- Embed process improvement, teach change management skills and build learning systems. Given the waste and defects present within many CHART hospitals (consistent with findings in other delivery systems), SRH recommended that hospitals (and the HPC) invest in continuous learning and process improvement at the front lines of care. SRH observed that few CHART hospitals have adequately built this capacity to date. Many hospitals have implemented process-improvement activities in pockets, usually in response to an adverse event or finding. Consistent with evidence on best practices of process improvement, SRH observed that more effective CHART hospitals implemented comprehensive improvement methodologies across all units and levels, with clear expectations of staff and commensurate behaviors becoming embedded in daily activity.
- Develop coherent information systems. At many CHART hospitals, reliance on multiple legacy systems with minimal integration impacts workflow. To resolve this, SRH proposed that successful HIT strategy address both the technical needs to make information readily available across the hospital for all caregivers (a unified information system) and the cultural aspects of successful technology adoption, including close engagement of community medical and behavioral health providers.
- Clarify roles and strategies for hospitals partnering with larger delivery systems. Many CHART hospitals have joined or partnered with larger delivery systems. SRH found that the nature of the relationship between these hospitals and the larger systems is often unclear to the providers who work in the community hospitals, both strategically and operationally. In some cases, staff observed no clear strategy for the hospital's future. SRH also recommended that many CHART hospitals receive greater oversight and assistance from their partnering institutions in training leaders and managers. This lack of role clarity as well as clinical and operational integration can hinder effective delivery and is a challenge to developing a strong organizational culture.

A common observation across higher performing hospitals is that leaders and middle managers created dedicated time to interact with patients and care providers (e.g., walk rounds or daily huddles).

Across the SRH and WMS assessments, the dialogue between hospitals and the HPC during the Leadership Summit, and the shared experiences of the CHART hospitals and the HPC during Phase 1, three key findings emerge.

Middle management and line staff must be informed and engaged participants in transformation. Leadership Summit attendees noted that middle managers have not historically received attention as a group, but face the most pressure with the fewest resources and are critical to bridging macro to micro level changes. There is a wide variation in talent, needs, and desires that additional training and focus on this group could help address.

Project management is crucial to successful launch of transformation initiatives in a dynamic and chaotic environment. Both HealthAlliance and Addison Gilbert hospitals had dedicated project managers who

were essential to the successful implementation of their projects. These project managers had technical expertise in the development of tools and processes to collect and interpret data, document systems and workflows, and monitor progress throughout a project.

Sustained, organization-wide change requires leaders to craft a strategic vision and to empower middle managers and project teams to drive toward that vision. Executive leadership should demonstrate a passion for improvement and day-to-day involvement in change initiatives. Senior leader can and must step up and champion new initiatives for them to be successful.

Challenges. Engaging leadership and utilizing management effectively did not go smoothly at every hospital. Some CHART hospitals, without a dedicated project manager, noted that the lack of strong, dedicated project management was a barrier. Lawrence General Hospital noted it "found that using current staff to manage the large scope of this project was a challenge, due to the time commitment and conflicting priorities." Another hospital reported that "significant transformative initiatives tax the resources of already lean operations at CHART hospitals, which by definition receive lower payments for the services they provide." BID-Milton added, "Funding of project management support with expertise in performance improvement would greatly facilitate execution of future similar HPC CHART work."

> The HPC encouraged hospitals to identify and define success metrics for each of their initiatives at the start of Phase 1.

Leadership also varied from hospital to hospital. More than 20 percent of survey respondents did not think hospital leadership supported the CHART initiative.

LESSON 4

USING DATA TO DRIVE IMPROVEMENT

Overview. The HPC found through its work with CHART awardees that there is substantial opportunity to leverage data to design, develop, and implement population health systems[50]. Local sources of data can provide timely and specific information to accurately identify and develop population health-management interventions, particularly for high-risk, high cost groups. As these populations tend to have an outsized influence on total health care spending, focused interventions hold promise for improved health outcomes and lower costs. These approaches can also be implemented with minimal resource burden and are therefore relatively low cost.

Defining a target population. Beverly Hospital used a readmission data analysis template and patient interviews to identify patients at highest risk for readmission. The hospital originally thought that it should develop

50 Health Policy Commission, "Use of Locally Derived Data to Design, Develop, and Implement Population Health Management Interventions: Lessons from CHART Hospitals" (Boston, MA: HPC, Feb. 11, 2015)

a plan to target heart-failure patients over age 65, but after looking at the data realized that social and behavioral factors were a more impactful opportunity.

Monitor ongoing progress. Addison Gilbert Hospital used a tracking sheet to monitor follow-up calls and interventions with discharged patients. Collecting these data allowed Addison Gilbert Hospital to improve risk assessment, understand the value of medication management and identify areas for training staff. It also allowed Addison Gilbert Hospital to see which interventions were reducing readmissions.

Show outcomes. Hallmark Health System (Lawrence Memorial and Melrose-Wakefield Hospitals) aimed to reduce the number of prescriptions for patients with back pain in their EDs and urgent-care centers. Both hospitals had the goal of reducing prescribing by five percent. They developed the metric, set a goal and showed progress toward it on a weekly dashboard. At first the project team did not see a large change in provider behavior, but the dashboard allowed them to see gradual changes being made by the prescribers. By the end of Phase 1, Hallmark Health Systems exceeded its 5 percent goal — and lowered opioid prescriptions for patients with back pain by 43 percent and 26 percent in the two hospitals.

"I am proud that Hallmark has taken a leadership role in promoting alternatives to opioid use to address pain. The CHART program has been instrumental in helping community hospitals like Melrose-Wakefield and Lawrence Memorial do this important work, and I look forward to future progress as a result of the Phase Two award to continue its progress in controlling opioid use."

STATE REPRESENTATIVE PAUL BRODEUR *(D-Melrose)*

Challenges. Using data to drive improvement projects posed many challenges for hospitals new to the process. The HPC encouraged hospitals to identify and define success metrics for each of their initiatives at the start of Phase 1. At the conclusion of Phase 1, hospitals reported on 91 percent of metrics that they defined. Seventy percent of hospitals reported on all specified metrics in final reports. The HPC learned in reviewing these reported data that hospitals did not in all cases follow best practices for sourcing information or in choosing the right metrics to evaluate performance.

The observed fall-off in reporting was due to a variety of reasons that differed by hospital. BID-Plymouth Hospital was waiting for "perfect" claims data and thus only showed three months of data in its final report to the HPC — not enough data to detect any meaningful change. Southcoast-St Luke's and Southcoast-Charlton Memorial hospitals could not report on their proposed metrics because they were unable to collect the necessary data.

Only 56 percent of hospitals reported targets for all metrics, although 84 percent reported at least one target. Of hospitals that set targets, 80 percent met at least one target, while only 28 percent met all targets. Baystate Mary Lane Hospital, for example, included all-cause readmissions as a metric without a target, which hindered the team's ability to meaningfully measure achievement. Hospitals attributed failure to meet targets to a variety of reasons including the Phase 1 time frame being too short to meet a target, slower than anticipated launch of initiatives and the setting of unrealistic targets to begin with. For example, Mercy Medical Center set an aspirational goal to reduce the number of inpatient falls in Phase 1 from 2.31 to zero. While such aspirational goals can benefit an organization's strategic prioritization, goals achievable in the timeframe of interest are best practice for rapid-cycle quality improvement initiatives.

LESSON 5

BUILDING COMMUNITY PARTNERSHIPS

"Being able to offer our students' access to care here at school, where these kids are each day, is an enormous benefit to everyone. Our families often struggle with transportation issues [to medical appointments] and having services on campus relieves that one barrier. Students are receiving the supports they need and in-turn are succeeding in class and with peer relationships. Families are being helped in ways that they never have been before with obtaining community supports, too. We are building the infrastructure to a healthier school and community."

