MASSACHUSETTS
HEALTH POLICY COMMISSION

Joint Meeting of the Cost Trends and Market Performance and Community Health Care Investment and Consumer Involvement Committees

December 6, 2017

MASSACHUSETTS
HEALTH POLICY COMMISSION

AGENDA

- Call to Order
- Approval of Minutes
- Investment Programs
- 2017 Health Care Cost Trends Report
- Schedule of Next Meeting (TBD)

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- Call to Order
- **Approval of Minutes**
  - Joint CTMP/CHICI Meeting: October 18, 2017 (VOTE)
- Investment Programs
- 2017 Health Care Cost Trends Report
- Schedule of Next Meeting (TBD)

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  - **Joint CTMP/CHICI Meeting: October 18, 2017 (VOTE)**
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MASSACHUSETTS
HEALTH POLICY COMMISSION

VOTE: Approving Minutes

MOTION: That the joint Committee hereby approves the minutes of the joint CTMP/CHICI Committee meeting held on October 18, 2017, as presented.

MASSACHUSETTS
HEALTH POLICY COMMISSION

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- **Investment Programs**
  - Presentation on CHART Phase 2 Evaluation Program, Boston University School of Public Health
  - Future Care Delivery Investments (VOTE)
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- Schedule of Next Meeting (TBD)

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TA, Evaluation, L+D, and Administration and Operations – although distinct functions – designed to complement each other

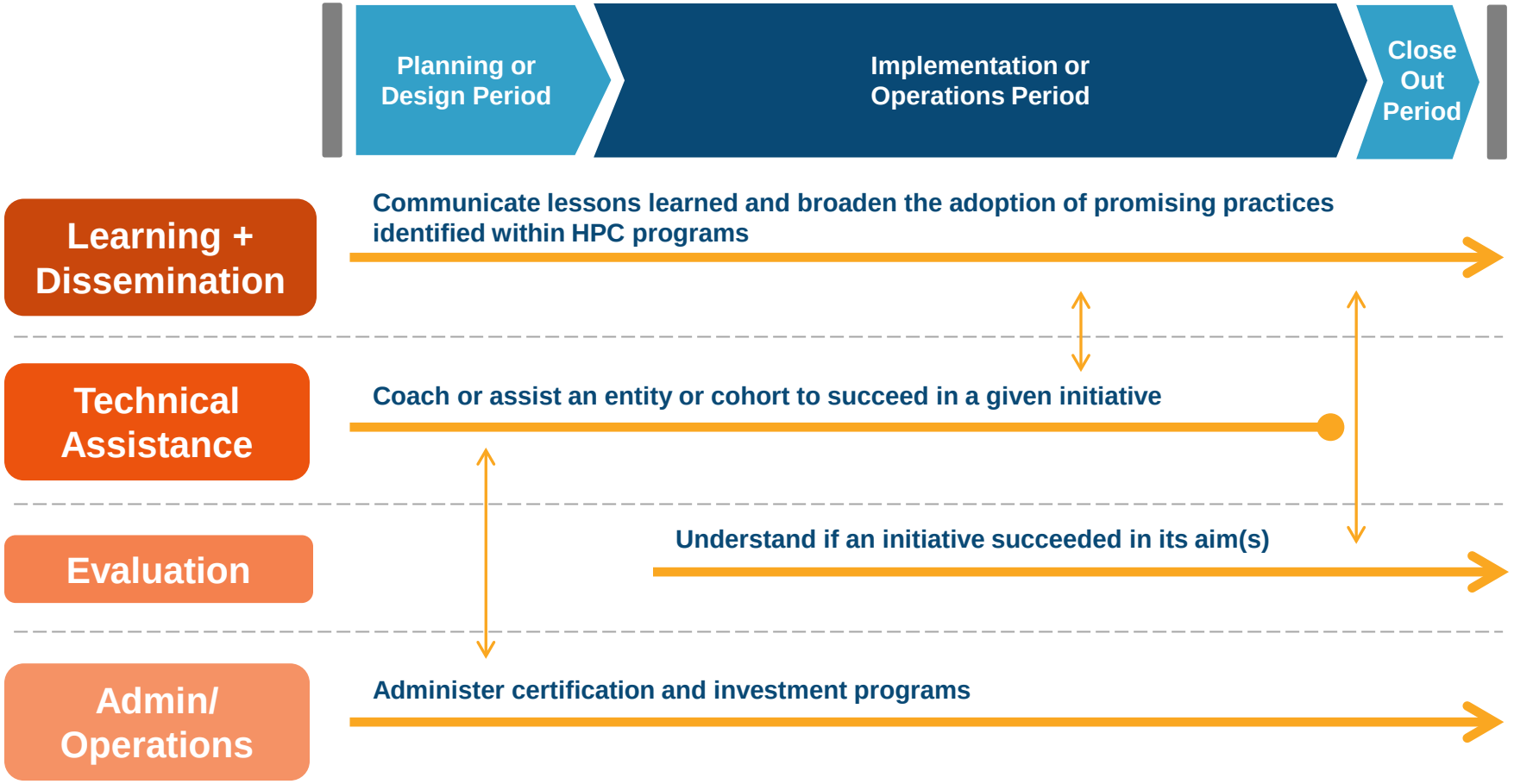


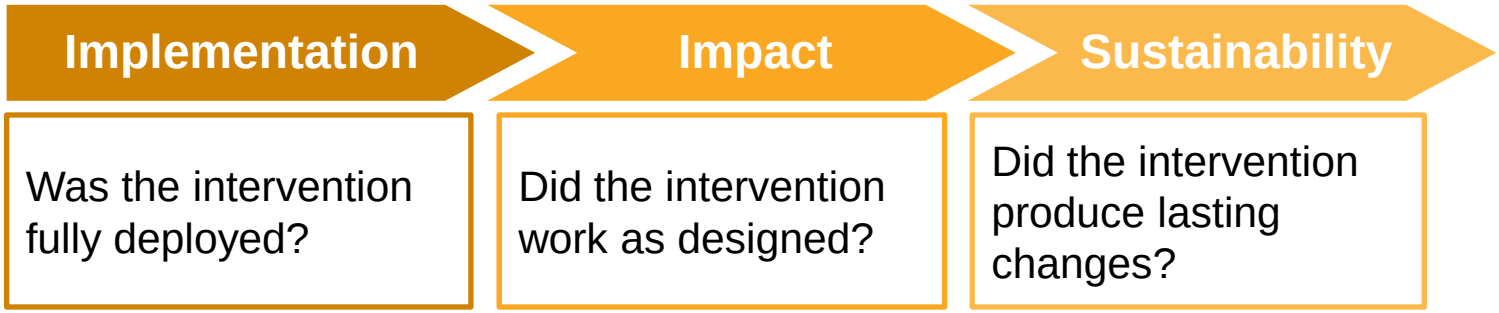
CHART Phase 2 Evaluation: Building insight into care delivery and hospital transformation

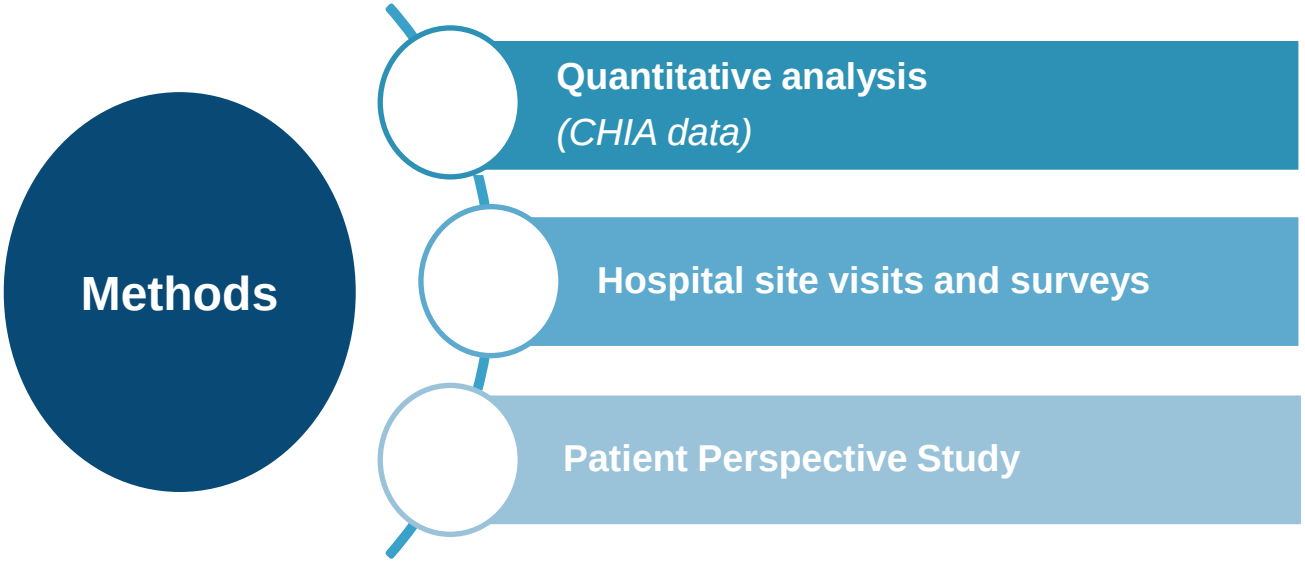
Evaluation goals

in partnership with

BU School of Public Health

CHART Phase 2 Evaluation: Assessing performance of a multisite investment





Framework adapted from Berry SH, Concannon TW, Gonzalez Morganti K, et al. CMS innovation center health care innovation awards: Evaluation plan. RAND Corporation, 2013.

Interim Report Findings

DECEMBER 6, 2017

BU School of Public Health

MASSACHUSETTS HEALTH POLICY COMMISSION

Agenda

- CHART Phase 2 Evaluation Team, Framework, Activities, and Timeline
- Summary of Interim Report Key Findings
- Site Visit Findings by Theme
- Future Evaluation Activities

CHART Phase 2 Evaluation Background

Evaluation Team

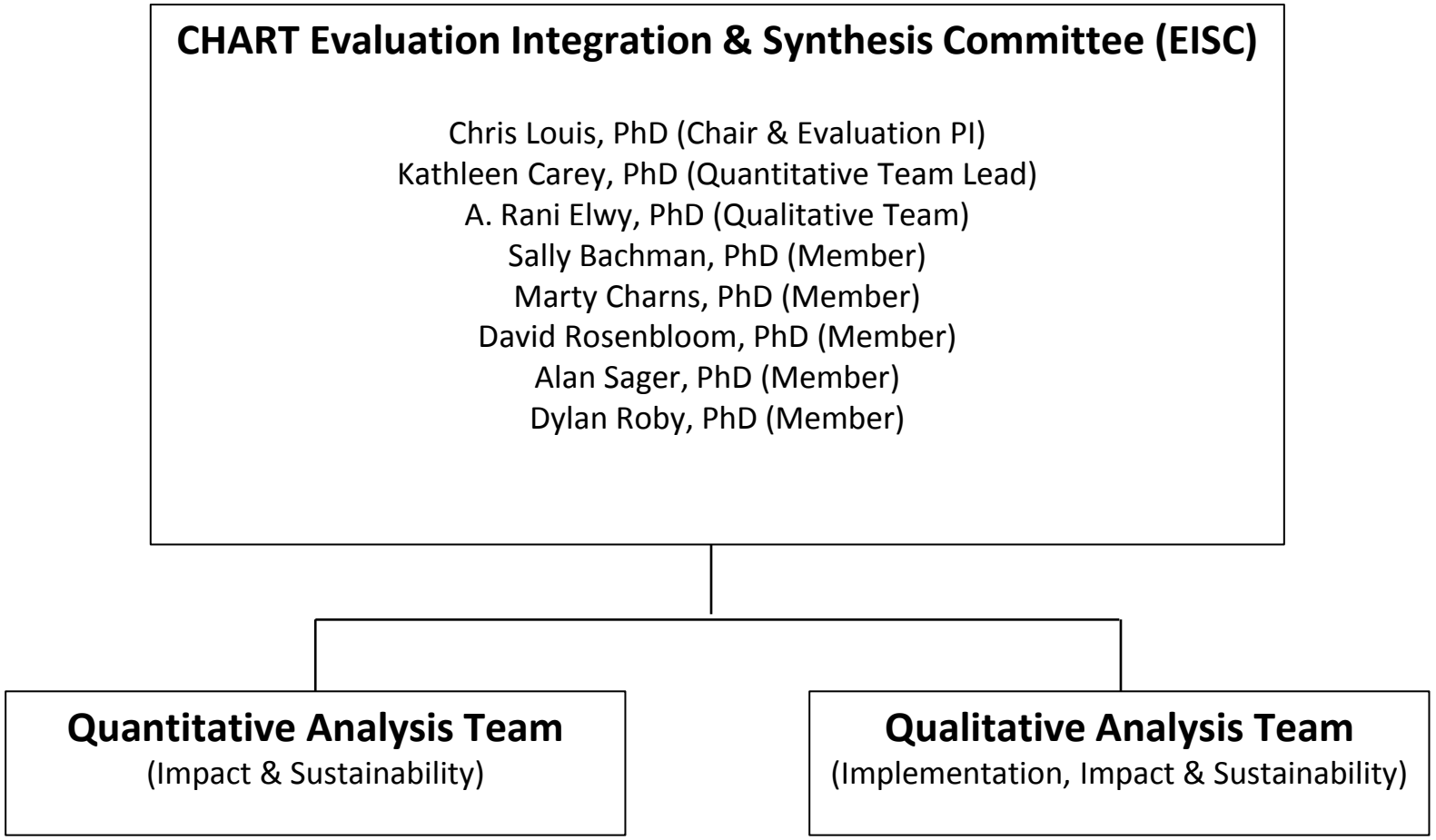
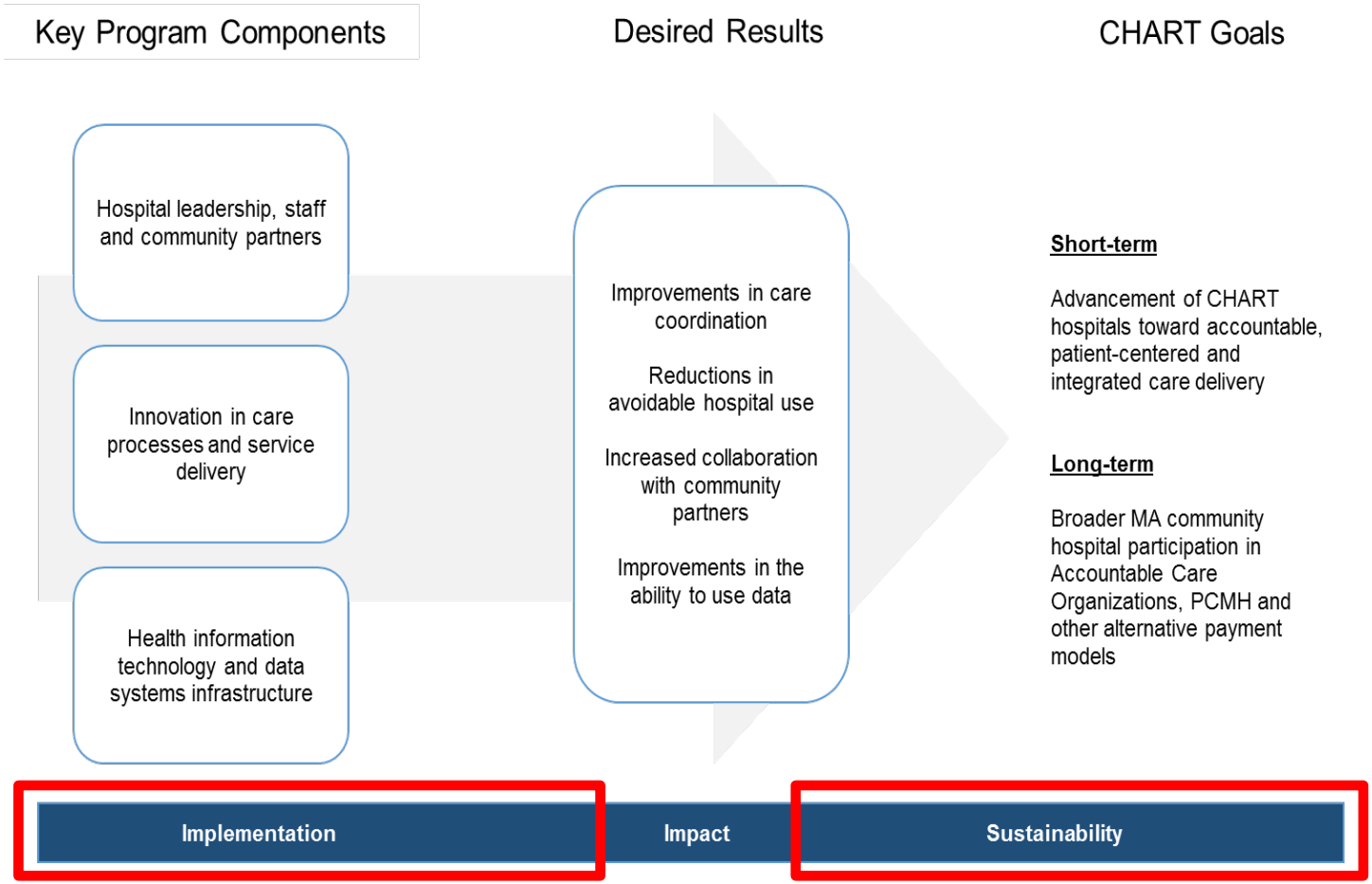


