State of Maryland
Department of Health and Mental Hygiene

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526th MEETING OF THE HEALTH SERVICES COST REVIEW COMMISSION
January 13, 2016

EXECUTIVE SESSION
12:00 p.m.
(The Commission will begin in public session at 12:00 p.m. for the purpose of, upon motion and approval, adjourning into closed session. The open session will resume at 1PM.)

1. **Update on Contract and Modeling of the All-Payer Model vis-a-vis the All-Payer Model Contract – Review of All-Payer Model Contract Progression- Authority General Provisions Article, §3-104**

PUBLIC SESSION OF THE HEALTH SERVICES COST REVIEW COMMISSION
1:00 p.m.

1. **Review of the Minutes from the Public Meeting and Executive Session on November 18, 2015**

2. **Executive Director's Report**

3. **New Model Monitoring**

4. **Docket Status – Cases Closed**

   2321A- Johns Hopkins Health System
   2322A – Johns Hopkins Health System
   2323A – Johns Hopkins Health System
   2324A – Johns Hopkins Health System
   2325A – Johns Hopkins Health System
   2326A – Johns Hopkins Health System
   2327A – Johns Hopkins Health System

5. **Docket Status – Cases Open**

   2317R – Holy Cross Health
   2319R – Sheppard Pratt Health System
   2320N – Sheppard Pratt Health System

6. **Performance Measurement Work Group Update on Readmission Policy**

7. **Final Recommendation for Maryland Hospital Acquired Condition (MHAC) Policy for Rate Year 2018** - *approved*

8. **Summary of Global Budget Infrastructure Reports, Regional Planning Grantee Submissions, and Hospital Strategic Transformation Plan Reports**

9. **Update from CRISP on Implementation of Infrastructure and Analytics**

10. Hearing and Meeting Schedule

Closed Session Minutes
Of the
Health Services Cost Review Commission

December 9, 2015

Upon motion made in public session, Chairman Colmers call for adjournment into closed session to discuss the following items:

1. Update on Contract and Modeling of the All-Payer Model vis-à-vis the All-Payer Model Contract – Administration of Model Moving into Phase II;
2. Commission Process Regarding Legislation

The Closed Session was called to order at 12: 10 p.m. and held under authority of -§ 3-104 of the General Provisions Article.

In attendance, in addition to Chairman Colmers, were Commissioners Bone, Jencks, Keane, Loftus, Mullen, and Wong.

In attendance representing Staff were Donna Kinzer, Steve Ports, Sule Gerovich, Claudine Williams, Amanda Vaughn, and Dennis Phelps.

Also attending were Eric Lindeman, Commission Consultant, and Leslie Schulman and Stan Lustman, Commission Counsel.

Item One

Donna Kinzer, Executive Director, and Eric Lindeman, Commission Consultant, presented and the Commission discussed analyses of Medicare per beneficiary data.

Item Two

Steve Ports, Principal Deputy Director, summarized the Commission's process regarding legislation.

The Closed Session was adjourned at 12:59 p.m.

MINUTES OF THE
525th MEETING OF THE
HEALTH SERVICES COST REVIEW COMMISSION

December 9, 2015

Chairman John Colmers called the public meeting to order at 12:05 pm. Commissioners George H. Bone, M.D., Stephen F. Jencks, M.D., MPH, Jack C. Keane, Bernadette C. Loftus, M.D, Thomas Mullen, and Herbert S. Wong, Ph.D. were also in attendance. Upon motion made by Commissioner Jencks and seconded by Commissioner Bone, the meeting was moved to Executive Session. Chairman Colmers reconvened the public meeting at 1:05 pm.

REPORT OF THE DECEMBER 4, 2015 AND DECEMBER 9, 2015 EXECUTIVE SESSIONS

Mr. Dennis Phelps, Associate Director-Audit & Compliance, summarized the minutes of the December 4, 2015 and December 9, 2015 Executive Sessions.

ITEM I

REVIEW OF THE MINUTES FROM NOVEMBER 18, 2015 EXECUTIVE SESSION AND PUBLIC MEETING AND DECEMBER 4, 2015 EXECUTIVE SESSION

The Commission voted unanimously to approve the minutes of the November 18, 2015 Executive Session and the December 4, 2015 Public Meeting and Executive Session.

The Commissioners voted unanimously to ratify their vote on Staff's recommendation to increase the Advisory Council by 7 additional members made in the December 4, 2015 Executive Session.

DAVID ROMANS

Chairman Colmers presented Mr. David Romans with a plaque in appreciation of his dedication and hard work during his tenure with the HSCRC.

ITEM II

EXECUTIVE DIRECTOR'S REPORT

Ms. Donna Kinzer, Executive Director, stated that for CY 2015 hospitals are continuing to produce strong all payer results. Ms. Kinzer noted that volume growth is contained, and revenue growth is on track with approved global budgets. In addition, planning for scaling care coordination has begun with Chesapeake Regional Information System for our Patients (CRISP), in particular for Medicare patients. However, in spite of the strong hospital performance, there

are concerns regarding the growth in total cost of care for Medicare beyond hospital costs and the extent of the transformation effort needed to rapidly bring care coordination to scale, ensuring better care and a reduction in avoidable Medicare hospital utilization. Ms. Kinzer noted that both are critical to balance under the All-Payer Model.

Ms. Kinzer reported that staff began to see costs outside of hospitals growing, particularly post-acute care costs for CY 2015. The All-Payer Model Agreement requires the HSCRC to focus on total cost of care within guardrail limits and to take action if we are not within the guardrails. Ms. Kinzer stated that the Center for Medicare and Medicaid Innovation (CMMI) has provided the staff with county level total cost trend data by type of service (hospital, post-acute, physicians, etc.) for 2011 through 2014 for use in strategic planning. Staff will work with the Maryland Hospital Association (MHA) and post-acute and long term care trade associations to increase the amount of information that is available to providers for strategic planning as well as for evaluating current Medicare trends.

Ms. Kinzer stated that the increasing cost of post-acute care needs to be addressed quickly. Staff intends to address this in the following manner:

- Evaluate the sources and causes of post-acute cost increases
- Evaluate the accuracy of the data and causes of growth, including increased referrals, post-acute length stay changes, increased billing per episode, etc.
- Evaluate contract and policy implications once analysis is complete
- Share the results of the analysis with acute and post-acute providers
- In light of accelerating cost trends and the aim of CMS' acceleration of developing payment models aimed at optimizing post-acute care, begin discussing options with hospitals, post-acute providers, and DHMH regarding more comprehensive acute/post-acute care models
- Develop total cost of care performance measures, starting with Medicare, which can be applied with gain sharing or pay for outcome programs to ensure that care redesign is taking place with consideration of the total health care system

Ms. Kinzer noted that Maryland Medicare utilization has increased for CY 2015 over CY 2014. While there was a corresponding increase in beneficiaries and the per beneficiary payments, staff is watching the national trend data carefully to determine the impact on Medicare savings levels.

The success of the All-Payer model is dependent on reducing avoidable utilization that can be achieved through care improvements. Reductions need to be accelerated through the implementation of care coordination and care design.

Ms. Kinzer stated that to achieve a sustainable decrease in avoidable hospitalizations, care delivery needs to be transformed. In particular,

- Providers need to deliver enhanced care coordination for complex and high needs patients;

- Long term and post-acute providers need to work with hospitals to improve care in ways that will prevent avoidable hospitalizations and re-hospitalizations; and
- Hospitals need to work with primary care and other community based providers caring for high needs patients and patients with multiple chronic conditions in order to coordinate care, improve health, and prevent avoidable hospitalizations.

Staff needs to establish specific goals for care coordination and reductions in avoidable utilizations and measure progress towards those goals. Staff will need to closely evaluate hospitals' plans for bringing care coordination to scale, recognizing that less rapid implementation may affect hospitals' annual updates.

Ms. Kinzer noted that since the All Payer Model is nearing its second full year of operation, DHMH and the HSCRC are reconvening the Advisory Council. The Council is now needed to provide advice on the potential future direction for Maryland healthcare improvement and population health initiatives as well as All-Payer model progression. Meetings will begin in mid-January and continue through June. Staff expects that the Council will meet again later in the Fall.

Ms. Kinzer noted that staff is currently focused on the focused on the following activities:

- Evaluating the reasons for increases in post-acute care costs, and developing strategies to moderate or adjust for those costs;
- Moving forward on updates to value-based performance measures, including efficiency measures;
- Turning to focus on per capita costs and total cost of care, for purposes of monitoring and progressing toward a focus on outcomes and costs across the health care system;
- Preparing to review, synthesize, and report on the hospital submissions of:

    a) Global Budget Infrastructure Reports for FY 14 and FY 15
    b) Strategic Hospital Transformation Plans
    c) Final Reports of the Regional Planning Transformation Grantees
    d) Proposals for the Transformation Implementation Program

- Preparing to finalize and support a stakeholder process that will be executed together with DHMH and other agencies. It will be focused on ensuring the success of the All-Payer Model and providing a proposal no later than January 2017 as required under the All-Payer Model Agreement with CMS.

ITEM III

NEW MODEL MONITORING

Amanda Vaughn, Program Manager, stated that Monitoring Maryland Performance (MMP) for the new All-Payer Model for the month of October focuses on fiscal year (July 1 through June

30) as well as calendar year results.
Ms. Vaughn reported that for the four month period ended October 31, 2015, All-Payer total gross revenue increased by 2.94 % over the same period in FY 2014. All-Payer total gross revenue for Maryland residents increased by 3.09%; this translates to a per capita growth of 2.51%. All-Payer gross revenue for non-Maryland residents increased by 1.51%.

Ms. Vaughn reported that for the ten months of the calendar year ended October 31, 2015, All-Payer total gross revenue increased by 2.55% over the same period in CY 2014. All-Payer total gross revenue for Maryland residents increased by 2.86%; this translates to a per capita growth of 2.29%. All-Payer gross revenue for non-Maryland residents decreased by 0.59 %.

Ms. Vaughn reported that for the four months ended October 31, 2015, Medicare Fee-For-Service gross revenue increased by 3.84% over the same period in FY 2014. Medicare Fee-For-Service gross revenue for Maryland residents increased by 4.05%; this translates to a per capita growth of 1.07%. Maryland Fee-For-Service gross revenue for non-residents increased by 1.50%.

Ms. Vaughn reported that for the ten months of the calendar year ended October 31, 2015, Medicare Fee-For-Service gross revenue increased by 4.06%. Medicare Fee-For-Service gross revenue for Maryland residents increased by 4.59%; this translates to a per capita growth of 1.40%. Maryland Fee-For-Service gross revenue for non-residents decreased by 1.85%.

According to Ms. Vaughn, for the four months of the fiscal year ended October 31, 2015, unaudited average operating profit for acute hospitals was 3.50%. The median hospital profit was 4.48%, with a distribution of 1.41% in the 25th percentile and 6.76% in the 75th percentile. Rate Regulated profits were 7.05%.

Dr. Sule Gerovich Ph.D., Deputy Director Research and Methodology, presented utilization trend reports reflecting the Equivalent Case-Mix Adjusted Discharges (ECMAD) growth for the calendar ending September 2015.

Dr. Gerovich reported for the nine months of the calendar year ended September 30, 2015, All Payer ECMAD growth decreased by 0.66% over the same period in CY 2014. ECMAD growth for Maryland residents decreased by 0.47%. This is made up of Maryland inpatient and outpatient ECMAD decreasing by 0.63% and 0.21% respectively. ECMAD growth for non-residents decreased by 2.80%.

Dr. Gerovich reported for the nine months of the calendar year ended September 30, 2015, Medicare ECMAD growth increased by 1.15% over the same period in CY 2014. ECMAD growth for Maryland residents increased by 1.50%. This is made up of Maryland inpatient and outpatient ECMAD increasing by 1.37% and 1.81% respectively. ECMAD growth for non-residents decreased by 3.14%.

ITEM IV

DOCKET STATUS CASES CLOSED

2304N – UM St. Joseph Medical Center
2307A - Maryland Physician Care
2308A - Priority Partners
2310A – MedStar Family Choice
2311A – MedStar Family Choice
2314A- Riverside Health of Maryland
2315A - Johns Hopkins Health System
2316A - Johns Hopkins Health System
2318A- University of Maryland Medical System

ITEM V

DOCKET STATUS- OPEN CASES

2321A – Johns Hopkins Health System

Johns Hopkins Health System (the "System") , on behalf of Johns Hopkins Bayview Medical Center (the "Hospital"), filed an application on November 25, 2015 requesting continued participation in a capitation arrangement serving persons with mental health needs under the program title, Creative Alternatives. The arrangement is between the System and the Baltimore Mental Health Systems, Inc., with the services coordinated through the Hospital. The Hospital requested approval for a period of one year beginning January 1, 2016.

Staff recommends that the Commission approve the Hospital's application for an alternative method of rate determination for one year beginning January 1, 2016, and that the approval be contingent upon the execution of the standard Memorandum of Understanding.

The Commission voted unanimously to approve staff's recommendation. Chairman Colmers recused himself from the discussion and vote.

2322A – Johns Hopkins Health System

Johns Hopkins Health System, on behalf its member hospitals Johns Hopkins Hospital, Johns Hopkins Bayview Medical Center, and Howard County General Hospital (the "Hospitals"), filed an application on November 25, 2015 requesting continued participation in a capitation arrangement serving persons insured with Tricare. The arrangement involves the Johns Hopkins Medical Services Corporation and Johns Hopkins Healthcare as providers for Tricare patients. The Hospitals have requested that approval be for one year beginning on January 1, 2016.

Staff recommends that the Commission approve the Hospitals' application for an alternative method of rate determination for one year beginning January 1, 2016, and that the approval

be contingent upon the execution of the standard Memorandum of Understanding.

The Commission voted unanimously to approve staff's recommendation. Chairman Colmers recused himself from the discussion and vote.

2323A – Johns Hopkins Health System

Johns Hopkins Health System, on behalf of the Johns Hopkins Hospital and Johns Hopkins Bayview Medical Center (the "Hospitals"), filed an application on November 30, 2015 requesting continued participation in a global arrangement for cardiovascular procedures with Quality Health Management. The Hospitals requested approval for a period of one year beginning January 1, 2016.

Staff recommends that the Commission approve the Hospitals' application for an alternative method of rate determination for one year beginning January 1, 2016, and that the approval be contingent upon the execution of the standard Memorandum of Understanding.

The Commission voted unanimously to approve staff's recommendation. Chairman Colmers recused himself from the discussion and vote.

2324A – Johns Hopkins Health System

Johns Hopkins Health System , on behalf of the Johns Hopkins Hospital, Johns Hopkins Bayview Medical Center and Howard County General Hospital (the "Hospitals"), filed an application on November 30, 2015 requesting continued participation in a renegotiated global arrangement for cardiovascular procedures with Coventry Health Care of Delaware Inc. for international patients only. The Hospitals requested approval for a period of one year beginning January 1, 2016.

Staff recommends that the Commission approve the Hospitals' application for an alternative method of rate determination for one year beginning January 1, 2016, and that the approval be contingent upon the execution of the standard Memorandum of Understanding.

The Commission voted unanimously to approve staff's recommendation. Chairman Colmers recused himself from the discussion and vote.

2325A – Johns Hopkins Health System

Johns Hopkins Health System, on behalf of the Johns Hopkins Hospital, and Johns Hopkins Bayview Medical Center (the "Hospitals") filed an application on November 30, 2015 requesting approval to continue to participate in a global rate arrangement for solid organ and blood and bone marrow transplant services with INTERLINK Health Services Inc. for one year beginning January 1, 2016.

Staff recommends that the Commission approve the Hospitals' application for an alternative method of rate determination for solid organ and blood and bone marrow transplant services services for one year beginning January 1, 2016, and that the approval be contingent upon the execution of the standard Memorandum of Understanding.

The Commission voted unanimously to approve staff's recommendation. Chairman Colmers recused himself from the discussion and vote.