DENISE CLEMONS, *Superintendent, Gardner Public Schools*

Overview. Seventy percent of CHART hospitals reported building or enhancing partnerships during CHART Phase 1. Partners include affiliated and non-affiliated physicians, skilled nursing facilities, Aging Service Access Points and behavioral health providers. Some hospitals just began building a foundation in Phase 1, while others were able to set up extensive work-flows and mutually commit resources between the hospital and community providers.

Laying the Groundwork. As noted earlier, St. Luke's Hospital developed a behavioral health and community-resource locator ("asset map") for the area. Multiple iterations were time consuming, but the project helped the hospital take a first step towards building a relationship with community service providers.

Bring hospital resources to community partners. As noted earlier, Heywood and Athol Memorial Hospitals worked with schools to create a behavioral health program. The program met capacity for behavioral health services within four weeks, indicating the need for such services. The program impacted 322 student and their families, and made 96 referrals to behavioral health resources and over 172 referrals to community resources. The partnership expanded beyond the schools as the needs of the population were identified; in one case, the team helped a homeless high school senior find placement in a housing center. In other cases, the team helped students and their families with rent assistance, to obtain food or heat, and to meet other social needs.

Challenges. Partners in the South Coast region were concerned that the Southcoast hospitals would use CHART investments to build their own services and bypass the community organizations. Many community partners expressed concern that they would not be equals in a partnership with a hospital; their concerns — real or perceived — about hospital dominance hindered meaningful collaboration. Both within health systems and across different providers, competing financial interests and lack of comprehensive outreach hampered engagement. But experience with population health approaches suggests that finding effective ways to build will and partnership — and partnering down and across organizations, not only up — is among the most complex challenges facing these hospitals.

LESSON 6

SUSTAINING TRANSFORMATION

The HPC believes that developing and implementing a model for sustainability is one of the critical factors for system transformation. As a result, CHART awardees were encouraged to focus on building sustainable internal capacity.

In Phase 1, this capacity took shape as practice change through care delivery pilots or infrastructure change through technology investment. Care delivery pilots require sustained support because the primary cost of these projects is staff salary. Many hospitals noted that they will be better able to sustain changes in care delivery practices when all payers, particularly MassHealth, move to APMs.

In contrast, technology projects, while requiring ongoing support, can be sustainable investments, assuming no changes in legacy systems are required. However, while the introduction of enhanced HIT is a key component of increasing a hospital's capacity and efficiency, many community hospitals struggle with adopting and maintaining new technologies. CHART partnered with the Massachusetts eHealth Institute (MeHI) to support hospitals in technology implementation in an effort to build for long term sustainability.

While the higher, up-front fixed costs of technology implementations were covered by the CHART investment, some do require multi-year commitments. Participation in local HIEs with other providers is one example. Some hospitals indicated that they will continue to fund local HIEs but are seeking financial contribution from community providers; it is unclear whether these hospitals will continue to support HIE connectivity for all providers in their community if such contributions are not obtained.

System changes require commitment from hospital staff and integration by leadership into an organization's strategy and operational plans.[51,52] Building momentum for sustainability is challenging. Lack of organizational buy-in, physician champions and adequate infrastructure are barriers. Of course, funding is also a key component to success. Consequently, many of the Phase 1 care delivery projects are continuing in Phase 2, representing an apparent need for ongoing funding in the short term, and particularly in the absence of accelerated payment reform.

As the Commonwealth looks to sustainability in the transformation to value-based care, it is necessary to move beyond project-by-project approaches and toward lasting policy and payment changes necessary to deliver the right care, at the right time, in the right place.

51 D.M. Berwick, "Improvement, trust, and the health care workforce," Qual Saf Health Care, 12 (2003)
52 S.W. Stirman et al., "The sustainability of new programs and innovations: A review of the empirical literature and recommendations for future research," Implementation Science, 7, no. 17 (2012).

MOVING INTO PHASE 2

Moving into Phase 2: Applying Lessons to Enhance CHART

The HPC used learning and feedback from Phase 1 to inform the development of strategies that refined the CHART program and created an infrastructure to improve hospital performance in Phase 2.

Focus funding and attention on key priorities. In CHART Phase 1, the HPC funded high-need, short-term, care delivery improvement initiatives at eligible community hospitals. These Foundational Investments in System Transformation enabled the HPC to assess awardees for capability and capacity for performance improvement. CHART Phase 2, underway since early 2015, will focus investment on Driving System Transformation in three key areas:

- Maximizing appropriate hospital use;
- Enhancing behavioral health care;
- Improving hospital-wide (or system-wide) processes to reduce unnecessary spending and improve quality and safety.

"Harrington was pleased to be awarded the CHART Phase I grant, which gave us a significant head-start in the expansion of behavioral health services within our community. Our projects were purposefully selected to enhance communication and data exchange among providers, which will ultimately lead to better continuity of care for our patients. We are proud of the results so far and look forward to continuing our successful collaboration with the Health Policy Commission through CHART Phase II."

ED MOORE, *President and CEO, Harrington HealthCare*

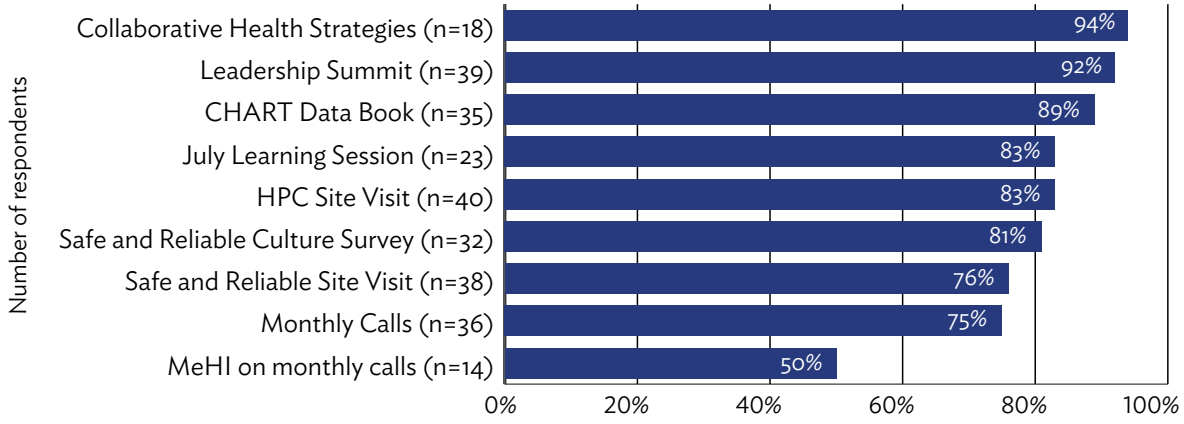
All funded hospitals are engaged in projects in readmissions reduction, process improvement or reducing ED visits, often with a focus on behavioral health integration in the ED. In each area, models for meeting the aims are similar. Introducing focus in this phase of investment has several benefits. First, with focus on common aims, the HPC can align technical assistance across the cohort and expand its reach to more teams, more efficiently. Given the similarity

in type and structure of funded initiatives in Phase 2, teams at funded hospitals can identify peers from other program teams and develop communities of practice. Finally, alignment in aims allows the HPC to evaluate variation between in models to identify what works well and in which settings.

Engage deeply in program design. At its core, CHART is about challenging hospitals to think about care delivery in a fundamentally different way from current practice. As such, many CHART hospitals used Phase 1 to launch initiatives that built or piloted capacity and capabilities new to their organizations. Hospitals came to the initiatives with varying levels of readiness to engage in significant change, and that was borne out most obviously in project timelines. Seventy percent of hospitals required time extensions ranging from one to six months due to slow start up, hiring delays, technology challenges and difficulty accessing data for measurement and reporting.

In reflecting on their Phase 1 experiences, hospitals suggested that an extended planning period for goal-setting, workflow redesign planning, and budgeting and staffing would help them and the HPC identify challenges early enough to plan for mitigation. In response, the HPC designed the implementation planning period (IPP), a structured planning process to develop interventions guided by the HPC, to ensure all Phase 2 initiatives are positioned to successfully achieve their aims. This model for intervention planning is applicable across all hospitals and can be adapted to best meet the needs of a given target population through a consistent sequence of planning activities.