CHART Phase 2 Evaluation Framework

Implementation, Impact, and Sustainability



Interim Report **Final Report** **Interim & Final Reports**

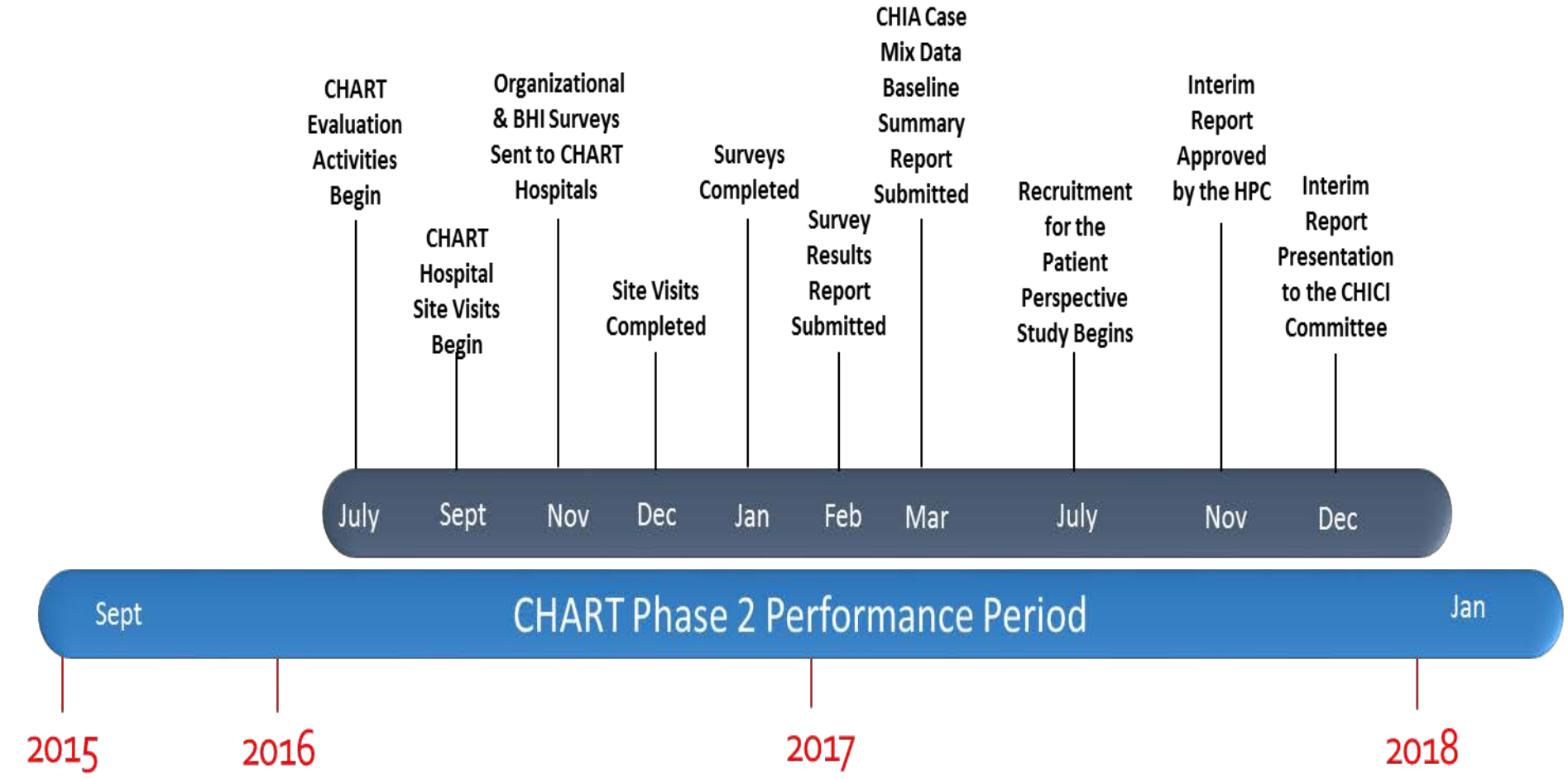
CHART Phase 2 Evaluation Activities

Mixed-methods analysis techniques

- CHART hospital stakeholder interviews (2 waves) *Data collection complete*
  - Hospital and program leadership
  - Staff
  - Community partners
- Patient Interviews *Data collection complete*
- Surveys (2 waves) *Data collection complete by end of 2017*
  - Organizational Survey
  - Behavioral Health Integration Survey
- CHIA Case Mix Data Analysis *Baseline (pre-intervention) data analysis complete*
  - Pre-intervention, baseline data analysis
  - Post-intervention analysis

CHART Phase 2 Evaluation Timeline

From Contract Start through Today



Interim Report Purpose & Evidence Base

Report Purpose: To present the findings from CHART evaluation activities that took place between July 1, 2016 and April 30, 2017

Evidence Base: Findings are primarily based on site visit results from interviews with CHART hospital stakeholders (n=235); findings are supplemented with CHART hospital surveys (n=27), where applicable

Summary of Interim Report Key Findings

Summary of Interim Report Key Findings*

- ✓ **CHART teams have implemented new approaches to addressing long-standing patient and health system challenges**
  - Changing patterns of behavior in patients with high utilization
  - Addressing challenges of patients with behavioral health and substance use issues
  - Helping patients and communities address social issues such as homelessness

- ✓ **Visionary leaders get involved and stay involved**
  - Leaders at most hospitals have been involved with CHART planning, process development, and building relationships with community partners since its inception
  - Their roles have evolved over time to more general oversight and barrier removal as teams have become more proficient in accomplishing CHART-related work

*Findings are based primarily on site visits with CHART hospitals that occurred between September 2016 and December 2016

Summary of Interim Report Key Findings*

- ✓ **Care coordination builds staff efficiency**
  - More clearly defined job roles and new staff have helped reduce duplicative tasks across departments and caregivers (internally and externally, such as with SNFs)

- ✓ **CHART teams have reshaped the roles of the workforce to facilitate collaboration and care coordination**
  - CHART programs used CHWs, LICSWs, peer recovery coaches, clinical pharmacists, and other staff in new and innovative ways, which include enhanced care planning, patient finding, and collaborative home visits
  - CHART teams have implemented recurring multi-disciplinary meetings and participated in joint task forces with community partners

*Findings are based primarily on site visits with CHART hospitals that occurred between September 2016 and December 2016

Summary of Interim Report Key Findings*

- ✓ **Integrating HIT is no small task, but the resulting data are valuable**
  - While most CHART teams made strides during the first year of implementation, they faced significant challenges with interoperability and data sharing with community partners
  - By addressing logistical and infrastructure challenges, many CHART teams became quite facile in extracting, analyzing, interpreting, and using their data

- ✓ **Sustainable? When site visits were conducted (4Q 2016), it was too early for most health systems to be certain**
  - Few hospitals had made commitments to the long-term viability of programs following the two-year CHART program period at the time of interviews
  - CHART teams were exploring a variety of options for sustainability, including MassHealth ACO planning, and reimbursement for certain LICSW services

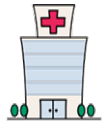
*Findings are based primarily on site visits with CHART hospitals that occurred between September 2016 and December 2016

Acceleration, Revitalization, and Transformation

Eight Emergent Themes on Hospital Activities and Challenges

Eight Themes on CHART Hospital Activities & Challenges

Vulnerable populations



Care coordination for patients with high utilization

Behavioral health

Patient-centered care

Workforce

Community partners

Health information technology

Leadership & sustainability

Theme 1 - Aligning CHART programs with the needs of vulnerable populations

- Interviewees discussed the following issues facing CHART patients and their communities:
  - Behavioral health and substance abuse
  - Housing
  - Transportation
  - Care planning for older adults
  - Language and health literacy issues among non-English speaking patients
- Many of these issues are not “medical”

CHART Awardee Spotlight: Baystate Noble Hospital

The importance of the social worker role in working to support the needs of vulnerable populations

Challenge: Patients with limited English comprehension, and little access to public transportation, often return to the ED for care that could be provided in an outpatient setting

Staff Involved: Licensed Independent Clinical Social Worker (LICSW)

Solution: The LICSW collaborated with the local Health Department to establish improved transportation systems so these patients can access local health care providers

"…We have a very high patient population of Russian speaking folks that have trouble with written and verbal language...there is no public transportation (to sustain regular appointments). The only place that they know for healthcare (locally) is...our emergency room...I'm personally working with the Westfield Health Department on an initiative moving forward to see if we can help put things in place (to improve transportation to areas with more health resources)…"

~CHART Team Member


Theme 2 - Coordinating services and care planning for patients with high hospital utilization

- Shifting from provider-based to community-based models of care delivery
- Interdisciplinary teams are beginning to work with patients during the hospital stay and plan for post-discharge process shortly after admission
- Enhanced discharge planning
- Systematic follow-up contacts with the patient within two days of discharge

CHART Awardee Spotlight: Hallmark Health System

Using daily huddles to increase communication and perform care planning for patients with high utilization

Challenge: Patients in the target population are often admitted to the two Hallmark hospitals overnight and CHART staff have difficulty locating them the next day for follow-up

Staff Involved: Project manager, nurse practitioner, LICSW, pharmacist, collaborative care coach, physician

Solution: Implement daily huddles with staff from both hospitals to ensure that all team members know which patients need CHART services and where they are located.

"…we have daily huddles… We've done them since day 1. And in the huddle, this speaks to sort of the workflow, we go over what happened the day before, who's on the schedule, what the goals are so that we stay focused on goals, and then who was in the hospital overnight or in the ED overnight, and then any other issues." ***~CHART Team Member***

"We now need to be an air traffic controller for all the services that are circling every patient and make sure there aren't two planes landing on the runway at the same time."
~CHART Team Member

Theme 3 - Supporting CHART patients with behavioral health issues

- Despite incurring financial losses from program operations, leadership at many CHART hospitals remain committed to offering behavioral health services
- Enhanced process and structural designs to improve care for behavioral health patients (e.g., Holyoke Medical Center's emergency department renovations)
- Inclusion of behavioral health-trained staff in areas of the hospital where they had not previously been used
- Coping with the lack of community-based behavioral health resources; planning with the community to improve access and availability

CHART Awardee Spotlight: Beth Israel Deaconess Hospital - Milton

Changing culture and redesigning care for behavioral health patients in the emergency department

Challenge: ED boarding times were often measured in **days**, rather than **hours**

Staff Involved: Project manager, LICSW, Director of Care Navigation, peer coach, therapist, chaplain, security, pharmacist, and ED physicians and nursing staff

Solution: Created a "back bay" where behavioral health patients could be more comfortable and safe, which also improved the use of sitters and security. At the same time, CHART staff collaborated more closely with community partners to more quickly place patients in other, more appropriate care settings.

"…it's very productive because it's localized at the back of the ED so it's separate from all the other patients…and there's security at all times…the fact that we have a specialized team organized within this hospital that can directly deal with the behavioral health patients whenever they are admitted is our biggest plus."

~CHART Team Member

Theme 4 - Pursuing patient-centered care: What are CHART programs doing?

- Recognizing patients' medical and non-medical reasons for seeking care
- Using home visits to deliver care in a more comfortable, patient-friendly setting
- Engaging patients in self-management approaches to care
- Designing new care processes to meet the needs of the whole-person
- Developing long-lasting relationships through personal connections and trust
- Cultural transformation in CHART hospitals remains a work-in-progress

CHART Spotlight: Hospice and Palliative Care

Implementing new practices to facilitate patient-centered end-of-life care

Challenge: Massachusetts ranks among the lowest states in the U.S. for average days spent in hospice during the final six months of life (Groff et al., 2016); many patients who qualify for hospice or palliative care are frequently readmitted to the hospital.

Individuals Involved: Palliative care RN, physician, nursing staff, hospice agency staff, patients, and families

Solution: A few CHART hospitals have hired palliative care RNs or use other staff to provide information to patients' families earlier in the process than before. These individuals facilitate conversations with hospice and other agencies to promote services.

"I think palliative care has been a huge accomplishment…just giving that resource to patients, letting them know what's available, has made a difference…opening up the conversation between a patient and their family members about what the goals of [palliative] care are, has been huge."

~CHART Team Member

Theme 5 - Forming CHART teams that meet the needs of complex patients: Staff matters

- Key caregiver roles: Community health workers, care navigators, nursing staff, LICSWs
- New, innovative uses of community health workers (e.g., patient finding)
- LICSWs used as the centerpiece to some CHART programs based on their knowledge of clinical processes and community resources
- Pharmacists – the key to medication management; also used in conjunction with other staff in performing home visits

Theme 5 - Forming CHART teams that meet the needs of complex patients: Staff matters

- CHART programs need specialized staff to solve issues specific to target populations (e.g., CHWs often have information about local community resources)
- Recruitment, retention, and staff training and education challenges were found at many CHART hospitals
- Adaptability in care delivery models and use of staff (e.g., Holyoke Medical Center changed its model several months into the CHART program)

CHART Awardee Spotlight: Mercy Medical Center

Using community health workers in patient finding and engagement

Challenge: Following discharge, hospitals sometimes lose contact with homeless or transient patients who have been given care plans

Staff Involved: Community health worker, behavioral health-trained nursing staff, complex care coordinator

Solution: This hospital instituted a community health worker role that was empowered to go into the community to find patients. This included searching for patients in the target population that lived in wooded areas, under bridges, etc.

"We have made a remarkable difference…there is a [CHW] that has street knowledge and she's out under bridges looking for people…that's pretty courageous. But it's that outreach piece and these courageous women who are out there looking for these patients….She's definitely the backbone rock star to the team..."

~CHART Team Member

Theme 6 - Fostering partnerships: Building bridges to community-based resources

- Collaboration with a variety of medical and non-medical providers: primary care physicians, specialists, long-term care providers, behavioral health providers, community health centers and clinics, and local police/fire departments (CHART Organizational Survey Finding)
- Engagement of community stakeholders in collaborative meetings and integrated patient rounding
- Development of and participation in task forces and other related work groups and councils
- Establishment of new relationships among previously unknown resources
- Behavioral health providers as a key resource, when available

CHART Awardee Spotlight: Addison Gilbert Hospital

Engaging with community stakeholders to support CHART program patients and initiatives

Challenge: Caring for patients and community members with behavioral health and substance use disorders remains a persistent challenge for this specific community.