2326A – Johns Hopkins Health System

Johns Hopkins Health System filed an application on November 30, 2015 on behalf of its member hospitals, the Johns Hopkins Hospital and Johns Hopkins Bayview Medical Center (the "Hospitals") requesting approval to continue to participate in a global rate arrangement with PepsiCo Inc. for cardiovascular and orthopedic services. The Hospitals requested approval of this arrangement for a period of one year beginning January 1, 2016.

The staff recommends that the Commission approve the global price arrangement with PepsiCo Inc. for a one year period commencing January 1, 2016, and that the approval be contingent upon the execution of the standard Memorandum of Understanding.

The Commission voted unanimously to approve staff's recommendation. Chairman Colmers recused himself from the discussion and the vote

2327A – Johns Hopkins Healthcare LLC System

Johns Hopkins Health System (the "System") filed an application on November 30, 2015 on behalf of its member hospitals, the Johns Hopkins Hospital and Johns Hopkins Bayview Medical Center (the Hospitals) requesting approval to continue to participate in a global rate arrangement with 6 Degrees Health, Inc. for solid organ and bone marrow transplant services. The System requested approval of this arrangement for a period of one year beginning January 1, 2016.

The staff recommends that the Commission approve the global price arrangement with 6 Degrees Health Inc. for a one year period commencing January 1, 2016, and that the approval be contingent upon the execution of the standard Memorandum of Understanding.

The Commission voted unanimously to approve staff's recommendation. Chairman Colmers recused himself from the discussion and the vote

30 Day Extensions

Staff requested 30 day extensions for Proceeding # 2319R and Proceeding #2320N both for the Sheppard Pratt Health System. The Commission voted unanimously to approve these extensions.

ITEM VI

FINAL STAFF REPORT REGARDING POPULATION HEALTH WORK FORCE SUPPORT FOR DISADVANTAGED AREAS

Ms. Kinzer presented Staff's final report regarding the Health Job Opportunity Program Proposal (see Final Report of Health Services Cost Review Commission Regarding Population Health Work Force Support for Disadvantaged Areas on the HSCRC website)

At the September 9, 2015 Commission public meeting, a panel of several hospital representatives and MHA proposed that the HSCRC provide up to $40 million through rates to establish about 1,000 entry level health care jobs in areas of extreme poverty and unemployment. At the November 19, 2015 public meeting, staff presented a preliminary report on the Health Job Opportunity Program Proposal ("Proposal"). Staff also reviewed the public comments received and those comments from the Payment Models Workgroup. Comments received highlight the need for a concerted effort by all participants who are serious about improving the unfavorable conditions that exist in the economically deprived areas within Maryland.

At the December 9, 2015 public meeting, the Commission determined that the approach suggested by the Proposal was not within its framework. However, the Commission adopted an alternative approach building on staff analysis and within the framework and implementation of the All-Payer Model

This Proposal came about as result of the unrest in Baltimore City and the belief that employment is an important element needed to change the current situation. The Proposal seeks to create community based jobs that can contribute to improved community health, as well as hospital jobs that create employment opportunities in economically challenged areas.

The Proposal submitted was very broad in nature, extending beyond the areas of focus and expertise of the HSCRC Commission. Additionally, as initially proposed, the jobs program would have Medicaid, Medicare, insurers, businesses, and patients represent the sole source of funding through hospital rate increases, with no funding identified from the considerable resources of hospitals or their charitable community benefit funds.

On December 1, 2015, hospital representatives submitted an alternative proposal that called for a 20% hospital match for any amount funded in rates .

On October 5, 2015, the Payment Models Workgroup held a meeting to discuss the Proposal. Workgroup members and commenters expressed their appreciation for the leadership in bringing forward this job proposal. Workgroup comments concerning the Proposal noted the follows:

- That it was important to define success. Success would need to be framed not only in creating jobs but also in the context of the New All Payer Model and Triple Aim of

improving care, improving health, lowering costs.

- That it would be important to focus on jobs outside of the hospitals such as Community Health Workers. The concern was raised that the reduction of avoidable utilization in hospitals might reduce the need for some of the hospital jobs that were part of the Proposal.

- That the infrastructure adjustments already provided to hospitals or the additional amount that is slated for award in January 2016, which focuses on similar activities, would be duplicative.

- It was suggested that other funding sources be considered for Proposal implementation

- That if the Proposal were to move forward, much more detailed design work needs to take place.

Ms. Kinzer noted that a number of letters in support of the Proposal were sent in from public officials and other interested parties. These letters outline the need for jobs and support for the Proposal.

Ms. Kinzer noted that staff has several concerns about the Proposal:

- Staff is concerned about including traditional jobs inside of hospitals in a grant program. These should be funded through hospital budgets. Furthermore, if the health care transformation is successful, hospital usage should decline, and there is a concern that individuals in need of jobs might be employed in jobs that would be eliminated, thereby defeating the purpose of the Program.
- Staff supports expanding hospital resources deployed for positions that support the transitions anticipated in the All Payer Model-- care coordination, population health, information exchange, health information technology, alignment, and consumer engagement. However, staff is concerned about the funding sources and the potential for overlap with the additional resources that are being provided through rates as noted above. Furthermore, there are hospital community benefit dollars that could potentially be deployed in this effort. Grants are another potential source of funding.
- In order to implement programs such as those described above, significant amounts of training and coaching would be required. The programs require significant design and dedication of resources. HSCRC staff believes that considerable development needs to take place to plan, develop, and execute these programs successfully, similar to the planning and development that have gone into nursing education programs in the past.

- The HSCRC staff acknowledges the importance of jobs creation in areas of high economic deprivation, but staff is concerned about HSCRC's role in addressing this issue

At the November 18, 2015 public meeting, HSCRC staff offered several options for discussion with the Commission and for further public input. Staff has reviewed the letters of comment received and has listened attentively to the public comments provided. The public input process clarified that the Proposal had not been developed in concert with the parties who were identified as the sole or primary funding sources.

As a general matter, staff reiterates that a principal aim of the All Payer Model, which is being implemented is to improve population health. In focusing on better chronic care and socioeconomic determinants of health, it is expected that hospitals and community partnerships will propose approaches that include development of community based care coordination resources. Staff also notes that several other states are using savings from hospital cost reductions to invest in community based resources, such as housing, food, transportation, and community based workers. As the All Payer Model develops, it is expected that there should be fewer hospitalizations, particularly in areas with very high hospital use rates such as Baltimore City and, therefore, resources will become available under hospital global budgets to help support better community based care and more dedicated resources devoted to the socioeconomic determinants of health.

Given the totality of the input received, the staff recommends as follows:

Addressing disparities and deprivation is important to Marylanders and to the All Payer Model. The Proposal set out an approach for addressing the problem through a jobs creation program in hospitals. However, the stakeholder input process conducted by the HSCRC made clear that many of the proposed funders were not in agreement with key aspects of the Proposal. Proposers will need to continue the dialogue with community organizations, payers, providers, employers, and other stakeholders in identifying approaches to address these important issues.

Discussions with stakeholders should include a focus on how the existing community benefits programs could be repurposed in a transformed health system, as this may be an important. funding source for addressing socioeconomic determinants of health in a post insurance expansion environment.

The HSCRC should maintain its focus on implementation of the All Payer Model with its aim of better care, better health, and lower costs. HSCRC already has efforts underway in conjunction with DHMH. Hospitals will be filing strategic plans for transformation in December. DHMH and HSCRC will work together to evaluate these plans.

The scope of HSCRC participation in these efforts should be maintained within its areas of focus and expertise. In order to address workforce needs in a transformed Maryland health system, there may be an appropriate role for HSCRC to play. HSCRC staff recommends earmarking up to $5 million of the fiscal year 2017 update factor for this purpose, with matching funds by

hospitals that apply to participate in the development and implementation efforts. For example, the HSCRC could provide opportunities for funding of some transitional educational resources in the form of seed funding. This could potentially include program development, training, coaching, funding of trainers and coaches, etc., particularly in areas with high economic disparities and unemployment. These efforts should be targeted to assist the State and the Commission in meeting the goals of the All Payer Model. Hospitals should be expected to fund positions from existing rates, community benefits funds, resources derived from reductions in hospitalizations, and other grant, philanthropy, and foundation support. The federal government has provided workforce development grants in the past, and this avenue could be explored as a possible source of some funding.

HSCRC staff should continue to work together with DHMH diligently and expeditiously on the implementation of the All Payer Model. Implementing the Model will mean more comprehensive and permanent solutions to help improve health, improve care, and reduce costs, with an increased emphasis on addressing socioeconomic determinants of health, workforce transformation, and enhancing the workforce in Baltimore City and other economically challenged areas of the State.

The Commission built on the principles outlined in the staff recommendation, and expanded the program and scope from $5 million to $10 million in hospital rates, to create a final amended recommendation, which was approved by the Commission.

The recommendation unanimously approved by the Commission provides up to $10 million in hospital rates on a competitive basis by July 1, 2016 for hospitals committing to train and hire workers from geographic areas of high economic disparities and unemployment to fill new care coordination, population health, health information exchange, alignment, consumer engagement, and related positions. Chairman Colmers recused himself from the vote and substantive discussion on the Proposal. Hospitals should provide matching funds of at least 50% of the amount included in rates to increase the resources that could be deployed. Thus, if $10 million is provided in rates, the hospital match would be at least $5 million.

Hospitals receiving funding under this program shall report to the Commission by May 1, 2017, and each year thereafter on:

- the number of workers employed under the program;
- how many of those workers have been retained;
- the types of jobs that have been established under the program;
- how many patients or potential patients have been assisted through these positions; and
- an estimate of the impact that these positions have had in reducing potentially avoidable utilization or in meeting other objectives of the All-Payer Model.

The program will run through June 30, 2018 on a hospital-specific basis assuming on-going compliance by a hospital with the requirements, and could be renewed as of July 1, 2018 for an additional period if it is found to be effective.

The HSCRC will utilize consulting resources to assist in developing and monitoring the program who have expertise in similar work force development activities. The HSCRC will also utilize external resources in collecting and evaluating proposals, reporting on the results of implementing the program, and assisting in evaluating its effectiveness.

Hospitals will be required to submit proposals to obtain funding through rates and hospitals will be required to demonstrate how their plans would address the multiple needs of providing population health improvement related jobs to individuals in disadvantaged areas and meeting the objectives of the All-Payer Model.

Awardees will be required to report periodically to the Commission on their program, including annually beginning May 1, 2107. The Commission will evaluate the effectiveness of the program prior to July 1, 2018 to determine if the program should be continued in general, or for individual hospitals.

ITEM VII

DRAFT RECOMMENDATION FOR MARYLAND ACQUIRED CONDITIONS (MHAC) POLICY FOR RATE YEAR 2018

Ms. Diane Feeney, Associate Director Quality Initiatives, presented the staff's draft recommendation for modifications to the Maryland Hospital Acquired Conditions (MHAC) Program for FY 2018 (See "Final Recommendations for Modifying the Maryland Hospital Acquired Conditions program for FY2018" on the HSCRC website).

The HSCRC's quality-based payment methodologies are important policy tools for providing strong incentives for hospitals to improve their quality performance over time.

The HSCRC implemented the MHAC program in state fiscal year FY 2011. In order to enhance the HSCRC's ability to incentivize hospital care improvements and to meet the MHAC reduction targets in its All-Payer Model agreement with the CMS beginning January 1, 2014, the Commission approved changes to the program. These changes included: 1) measuring hospital performance using observed-to-expected ratio values for each Potentially Preventable Complication (PPC) rather than using the additional incremental cost of the PPCs measured at each hospital; and 2) shifting from relative scaling to pre-established PPC performance targets for payment adjustments for FY 2016. The revised approach established a statewide MHAC improvement target with tiered amounts of revenue at risk based on whether or not the target is met; it also allocated rewards consistent with the amount of revenue in penalties collected. The FY 2017 policy adopted retrospective changes to the FY 2016 MHAC policy, allowing for high

performing hospitals to earn rewards not limited to the penalties collected. The FY 2017 policy also adopted changes to the statewide improvement target.

This draft recommendation proposes continuing with the current MHAC program core methodology for FY 2018 and updating the statewide improvement target.

Based on work completed to date on updating the MHAC program for 2017, staff makes the following final recommendations:

- The statewide reduction target should be set at 6% comparing FY 2015 to CY 2016 risk adjusted PPC rates;
- The program should continue to use a tiered approach where a lower level of revenue at risk is set if the statewide target is met versus not met as modelled in FY 2016 policy;
- Rewards should be distributed only if the statewide target is met, and should not be limited to penalties collected.

No Commission action is necessary as this is a draft recommendation.

ITEM VIII

CONFIDENTIAL DATA REQUEST – FINAL STAFF RECOMMENDATION

Ms. Claudine Williams, Associate Director Policy Analysis, presented Johns Hopkins School of Nursing Confidential Data Request (See "Staff Recommendation on the Johns Hopkins School of Nursing (JHSON) Request to Access HSCRC Confidential Patient Level Data" on the HSCRC website)

This confidential request is to perform a cost-effective evaluation of research funded by CMMI. The innovation program- Community, Aging in Place, Advancing Better Living for Elders (CAPABLE) – is testing a program designed to help reduce functional limitations and reduce health care costs of dually – eligible older adults in Baltimore.

To accomplished this research, JHSON will be comparing and linking participants' health care utilization before, during, and after their involvement in the CAPABLE study, and by linking 500 dually –eligible, frail elders on the Home and Community Based Services (HCBS) Waiver waiting list in Baltimore. Investigators received approval from the Johns Hopkin Office of Human Subjects Research- Institutional Review Board (IRB) on July 14, 2015. These data will not be used to identify individual hospitals or patients.

Staff recommended the following:

- That the request to the inpatient and outpatient confidential data files Calendar Year 2010 through 2014 be approved; and that

- This access will be limited to identifiable data for subjects enrolled in research.

The Commission voted unanimously to approve staff's recommendation.

ITEM IX

LEGAL REPORT

Regulations

Proposed and Emergency

Rate Application and Approval Procedure – COMAR 10.37.10.07-1

The purpose of this action is to allow the Commission to set rates for outpatient services associated with federal 340B Program in anticipation of a hospital's obtaining federal provider-based status. The regulation is bei

The Commission voted unanimously to forward the proposed regulation to the AELR Committee for review and publication in the Maryland Register as a proposed regulation. The regulation is being proposed on both a regular and emergency basis.

ITEM X

HEARING AND MEETING SCHEDULE

January 13, 2015	Times to be determined, 4160 Patterson Avenue HSCRC Conference Room
February 10, 2015	Times to be determined, 4160 Patterson Avenue HSCRC Conference Room

There being no further business, the meeting was adjourned at 3:40 pm.

Executive Director's Report

Health Services Cost Review Commission

January 13, 2016

Proactive Care Coordination

A key goal of health care delivery improvement both nationally and in Maryland is to improve coordination of care across providers. Providers and government organizations have invested billions of dollars in Electronic Health Records to enable better use of information in providing improved patient centered care. On January 1, 2015, Medicare initiated a professional fee for Chronic Care Management (CCM) that no longer requires a face-to-face visit, but focuses on the provision of care coordination for up to 60 percent of the Medicare population who have 2 or more chronic conditions. Obtaining access to these funds and implementing the CCM program requires electronic sharing of information about patients, which is available 24/7. Implementing effective care coordination is also a core objective of the Maryland All-Payer Model, which relies on better care for complex patients and a focus on chronic care and population health to reduce hospitalizations that could be avoided with community based interventions. The Health Services Cost Review Commission (HSCRC) convened a multi-agency Work Group, the ICN-Care Coordination Work Group, earlier this year to focus on how to implement care coordination in Maryland. This Work Group provided a series of recommendations regarding the aggregation, use and sharing of data, as required, to facilitate this process along with other recommendations regarding infrastructure and organization of care coordination.