Percent of hospital respondents who found TA types valuable.



n=number of respondents

"It was an honor for Winchester Hospital to receive a CHART Phase I Award. This award allowed our organization to invest in the infrastructure needed to begin to expand care management beyond the four walls of the hospital. We learned the importance of managing the care across the continuum in the prevention of acute care readmissions for these complex patients. This award was invaluable to our learning as we journey from the fee for service payment model to population health management."

KATHY SCHULER, *MS, RN, NE-BC - VP of Patient Care Services, CNO , Winchester Hospital*

The analytically rigorous aspects of IPP also require that providers test their assumptions about patient needs and target populations. In Phase 1, many organizations made substantial assumptions about the clinical and non-clinical needs of their communities. Many organizations, when confronted with data from their community, substantially reconfigured prior interventions. As improvement initiatives are designed — especially at scale — building time and requirements for rigorous data analysis can substantially enhance impact, especially when specifying a target population.

Key features of IPP include target population identification, aim development, clinical service and workflow design, measurement and partnership development. The outputs of IPP for each hospital are a detailed implementation plan for a two-year period, with baseline metrics to assess performance and on which to build milestones and grant-payment terms.

Continue to provide enhanced technical assistance. In CHART Phase 1, hospitals rated peer-to-peer and directed technical assistance offerings highly. In Phase 2, the HPC will provide enhanced technical assistance activities through a 'Will, Ideas, Execution' improvement framework. In this closed loop process, execution informs ongoing "will building," leadership activities and testing of new ideas.

Building will requires:

- Leadership engagement, oversight and accountability
- Supportive data and analytics addressing micro and macro system issues
- Cross-organizational communication to accelerate change through social influencers

Supporting idea generation includes:

- Convening to spread effective practices, implementation approaches and strategies to overcome barriers
- Dissemination tools such as information repositories and change packages
- Access to subject matter and evidence-based expertise, both from CHART participants and other successful programs

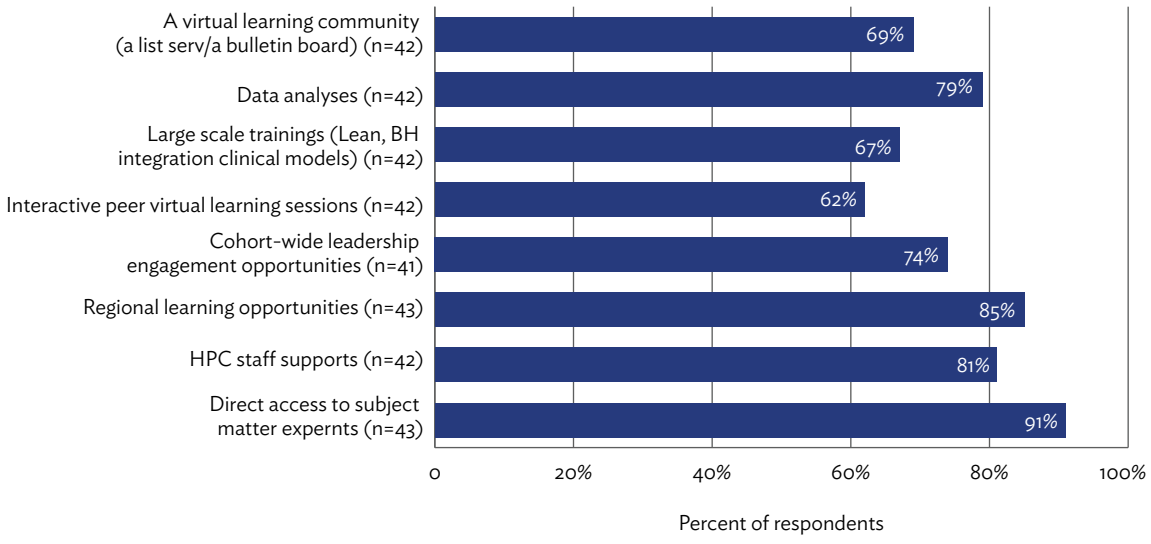
Execution requires:

- Direct technical assistance customized to organizational needs and capabilities
- Capacity building for sustainability and the ability to address system transformation
- Network building to strengthen collaborative relationships and promote independent problem solving

In CHART Phase 2, these supports will include:

TECHNICAL ASSISTANCE	DESCRIPTION
Implementation Planning	A six month planning process designed by the HPC to ensure standard setting across Phase 2 projects. Includes vetting for alignment with Phase 2 goals, metrics and benchmarking, patient engagement in planning, effective budgeting and staffing and technology purchase requests.
Regional Convening	Routine regional meetings and ad-hoc affinity groups for awardees to share learning, challenges and best practices. Regional meetings are organized and facilitated by HPC program staff
Direct Technical Assistance	Support provided by staff and experts for specific needs of awardees, particularly focused on high risk care, readmission reduction strategies and behavioral health
Leadership Engagement	Program-engagement opportunities for hospital leadership, including skill development related to strategy and tactics of transformation through access to expert 'faculty' on a bimonthly basis
Supportive Data and Analytics	Data and analytic tools to support providers in driving transformation (e.g., rapid-cycle evaluation, high-risk patient identification, and performance benchmarking)
Training	Large-scale training opportunities in topics such as lean, principles of quality improvement, and applied analytics
Dissemination	From Phase 1 initiatives — and continued into Phase 2 — staff are compiling a centralized library of tools and resources to promote and share best practices and guidelines, fed by both awardees and the HPC's evaluation activities

The majority of CHART hospital survey respondents agree that further TA from the HPC would be helpful



Facilitate required data collection, measurement and reporting of hospitals work. In Phase 1, the HPC noted hospitals' limited capacity for calculating new metrics for CHART initiatives. Absent attention, teams did not do the work to develop baseline clinical and process metrics and regularly track them. In Phase 2, the HPC will be more rigorous about data measurement, as it is essential to guiding process improvement. This begins in the planning period, and will focus on metric identification, data-collection plans and data reporting back to the HPC. In addition, hospitals that used data-driven approaches to defining patient needs and target populations gained knowledge that shifted clinical models and approaches. The HPC is committed to investing in technology for data analysis and developing staff capability in CHART hospitals.

Support cross-functional composition of transformation teams. In Phase 1, building a team with the right skill set to design and to execute a project was essential for all CHART projects, whether in service of a planning investment, a capacity building training initiative, a technology implementation, or a care delivery pilot. Sometimes, forming an effective team required changing role responsibilities or considering non-clinical and non-nursing roles less frequently seen in care-management programs. At other times, it required training existing staff for new roles or hiring new people with different skills.

The HPC observed that hiring new staff was a challenge, especially in communities with shortages of skilled nurses and social workers. Engaging community partners extended the reach of hospital staff, and early collaboration was key to building these relationships. In CHART Phase 2, the HPC is encouraging partnerships with community organizations prior to hiring new staff or building new hospital capacities.

Encourage adaption and learning. In Phase 1, the HPC and CHART hospitals alike observed that adaptation is crucial to implementing successful care delivery reforms. In Phase 1, many organizations began with rigid constructs of the parameters of their improvement initiative — on the contrary, those most successful implemented the principles and approaches of adaptive leadership. Such strategic adaptation as experience is gained is crucial to the success of improvement initiatives. Phase 2 will include performance monitoring activities and ongoing technical supports to assist CHART hospitals in early identification of areas for adaptation and development of modified interventions.

In Phase 1, the HPC and CHART hospitals alike observed that adaptation is crucial to implementing successful care delivery reforms.

"Implementation of the CHART 1 initiatives impacted the effectiveness of patient care in our community in boundless ways. Although we anticipated improvement of coordination of care to complex patients, including Medicare, Dual Eligibles and those with behavioral health disorders, we never imagined the enormous need or the personal effects the care improvement would have on all members of our team. The team delivered the care and observing patients not coming back to the ED, staying at home and avoiding readmission, personally impacted all care team members and further solidified the dedication to continuing on the journey. The CHART 2 program expands the efforts to focus on improving care for behavioral health patients and truly impacting lives and hopefully, reducing the often catastrophic outcomes of morbidity and mortality that we currently are experiencing."