Stakeholders Involved: Project manager, CHART staff, local health, fire and police departments, and local mental health organizations

Solution: To create, along with several other community organizations, a multi-stakeholder task force focused on reducing the burden of disease and targeting local and state resources

"…in Gloucester we have a monthly meeting that's called the High-Risk Task Force, where all of the social service agencies, our CHART teams, the hospital emergency department, police, fire, we all meet together. It's a great forum for discussing burning issues such as, substance abuse, overdoses, homelessness, and disruptive behavior."

~CHART Team Member

Theme 7 - Implementing HIT to support CHART programs

Challenges:

- Nearly all 25 CHART awardees experienced significant challenges with HIT implementation
- Multiple, fragmented data systems within and across hospitals, health systems, and community providers; inhibited information sharing
- Little-to-no integration between hospital IT systems and community partners; created duplicative work
- Existing systems not sufficient to aggregate and track data; new data systems or processes were needed
- Numerous barriers to the adoption and implementation of telehealth
- Many metrics required as part of the CHART grant were onerous on the CHART teams

Theme 7 - Implementing HIT to support CHART programs

Successes:

- Hiring of project managers with HIT implementation experience (e.g., Lahey Health)
- Development of real-time, web-based dashboards that can be viewed and used by all CHART team members (e.g., Signature)
- Data analysis eventually became automated and streamlined at many CHART hospitals
- Use of video conferencing to improve communication between CHART hospital sites

CHART Awardee Spotlight: Berkshire Medical Center

Using technology solutions to improve communication between CHART staff at multiple locations

Challenge: Berkshire Medical Center's CHART program spans two locations, which are 22 miles apart

Staff Involved: RN, LICSW, CHW, Psychiatrist, Nurse practitioners, diabetes educator, care navigators, analysts, program manager, coordinator, and substance use counselor

Solution: This team began using the Cisco DX80, a video conferencing technology that enables real-time, two-way communication. The BMC staff use this technology to hold daily meetings where staff can see each other and communicate key patient and program information.

"The DX80 really has made this site and the physical distance from Berkshire Medical Center much less of an issue. Traveling back and forth is just not feasible…we can observe grand rounds and feel part of their educational activity…and we do our huddle every morning with the DX80."

~CHART Team Member

Theme 8 - Driving implementation and sustainability: The key role of hospital leadership support

Implementation

- Hospital leaders were involved from the beginning and participated in application development and program design
- Leaders were heavily involved in the early stages of project implementation and assisted in messaging and integrating new processes across the hospital
- Senior leaders were the main pathway to communicating program updates to hospital governance committees (e.g., quality sub-committee of the Board) and the Board
- Relationship-building with community partners often hinged on the reputation of the hospital and its leadership

Theme 8 - Driving implementation and sustainability: The key role of hospital leadership support

Sustainability

- Two camps emerged through our interviews
  1. Few hospitals were committed to sustaining all or most of their CHART program following the program period
  2. Majority of leaders had not decided and needed more internal hospital data on program impact
- Hospital leaders were exploring several ways of sustaining program components:
  - Massachusetts Medicaid ACO participation
  - Possible reimbursement for services being provided (or that could be provided) by LICSWs and other CHART staff
  - Integrating CHART staff roles into primary care physician offices
- Leaders must continue to develop relationships with community-based organizations with or without funding

CHART Awardee Spotlight: *Signature Healthcare Brockton Hospital*

Planning for sustainability from the beginning of the two-year CHART program period

Challenge: Time-limited, grant funded initiatives can often create job dissatisfaction among team members if they are concerned about job stability. Questions of what will happen when the grant ends are often common.

Staff Involved: CEO, Team Leader, RN Care Manager, CHW, LICSW, Palliative care RN, NP, Pharmacist, Pharmacy Tech, Program Coordinator

Solution: The hospital CEO committed to sustaining the work of the CHART program when it began. He believed that this work is aligned with where healthcare is headed and that it will help the organization prepare for future ACO participation.

"I know [a senior hospital leader] made a commitment when we were hiring for these positions that they wouldn't just be two-year positions. The intention was if we were going to be successful— and we fully expected to be successful— why would we stop doing it? We're also transitioning into becoming an ACO and so that very much aligns with CHART."

~CHART Team Member

Conclusions

- ✓ **CHART has revitalized efforts to address long-standing patient and health system challenges**
- ✓ **Visionary leaders get involved and stay involved**
- ✓ **Care coordination builds staff efficiency**
- ✓ **Renewed engagement of the workforce**
- ✓ **Integrating HIT is no small task, but the resulting data are valuable**
- ✓ **Sustainable? It's just too early for most hospitals to know**

Future Evaluation Activities

- Patient Perspective Study Results *Interviews Completed, Data Analysis In-progress*
- CHART hospital stakeholder interviews (Round 2) *Interviews Completed*
  - Hospital and program leadership
  - Staff
  - Community partners
- Surveys (Round 2) *Surveys Close in December 2017*
  - Organizational Survey
  - Behavioral Health Integration Survey
- Final Summative Report *Focus on Impact*
  - Summary findings from interviews and surveys
  - Pre-post analysis of CHIA Case Mix Data
  - ROI estimated for CHART program impact based on hospital utilization
  - Other econometric research designs used as appropriate

Questions?

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- Investment Programs
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Summary of new $10 million investment proposal

THEME	Reducing avoidable acute care utilization by investing in innovative care delivery models that are community-based, collaborative, and sustainable.
FUNDING	Proposed total funding of up to $10 million; up to $750,000 per award
COMPETITIVE FACTORS	▪ Care model and impact ▪ Organizational leadership, strategy and demonstrated need ▪ Evaluation ▪ Sustainability and scalability
TARGET OUTCOMES	Address one or more of the HPC's key target areas for reducing avoidable acute care utilization and improving quality: ▪ Reduce hospital admissions/readmissions ▪ Reduce ED visits/revisits ▪ Increase engagement in opioid use disorder treatment ▪ Improved patient experience
ELIGIBLE ENTITIES	HPC-certified ACOs* and their participants and/or CHART eligible hospitals

Notes: *includes provisionally certified ACOs

Two funding tracks to reduce avoidable acute care use

FUNDING TRACK 1: Through addressing social determinants of health

- Support for innovative models that **address the social determinants of health** for complex patients in order to prevent a future acute care hospital visit or stay (e.g., respite care for patients experiencing housing instability at time of discharge)
- **Partnership** with **social service providers / community based organizations required**

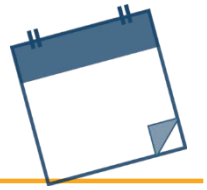
FUNDING TRACK 2: Through addressing behavioral health needs

- Support for innovative models that **address the behavioral health care needs** of complex patients in order to prevent a future acute care hospital visit or stay (e.g. expand access to 24/7 behavioral health services using innovative strategies such as telemedicine and/or community paramedicine**)**
- **Partnership** with **outpatient behavioral health providers required**. If applicant is a BH provider, partnership with medical care provider required

FOCUS: Through enhancing opioid use treatment

- Section 178 of ch. 133 of the Acts of 2016 directed the HPC to invest not more than $3 million to support hospitals in further testing **ED initiated pharmacologic treatment for SUD**, with the goals of increasing rates of engagement and retention in evidence-based treatment
- **Partnership** with **outpatient BH providers required.** Eligible entities limited to hospitals with EDs.

Award size and duration



Total funding

Up to $10,000,000

Individual awards*

Up to $750,000

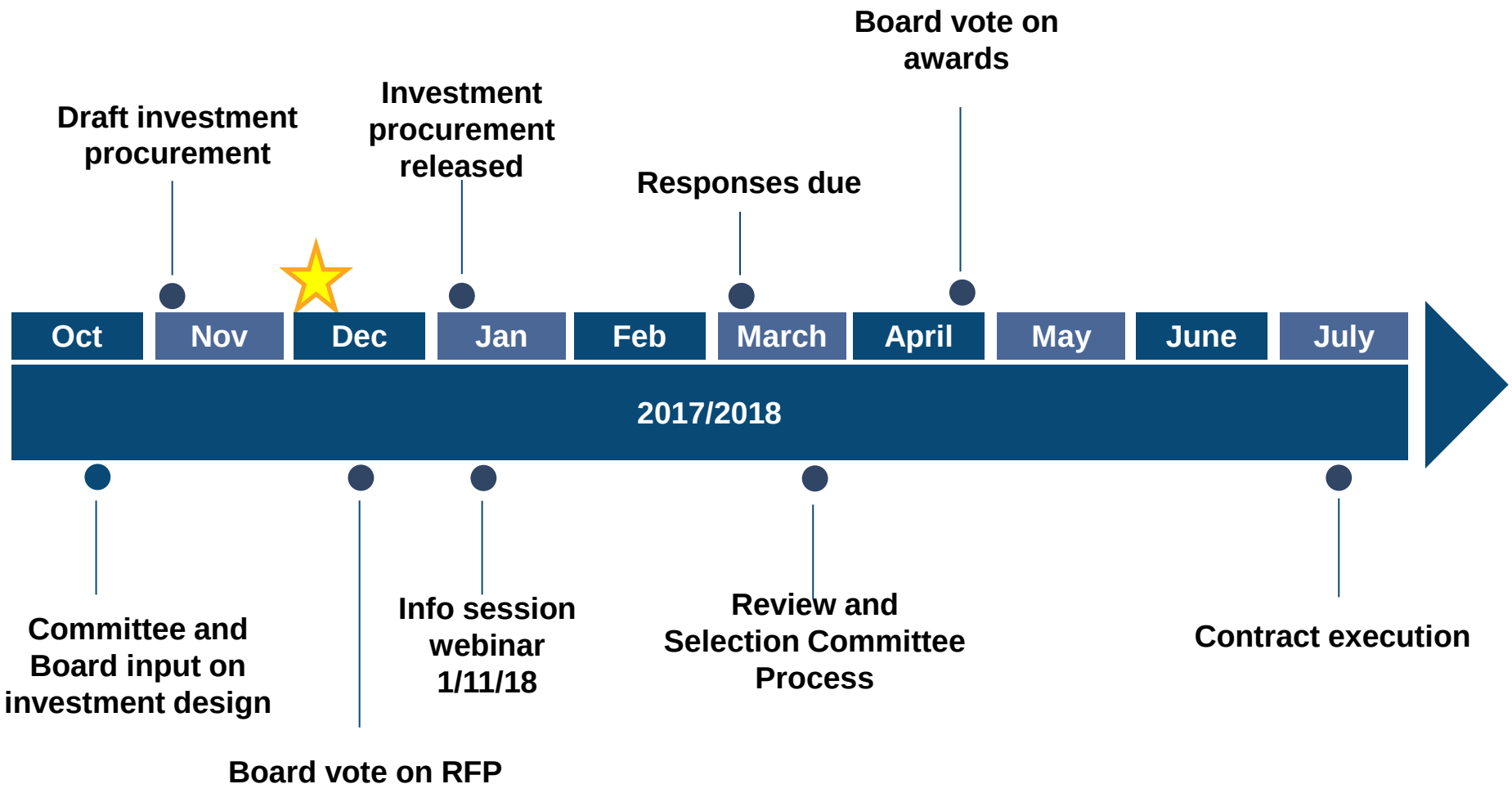
Duration

21 months (3 months of preparation and 18 months of implementation)

*Applicants may apply to only one track and may receive only one award. However, an entity may submit a proposal and also be a participant in another entity's proposal (e.g., a hospital may apply on its own and may also participate in the application of an ACO).

HPC

Next steps


Board vote on awards
Draft investment procurement
Investment procurement released
Responses due
Oct
Nov
Dec
Jan
Feb
March
April
May
June
July
2017/2018
Committee and Board input on investment design
Board vote on RFP
Info session webinar 1/11/18
Review and Selection Committee Process
Contract execution

MASSACHUSETTS
HEALTH POLICY COMMISSION

VOTE: Approving release of the new investments RFP

MOTION: That the Committee hereby endorses the proposal for an investment program to foster innovation in health care delivery to reduce avoidable acute care utilization by addressing social determinants of health and/or increasing access to behavioral health services, and recommends that the Commission authorize the Executive Director to issue a Request for Proposals (RFP) to solicit competitive proposals consistent with the framework described to the Committee.

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- **2017 Health Care Cost Trends Report**
- Schedule of Next Meeting (TBD)

MASSACHUSETTS
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- Call to Order
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- Investment Programs
- 2017 Health Care Cost Trends Report
  - **Revised Design Approach and Outline**
  - Select Findings: Provider Organizations in Massachusetts: Performance Variation
- Schedule of Next Meeting (TBD)

Cost Trends Research and Reports: Revised Design Approach

Previous Approach

1 ANNUAL REPORT
- ~80-100 pages • Primarily narrative
- 10-12 fully written chapters

1-2 SUPPLEMENTAL PUBLICATIONS
Full written reports

Revised Approach

1 ANNUAL REPORT
- ~50 pages • Narrative and visual
- 3-4 fully written chapters
- 3-4 graphical chart packs
- Online interactive content utilizing data visualization tools (Tableau)

6-8 SUPPLEMENTAL PUBLICATIONS
Varying types
(Policy Briefs, Chart Packs, DataPoints)

Goal

Advance the HPC's mission to publicly report on health care system performance by producing a variety of reports and publications that are visually-appealing, engaging, and accessible to a wide range of audiences.

Draft outline for 2017 Cost Trends Report

1 Overview of trends in spending and delivery

- Benchmark– spending trends in MA and US
- Components of spending growth within MA
- Pharmaceutical spending trends
- Employer premium and market trends
- Access and affordability

2 Topical chapters

- Outpatient spending
  - Shifts in care
  - Hospital outpatient utilization and spending trends in MA and US
- Provider Organization Performance Variation
  - Descriptive statistics of provider organizations
  - Performance variation by provider organization type
  - Performance variation by individual provider organization

3 Supplementary chart packs

- Hospital utilization (e.g. ED visits, admissions, readmissions)
- Post-acute care (e.g. discharge rates to PAC)
- Alternative payment methods
- Demand-side incentives

Recommendations

- Dashboard (summary of current performance and areas for improvement)
- Recommendations from new and previously reported topic areas

MASSACHUSETTS
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- Call to Order
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- Investment Programs
- 2017 Health Care Cost Trends Report
  - Revised Design Approach and Outline
  - **Select Findings: Performance Variation Among Provider Organizations**
- Schedule of Next Meeting (TBD)

Performance Variation Among Provider Organizations: Background and Previous Work

- The HPC continues to expand its reporting and understanding of variation across provider organizations in Massachusetts.

- A chapter in the 2016 Cost Trends Report described variation in spending and provision of some kinds of non-recommended care by provider organization.
  - This work relied on measures pre-aggregated by payers and reported to CHIA.