The Chesapeake Regional Information System for our Patients (CRISP), the State's designated Health Information Exchange, has been charged with implementing infrastructure and aggregating and distributing data that can aid care coordination activities. A key part of this effort is helping providers identify patients who may benefit from care coordination based on a comprehensive understanding of patient utilization, including utilization at different hospitals. CRISP has been working on the data sharing policy framework as well as the technical solution to support this work.

CRISP worked through their Reporting and Analytics Committee to approve a Cross Facility Data Sharing Policy in September 2015. The policy was based on a legal analysis and opinion provided by CRISP's legal counsel and was subsequently reviewed and approved by Department

of Health and Mental Hygiene (DHMH) counsel in consultation with HSCRC counsel. This policy addresses how CRISP will use hospital case mix data in care coordination efforts. CRISP has had access to confidential hospital case mix data since April 2013, and the use of the data has been governed by a DUA between HSCRC and CRISP. That DUA has since been updated to ensure that any end user of the confidential data, be that a hospital or other provider, strictly adheres to federal and state law and regulation on protecting the confidentiality of Protected Health Information (PHI).

The approved policy allows hospitals to receive comprehensive information on the utilization of their patients, including the utilization at other hospitals. HSCRC case mix data, the CRISP unique ID, and derived analytic enhancements such as readmission flags, Prevention Quality Indicators, and other measures are included in reports. Access to this data is strictly limited in its use for the purposes of care coordination, quality assessment, and quality improvement. Users are individually credentialed and must sign an End User Agreement in which they attest to understanding the limitations on the use of the data.

CRISP will present today regarding the status of the various activities that they have been undertaking to support the implementation of care coordination and system transformation. We plan to have CRISP present an update at each Commission meeting over the next year.

Care Redesign Update

In Maryland, the success of the All-Payer Model is dependent on reducing avoidable utilization that can be achieved through care improvements. Reductions need to be accelerated through the implementation of care coordination and care redesign.

In order to achieve a sustainable decrease in avoidable hospitalizations, care delivery needs to be transformed. In particular:

- Complex and high needs patients need to have enhanced care coordination;
- Long-term and post-acute care providers need to work with hospitals to improve care in ways that will prevent avoidable hospitalizations and re-hospitalizations; and
- Hospitals need to work with primary care and other community based providers and community organizations caring for complex high need patients and patients with multiple chronic conditions in order to coordinate care, improve health, and prevent avoidable hospitalizations.

As previously indicated, HSCRC convened a multi-agency Work Group, the ICN-Care Coordination Work Group, earlier this year to focus on how to implement care coordination in Maryland. In its May report, the ICN-Care Coordination Workgroup laid out a person-centered

approach to transforming the delivery of health care, tailoring care to persons' needs and increasing the focus on complex, high needs individuals and those with chronic conditions. This requires an intense level of intervention for an estimated 25,000 to 40,000 individuals who are not already being supported by payers and need community based case management or other intense interventions on an extended basis. Many of the commercial carriers and Medicaid Managed Care Organizations in Maryland offer case management and also medical homes/primary care focus that extends to patients with higher needs and chronic conditions. The efforts undertaken by health plans are designed to increase care and support provided in the community with the result of better health and avoided hospitalizations. However, Medicare patients in Maryland have few of these supports available, despite their greater need. In order to implement a similar approach for Medicare patients, we estimated the need for chronic care management for an additional 200,000+ Medicare and dually eligible (eligible for both Medicare and Medicaid) beneficiaries who are primarily in fee-for-service, Medicare programs. Bringing care coordination to scale is a large and complex undertaking because it requires the ability to communicate effectively among many parties where little communication has existed in the past, and to execute care management with a large number of patients, delivering the right amount of services. It will be difficult to execute care coordination successfully on a "one-off" basis with each hospital developing its own tools, because successful care coordination necessarily involves the community, comprised of thousands of primary care providers, specialists, case managers, and patients. The ICN-Care Coordination workgroup recommended standardization of certain elements and tools, but left open the approach with the expectation that regional partnerships would tackle some of the issues regarding scaling and standardization at the community level.

Under global budgets, the Commission has included additional dollars in the rates of all hospitals to provide for investments for patients with the goals of improving care and improving health while also reducing avoidable utilization. The intent of these monies is to accelerate the development of care coordination and other interventions relative to these goals, which we refer to as infrastructure investments. Today, we will discuss summaries of three sets of reports from hospitals. HSCRC and DHMH staffs have been working to summarize two of these reports, and consultants have been assisting us with the Regional Partnership reports. I want to thank the staff and our consultants, as well as the hospitals and their partners, for the extensive efforts to review and summarize all of these reports, especially over the holiday season.

- **Global Budget Infrastructure Investment Reports:** The first report summarizes hospital reported expenditures relative to infrastructure. The Commission required that all hospitals report on their investments for fiscal years 2014 and 2015.

- **Regional Partnership Reports:** The second report summarizes the eight regional partnership reports on plans and activities. The Regional Partnerships are a critical part of the State's approach to target high need/high-resource patients in order to improve outcomes, lower costs, and enhance patient experience. The purpose of the Regional Partnerships is to foster collaboration among hospitals together with community-based partners to target services based on patient and population needs, collaborate on analytics, and plan and develop care coordination, chronic care management, and other approaches that reduce avoidable hospitalizations.
- **Strategic Hospital Transformation Plans:** The third report summarizes the Strategic Hospital Transformation Plans or "STPs". During the June 2015 public meeting, the Commission approved a recommendation that required all acute care hospitals in the State to submit a plan to the Commission summarizing their short-term and long-term strategies and incremental investment plans for improving care coordination and chronic care, reducing potentially avoidable utilization, and aligning with non-hospital providers.

In addition to the reports and plans described above, hospitals and their partners have been working on implementation plans. We received 22 applications that involve 45 hospitals requesting an additional $90 million in implementation funding. In June 2015, the Commission designated up to a 0.25% revenue ($40 million) increase to be awarded on a competitive basis. Some hospitals are included in multiple applications. Many applications include multiple hospitals as well as community partners. Before moving forward with additional funding, the staff must determine that funds already provided have been effectively deployed in care coordination activities, and that the plans described in the applications are ready to be implemented and will have a significant near term, positive impact.

An independent review committee consisting of HSCRC, DHMH, CRISP, Maryland Community Health Resources Commission (MCHRC), payer staff and two contracted independent reviewers are meeting on January 19, 2016 to have the first robust review session. Following that meeting, staff will consider options and report back to the Commission at the February 2016 Commission meeting.

Observations and Next Steps

The HSCRC staff is very excited about the ongoing investments and planning that hospitals are undertaking to improve care coordination and to focus on person-centered approaches to chronic care and population health. The care redesign needed to achieve the transformation is dependent on effective planning and implementation involving partnerships with other providers, communities, and patients, as well as scalable approaches that are reliant on people,

processes, and technology. There are already many efforts underway in selected hospitals and communities, and some of the approaches that have been initiated are compelling.

HSCRC, DHMH staff, and external consultants will complete reviews of all of the reports and the implementation proposals. We will discuss the strengths and opportunities being addressed by the plans and proposals. We will also focus on the gaps, both in the scope of the plans set forth and also in the proposals' likely impact and readiness for implementation.

- As needed, we will conduct discussions with a cross-representation of people from regional partnerships and other hospitals and systems, including community providers and other partners that are identified in the plans. We will converse with them for the purpose of gaining an understanding of the extent and scope of their readiness for implementation as well as gaining an understanding of the extent of resources already deployed.
- Through the interviews, we will assess whether hospitals and their partners understand ongoing care management vs. care transitions, the level to which they are actually engaging community providers, their ability to scale, and the long-term sustainability and growth potential of their models. Determine:
    - Which hospitals/regions are already implementing or are ready for implementation?
    - Where are the gaps? What are the supports that need to be employed to address the gaps?
- With the information gained through this process, we will determine strategic next steps with the health care system and stakeholders as a whole. This includes items such as:
    - Strategies for helping the delivery system to transform
    - Centralized processes, resources, technology, technical assistance, and other transformation tools that will be needed and how they may be deployed
    - Policy and model enhancements most appropriate for the ongoing transformation in Maryland
    - How to hold the system accountable for implementation
- As you will hear in the presentations of the reports today, our preliminary assessment in reviewing the plans is that there is some confusion between care coordination for care transitions (post discharge) and ongoing community based care coordination/community based case management. Hospitals were provided significant resources for transition care in past readmission reduction initiatives. The new resources that need to be deployed are focused on reducing avoidable hospitalizations, not just 30-day readmissions. Likewise, we did not see details regarding how hospitals

will support “medical home” development for Medicare patients and other patients with significant chronic care needs, which would also help support primary care and other community providers. The efforts required to bring chronic care management to scale are extensive. For example, they involve: people, processes, and technology to aid in identification of persons most likely to benefit from chronic care management; proactive assignment of selected patients to a provider (and team) that is responsible for the overall management of the patient’s care and coordination with other providers; proactive patient consent and participation processes; completion of assessments and care plans; execution of care management activities; implementing and bringing to scale technology that facilitates coordination across the system; and provision of tools to primary care/medical home teams to help with care management.

We will be especially attentive to these issues in assessing gaps in plans, their readiness to be implemented, and the scalability of the approaches.

Innovations in Graduate Medical Education (GME) Recommendation Report

The Department of Health and Mental Hygiene (DHMH) submitted recommendations for GME reforms to the Center for Medicare and Medicaid Innovation on December 18th, 2015. This report is a requirement of Maryland’s All-Payer Model and was developed by the Innovation in Graduate Medical Education (IGME) Workgroup throughout 2015. The group, chaired by leaders from the University of Maryland and Johns Hopkins Medicine, was composed of a diverse group of senior leaders from across the health care community, including DHMH. Workgroup members included representatives of large and small teaching programs from a variety of specialties and a current resident physician. In addition, in order to gain a wider range of perspectives on the topic of GME, the IGME workgroup convened a broad group of over 100 health care leaders from Maryland and across the nation for a full day summit in May 2015. Based on the findings from this summit and numerous workgroup meetings, the IGME workgroup developed five principles of redesign and seven recommendations on how to reform GME in Maryland so that it can better control costs and improve population health.

The report can be found on the DHMH website: http://dhmh.maryland.gov/gme/SitePages/meetings.aspx. If you have any questions regarding the information contained in this report, please contact Russ Montgomery (Russ.Montgomery@maryland.gov).

Performance for Year 2 of the Maryland All-Payer Model

We have completed Year 2 of the Maryland All-Payer Model. The preliminary All Payer results, which are based on data collected by HSCRC, will be available for the February 2016 Commission meeting. Our Maryland All Payer results will reflect the comparison of hospital revenue increases per capita for calendar year (CY) 2015 versus 2013 to a limit of 3.58% per year, which is compounded for two years and includes savings to date. The Medicare results, which are based on data provided by the federal government, will not be finalized until mid-2016, although we will have preliminary results earlier. The federal government data are based on payments to providers, and there are lags between service dates and payment dates. Also, for Medicare, our requirement is to achieve savings by limiting the growth of hospital expenditures in Maryland Medicare payments per beneficiary in comparison to national growth rates in Medicare payments per beneficiary for CY 2015 versus CY 2013, with all savings included to date. We also have total cost of care "guardrails" that include Medicare payments for inpatient and outpatient services rendered both in acute care hospitals and in non-acute care provider settings, excluding retail prescription drugs. The guardrails are used to monitor changes in costs for areas of expenditures that are not included in our savings requirements. They are in place to ensure that cost shifting from hospital to non-hospital settings does not undermine the hospital savings. These guardrails are calculated on a year over year basis, rather than on a cumulative basis. Because the Medicare calculations are based on payment growth relative to national trends, we need final payment data for Maryland as well as for the nation to complete these calculations. In order to monitor Medicare trends, we use the hospital revenue growth data that we collect from Maryland hospitals on a monthly basis, and we use the interim data provided to us by the federal government for monitoring on an interim basis. However, we are unable to rely on the data from the federal government until most of the claims are paid.

Based on interim results from data collected by HSCRC through November 2015, we expect the All Payer limits will be met. For the Medicare hospital trend that is used to calculate the savings in growth of Medicare hospital costs, our interim data obtained from the federal government through October 2015 show that our CY 2015 over CY 2014 growth is slightly above the national average. The cumulative growth rate of Medicare hospital expenditures in CY 2015 over CY 2013 is still well below the national level. For the total cost of care guardrail, as reported in previous meetings, we have recently started to see some substantial growth in non-hospital costs in CY 2015 relative to reported national growth rates, particularly in post-acute costs. In addition, we are also beginning to see some growth in non-hospital "Part B" costs, which consist of physician and other outpatient claims costs. The data we have from Medicare at this point are accumulated only through July 2015, so it is too early to reach a final conclusion regarding the amount of cost growth for CY 2015. HSCRC's consultants are preparing total cost

of care breakdowns by service and county, and we hope to have these data in hand in the next several weeks. We note that these data are preliminary and the results may change, so we must exercise caution in their use.

We do not have ECMAD data for the current month, due to the holidays and some data resubmissions. We expect to have these data through November 2015 for the February 2016 meeting. Staff will present some statistical data through November 2015 based on the revenue and financial reports that are filed monthly. We will present admissions, days, and ER Visits per thousand population, year over year. These are statistics monitored by the payer industry. These statistics show reductions in admissions and days, and flattening of ER trends. While the trends are moving in the right direction, we need a larger reduction in Medicare utilization to balance the Maryland rate update provision, based on the very preliminary national Medicare trends we are seeing right now.

Planning for Ongoing Implementation and Application to Extend the All-Payer Model

With the State's All-Payer Model having completed its second full year of operations, DHMH and HSCRC are reconvening the Advisory Council. The Council, originally charged with recommending guiding principles for the implementation of the new model, is now needed to provide advice on the potential future directions for Maryland's health care improvement and population health initiatives and the All-Payer Model progression. In order to create sustainability of the existing All-Payer Model, the delivery system needs to develop partnerships and infrastructure that will help it improve care with a resulting reduction in avoidable hospitalizations and costs. Additionally, the Agreement with the Centers for Medicare & Medicaid Services (CMS) and Maryland calls for Maryland to submit a proposal for a new model no later than January 2017, which shall limit, at a minimum, the Medicare beneficiary total cost of care growth rate. HSCRC staff is engaged in a planning process with stakeholders to organize for these upcoming meetings.

The first meeting will be held on February 3rd, 2016 at the Maryland Hospital Association Conference Center. Meeting dates, agendas, and materials will be posted on the HSCRC website.

HSCRC and DHMH will engage in active discussions with CMS about this planning process and the approach and vision that result from these efforts.

Staff Focus

HSCRC staff is currently focused on the following activities:

- Reviewing implementation plans and conducting discussions regarding proposals, plans, and reports that have been provided to HSCRC for the purpose of assessing and understanding implementation progress and gaps, and readiness to accelerate community based care coordination and management.
- Organizing and preparing for the annual update.
- Reviewing several rate applications for capital that have been filed.
- Moving forward on updates to value-based performance measures, including efficiency measures.
- Turning to focus on per capita costs and total cost of care, for purposes of monitoring and also to progress toward a focus on outcomes and cost across the health care system.
- Preparing to work with DHMH and stakeholders to focus on ensuring success of the All-Payer Model and providing a proposal no later than January 2017 as required under the Agreement with CMS.