JAMES FANALE, *MD, Chief Clinical Integration Officer Care, New England & Chief Clinical Officer, Integra Community Care Network; former Senior Vice President and CHART Program Director, BID-Plymouth Hospital.*

CONCLUSION

The CHART Investment Program is taking an innovative approach to driving transformation in low-resourced community hospitals, leveraging $120 million to catalyze substantial and measurable change in participating community hospitals and the communities they serve. CHART initiatives are funded by reinvestments from payers and providers in the Massachusetts market; this reinvestment model has compelled a culture of accountability among awardees that varies substantially from preceding grant programs in the Commonwealth. The HPC developed a framework for CHART that recognized the need to first develop capacity to lay the foundation for broad transformation, followed by deep investment to enable that transformation.

The HPC developed a framework for CHART that recognized the need to first develop capacity to lay the foundation for broad transformation, followed by deep investment to enable that transformation

CHART Phase 1, a roughly $10 million initial investment round by the HPC, met providers' most pressing needs. For many providers, the top priority was to beginning to test delivery models that will enable their success in an alternative payment environment. Awardees achieved reduction in 30-day readmissions and ED length of stay, while enhancing care coordination and transitions across the care continuum.

For some CHART hospitals, the greatest imperative was developing staff capability and technical infrastructure to support improvement. CHART Phase 1 funded training for over 2,300 hospital personnel in multiple disciplines. This skill development will be directly leveraged in CHART Phase 2 initiatives.

Phase 1 funding also closed the IT gap in many organizations, such as funding for ED information systems in hospitals using EHRs in other units, but not the ED. For other hospitals, whose day-to-day financial and operational challenges precluded their ability to engage in meaningful strategic planning, CHART awards supported hiring subject matter experts and allowed dedication of staff time to support hospital planning for the future.

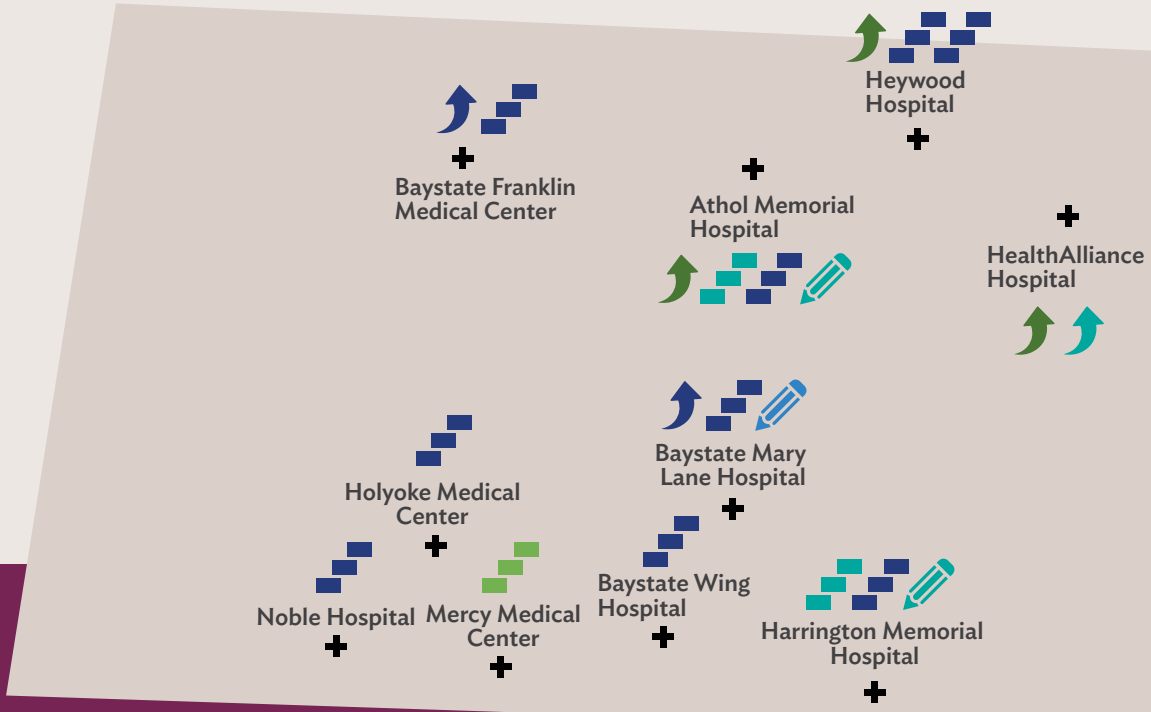
Throughout the lifecycle of these investments, the HPC tested and honed a model for provider engagement that sought to be more intensive than conventional government-funded grant programs. Recognizing the limitations of many preceding investment initiatives, the HPC set close collaboration with awardees as a strategic priority; the HPC described this model as "partnering with CHART hospitals through investment." This model of deep engagement — and true public-private partnership — established a foundation of trust and open dialogue between funder and awardee that has fostered close working relationships in the early days of CHART Phase 2.

CHART hospitals are strongly focused on shifting their business, operational and strategic priorities to optimally meet the needs of their patients. This has led to a Phase 2 focus on reducing hospital utilization and enhancing behavioral health care. Massachusetts has a rich history of collaborative approaches to solving important health care challenges. CHART will continue to foster partnership, support spread of best practices between peers and experts, and push awardees to accelerate transformation.

Early experience in Massachusetts with community-based approaches to population health suggest that one of the persistent barriers to innovation and spread of delivery system redesign efforts is the approach of making change first in pilot population or provider units and subsequently attempting to replicate those efforts across different populations, numerous providers, and care settings without adaptation built into the model. Aligning incentives in parallel will be key to successful delivery of integrated, accountable care. In CHART, the HPC has begun to level incentives, creating an environment in which interventions can be delivered payer blind. Demonstration of success here will support the Commonwealth's policy efforts to align incentives and delivery models across providers and payers.

The HPC looks forward to continued close partnership with CHART hospitals and is committed to rapid, rigorous evaluation. The HPC seeks to learn from failures and to celebrate successes, at every turn, while sharing these lessons broadly with providers, payers, policy makers and the public.

CHART hospitals are strongly focused on shifting their business, operational and strategic priorities to optimally meet the needs of their patients.



2,334
Hospital employees trained

400+
Hours of direct technical assistance to awardees

27 HOSPITALS | **260** 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

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 additional 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.

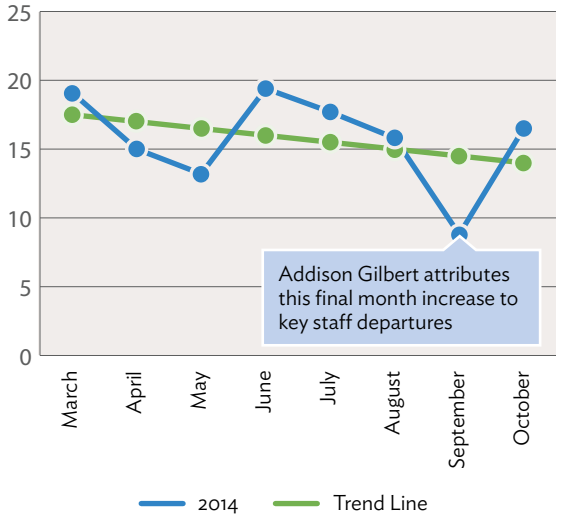
The high-risk intervention team's goal was to reduce 30-day readmissions by connecting patients to services after discharge from the hospital, coordinating care across settings — including more effective follow up — and by improving medication management both during an admission and post-discharge.

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.

293

PATIENTS, STUDENTS, AND FAMILIES IMPACTED.

81

BEHAVIORAL HEALTH OR COMMUNITY RESOURCE REFERRALS GENERATED.

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 ARMS and Riverbend. My office hours are Monday-Friday 8-4.