- HPC has now linked the Massachusetts All Payer Claims Database (APCD) and the state's Registry of Provider Organizations (RPO) database by
  - assigning patients observed in the data to a single primary care provider (PCP)
  - associating PCPs with their larger provider organizations using physician identifiers in the RPO data

- This allows us to examine variation across provider groups on an unlimited number of claims-based outcomes of interest, e.g.
  - Spending by category of service
  - Potentially avoidable utilization
  - Referral patterns

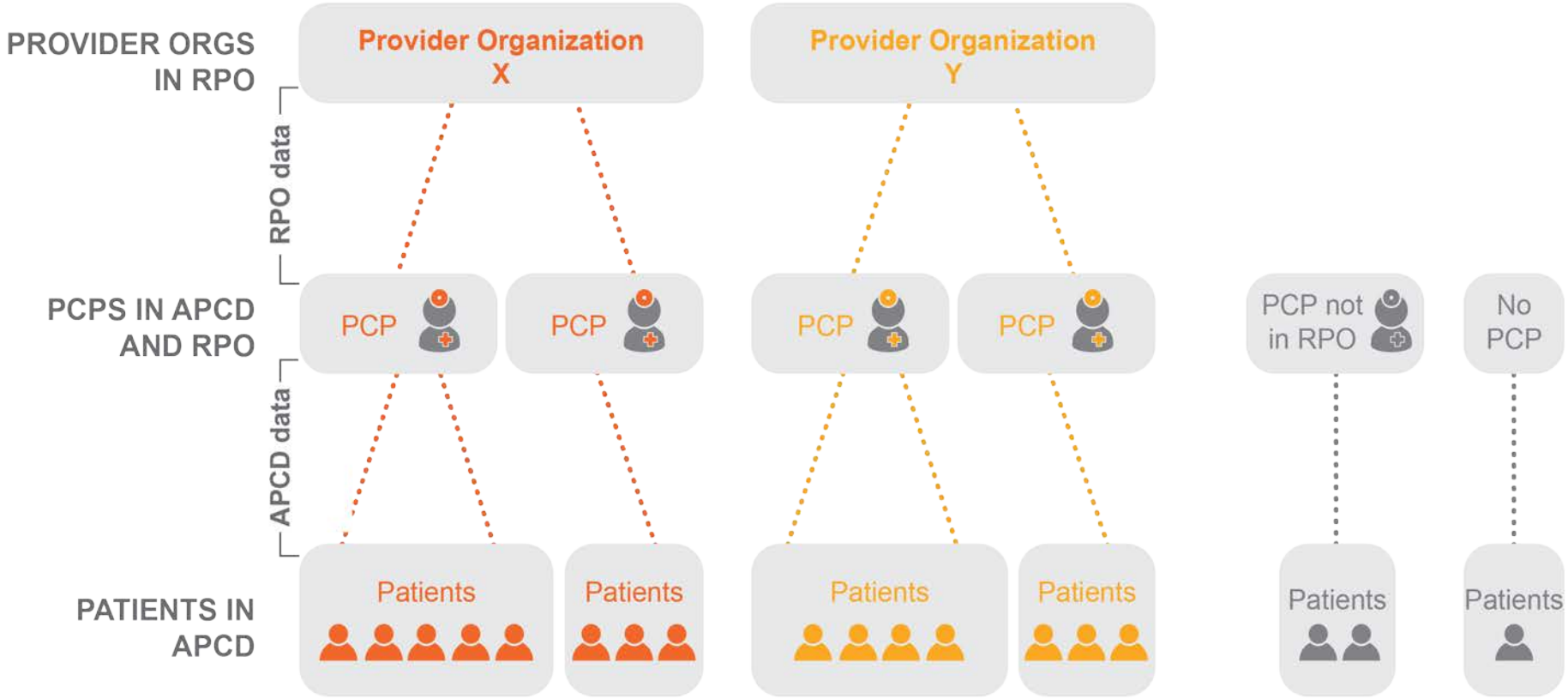
Performance Variation Among Provider Organizations: Presentation Outline

1. Assigning patients to provider organizations
2. Descriptive statistics of final dataset and provider organizations
3. Variation by provider organization type
4. Variation by individual provider organization
5. Ongoing and future work

Performance Variation Among Provider Organizations: Presentation Outline

1. Assigning patients to provider organizations
2. Descriptive statistics of final dataset and provider organizations
3. Variation by provider organization type
4. Variation by individual provider organization
5. Ongoing and future work

Organizations are compared by averaging spending and utilization among patients assigned or attributed to them



Note: E.g. see McWilliams, J. Michael, et al. "Early performance of accountable care organizations in Medicare." *New England Journal of Medicine* 374.24 (2016): 2357-2366.

Patient attribution process

1. Define PCPs

- We combined data from the RPO and SK&A[1] to create a Massachusetts PCP roster with **7,714** physicians and **919** nurse practitioners (NPs).
  - The majority (**78%**) of PCPs were sourced from RPO. PCPs in RPO self identified as either a PCP or pediatrician.
  - Physicians (and NPs) from SK&A were identified as PCPs based on reported specialties of family practitioner, general practitioner, internal medicine (with no other medical specialty), or pediatrician.

2. Assign or attribute patients in the APCD to a single PCP

- **46%** of commercial patients in the APCD had a PCP reported by their payer.
  - These are mostly enrollees in HMO products where they must elect a PCP.
- Using claims data in the 2014 APCD, we were then able to attribute an additional **32%** of commercial members to a PCP.
  - We first used evaluation and management (E&M) claims to attribute members to the PCP they saw most frequently throughout the year[2].
  - Some members still unassigned were then attributed to a PCP based on prescription drug use.

Notes: 1. SK&A is a commercial provider and organization database; 2. We used standard attribution algorithms based on the Massachusetts Consensus Guidelines for non-HMO patient attribution and work by Meredith Rosenthal.

Patient attribution process, continued

3. <u>Attributing PCPs to provider systems</u>

- Among commercially-insured patients, **81%** of PCPs (representing **85%** of patients) were assigned to one of the **14** largest provider organizations in Massachusetts.
- Provider systems were grouped into broader system types *for some analyses.*
- Groupings were based on the dominant hospital(s) in the system according to ownership and affiliation relationships as described in the RPO:
  - *Academic medical center-anchored:* BMC Health, Beth Israel Deaconess Care Organization (BIDCO), Partners HealthCare, Wellforce*, UMass Memorial Health Care
  - *Teaching hospital-anchored:* Baystate Health, Lahey Health, Mt. Auburn Cambridge Independent Physician Associate (MACIPA), and Steward Health Care
  - *Community hospital-anchored:* South Shore Health & Educational Corporation and Southcoast Health
  - *Physician-led:* Atrius Health, Central Massachusetts Independent Physician Association (CMIPA), and Reliant Medical Group*

Notes: Tufts Medical Center and Lowell General Hospital, along with their affiliated physicians, merged to form Wellforce on Oct 1, 2014. For purposes of this analysis, the Tufts-affiliated New England Quality Care Alliance (NEQCA) physicians and the Lowell General PHO physicians are combined and reported as Wellforce in both 2014 and 2015. Reliant Medical Group was a part of Atrius until the end of 2014. For purposes of this analysis, they are reported separately from Atrius for 2014 and 2015.

Performance Variation Among Provider Organizations: Presentation Outline

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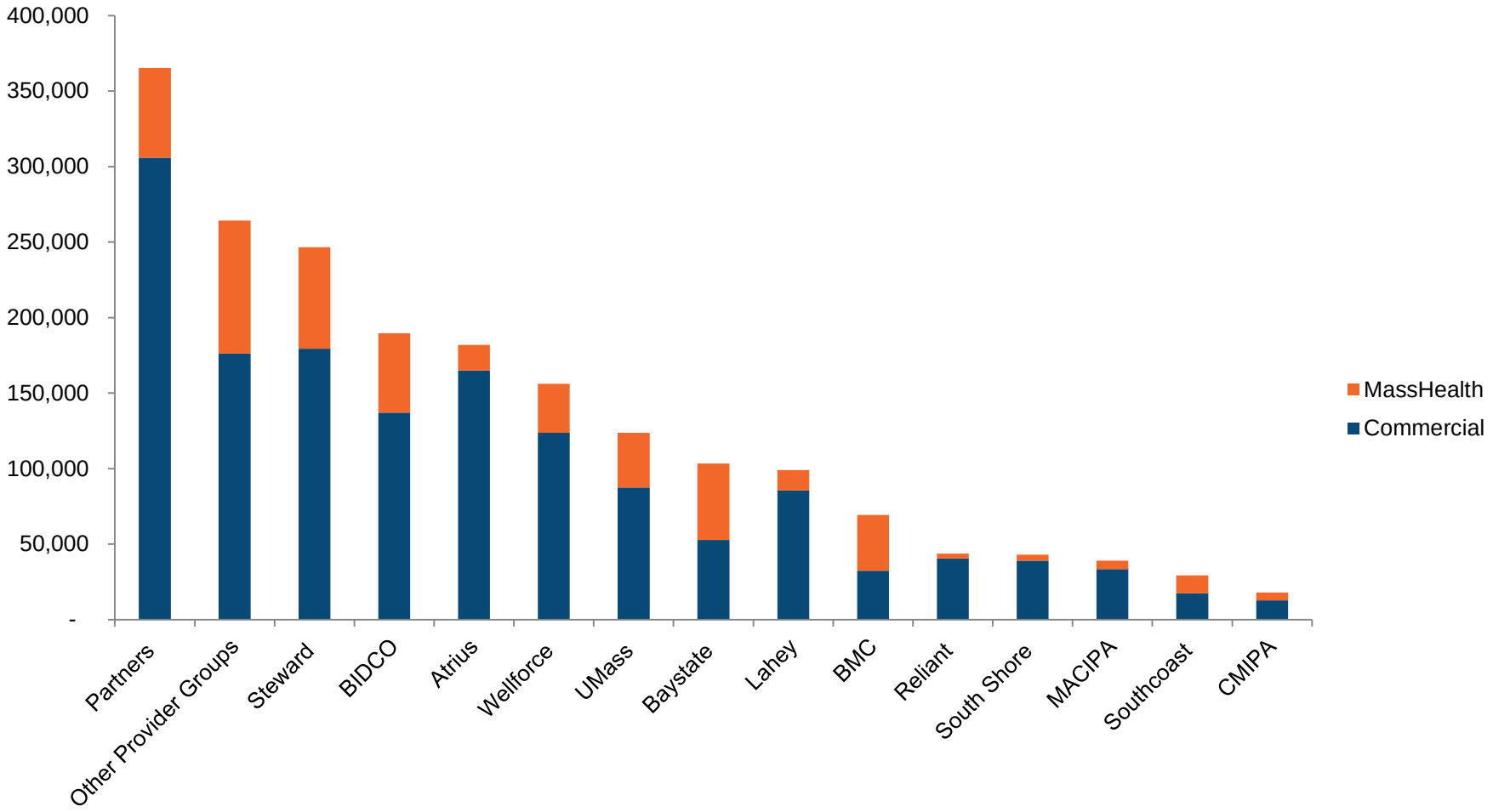
Details of the final dataset in 2014

- Commercial data are for those insured by Blue Cross Blue Shield (BCBS) of Massachusetts, Harvard Pilgrim Health Care (HPHC) and Tufts Health Plan only, representing roughly **61%** of the commercial market.
- Ultimately, **1,967,471** commercial members were assigned to a PCP in the provider file.
  - Results presented today focus on commercial adult members (~**1.5 million**).
- Among commercial members ultimately assigned to a PCP, **66%** had an HMO product, **26%** had a PPO product, **5%** had a POS product, and **4%** had an EPO product.
- Spending data do not include non-claims payments (e.g. shared savings).
- Data results are presented with varying degrees of adjustment, as appropriate, and are displayed with the following flags:
  - Unadjusted results are shown with: Unadjusted
  - Spending outcomes adjusted for health risk are shown with: Risk adjusted
  - Utilization outcomes further adjusted for median community income, area deprivation index, fully or self-insured (commercial patients only), age, gender, and payer are shown with: Risk and demographic adjusted

Health plan members in the APCD are concentrated among a relatively small number of provider systems

Number of attributed members, by PCP group, commercial and MassHealth, 2014

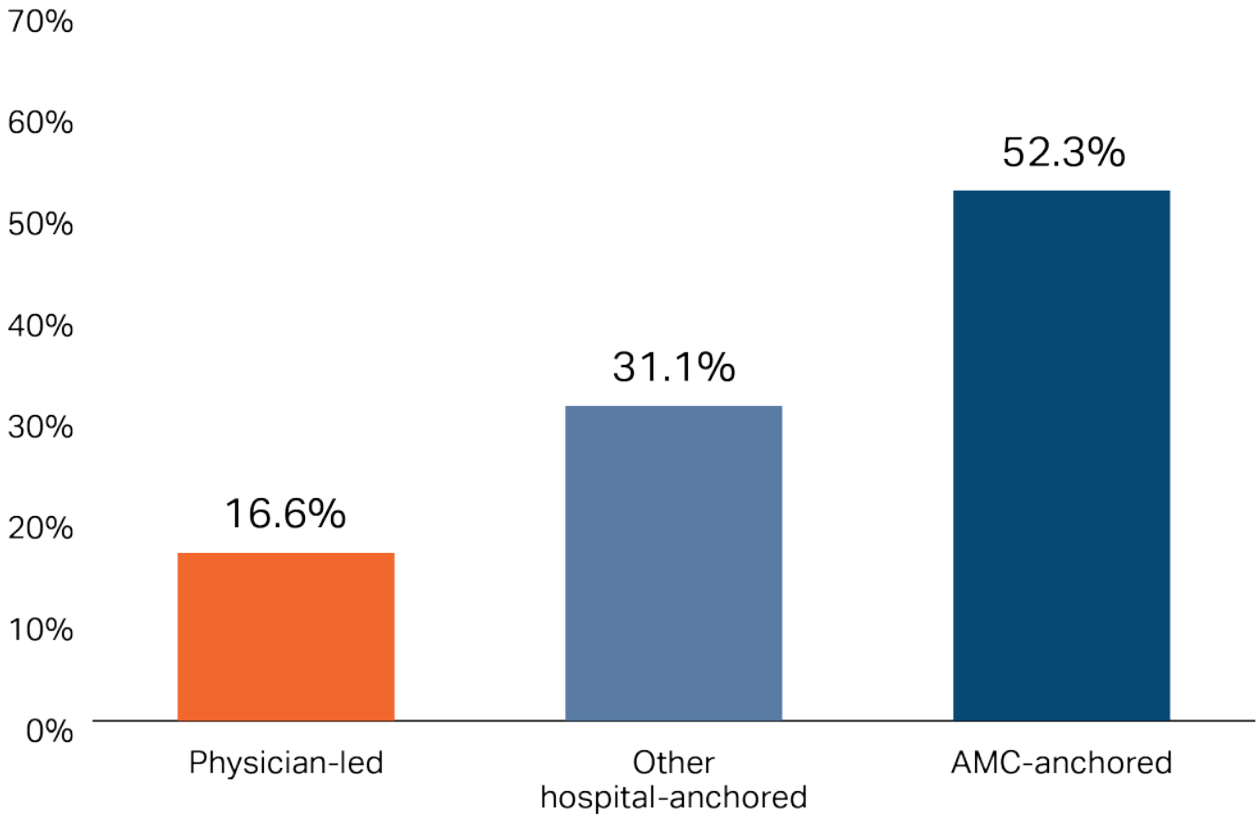


Notes: PCP= primary care provider. Commercial payers include Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. MassHealth includes only Managed Care Organization (MCO) enrollees who had coverage through BMC HealthNet, Neighborhood Health Plan, or Network Health/Tufts. Members in the MassHealth Medical Security Program (MSP) were excluded. Shown here are the 14 largest PCP groups as identified by number of patients attributed in the All-Payers Claims Database.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

The majority of attributed commercial health plan members in the APCD had PCPs affiliated with AMC-anchored systems

Share of attributed commercial members, by system composition, 2014



Notes: PCP= primary care provider; AMC= academic medical center. Other hospital-anchored includes systems anchored by either a teaching or community hospital. Data include only privately insured adults (ages 18+) covered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Included here are the 14 largest PCP groups as identified by number of patients attributed in the All-Payers Claims Database.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

Provider organizations in Massachusetts vary across a number of dimensions

Data for 1.44m attributed adult commercial patients, 2014

	Risk score	Zip-code income	Area deprivation index*	% over 55	% Self-insured	% Female
Atrius	.96	$83,284	76.7	26%	52%	56.4%
BMC	.89	$63,319	88.5	20%	52%	54.2%
Lahey	1.05	$85,677	77.8	31%	43%	51.7%
MACIPA	.94	$85,615	70.1	28%	47%	53.5%
Partners	1.03	$86,017	76.6	29%	44%	55.5%
Southcoast	1.09	$59,721	97.6	30%	50%	51.4%
Steward	1.05	$70,131	90.1	30%	48%	52.4%
All physician-led	.96	$81,723	80.2	25.8%	47.8%	55.3%
All other hospital-anchored	1.02	$74,485	86.6	29.8%	45.7%	52.6%
All AMC-anchored	1.02	$81,646	80.7	28.3%	44.5%	53.7%

Note: *The area deprivation index combines a number of socio-economic-related measures by census block in the U.S. (including home values and amenities, employment, poverty, and education levels) measured at the 9-digit-zip code level. It is collapsed to 5 digits in this data. Values in Massachusetts range from 120 (greatest deprivation) in parts of Boston and Springfield to -12 (least deprivation) in Weston.