Monitoring Maryland Performance

Financial Data

Year to Date thru November 2015

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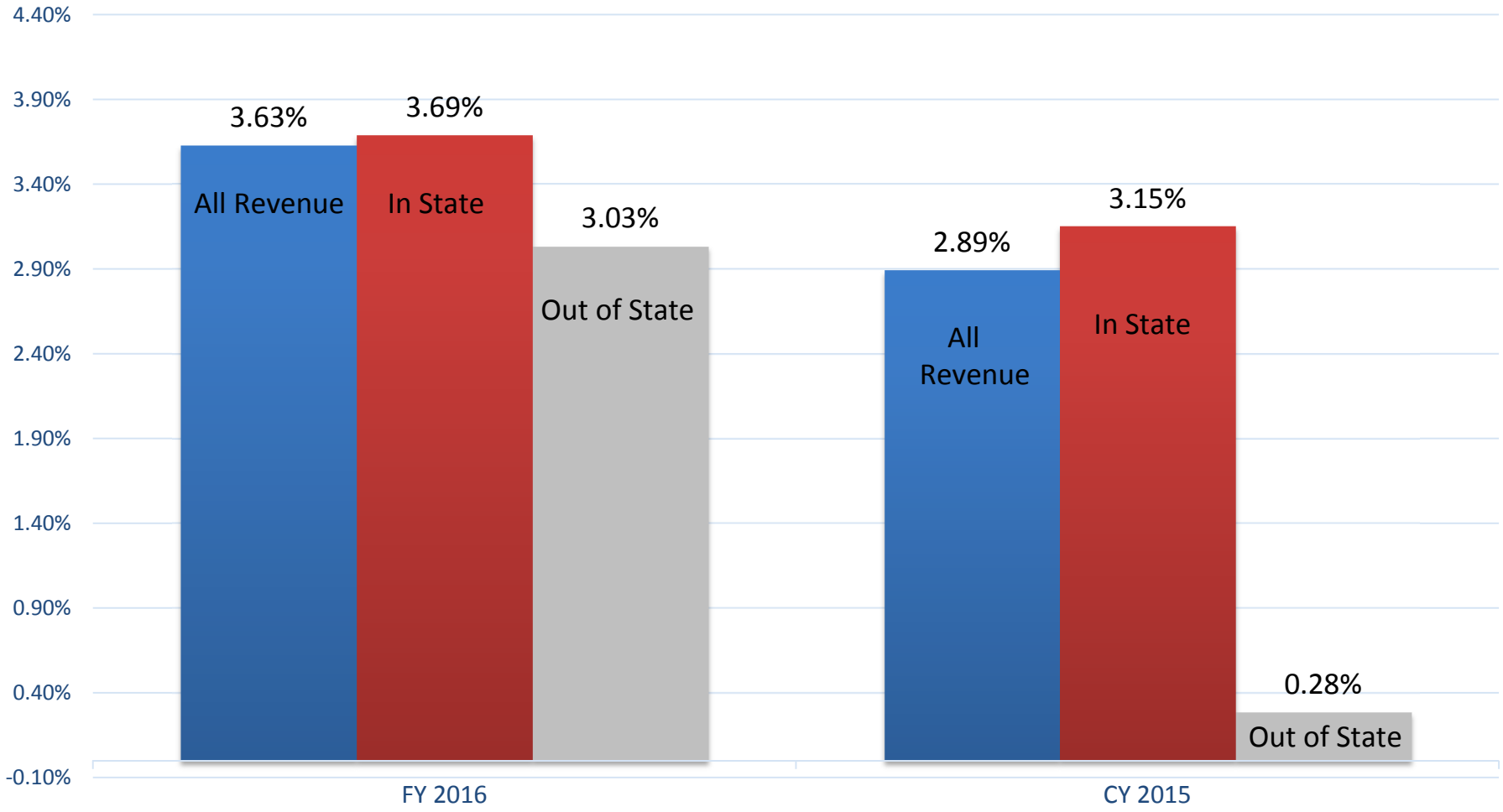
Gross All Payer Revenue Growth

Year to Date (thru November 2015) Compared to Same Period in Prior Year



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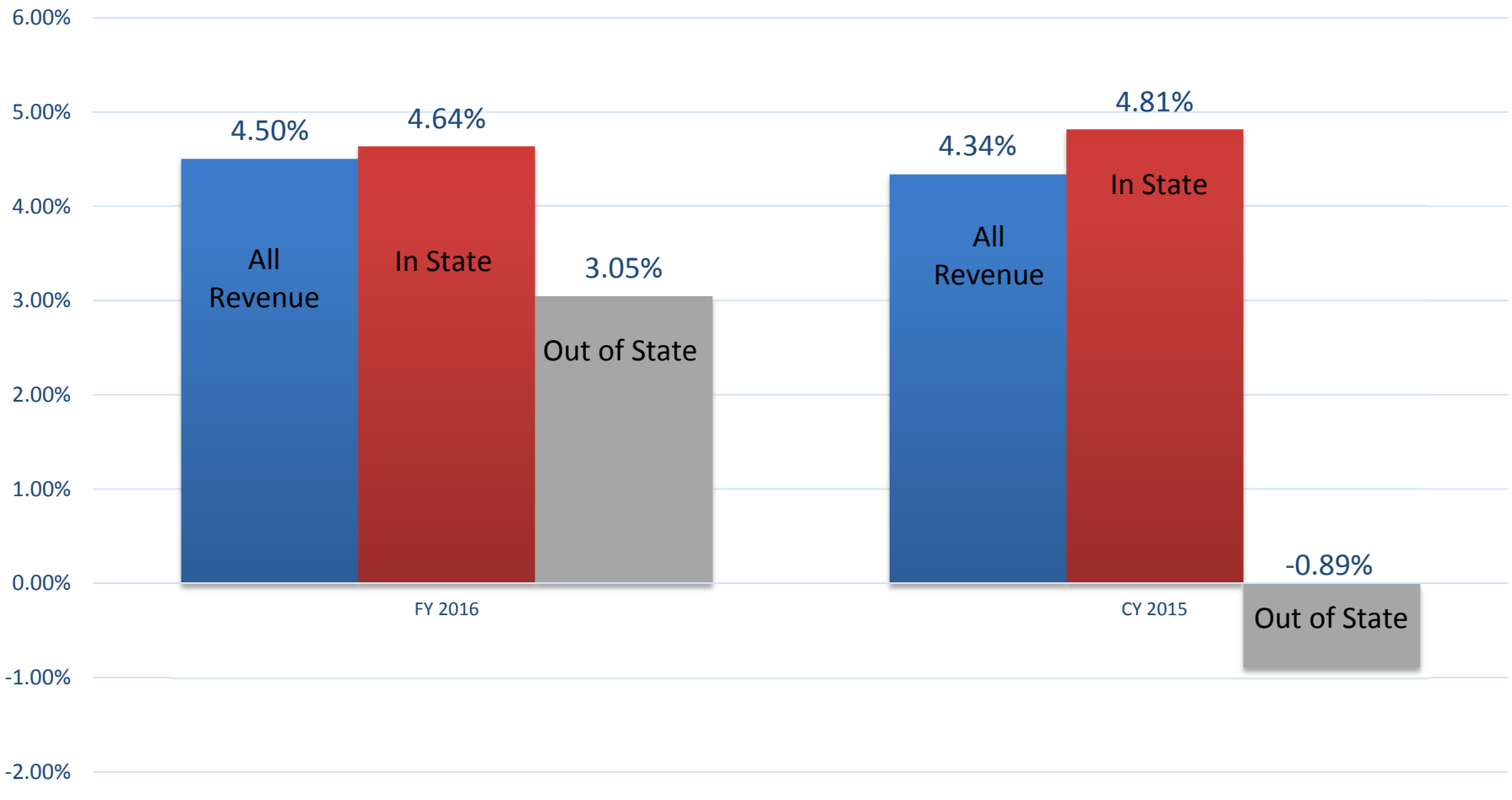
Health Services Cost Review Commission

Gross Medicare Fee-for-Service Revenue Growth

Year to Date (thru November 2015) Compared to Same Period in Prior Year



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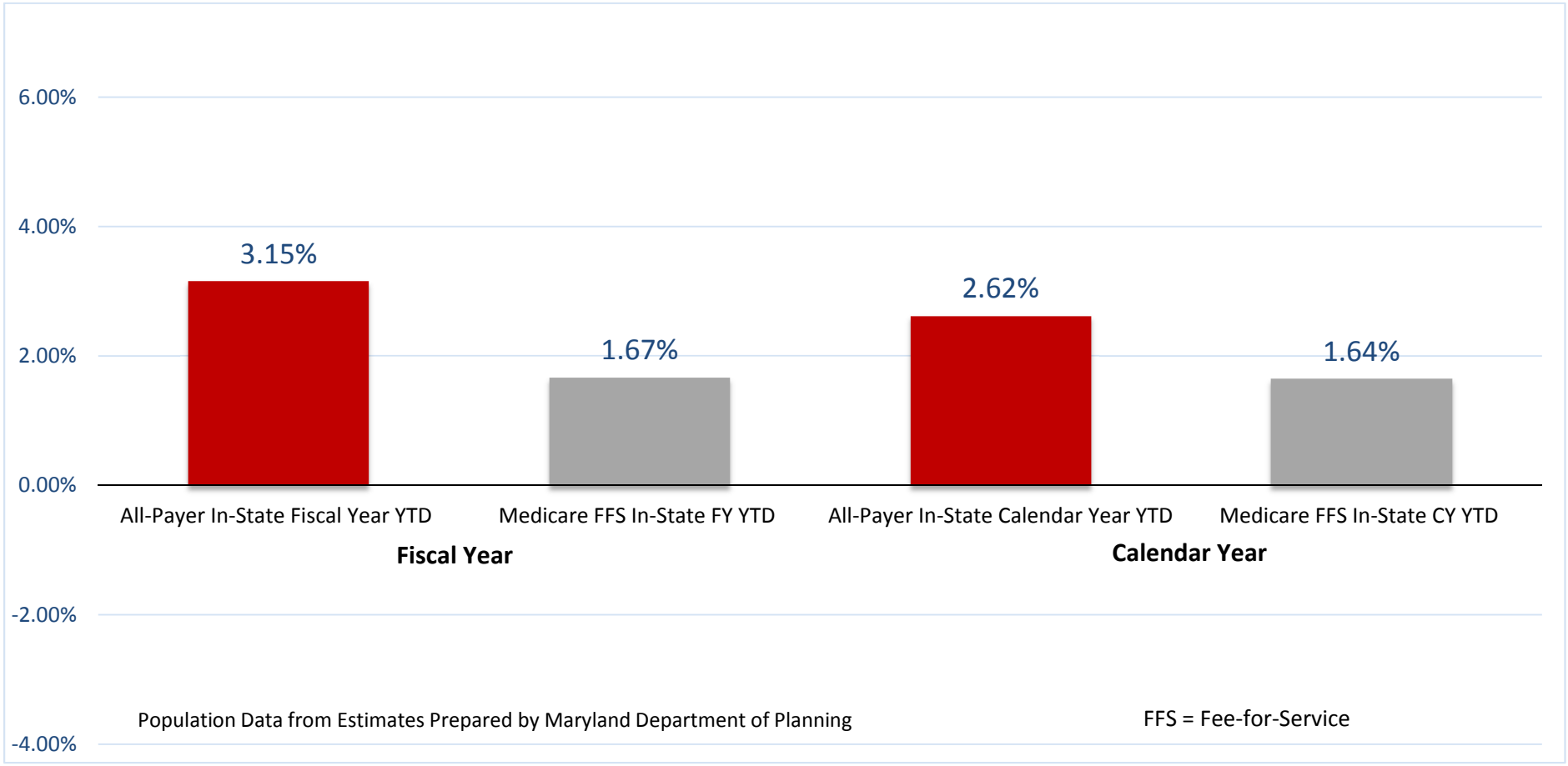
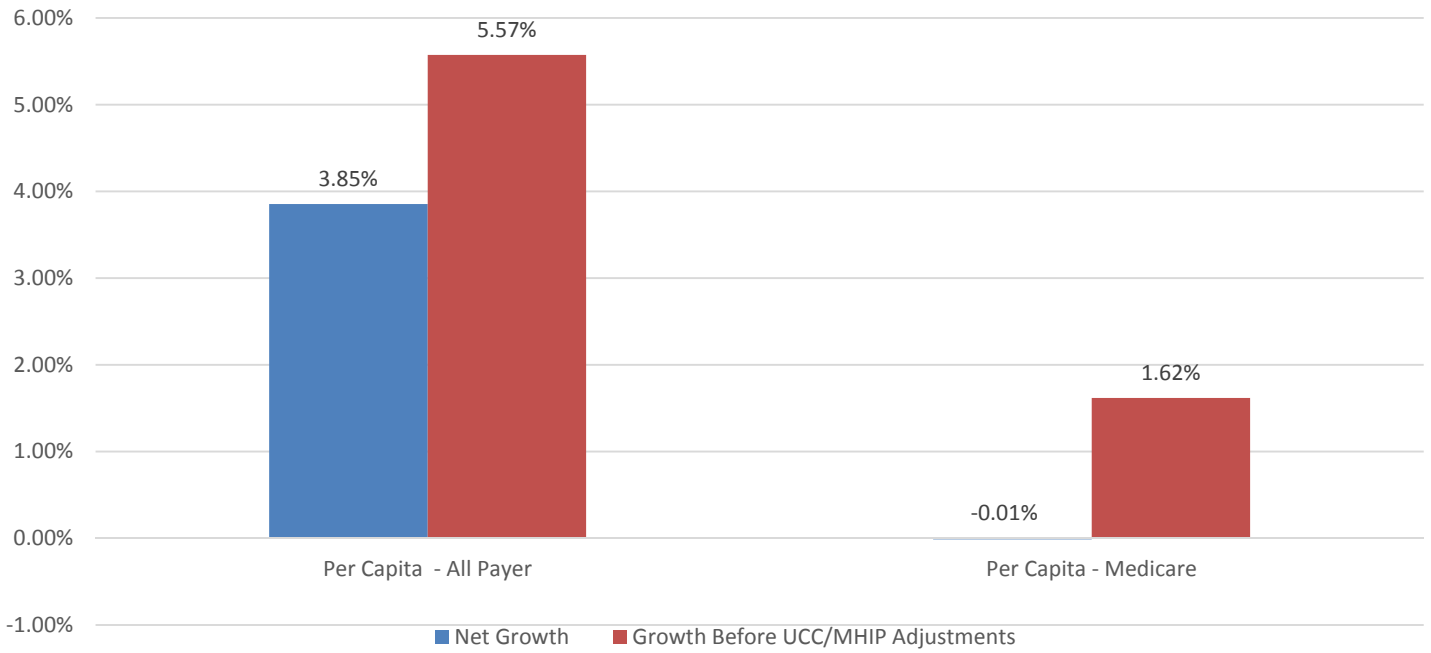
Per Capita Growth Rates
Fiscal Year 2016 and Calendar Year 2015



- **Calendar and Fiscal Year trends to date are below All-Payer Model Guardrail for per capita growth but are increasing toward the 3.58% maximum growth allowed in one year.**

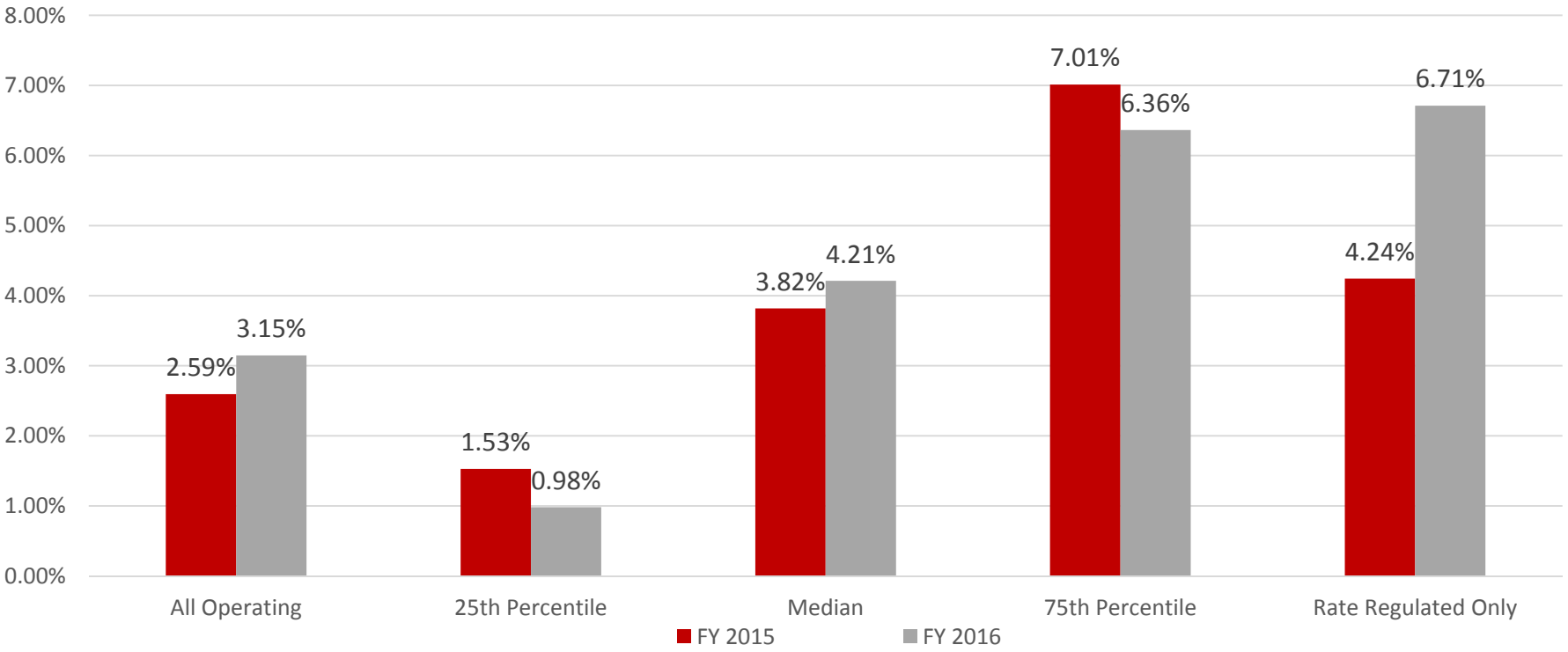
HSCRC
Health Services Cost Review Commission

Per Capita Growth – Actual and Underlying Growth
CY 2015 Year to Date Compared to Same Period in Base Year (2013)



- Two year per capita growth rate is well below maximum allowable growth rate of 7.29% (growth of 3.58% per year)
- Underlying growth reflects adjustment for FY 15 & FY 16 revenue decreases that were budget neutral for hospitals. 1.09% decrease from MHIP assessment and hospital bad debts in FY 15. Additional 1.41% adjustment in FY 16 due to further reductions to hospital bad debts and elimination of MHIP assessment.