Athol Hospital

YMCA

Helping Our Children

North Quabbin Family

Transportation

Health Insurance

Other Resources

And More...

Behavioral Health Services

*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.

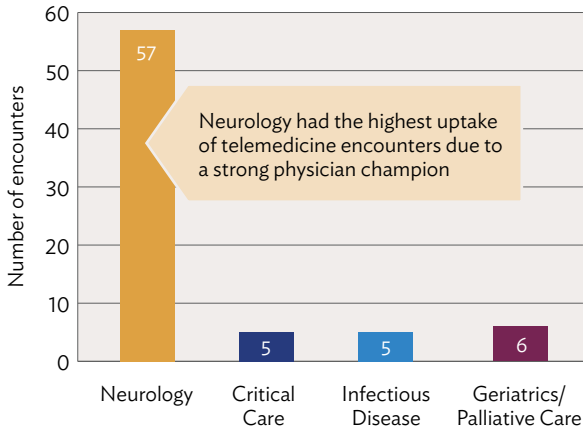
Baystate Franklin Medical Center developed clinical and operational workflows to support the integration of telemedicine across the organization. Neurology had the highest uptake of telemedicine encounters due to a strong physician champion; not all departments were as prepared to implement the program.

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

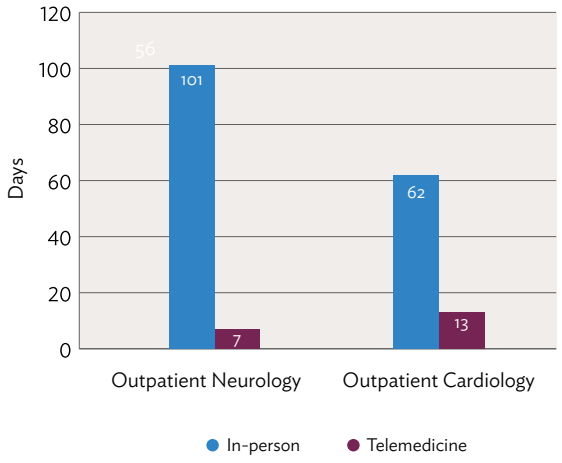
Baystate Mary Lane Hospital developed telemedicine programs in outpatient neurology, inpatient and outpatient cardiology, inpatient speech therapy and outpatient behavioral health to increase patient access to specialists. The hospital also funded connection of two community physician practices to the 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

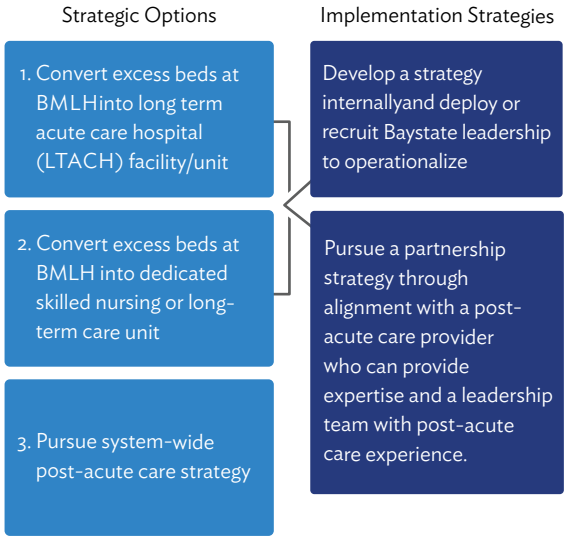


CHART PHASE 2 AWARD

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

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.

Pamphlet created to explain obervation status

720
PATIENTS SERVED.

1,470
PATIENT HOURS OF CASE MANAGEMENT.

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

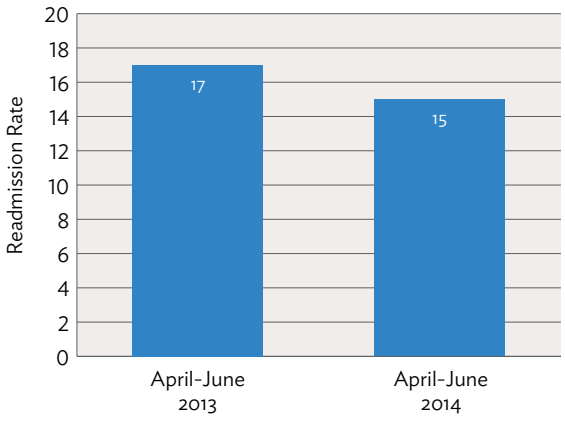
Patients with behavioral health and social needs in addition to physical health issues often both have worse outcomes and are more costly to the health care system compared to patients without these comorbidities. BID-Plymouth sought to meet the needs of its high-risk, high-cost patients with complex 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.