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Researchers have found lower spending among physician-led groups

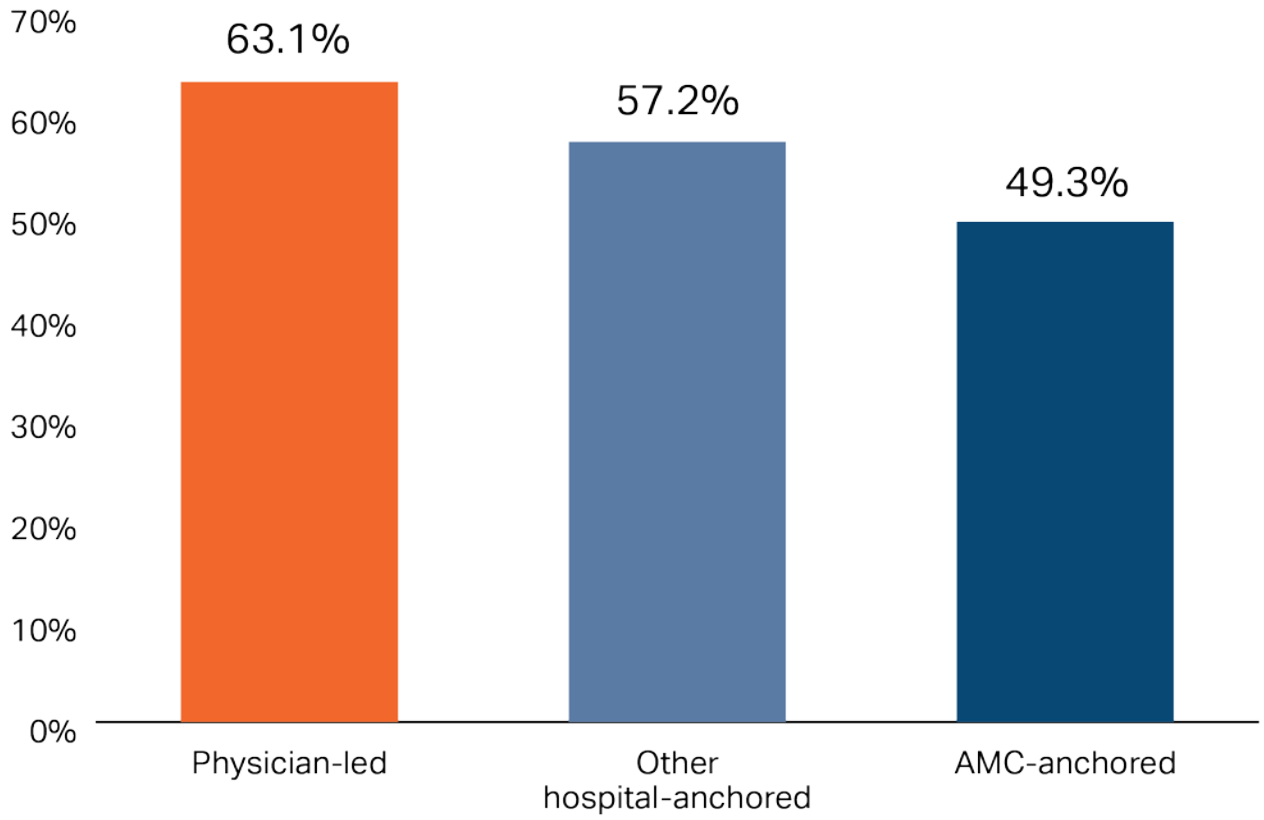
- A growing body of research has found that hospital-owned provider practices tend to have higher spending and higher prices, without significant quality differences.
  - Pesko et al. (2017) found that hospital-owned practices had
    - 35% higher hospital outpatient spending
    - 8% lower physician spending
    - 7% more ED visits
    - 6% higher total spending…than physician-owned practices
  - Lewis et al. (2017) found that 51% of physician-led Medicare ACOs earned shared-savings in year 3 versus 32% of integrated delivery systems
  - Baker et al. (2014) found higher prices in hospital-owned systems

- *These studies use Medicare or area-level aggregate data.*

Sources: Lewis, Valerie A., Elliott S. Fisher, and Carrie H. Colla. "Explaining Sluggish Savings under Accountable Care." New England Journal of Medicine 377.19 (2017): 1809-1811.
Pesko, Michael F., et al. "Spending per Medicare Beneficiary Is Higher in Hospital-Owned Small-and Medium-Sized Physician Practices." Health Services Research (2017).
Baker, Laurence C., M. Kate Bundorf, and Daniel P. Kessler. "Vertical integration: hospital ownership of physician practices is associated with higher prices and spending." Health Affairs33.5 (2014): 756-763.
McWilliams, J. Michael, et al. "Delivery system integration and health care spending and quality for Medicare beneficiaries." JAMA internal medicine 173.15 (2013): 1447-1456.
Neprash, Hannah T., et al. "Association of financial integration between physicians and hospitals with commercial health care prices." JAMA internal medicine 175.12 (2015): 1932-1939.

Physician-led systems had a higher share of members in APMs in 2014

Percent of attributed members in alternative payment models



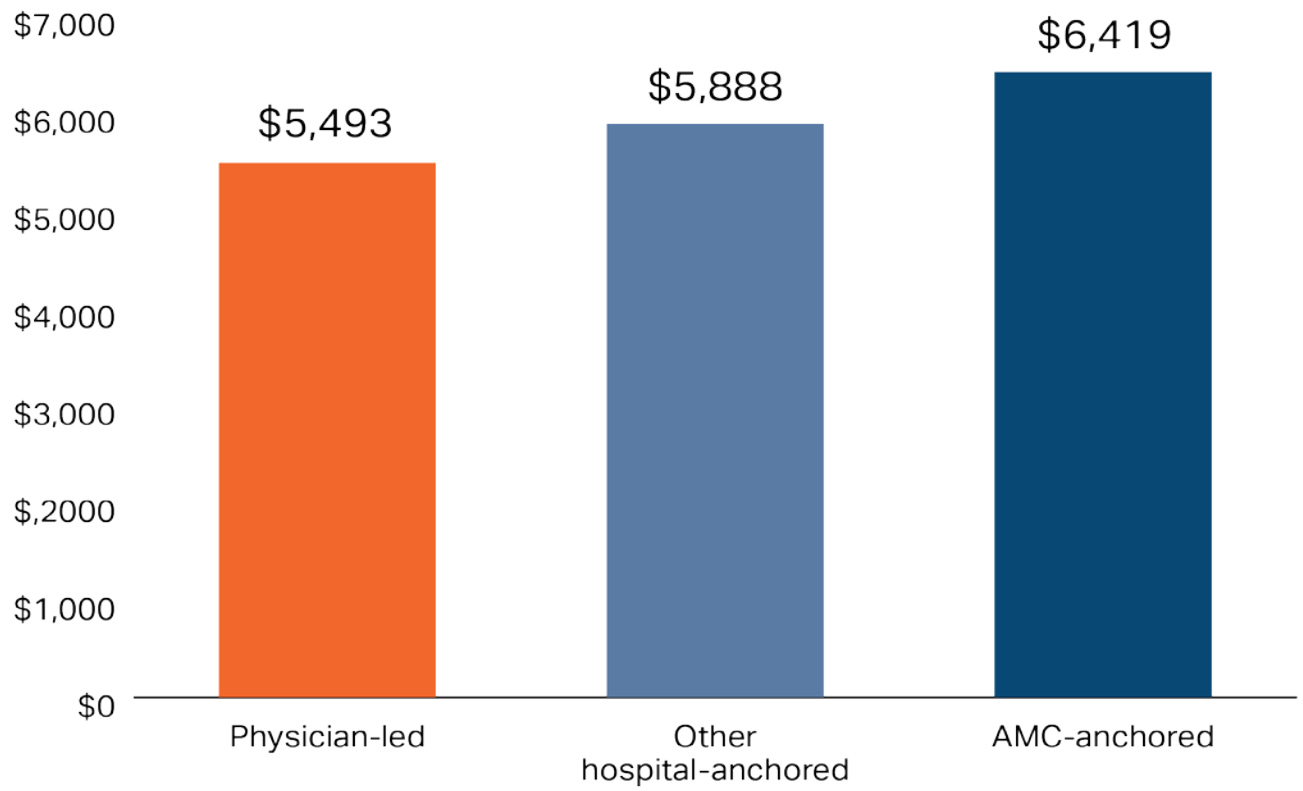
Notes: APM= alternative payment models; PCP= primary care provider,; AMC= academic medical center. Other hospital-anchored includes systems anchored by either a teaching or community hospital. APM coverage is only recorded for HMO members. PPO-attributed patients assumed to have 0 APM coverage. The APM data is recorded for fewer provider groups than previous data – groups excluded from this slide but included in others are CMIPA, Reliant, Wellforce, SouthCoast, and South Shore.

Source: Center for Health Information and Analysis 2017 Annual Report APM Databook

AMC-anchored systems had 17% higher spending than physician-led systems and 8% higher spending than other hospital-anchored systems

Average risk-adjusted commercial PMPY spending, by system composition, 2014

Risk adjusted



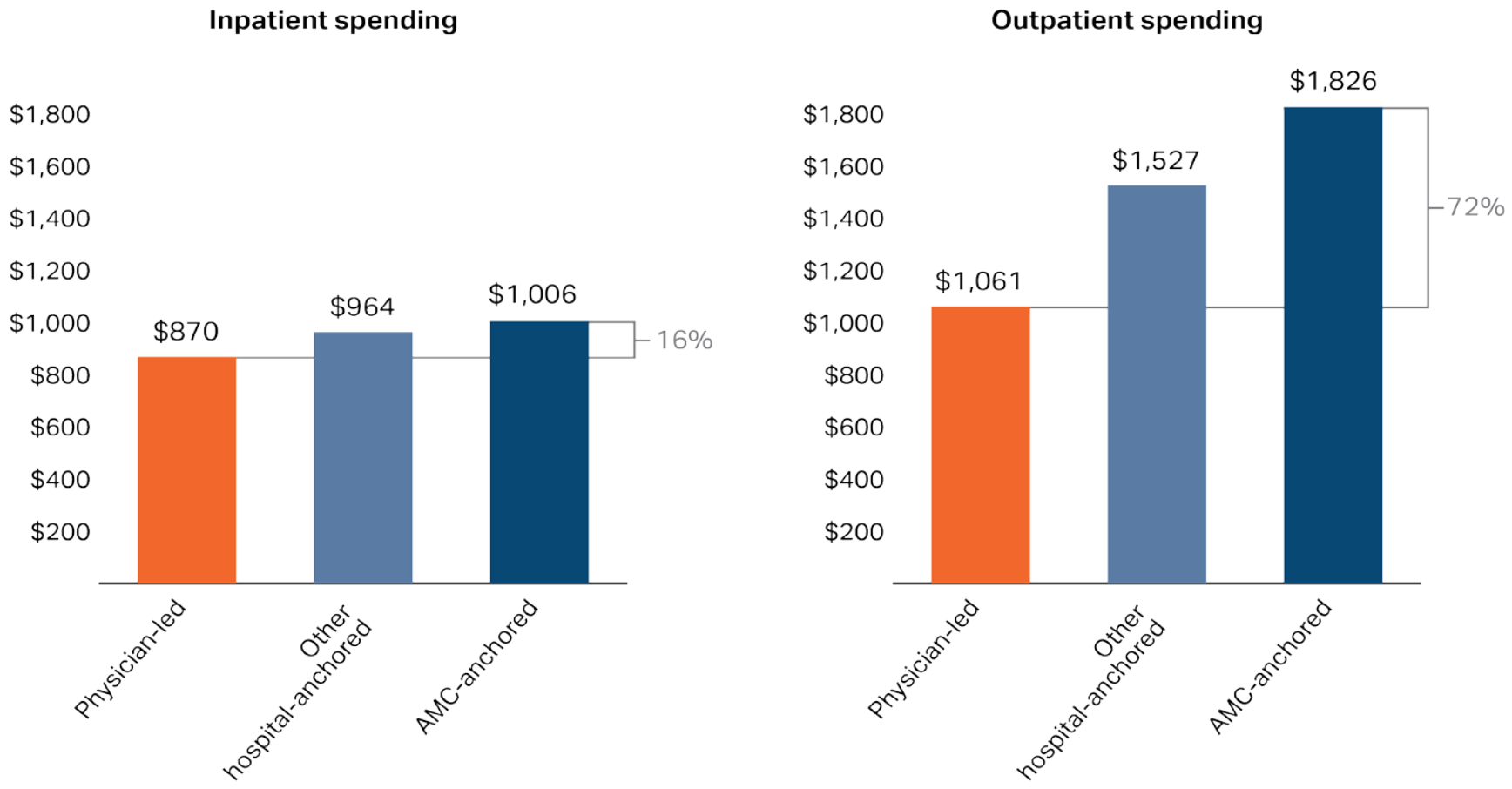
Notes: PMPY= per member per year; PCP= primary care provider; AMC= academic medical center. Other hospital-anchored includes systems anchored by either a teaching or community hospital. Spending adjusted using ACG risk-adjuster applied to claims data. Data include only privately insured adults (ages 18+) covered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Only members with a PCP affiliated with one of the 14 largest PCP groups, as identified by number of patients attributed in the All-Payers Claims Database, are included here.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

Hospital outpatient spending for AMC-anchored systems was 72% higher than physician-led systems, accounting for most of the total spending difference

Average commercial PMPY hospital spending, by system composition, by category, 2014

Risk adjusted



Notes: PMPY= per member per year, PCP= primary care provider, AMC= academic medical center. Other hospital-anchored includes systems anchored by either a teaching or community hospital. Spending adjusted using ACG risk-adjuster applied to claims data. Data include only privately insured adults (ages 18+) covered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Only members with a PCP affiliated with one of the 14 largest PCP groups, as identified by number of patients attributed in the All-Payers Claims Database, are included here.