Operating Profits: Fiscal 2016 Year to Date (July-November) Compared to Same Period in FY 2015



- Year to date FY 2016 unaudited hospital operating profits shows some change in total profits compared to the same period in FY 2015. Rate regulated profits have increased by 2.47% compared to the same period in FY 2015.

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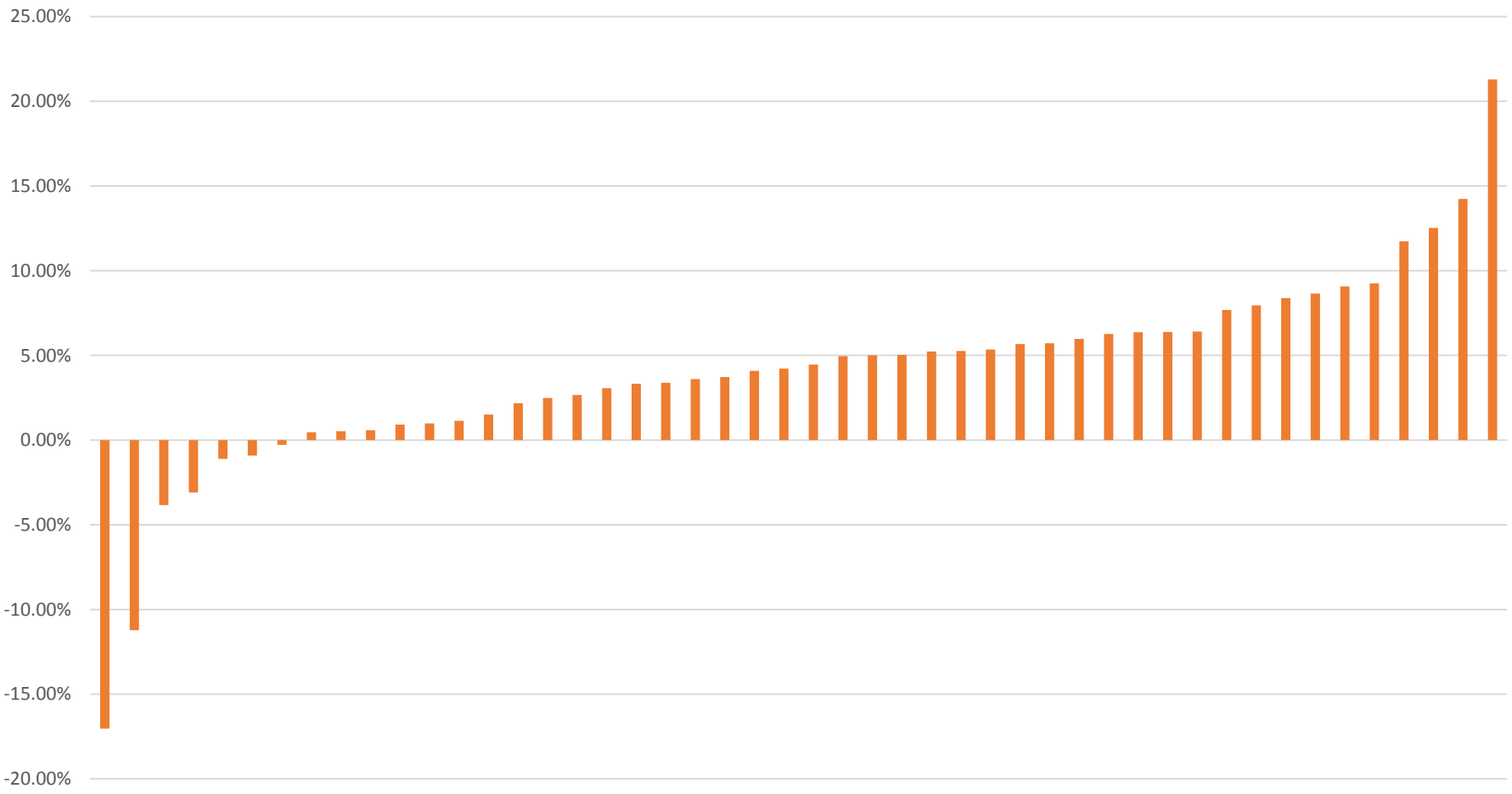
Operating Profits by Hospital

Fiscal Year to Date (July – November)



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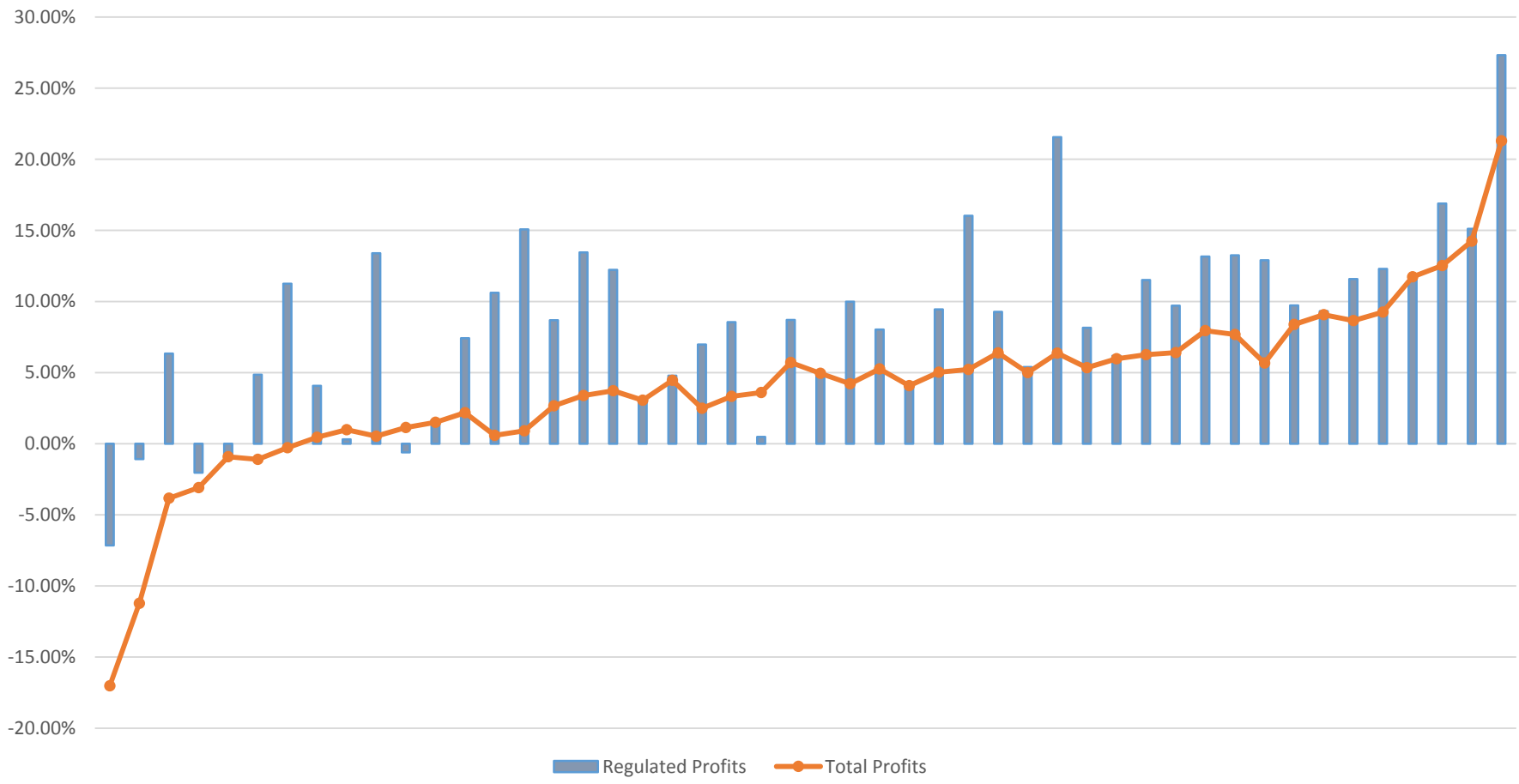
Regulated and Total Operating Profits by Hospital

Fiscal Year to Date (July – November)



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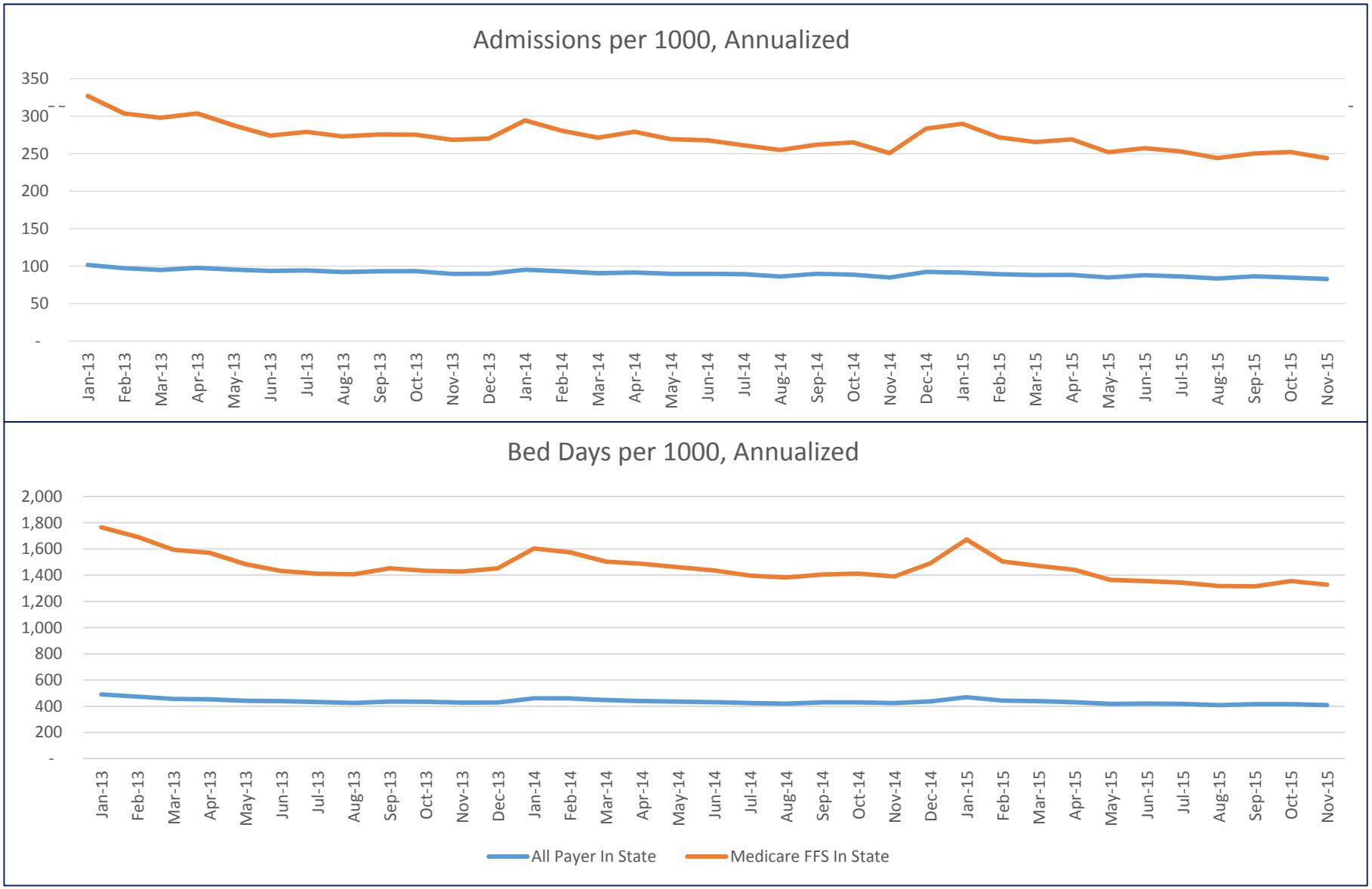
In State Admissions, Bed Days Per 1000, Annualized



*Note - The admissions and bed days do not include out of state migration or specialty psych and rehab hospitals.