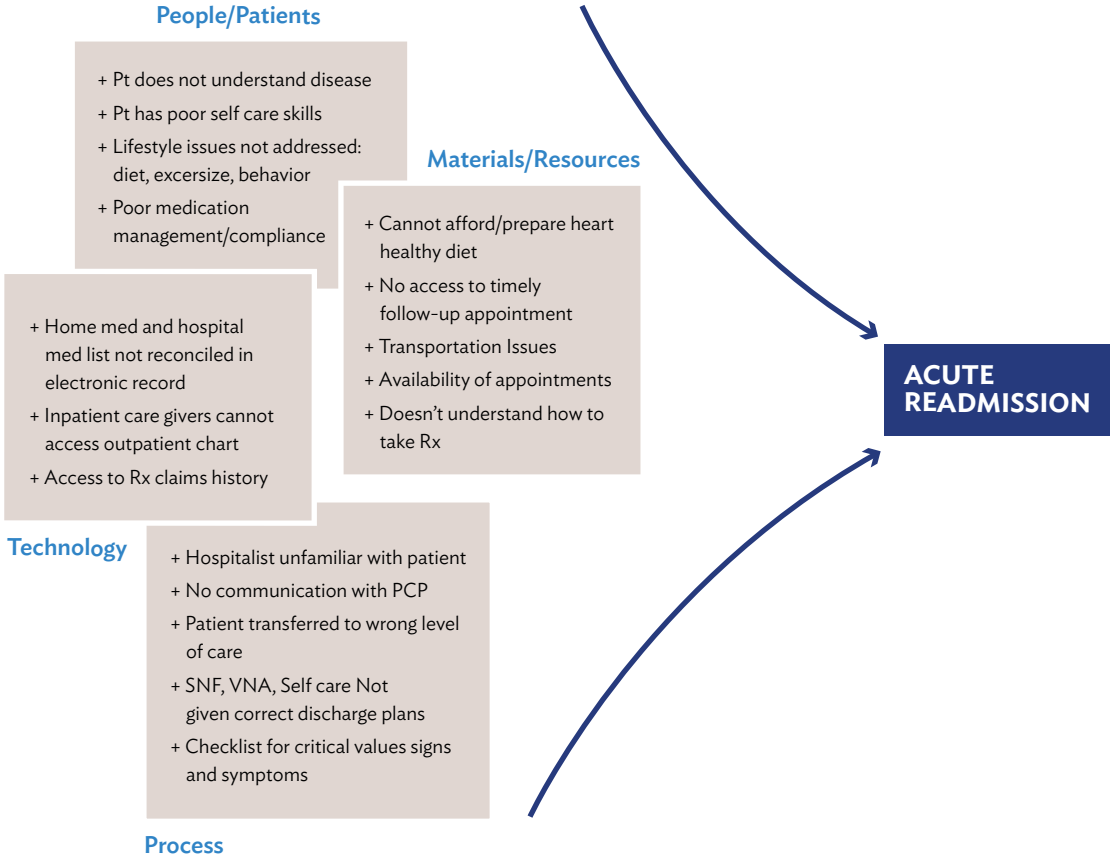
1,379

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

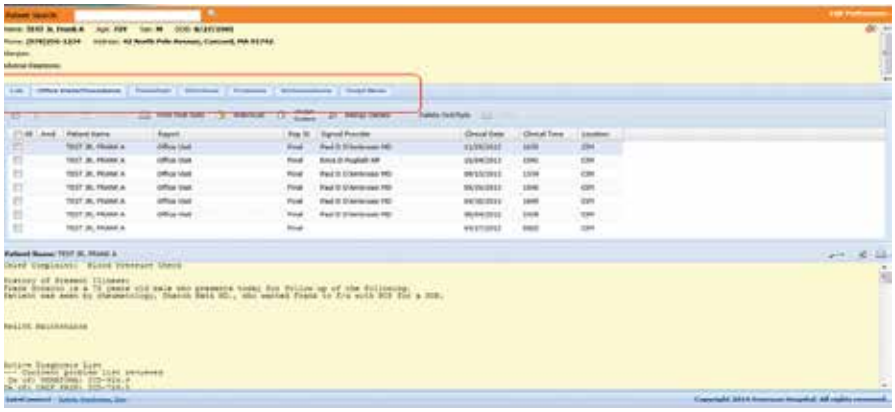


CHART PHASE 2 AWARD

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

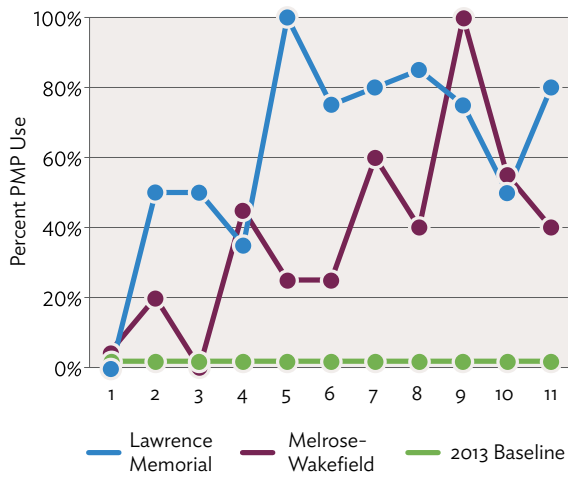


CHART PHASE 2 AWARD

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.

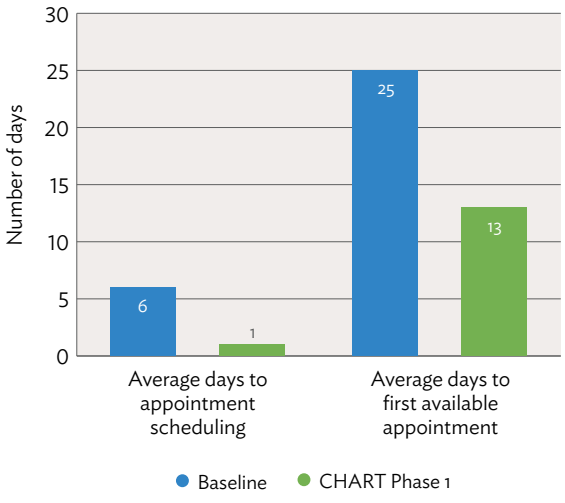
Harrington Memorial Hospital reduced the time it took administrative staff to book follow-up appointments from between 5-7 days to less than 24 hours for all patients, resulting in increased likelihood that patients will seek follow-up care. Decreased booking times led to faster follow-up appointments 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.

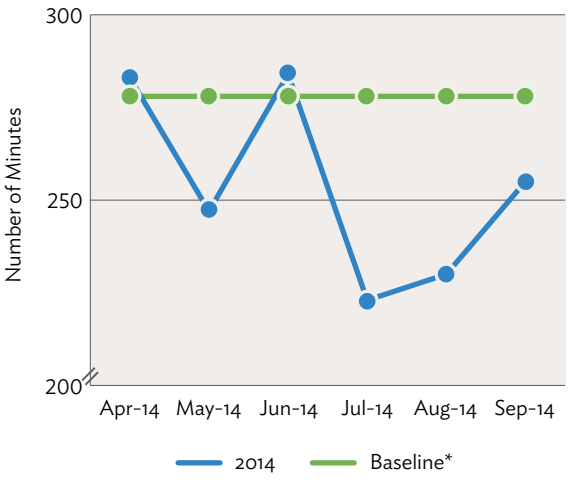
The goal of the Emergency Department Navigator Care Coordination Model was to decrease unnecessary behavioral health emergency department visits and overall length of stay in the emergency department by facilitating warm hand-offs, building relationships with patients that extend into the community,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

School-based care flyer

CAPABILITY AND CAPACITY BUILDING

The goal of connecting Heywood Medical Group to the Mass HIway 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 HIway Webmail service with Heywood Medical Group and is seeking to expand its use to enhance follow-up after discharge.

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%
Lunnenburg	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

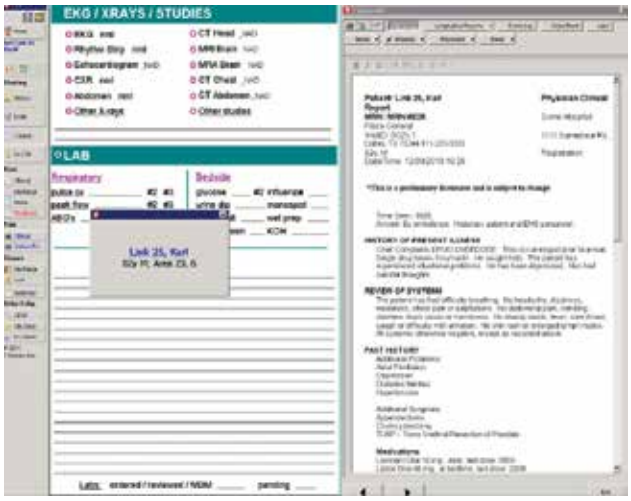
The goal of implementing the emergency department physician documentation system was to streamline the recording of healthcare information and to provide capabilities to transmit emergency department medical information to surrounding community providers including other acute care facilities, behavioral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

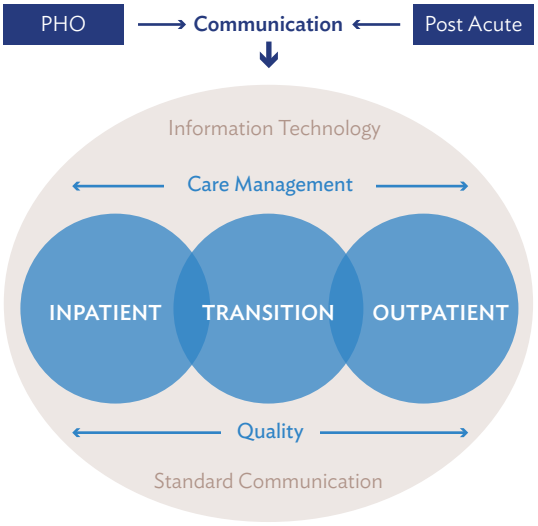
The goal of Lawrence General's planning initiative was to develop a detailed business and operational blueprint for a care management system for patients served by the hospital. Lawrence General has a long history of delivery system transformation initiatives, but used CHART 1 to bring focus and prioritization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

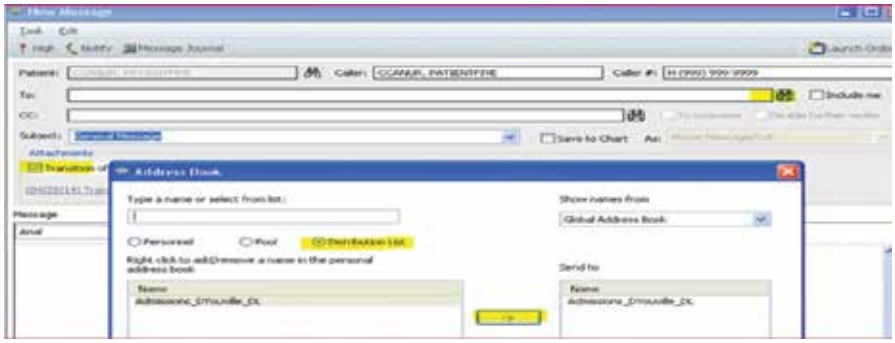
69%

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

19
employees completed training in Culture of Safety

66
employees completed an 8 week Lean in Healthcare seminar

7
health system leaders completed the Six Sigma certificate training

47
senior leaders and key health system managers took part in a special day long Lean in Health Care seminar