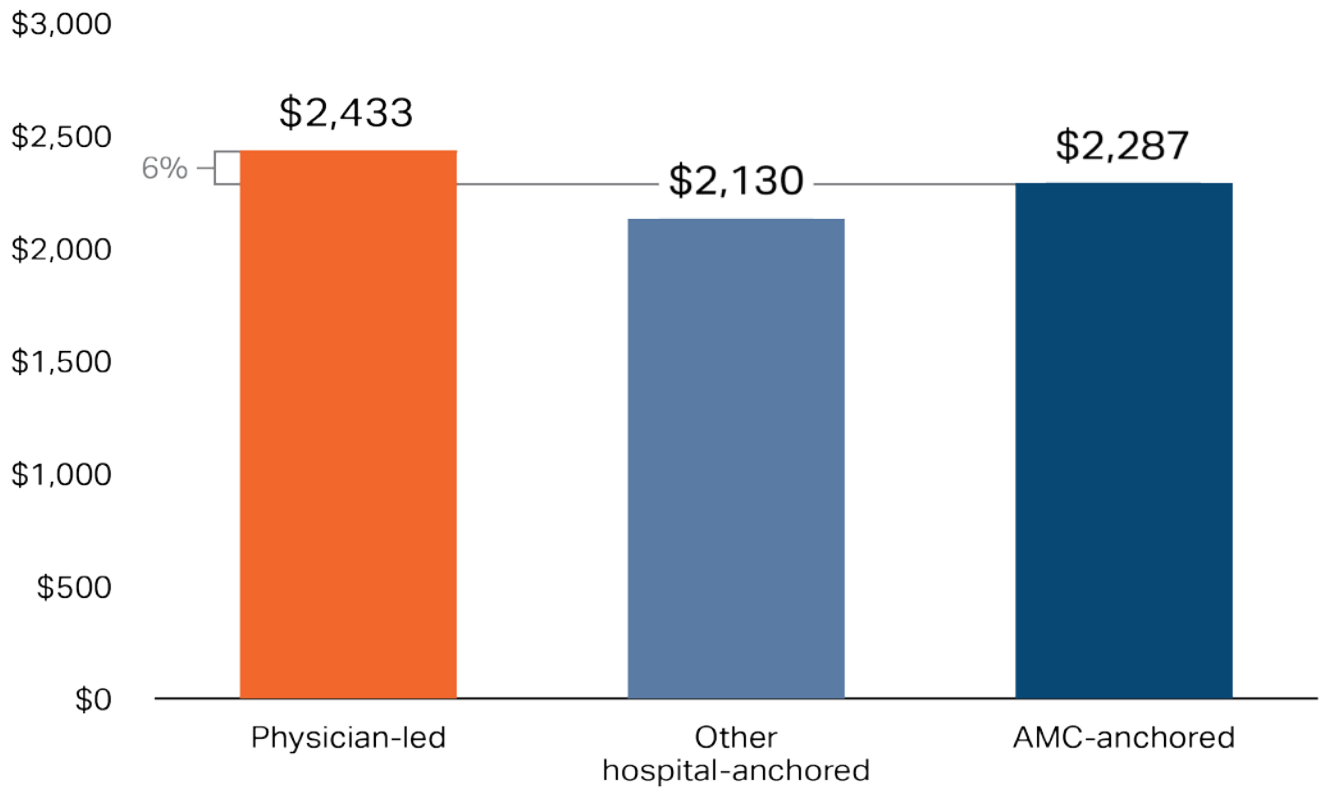
Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

HPC

Physician and other professional spending was slightly higher in physician-led groups

Average commercial PMPY professional spending, by system composition, 2014

Risk adjusted



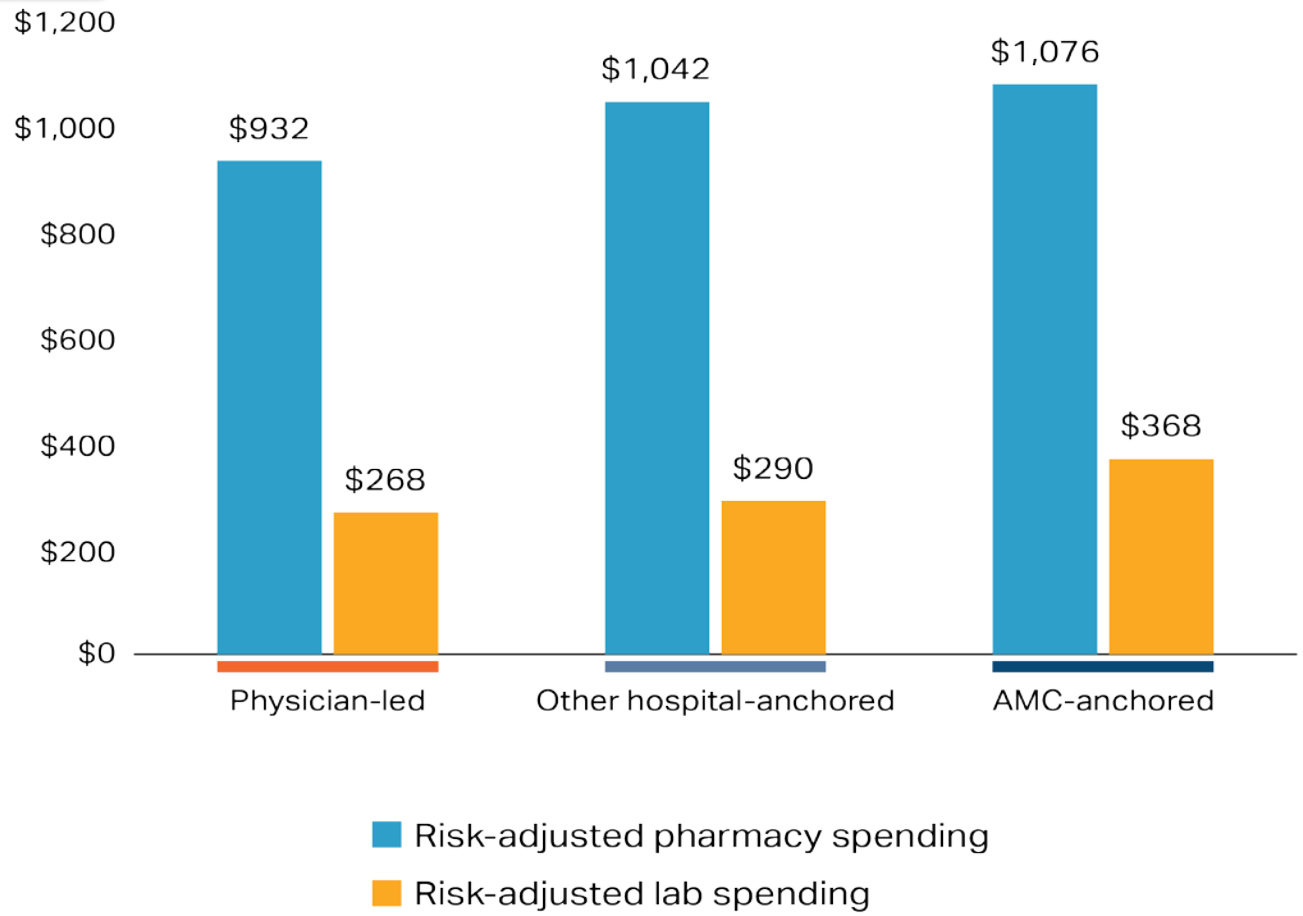
Notes: PMPY= per member per year, PCP= primary care provider, AMC= academic medical center. Other hospital-anchored includes systems anchored by either a teaching or community hospital. Spending adjusted using ACG risk-adjuster applied to claims data. Data include only privately insured adults (ages 18+) covered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Only members with a PCP affiliated with one of the 14 largest PCP groups, as identified by number of patients attributed in the All-Payers Claims Database, are included here.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

AMC-anchored groups also had the highest laboratory and pharmacy spending

Average commercial PMPY spending on labs and prescription drugs, by system composition, 2014

Risk adjusted



Notes: AMC= academic medical center, PMPY= per member per year, PCP= primary care provider. Other hospital-anchored includes systems anchored by either a teaching or community hospital. Laboratory spending includes both professional and outpatient claims. Spending adjusted using ACG risk-adjuster applied to claims data. Data include only privately insured adults (ages 18+) covered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Only members with a PCP affiliated with one of the 14 largest PCP groups, as identified by number of patients attributed in the All-Payers Claims Database, are included here.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

To improve comparability, we further adjusted utilization measures for patient demographics and other factors

Factors used in adjustment and impact on ED visits

Factor	'Low' value	'High' value	Impact on ED visits (%) of high value vs low value, controlling for all other factors
Risk score	<1.0 (healthiest 61% of sample)	>5.0 (sickest 3.3% of sample)	+452%
Income of zip code	$60,608 (25th percentile)	$93,416 (75th percentile)	-9%
Area deprivation index	75.7 (25th percentile, e.g. 02474, Arlington)	95.3 (75th percentile, e.g. 02145, Somerville)	+3%
Gender	Female	Male	+3%
Self-insured	Self-insured	Fully-insured	-3%
Age group	18-34	55-64	-89%

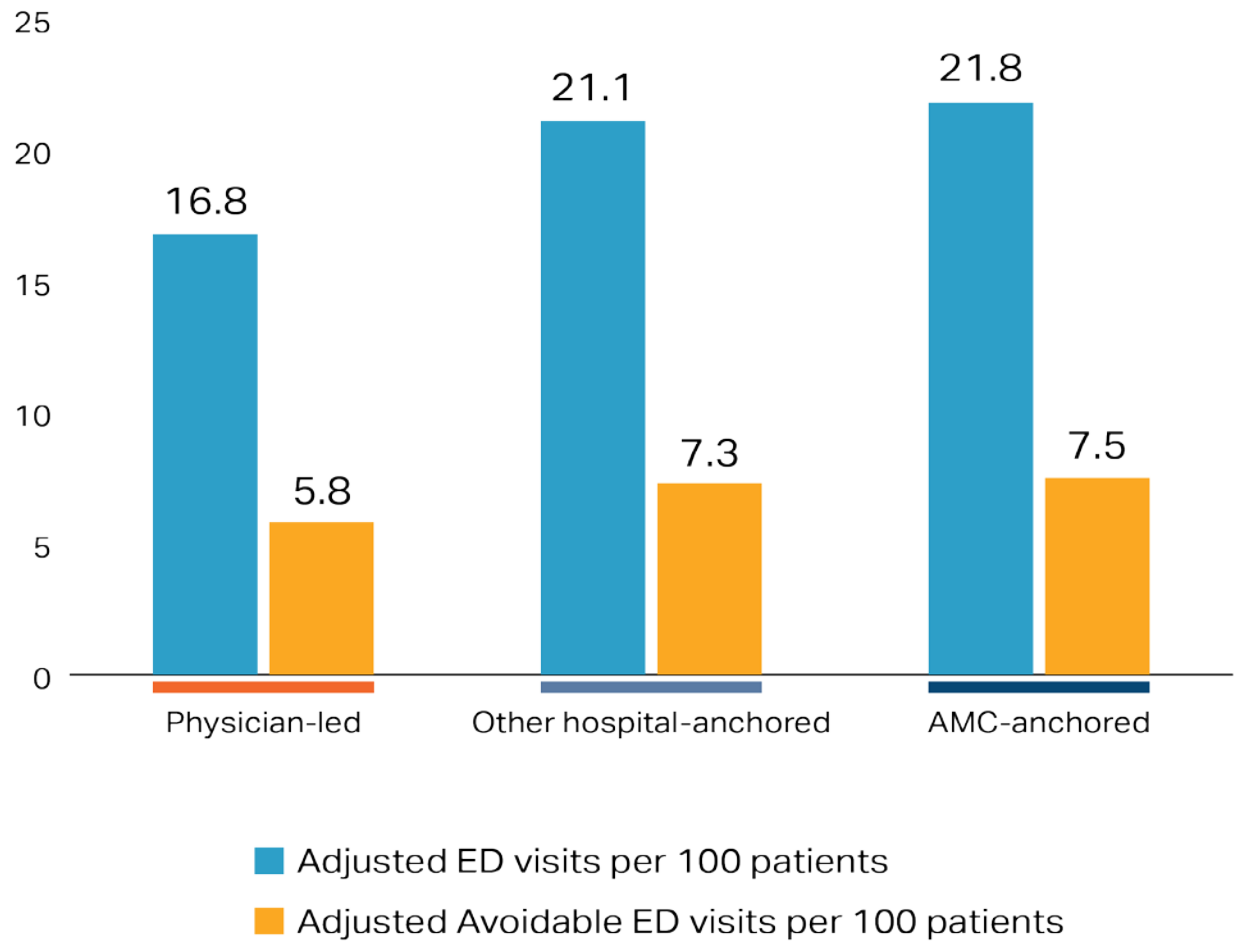
Notes: ED= Emergency department. All factors shown are statistically significant at p<.01 level.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015.

Members in AMC-anchored organizations had 29% more ED visits and 30% more avoidable ED visits than those in physician-led systems

ED visits, per 100 commercial members, by system composition, 2014

Risk and demographic adjusted



Notes: ED= emergency department, AMC= academic medical center. Other hospital-anchored includes systems anchored by either a teaching or community hospital. ED visits by provider group were calculated after adjusting for the following patient characteristics: risk score, median community income, area deprivation index, fully insured (commercial patients only), age, gender, and payer. Data include only privately insured adults (ages 18+) covered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Only members with a PCP affiliated with one of the 14 largest PCP groups, as identified by number of patients attributed in the All-Payers Claims Database, are included here.

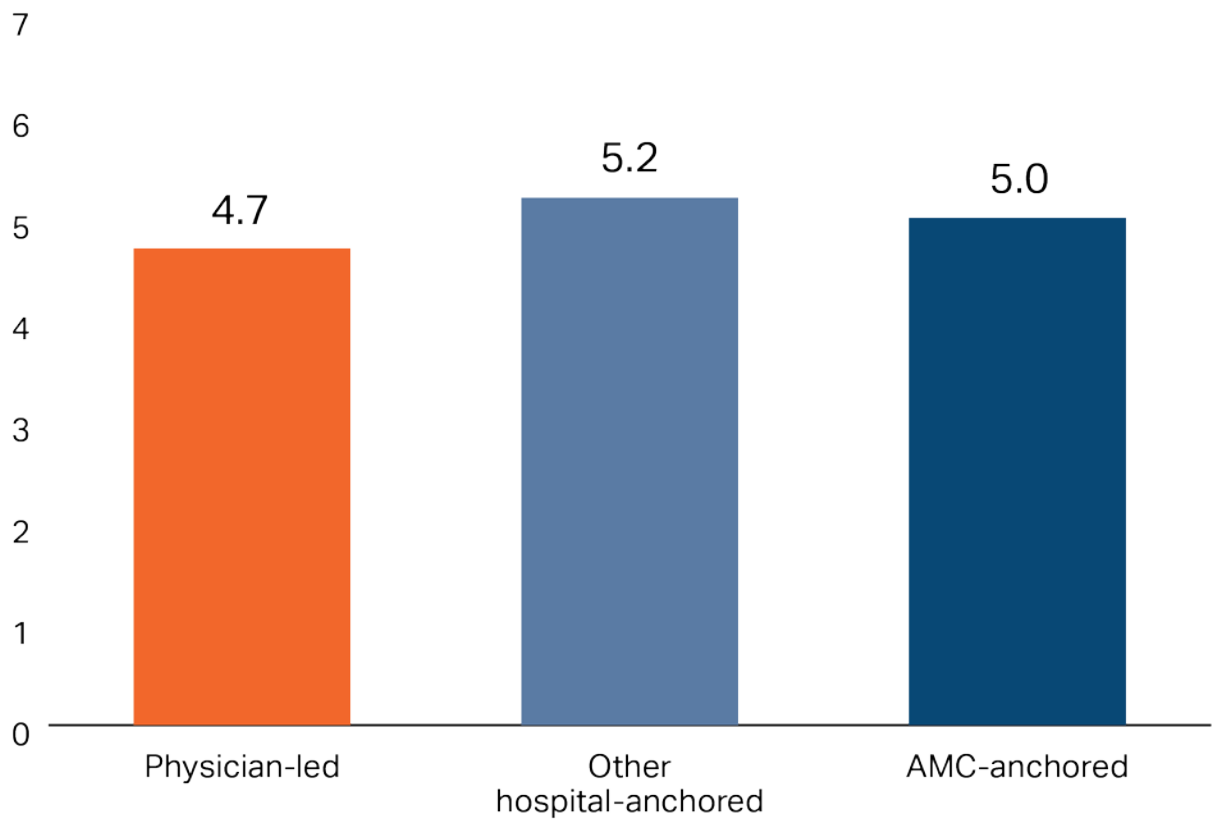
Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