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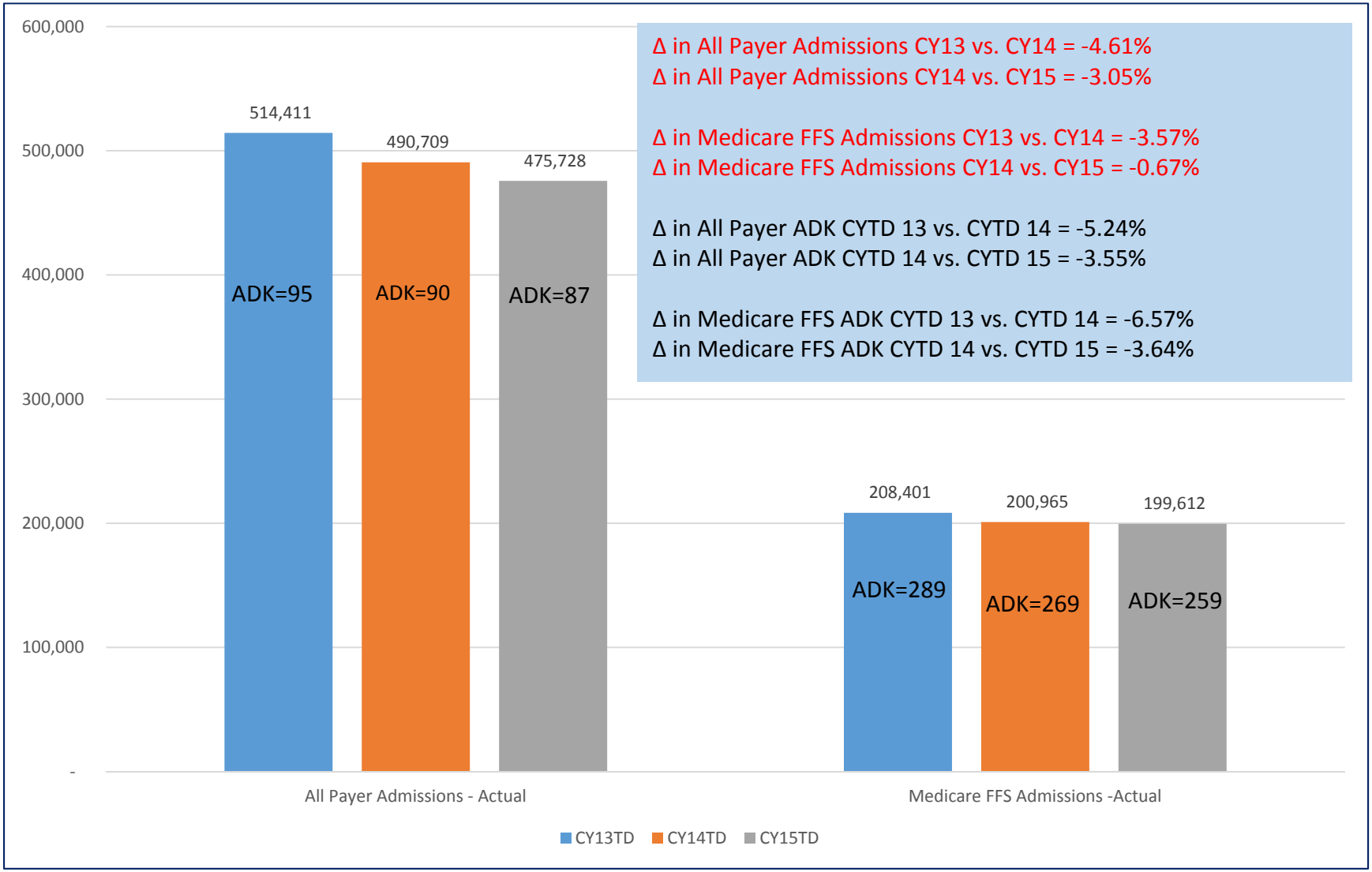
Health Services Cost Review Commission

In State Admissions by CYTD through November 2015



*Note – The admissions do not include out of state migration or specialty psych and rehab hospitals

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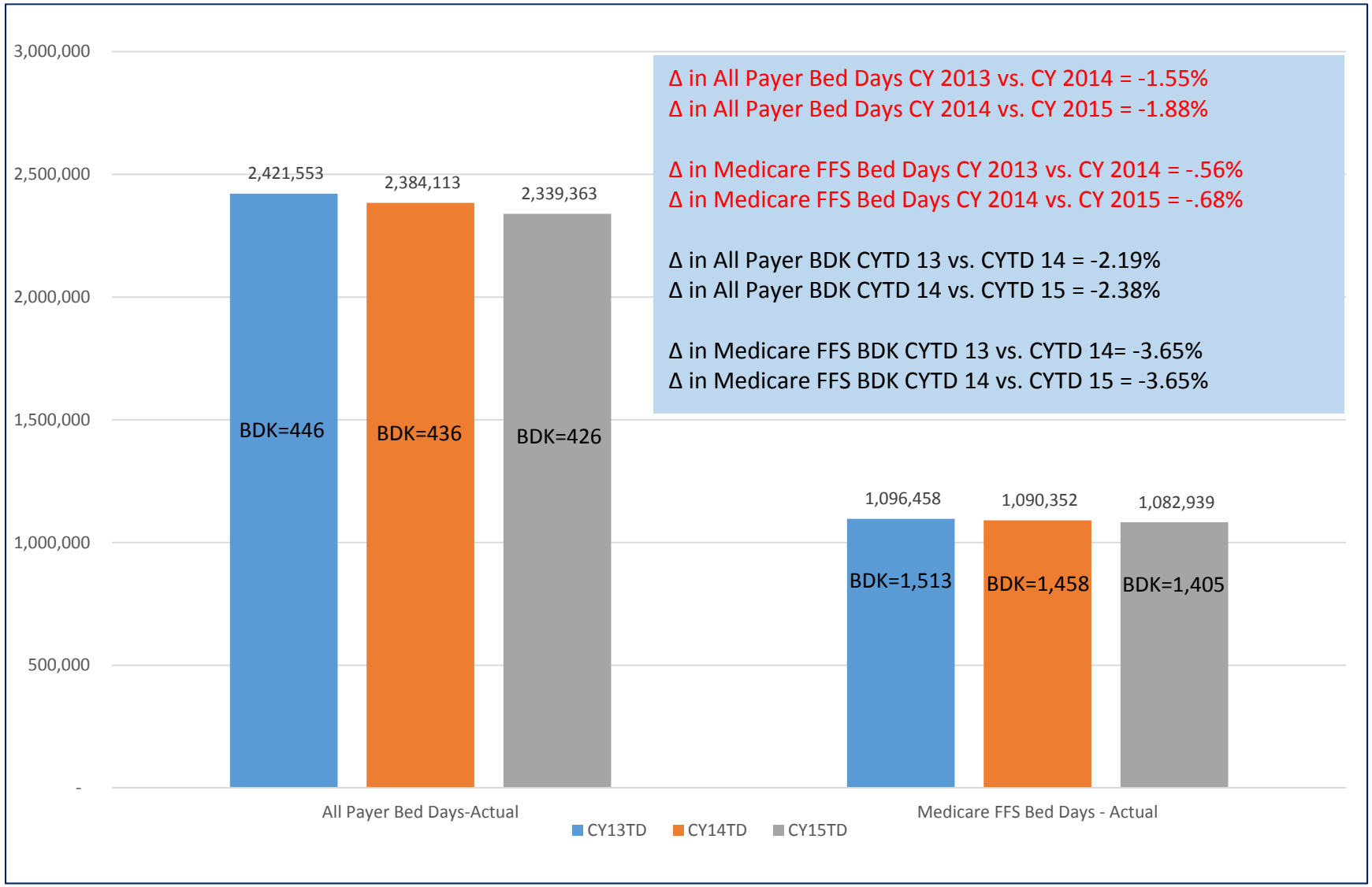
In State Bed Days by CYTD through November 2015



*Note – The bed days do not include out of state migration or specialty psych and rehab hospitals.

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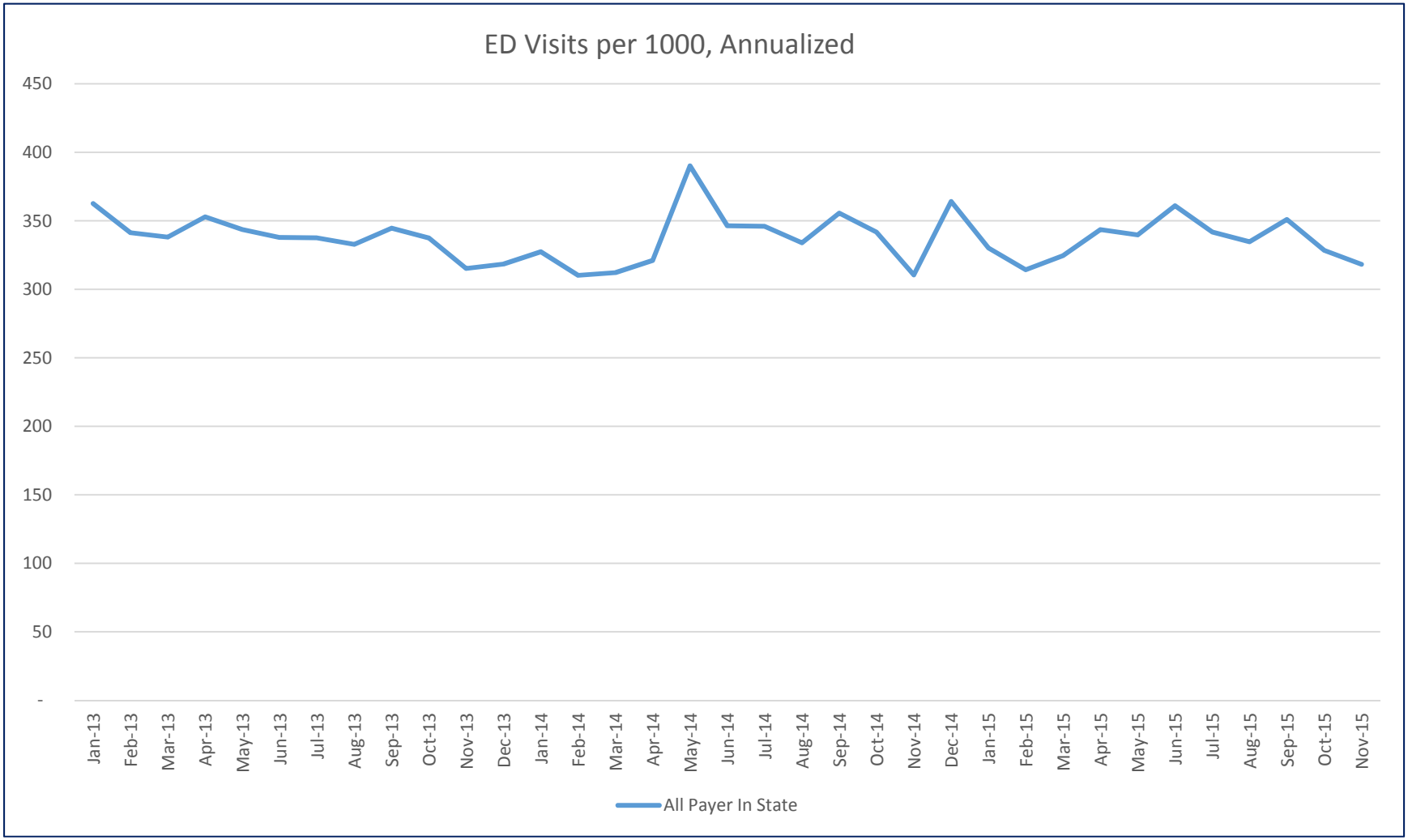
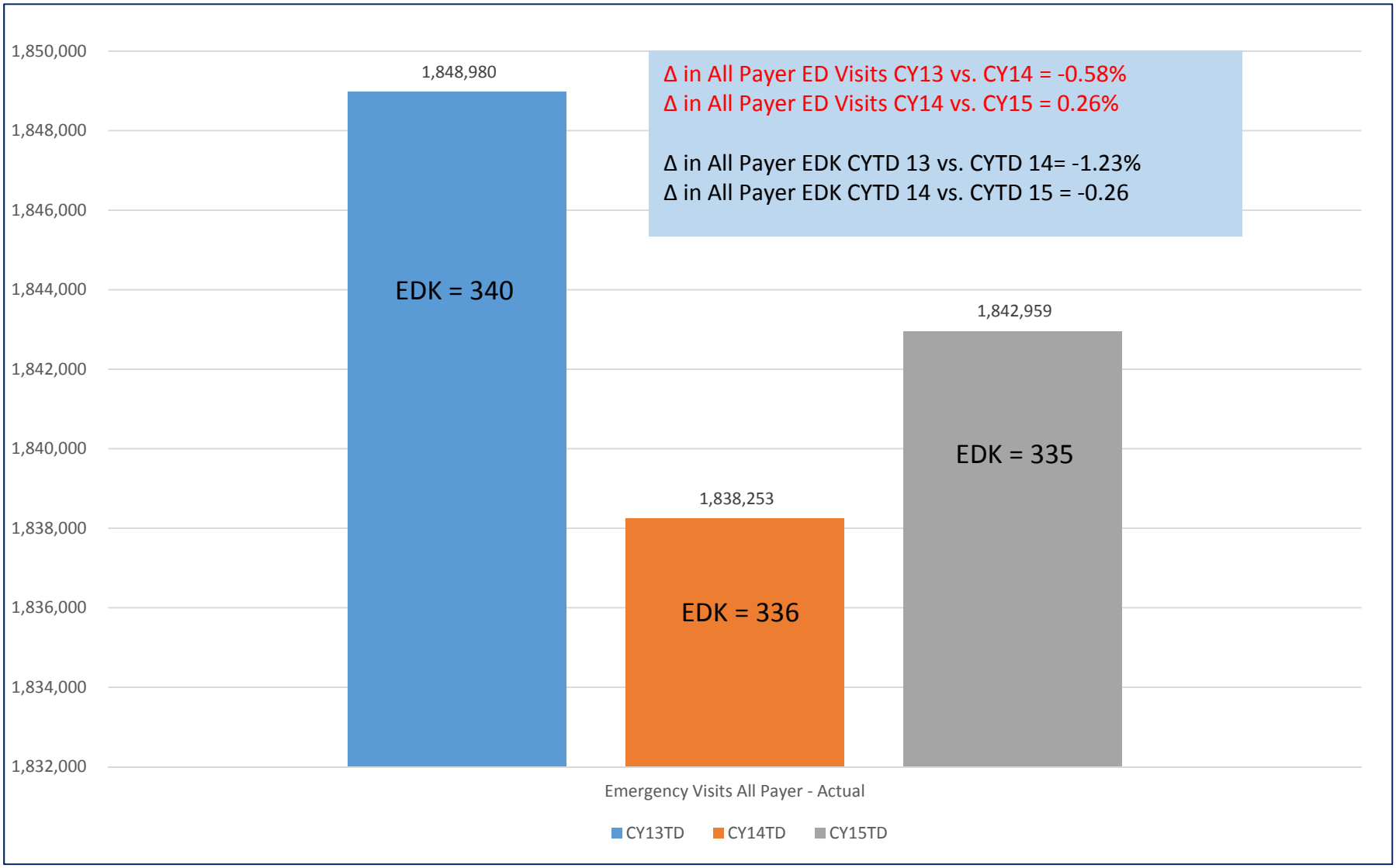
Health Services Cost Review Commission

In State, All Payer ED Visits Per 1000 Annualized



*Note - The ED visits do not include out of state migration or specialty psych and rehab hospitals.

In State All Payer ED Visits by CYTD through November 2015



*Note - The ED visits do not include out of state migration or specialty psych and rehab hospitals.

Purpose of Monitoring Maryland Performance

Evaluate Maryland's performance against All-Payer Model requirements:

- **All-Payer total hospital per capita revenue growth ceiling** for Maryland residents tied to long term state economic growth (GSP) per capita
  - 3.58% annual growth rate
- **Medicare payment savings** for Maryland beneficiaries compared to dynamic national trend. Minimum of $330 million in savings over 5 years
- **Patient and population centered-measures** and targets to promote population health improvement
  - Medicare readmission reductions to national average
  - 30% reduction in preventable conditions under Maryland's Hospital Acquired Condition program (MHAC) over a 5 year period
  - Many other quality improvement targets

Data Caveats

- Data revisions are expected.
- For financial data if residency is unknown, hospitals report this as a Maryland resident. As more data becomes available, there may be shifts from Maryland to out-of-state.
- Many hospitals are converting revenue systems along with implementation of Electronic Health Records. This may cause some instability in the accuracy of reported data. As a result, HSCRC staff will monitor total revenue as well as the split of in state and out of state revenues.
- All-payer per capita calculations for Calendar Year 2015 and Fiscal 2016 rely on Maryland Department of Planning projections of population growth of .52% for FY 16 and .52% for CY 15. Medicare per capita calculations use actual trends in Maryland Medicare beneficiary counts as reported monthly to the HSCRC by CMMI.