112
employees completed a two day Just Culture training for managers

Milford Regional Medical Center

MILFORD, MA

$453,306

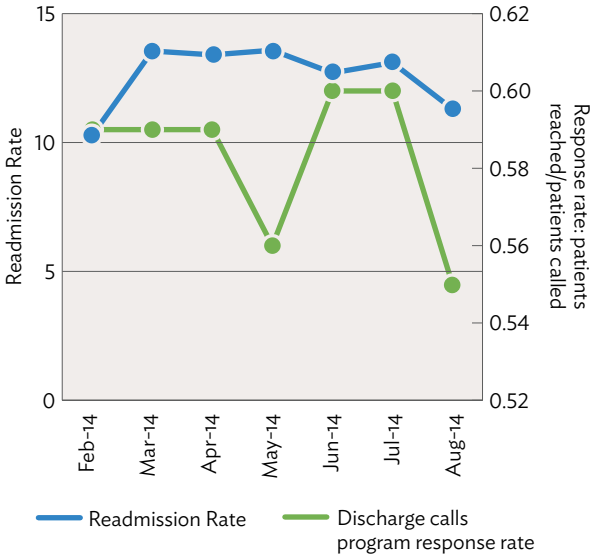
AWARD EXPENDED

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.

All cause readmissions and response rate for the discharge call program



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.

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

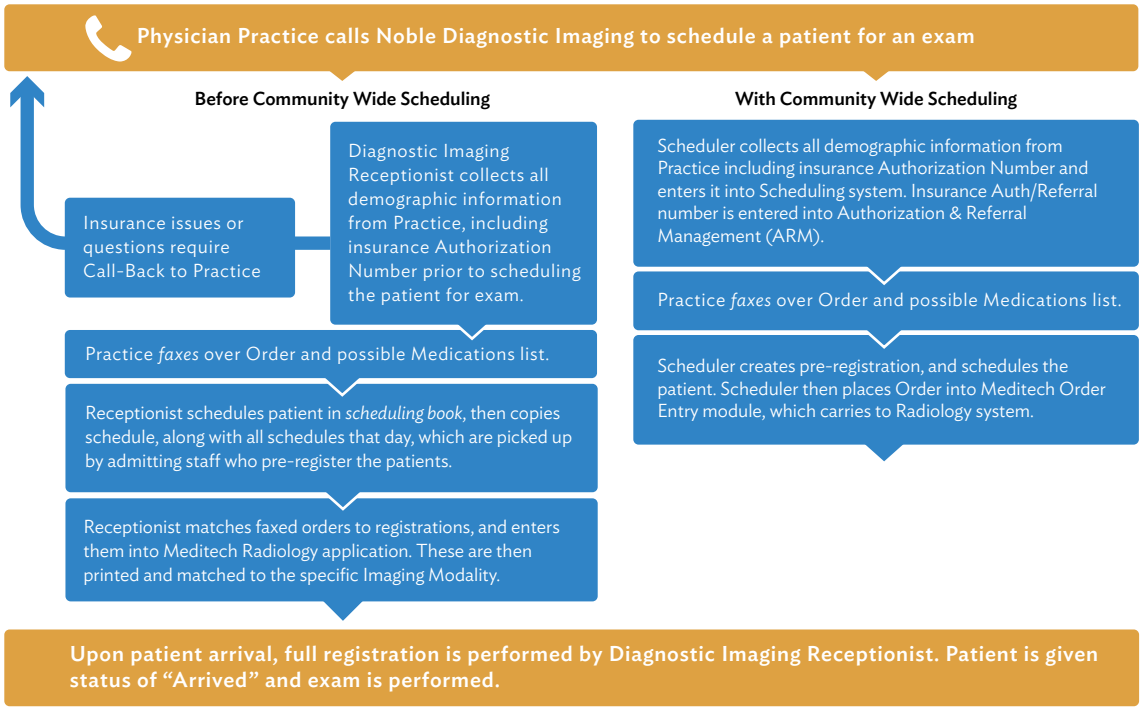


CHART PHASE 2 AWARD

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

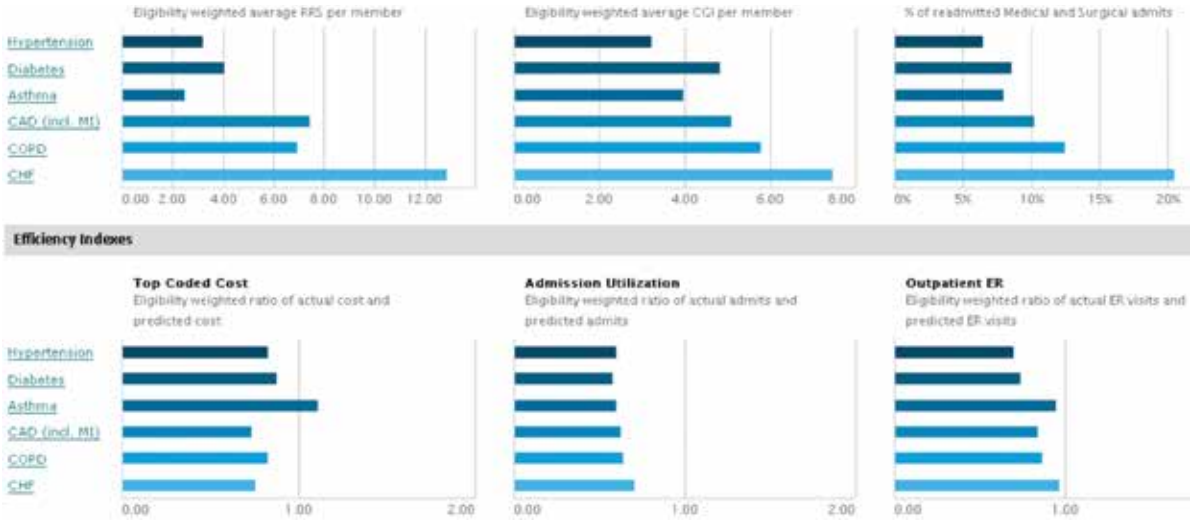
20,686
ROTHMAN INDICES WERE CALCULATED FOR