HPC

Rates of non-recommended imaging were lowest for members in physician-led organizations

Rate of non-recommended imaging among commercial members per 100 eligible encounters, by system composition, 2014

Unadjusted



Notes: PCP= primary care provider, AMC= academic medical center. An encounter is defined as an insurance claim for the same patient, on the same day, for the same service. Other hospital-anchored includes systems anchored by either a teaching or community hospital. Rate of non-recommend imaging encounter is a composite measure of four low-value care imaging measures, including: back imaging for non-specific back pain, head imaging for uncomplicated headache, imaging for plantar fasciitis, and head imaging in the evaluation of syncope. These measures are from the Choosing Wisely campaign, for which researchers have developed algorithms for claims data. Data include only privately insured adults (ages 18+) covered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Only members with a PCP affiliated with one of the 14 largest PCP groups, as identified by number of patients attributed in the All-Payers Claims Database, are included here.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

HPC

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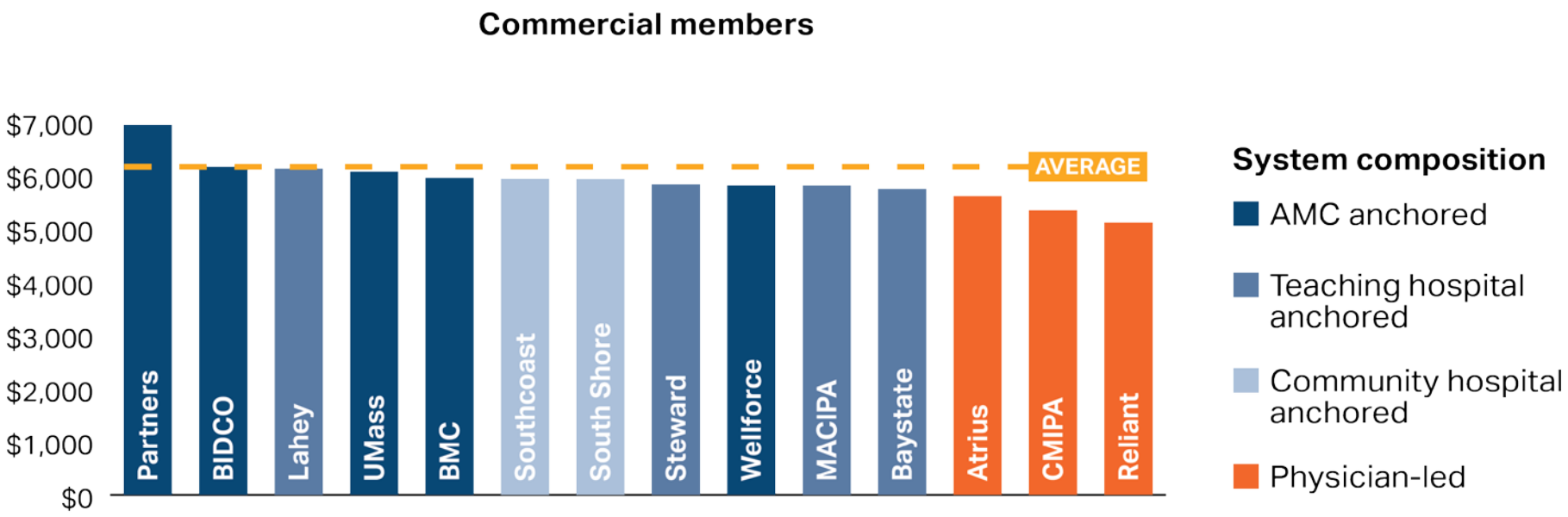
Member spending in the highest-cost organization was 36% higher than in the lowest-cost organization

Average commercial PMPY spending, by PCP group, 2014

Risk adjusted



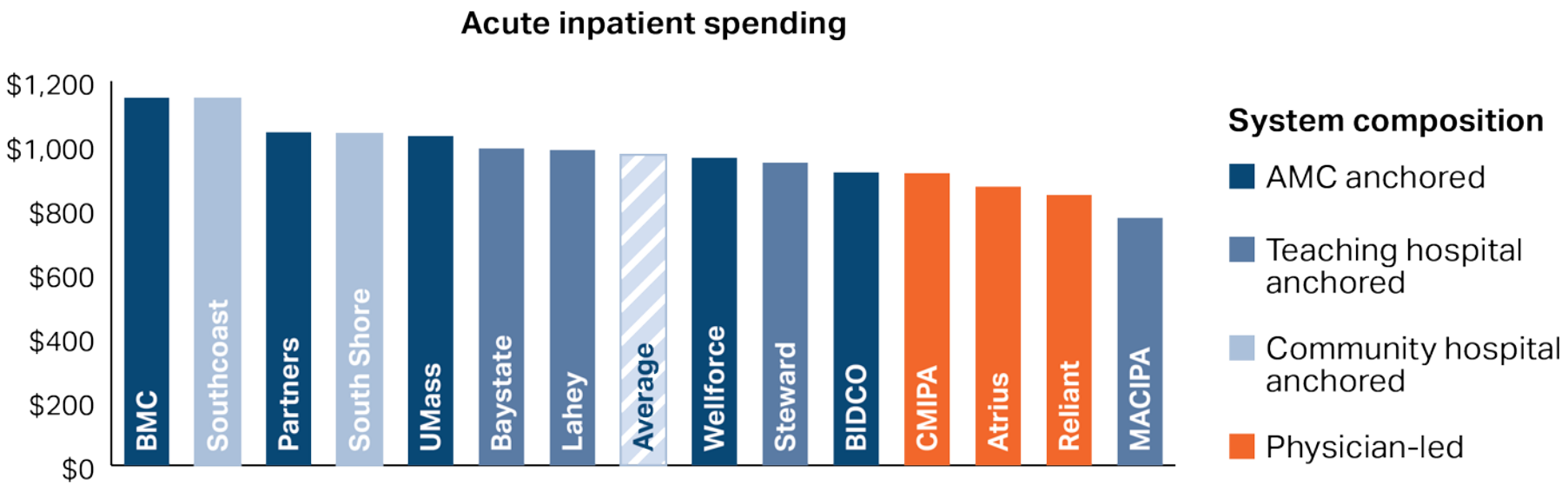
Notes: PMPY= per member per year, PCP= primary care provider, AMC= academic medical center. Spending adjusted using ACG risk-adjuster applied to claims data. Data includes only adults over the age of 18. Commercial payers include Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. MassHealth includes only MCO enrollees who had coverage through BMC HealthNet, Neighborhood Health Plan, or Network Health/Tufts. Members in the MassHealth Medical Security Program (MSP) were excluded. Shown here are the 14 largest PCP groups as identified by number of patients attributed in the All-Payers Claims Database. Average calculated using all attributed adult members in the sample, not just those with a PCP associated with one of the 14 largest provider groups.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

Inpatient spending was lower for members in physician-led organizations

Average commercial PMPY inpatient spending, by PCP group,2014

Risk adjusted



Notes: PMPY= per member per year, PCP= primary care provider, AMC= academic medical center. Spending adjusted using ACG risk-adjuster applied to claims data. Data include only privately insured adults (ages 18+) covered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Shown here are the 14 largest PCP groups as identified by number of patients attributed in the All-Payers Claims Database. Average calculated using all attributed adult members in the sample, not just those with a PCP associated with one of the 14 largest provider groups.

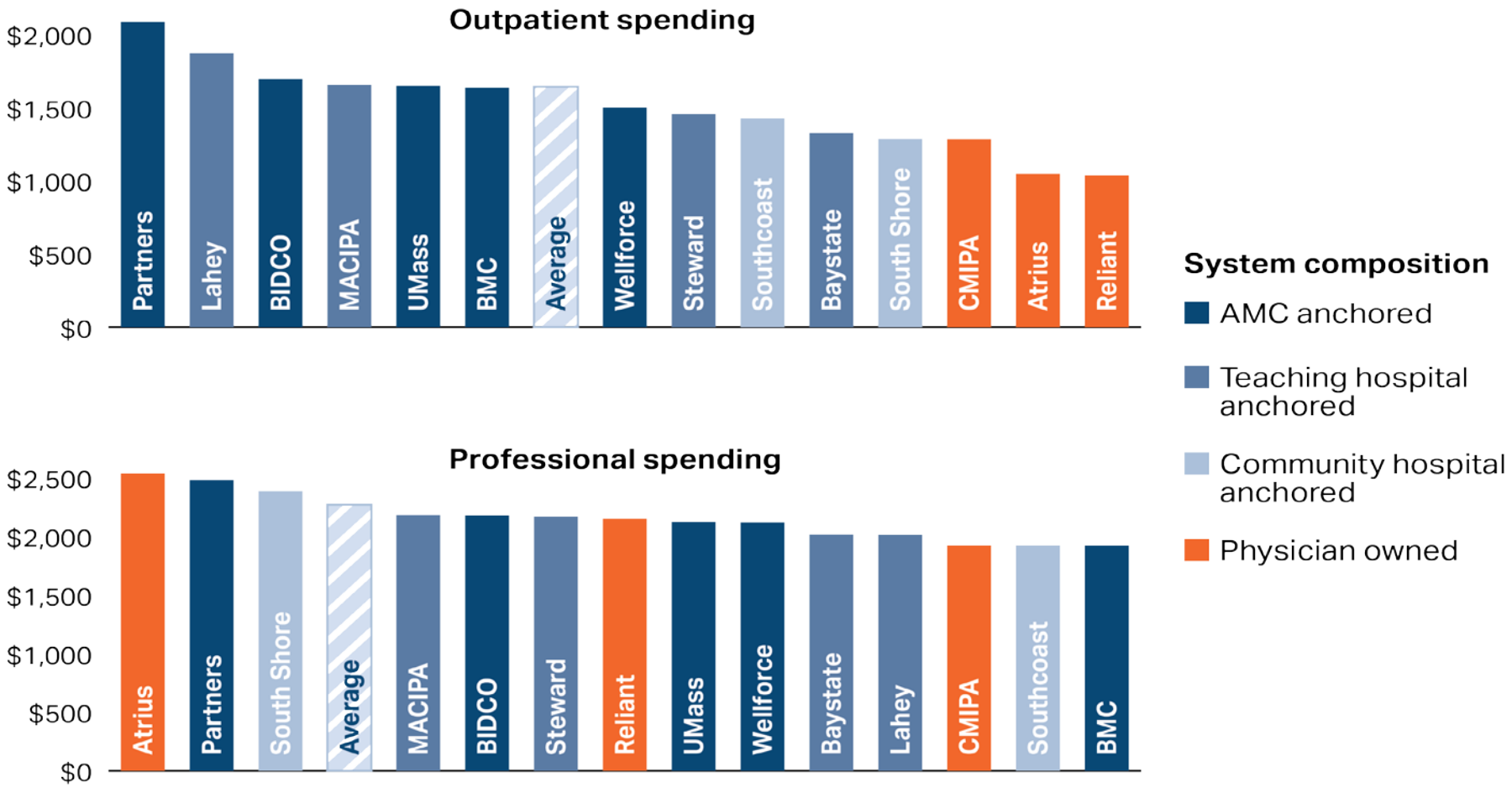
Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

HPC

There may be some substitution between professional spending and hospital outpatient spending based on site-of-service

Average commercial PMPY spending, by PCP group, by category of spending, 2014

Risk adjusted



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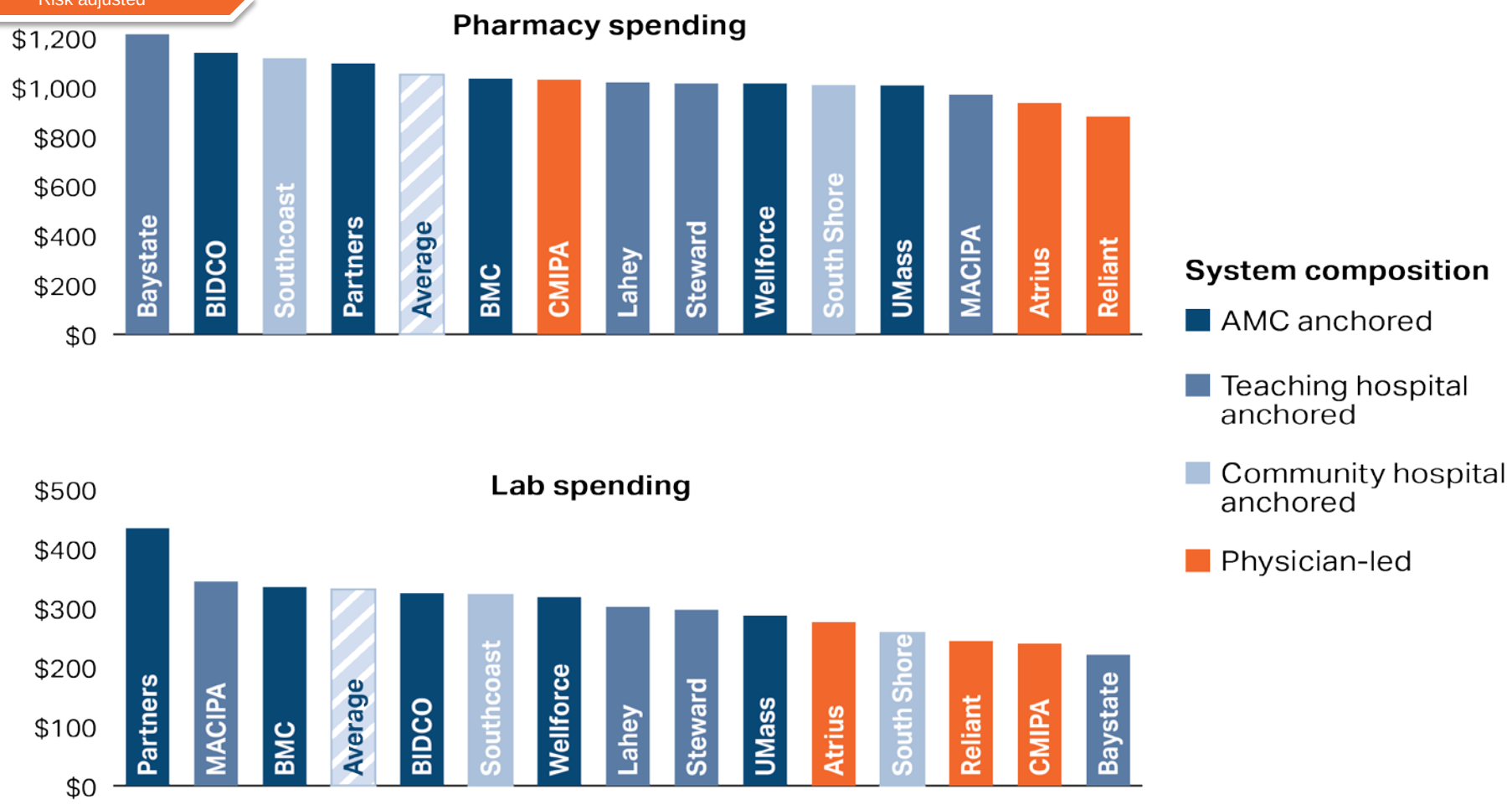
Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

Pharmacy spending varied 38% across organizations and laboratory spending varied two-fold