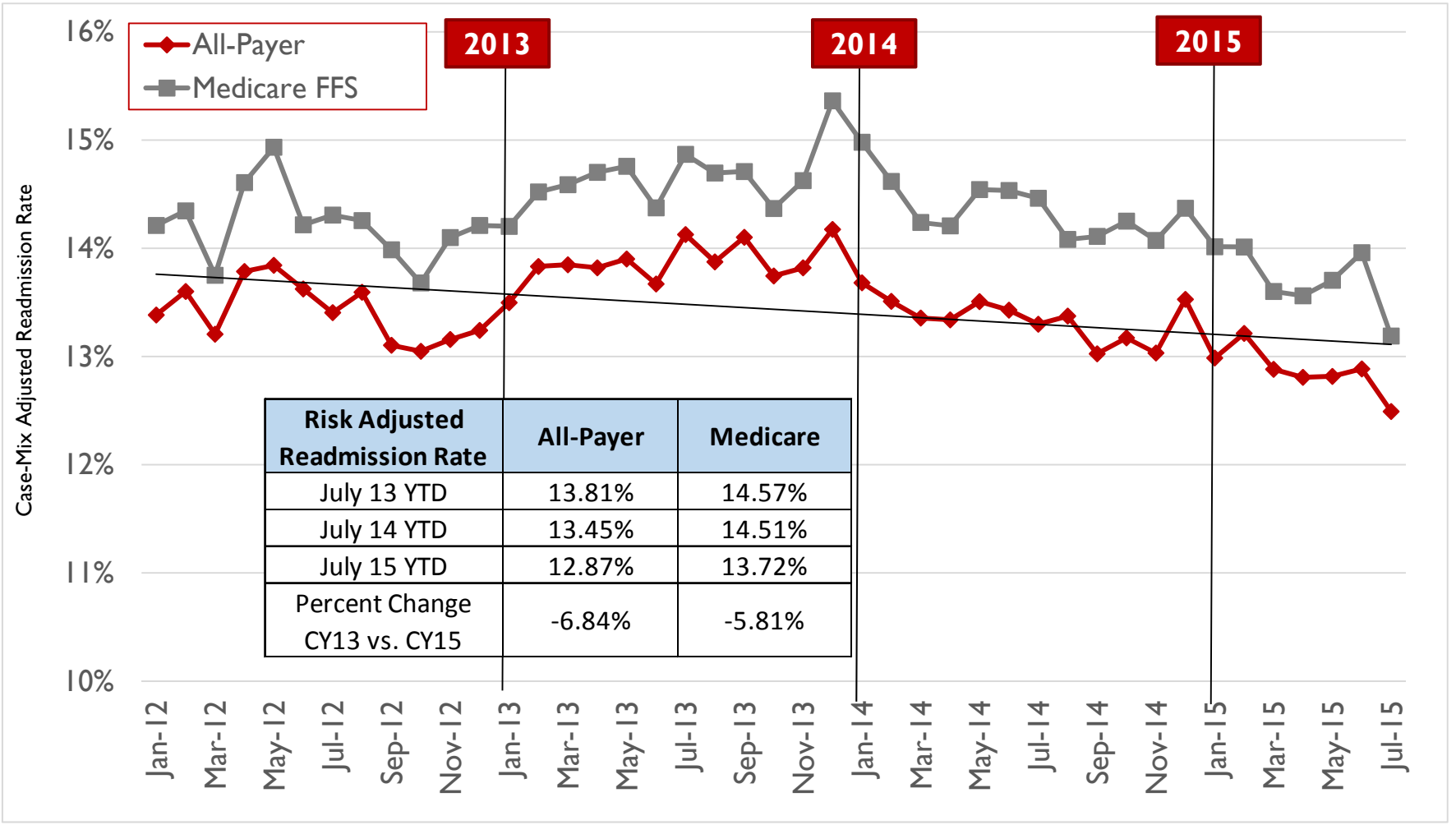
Data Caveats cont.

- The source data is the monthly volume and revenue statistics.
- ADK – Calculated using the admissions multiplied by 365 divided by the days in the period and then divided by average population per 1000.
- BDK – Calculated using the bed days multiplied by 365 divided by the days in the period and then divided by average population per 1000.
- EDK – Calculated using the ED visits multiplied by 365 divided by the days in the period and then divided by average population per 1000.
- All admission and bed days calculations exclude births and nursery center.
- Admissions, bed days, and ED visits do not include out of state migration or specialty psych and rehab hospitals.

Monitoring Maryland Performance
Quality Data

October 2015 Commission Meeting Update

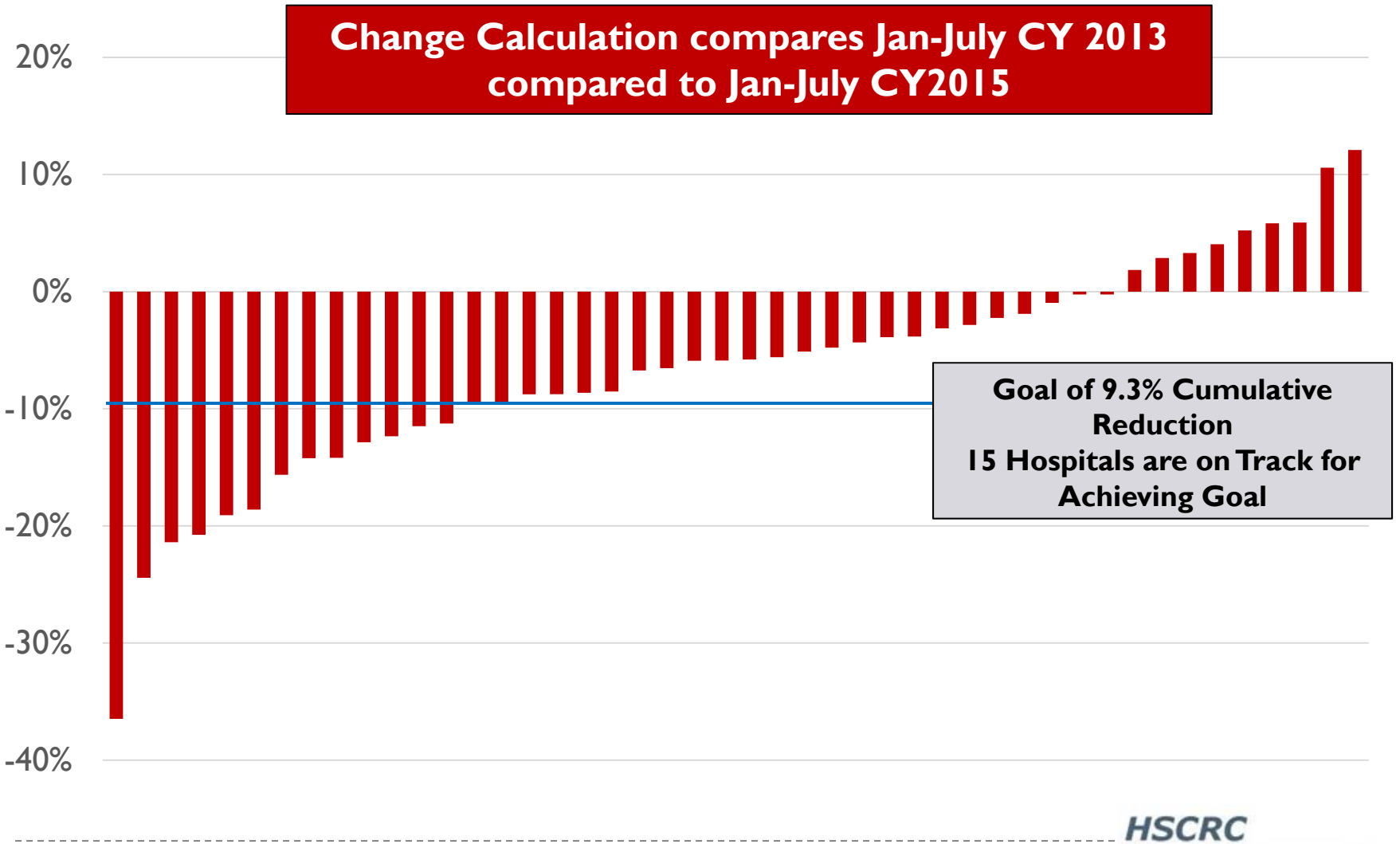
Monthly Risk-Adjusted Readmission Rates



Risk Adjusted Readmission Rate	All-Payer	Medicare
July 13 YTD	13.81%	14.57%
July 14 YTD	13.45%	14.51%
July 15 YTD	12.87%	13.72%
Percent Change CY13 vs. CY15	-6.84%	-5.81%

Note: Based on final data for January 2012 – June 2015, and preliminary data through August 2015.

Change in All-Payer Risk-Adjusted Readmission Rates by Hospital



Note: Based on final data for January 2012 – June 2015, and preliminary data through August 2015.

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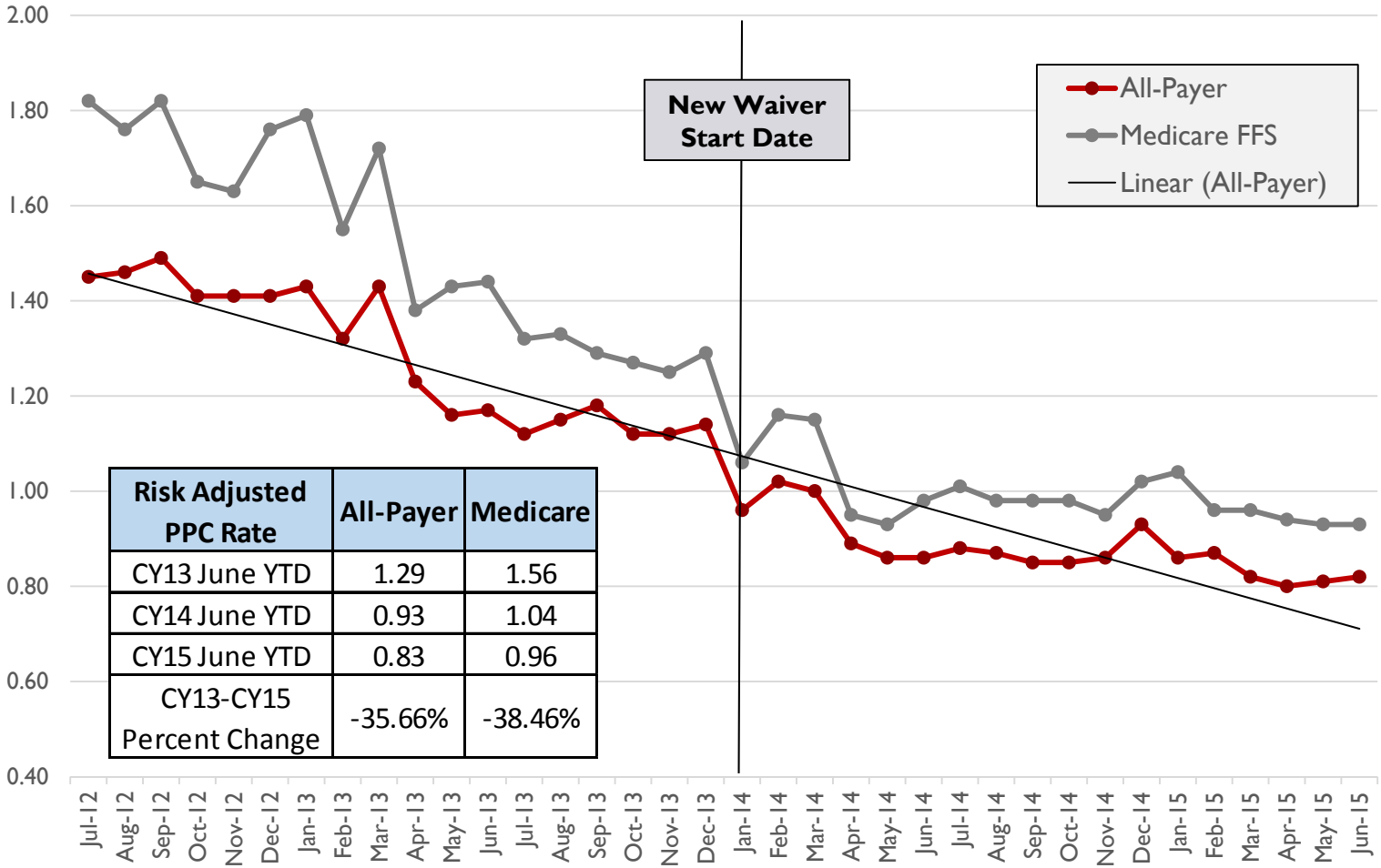
Monthly Risk-Adjusted PPC Rates

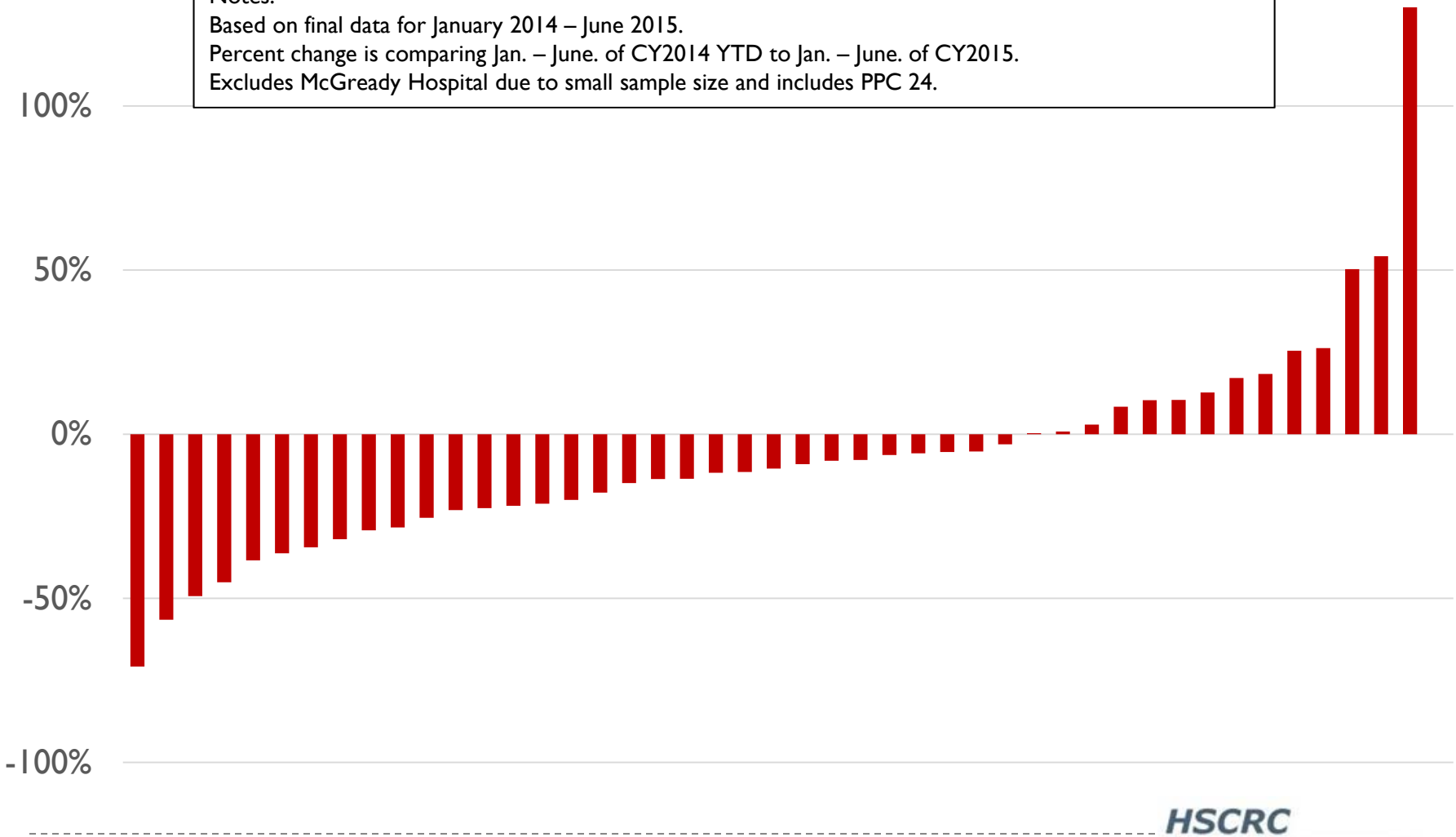


Risk Adjusted PPC Rate	All-Payer	Medicare
CY13 June YTD	1.29	1.56
CY14 June YTD	0.93	1.04
CY15 June YTD	0.83	0.96
CY13-CY15 Percent Change	-35.66%	-38.46%

Note: Reported as of 9/30/2015, based on final data through June 2015. Includes PPC24.