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

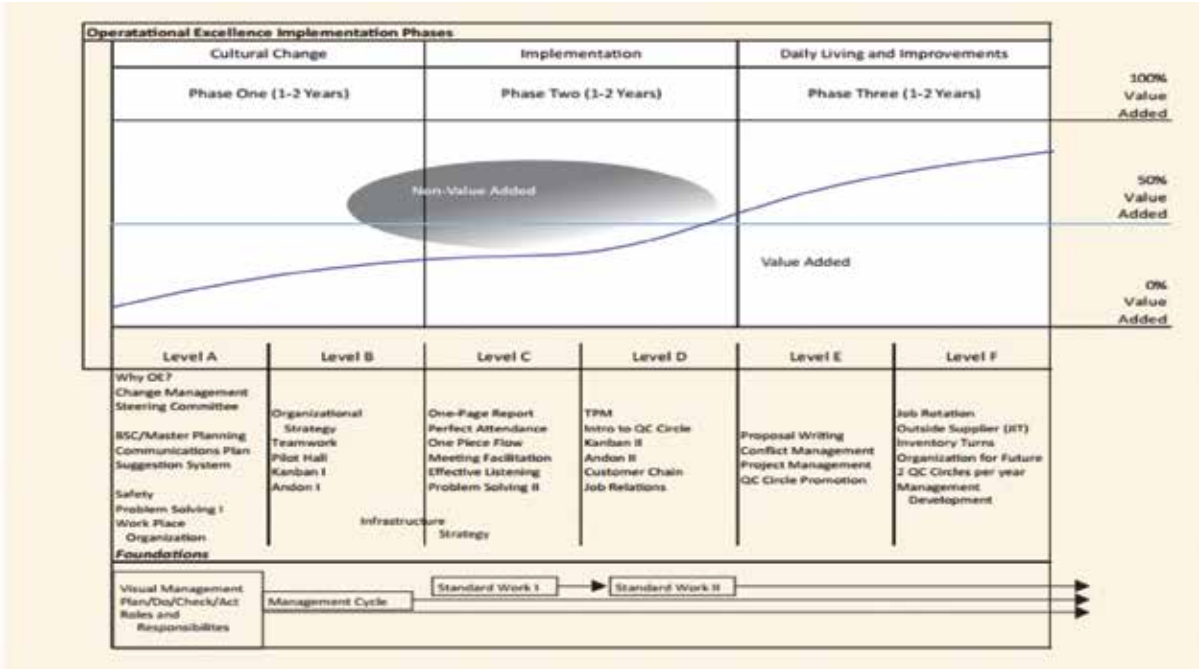


CHART PHASE 2 AWARD

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

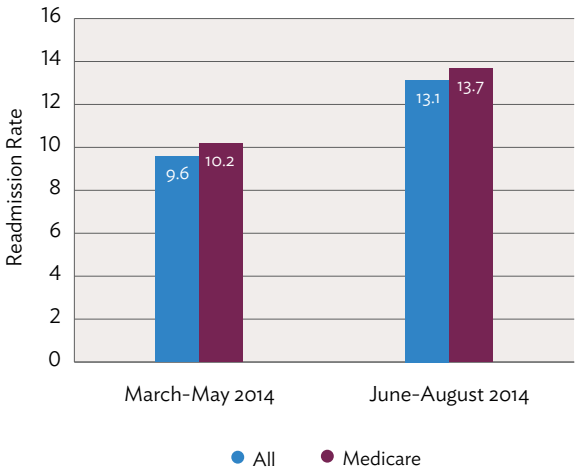
150
PATIENTS ENGAGED IN CARE MANAGEMENT.

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

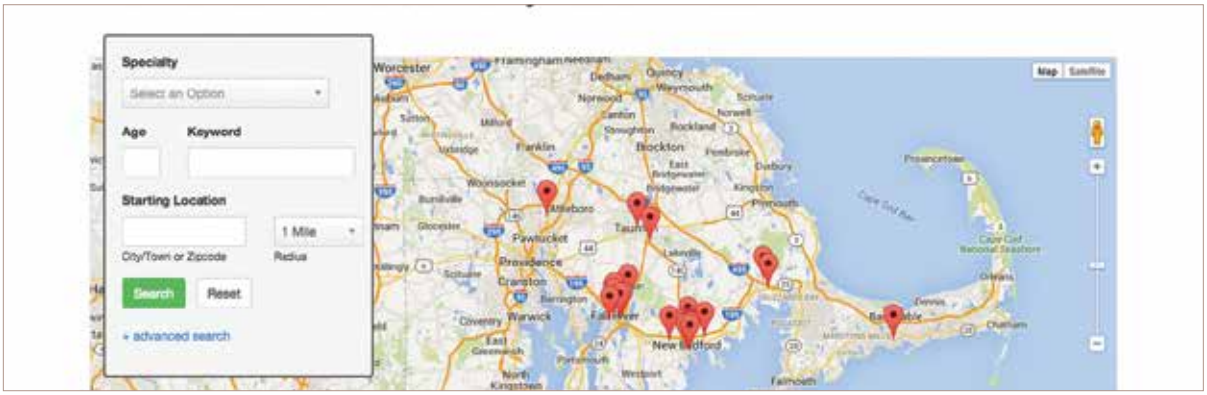
In order to properly coordinate care for their patients, hospitals must be aware of supportive medical, behavioral, and social services resources available to patients in their communities; further, hospitals must have mechanisms and protocols to connect patients with these services. Southcoast St. Luke's 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.

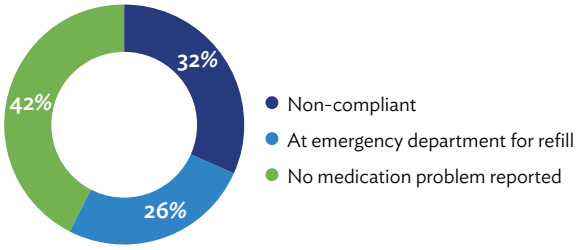
Behavioral health and community resource locater screenshot



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.

Psychotropic medication problems identified



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.

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 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

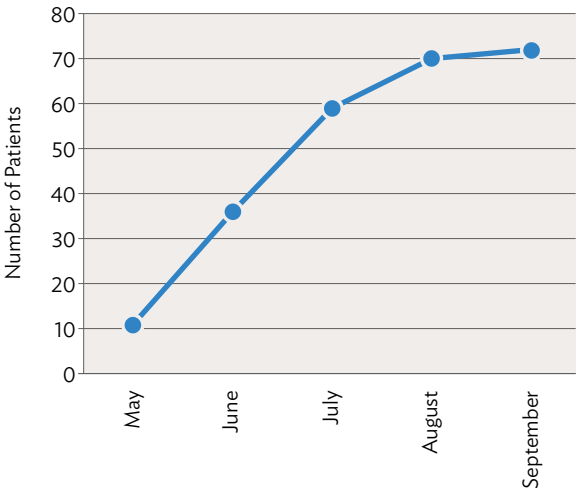


CHART PHASE 2 AWARD

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.

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.

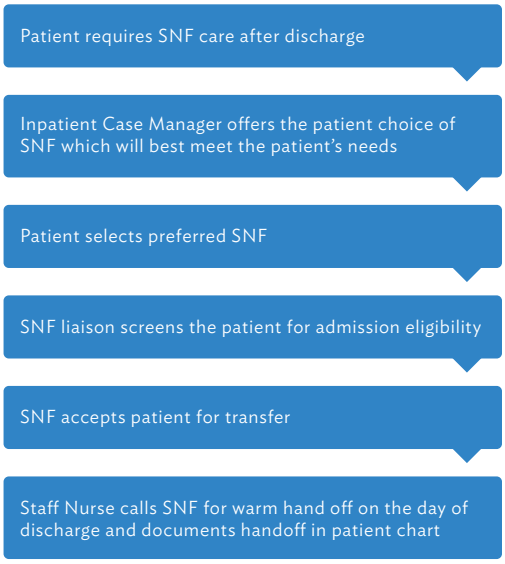
The goal of the care delivery pilots was to reduce inpatient hospital readmissions for adult patients through enhancing communications and extending clinical support resources at vulnerable points in the care transition process.

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



Acknowledgements

Commissioners

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Dr. Carole Allen

Mr. Martin Cohen

Dr. David Cutler

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Ms. Kristen Lepore
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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 Snellings, and Sara Sadownik reviewed the contents and provided comments.

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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

AHRQ — Agency for Healthcare Research and Quality

APM — Alternative Payment Method

BID — Beth Israel Deaconess

CEO — Chief Executive Officer

CHART — Community Hospital Acceleration, Revitalization, and Transformation

CMS — Centers for Medicare and Medicaid Services

DSTI — Delivery System Transformation Initiative

ED — Emergency Department

EHR — Electronic Health Record

EMS — Emergency Medical Services

EMTALA — Emergency Medical Treatment and Labor Act

HIE — Health Information Exchange

HIT — Health Information Technology

HPC — Health Policy Commission

HRIT — High Risk Intervention Team

HSOPS — Hospital Survey on Patient Safety

IPP — Implementation Planning Period

IT — Information Technology

MeHI — Massachusetts eHealth Institute

MRI — Magnetic Resonance Imaging

PACE — Program of All-Inclusive Care for the Elderly

PCMH — Patient-Centered Medical Home

PCP — Primary Care Physician

PMP — Prescription Monitoring Program

RFP — Request for Proposals

SBS — School Based Services

SMI — Serious Mental Illness

SNF — Skilled Nursing Facilities

SRH — Safe and Reliable Healthcare, LLC

SUD — Substance Use Disorder

VNA — Visiting Nurse Association

WMS — World Management Survey

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