Average commercial PMPY spending, by PCP group, by category of spending, 2014

Risk adjusted



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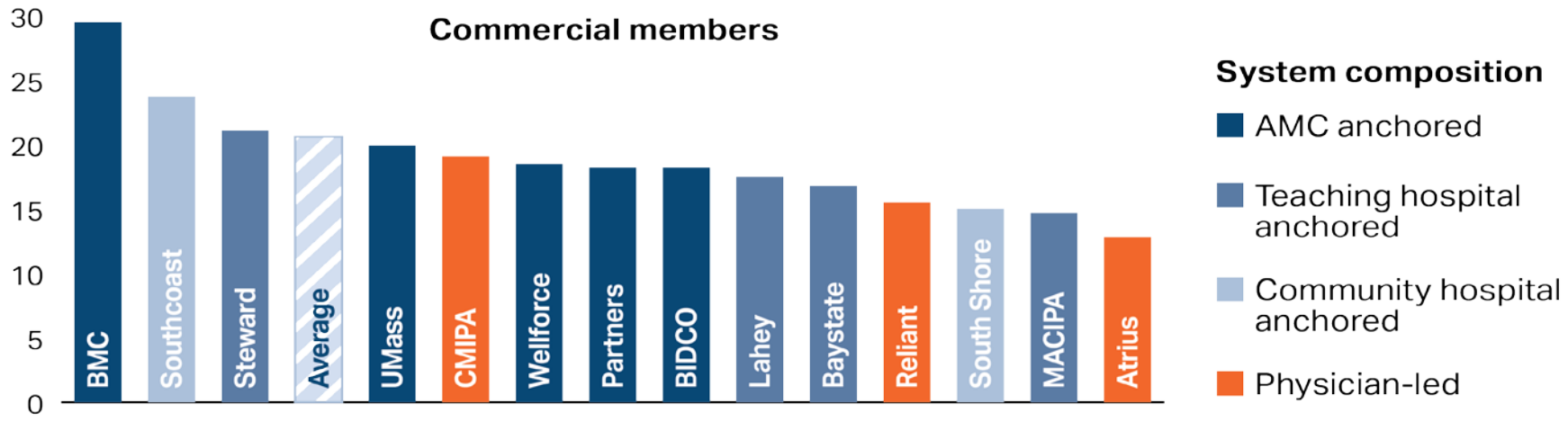
Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

HPC

Adjusted ED visits varied two-fold across organizations

Number of ED visits, per 100 members, 2014

Risk and demographic adjusted

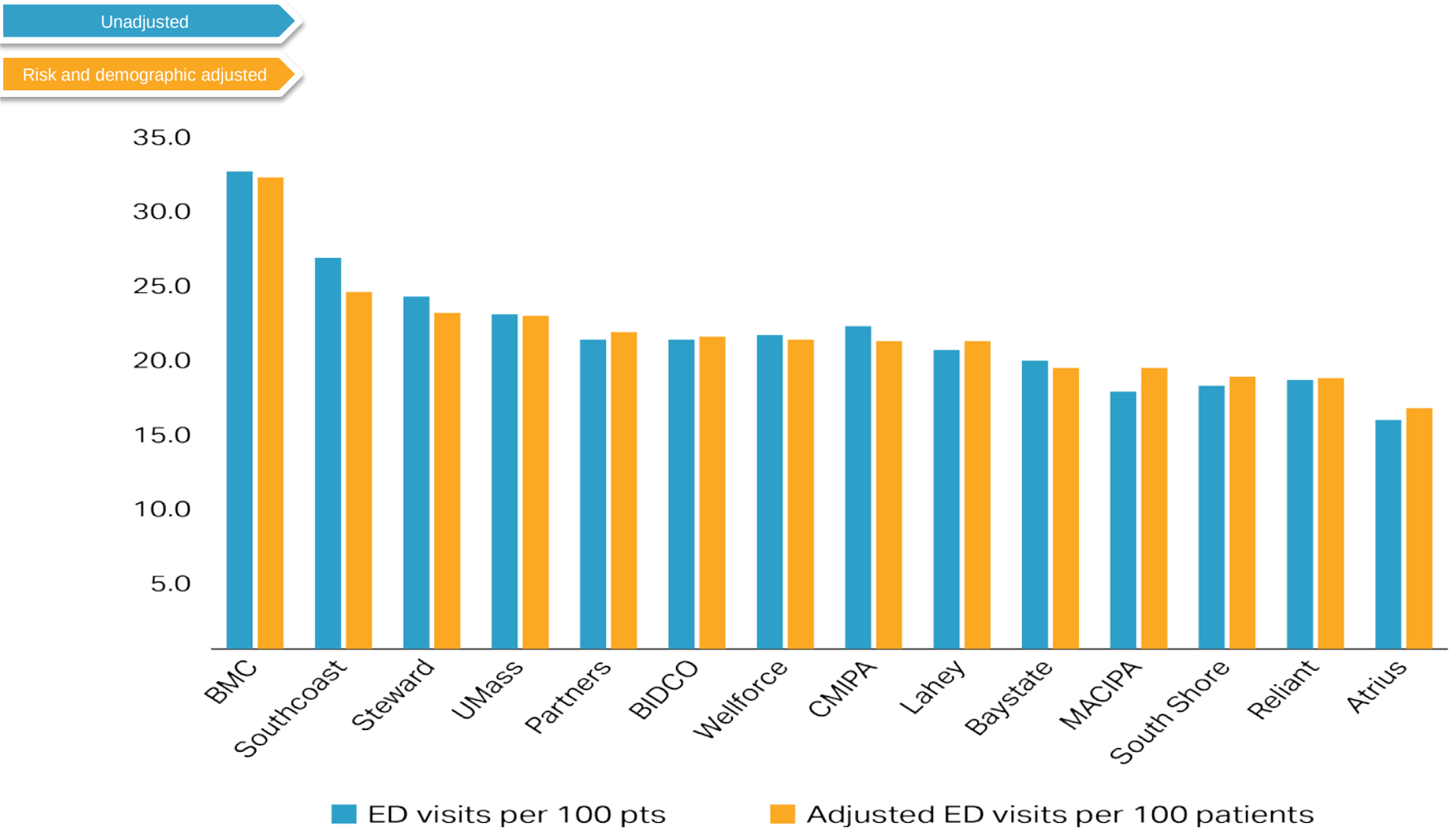


Notes: ED+ emergency department; PMPY= per member per year, PCP= primary care provider, AMC= academic medical center. Adjusted ED visits by provider group were calculated after adjusting for the following patient characteristics: risk score, median community income, area deprivation index, fully insured (commercial patients only), age, gender, and payer. Data include only privately insured adults (ages 18+) covered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Shown here are the 14 largest PCP groups as identified by number of patients attributed in the All-Payers Claims Database. Average calculated using all attributed adult members in the sample, not just those with a PCP associated with one of the 14 largest provider groups.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

Adjusting for patient characteristics has a significant impact on comparative ED visit rates

Unadjusted and adjusted ED visits, per 100 members, by provider organization



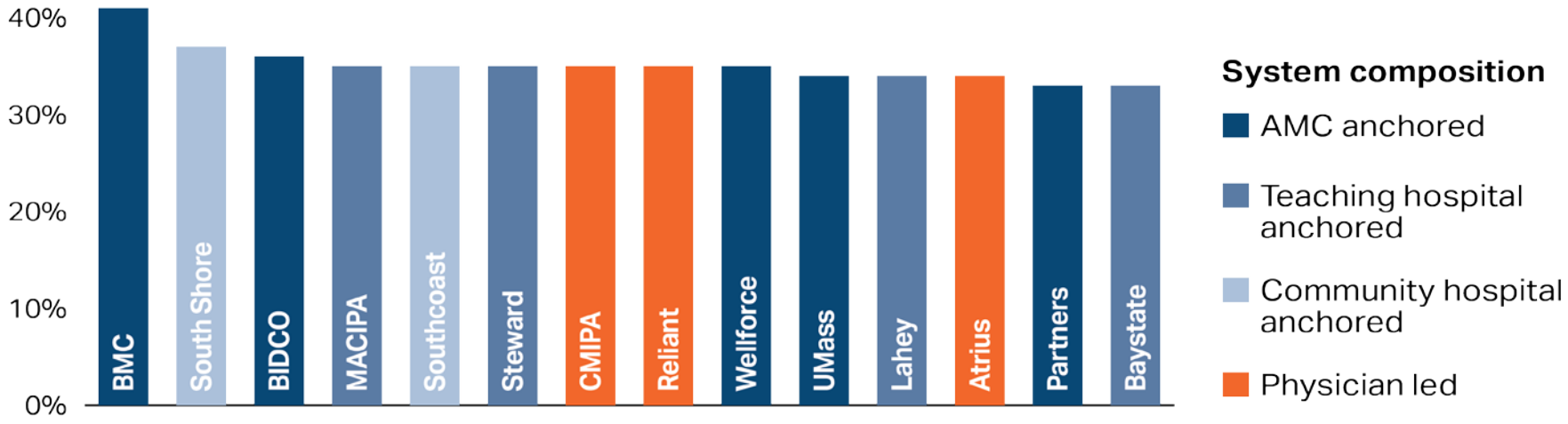
Notes: ED= emergency department, PCP= primary care provider. Adjusted ED visits by provider group were calculated after adjusting for the following patient characteristics: risk score, median community income, area deprivation index, fully insured, age, gender, and payer. Data include only privately insured adults (ages 18+) covered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Only members with a PCP affiliated with one of the 14 largest PCP groups, as identified by number of patients attributed in the All-Payers Claims Database, are included here.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

The percentage of ED visits that were potentially avoidable varied from 41% to 33%

Percent of avoidable ED visits, by system composition, 2014

Risk and demographic adjusted



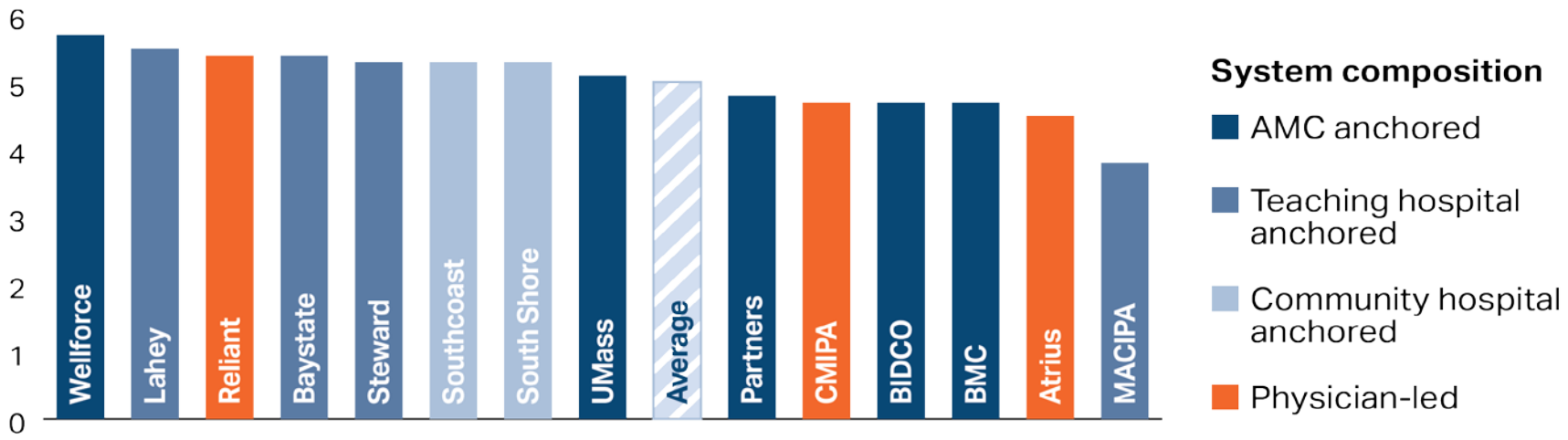
Notes: ED= emergency department; PCP= primary care provider, AMC= academic medical center. Adjusted avoidable ED visits by provider group were defined according to the NYU Billings Algorithm and calculated after adjusting for the following patient characteristics: risk score, median community income, area deprivation index, fully insured (commercial patients only), age, gender, and payer. Data include only privately insured adults (ages 18+) covered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Shown here are the 14 largest PCP groups as identified by number of patients attributed in the All-Payers Claims Database. Average calculated using all attributed adult members in the sample, not just those with a PCP associated with one of the 14 largest provider groups.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

Rates of non-recommended imaging varied by 46%

Rate of non-recommended imaging among commercial members per 100 eligible encounters, by PCP group, 2014

Unadjusted



Notes: PCP= primary care provider, AMC= academic medical center. Rate of non-recommend imaging encounter is a composite measure of four low-value care imaging measures, including: back imaging for non-specific back pain, head imaging for uncomplicated headache, imaging for plantar fasciitis, and head imaging in the evaluation of syncope. These measures are from the Choosing Wisely campaign, for which researchers have developed algorithms for claims data. Data include only privately insured adults (ages 18+) covered by Blue Cross Blue Shield of Massachusetts, Harvard Pilgrim Health Care and Tufts Health Plan. Shown here are the 14 largest PCP groups as identified by number of patients attributed in the All-Payers Claims Database. Average calculated using all attributed adult members in the sample, not just those with a PCP associated with one of the 14 largest provider groups.

Sources: HPC analysis of Massachusetts All-Payer Claims Database, 2014; Registry of Provider Organizations, 2016; SK&A Office and Hospital Based Physicians Databases, December, 2015

Performance Variation Among Provider Organizations: Presentation Outline

1. Assigning patients to provider organizations
2. Descriptive statistics of final dataset and provider organizations
3. Variation by provider organization type
4. Variation by individual provider organization
5. Ongoing and future work

V. Ongoing and future work

Expand to additional outcomes

- Total and avoidable hospital visits
- Readmissions
- Post-acute care (PAC) use
- End of life care
- Community-appropriate care and referrals

Expand to other payers and years

- MassHealth MCO data
- Medicare
- 2015 commercial data

Use for other analyses

- Impact of PCMH prime
- Market share analyses
- Behavioral health integration analyses
- Comparison of provider organizations at the practice level

MASSACHUSETTS
HEALTH POLICY COMMISSION

AGENDA

- Call to Order
- Approval of Minutes
- Investment Programs
- 2017 Health Care Cost Trends Report
- **Schedule of Next Meeting (TBD)**

Contact Information

For more information about the Health Policy Commission:

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Appendix

Ground design proposal in experience with CHART and HCII

Proposed design components are informed by HPC's experience with **$80M of awards**, spread **over 75 awards**

CHART

HCII

Tracks	Leverage HPC research to identify narrow targets with demonstrated efficacy that have not yet been scaled, but allow applicants to propose diverse models of achieving aims
Performance measures	Maximize value by focusing on a parsimonious set of core measures, but allow applicants to propose additional initiative-specific measures
Award size & duration	Allow for variation in size and duration of awards, but cap to ensure monies are widely dispersed and outcomes are achievable
Financial support & sustainability	Require in-kind contributions and strong sustainability plans to maximize long term impact of investment
Competitive factors	Incent and reward partnerships that best meet patient needs and reinforce system accountability
Building the evidence base	There is utility in using investments to continue to build the evidence base/ return on investment case for innovative care models that integrate medical, behavioral and social needs.

HPC

Financial support and sustainability

- Require **in-kind contributions**
- For every eligible expense in the award, the **awardee will be reimbursed at 75%** (i.e., awardee is responsible for 25%)

Require **sustainability plans** to ensure continuation beyond grant cycle (no separate sustainability plan award)

Four key domains of competitive factors

Competitive factors

Care Model and Impact

- Collaborative **multi-disciplinary team approach** to care delivery
- Strength of **evidence-base**
- **Projected impact** and logic model (e.g. 5% reduction in readmissions)
- Strength and role of **relationship with community partner, including pass through of award dollars**

Leadership and Organization

- Alignment of project with **organizational strategy** (e.g. population health management approach or community health needs assessment)
- **Financial health** of organization and demonstration of **financial need**
- **Past performance** in HPC awards
- Organizational leadership and project **leadership engagement** (e.g. % of time spent on the project)

Sustainability and Scalability

- Solid **sustainability plan,** including **in-kind funds** and anticipated utilization reduction
- Alignment with organization's DSRIP plan, if applicable

Evaluation

- Strength of **evaluation plan** to determine impact of model

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See appendix for definition of community partners