Change in All-Payer Risk-Adjusted PPC Rates YTD by Hospital

Notes:
Based on final data for January 2014 – June 2015.
Percent change is comparing Jan. – June. of CY2014 YTD to Jan. – June. of CY2015.
Excludes McGready Hospital due to small sample size and includes PPC 24.



HSCRC
Health Services Cost Review Commission

Cases Closed

The closed cases from last month are listed in the agenda

H.S.C.R.C's CURRENT LEGAL DOCKET STATUS (OPEN)

AS OF DECEMEBER 28, 2015

A: PENDING LEGAL ACTION : NONE
B: AWAITING FURTHER COMMISSION ACTION: NONE
C: CURRENT CASES:

Docket Number	Hospital Name	Date Docketed	Decision Required by:	Rate Order Must be Issued by:	Purpose	Analyst's Initials	File Status
2317R	Holy Cross Health	11/6/2015	1/13/2016	4/4/2016	CAPITAL	GS	OPEN
2319R	Sheppard Pratt Health System	11/24/2015	12/24/2015	4/22/2015	CAPITAL	GS	OPEN
2320N	Sheppard Pratt Health System	11/24/2015	12/24/2015	4/22/2015	OBV	DNP	OPEN

PROCEEDINGS REQUIRING COMMISSION ACTION - NOT ON OPEN DOCKET

Performance Measurement Workgroup Update

01/13/2016

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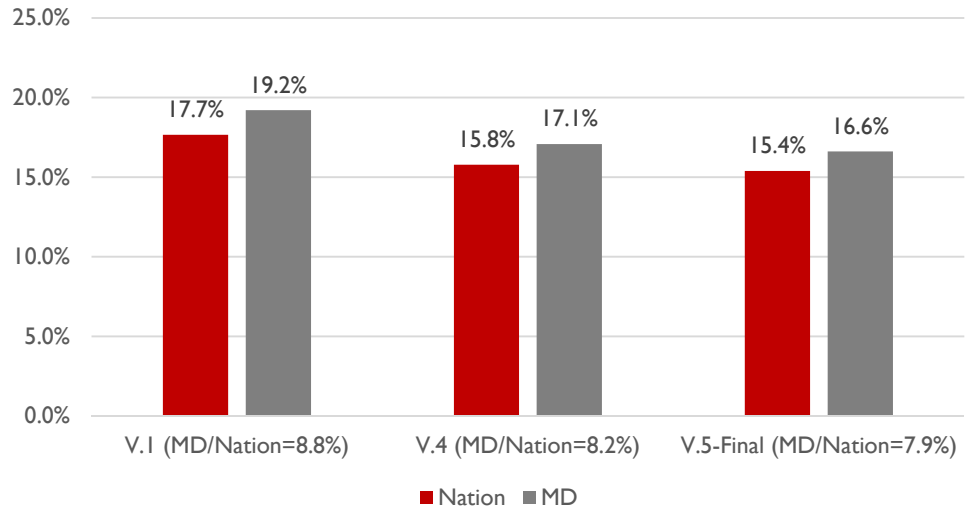
CMMI readmission measure specification refinements reduced the difference between Maryland and National readmission rates to 7.9% in CY2013

- Refinements include
  - Requiring 30 day enrollment period after hospitalization
  - Excluding special-licensed beds from Maryland rates similar to the national rate
  - Refining transfer logic



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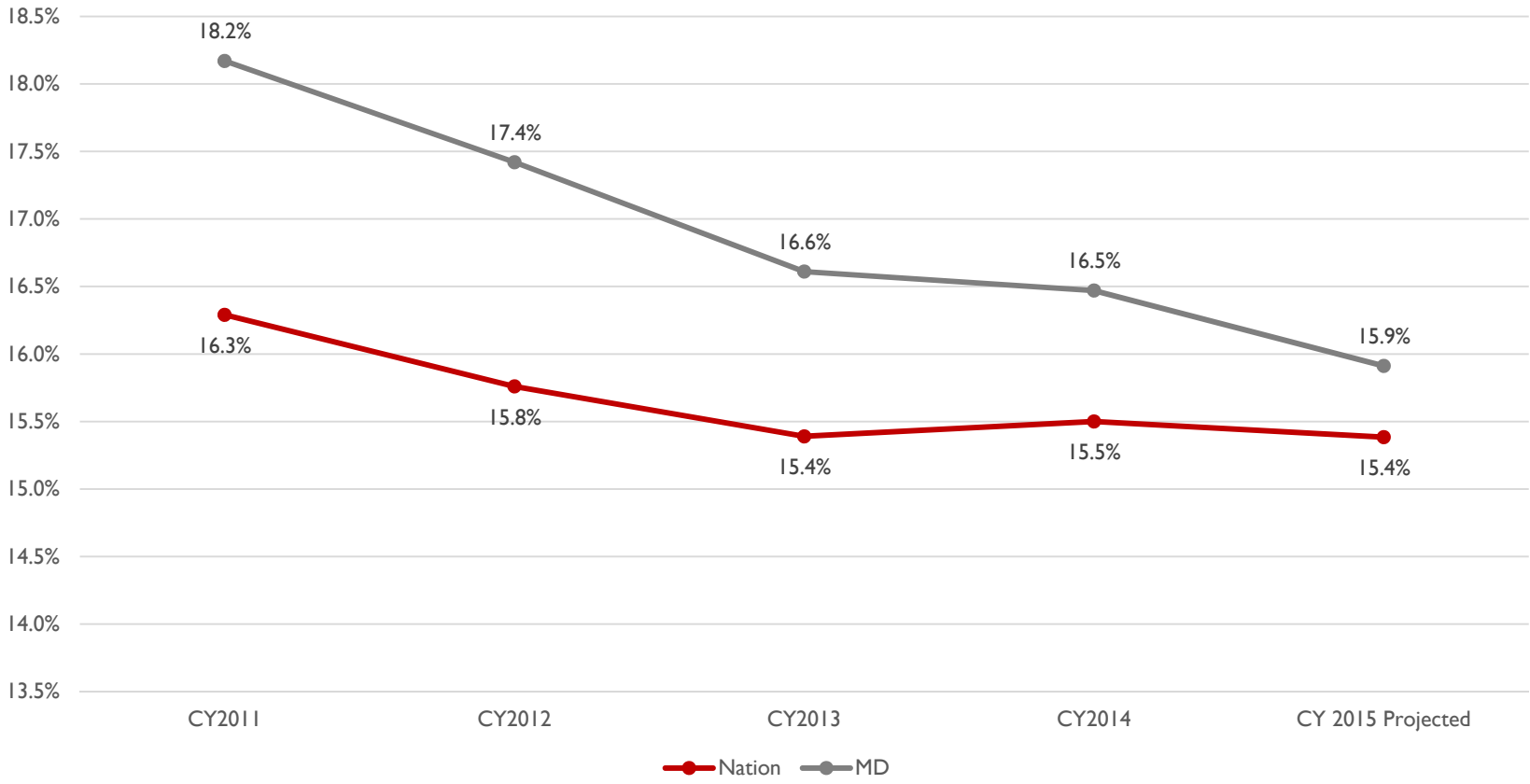
Maryland is reducing readmission rate faster than the nation

Reduction in the National Readmission Rate remained small in CY2015



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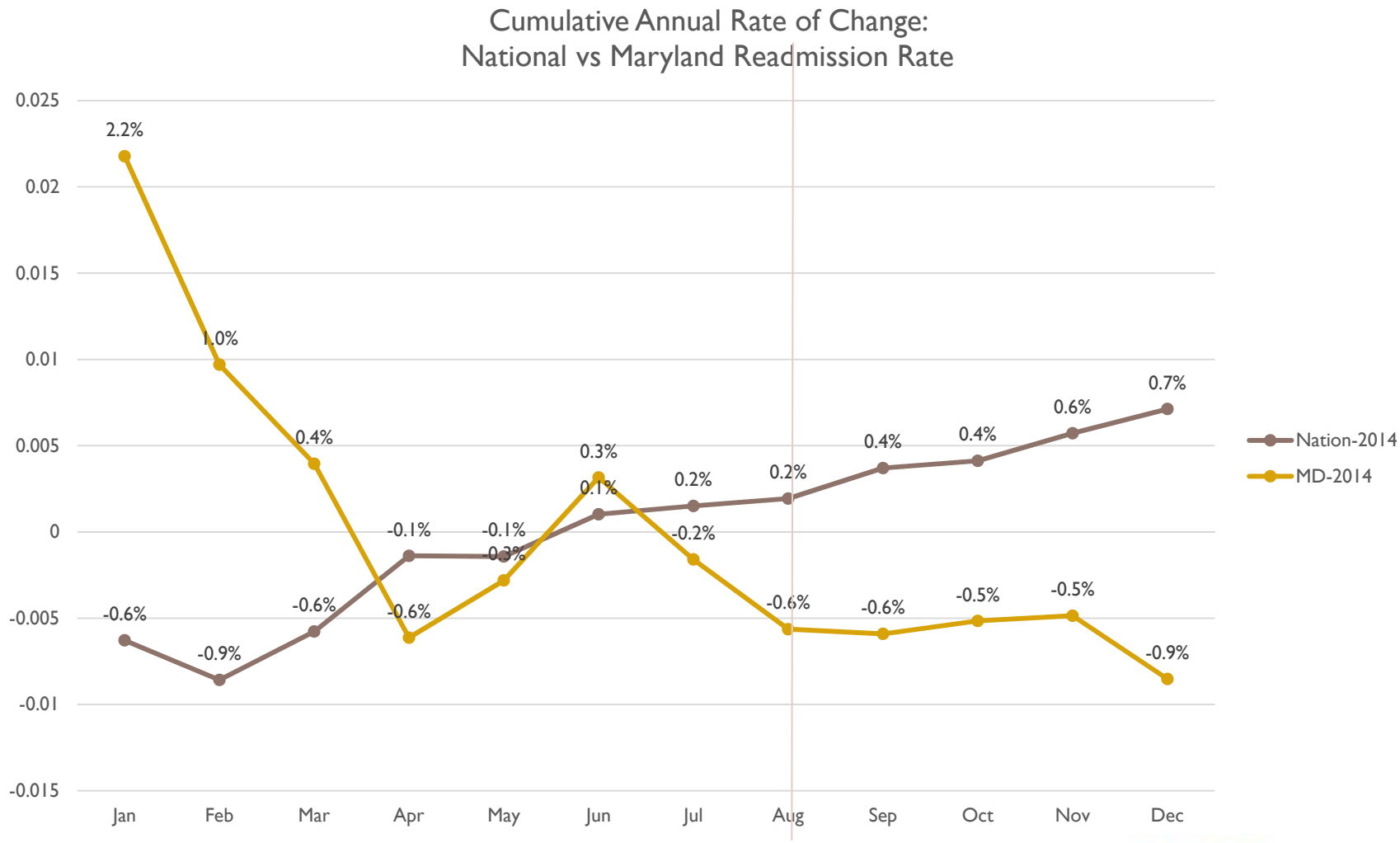
Maryland is meeting readmission target for CY2015 based on January through August trend

- Trend data is difficult to predict
- Percentage Points based calculation:
  - National Readmission Rate Change = -0.1 percentage points
  - Maryland Target = (National Rate of Change + 1/5 of base year Difference) = (-0.1% +-0.2%) = -0.3 percentage points
  - Maryland Readmission Rate Change = -0.5 percentage points
- Percent based calculations:
  - National Readmission Rate Change = -0.8%
  - Maryland Target = -2.2%
  - Maryland Readmission Rate Change = -3.4%

Projecting readmission rates is difficult: Annual rate of change in December was quite different than the one in August in CY 2014



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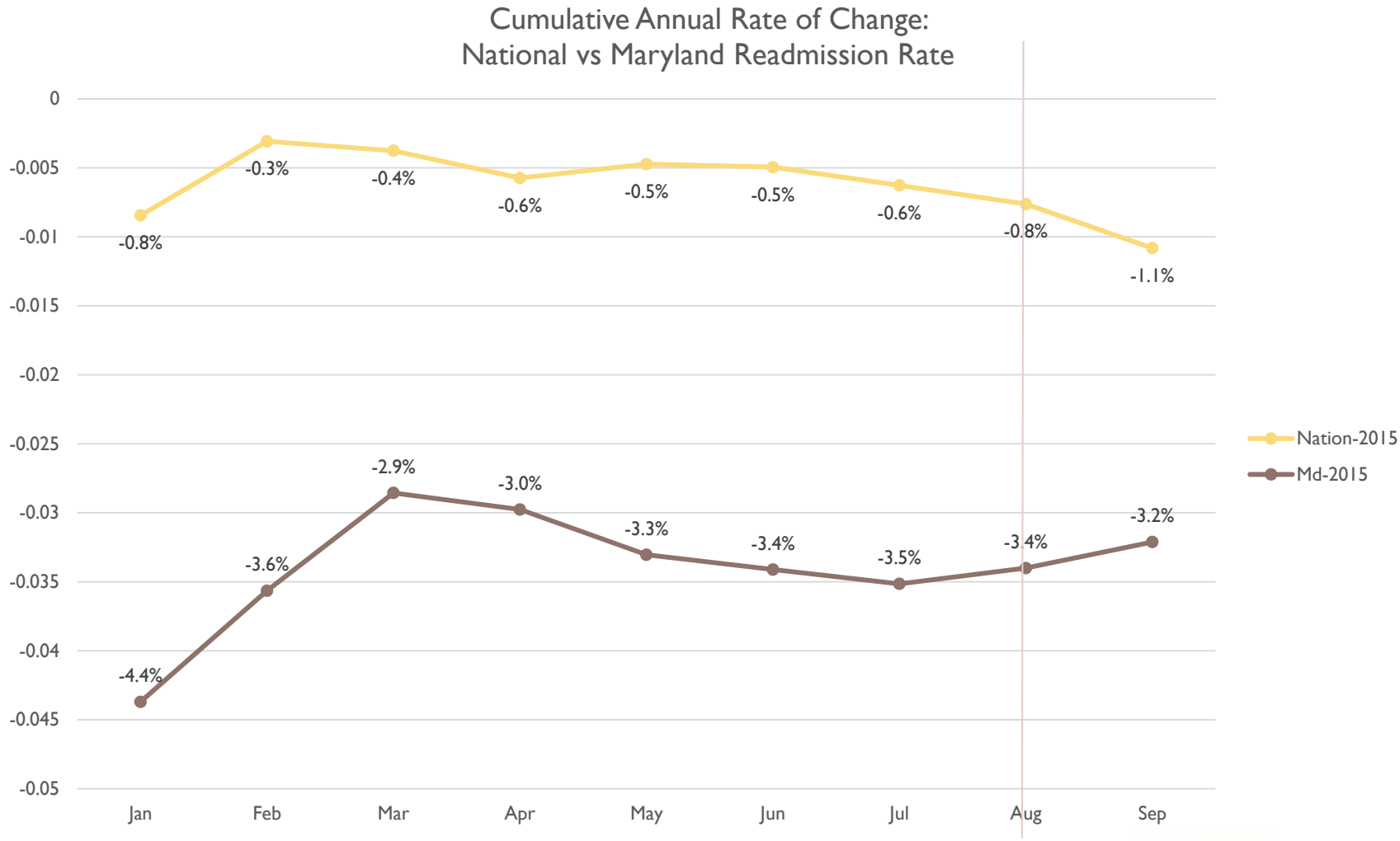
National rate of decline is speeding up, while Maryland's is slowing down based on September preliminary data



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Hospital Readmission Rate Improvement Year to Date

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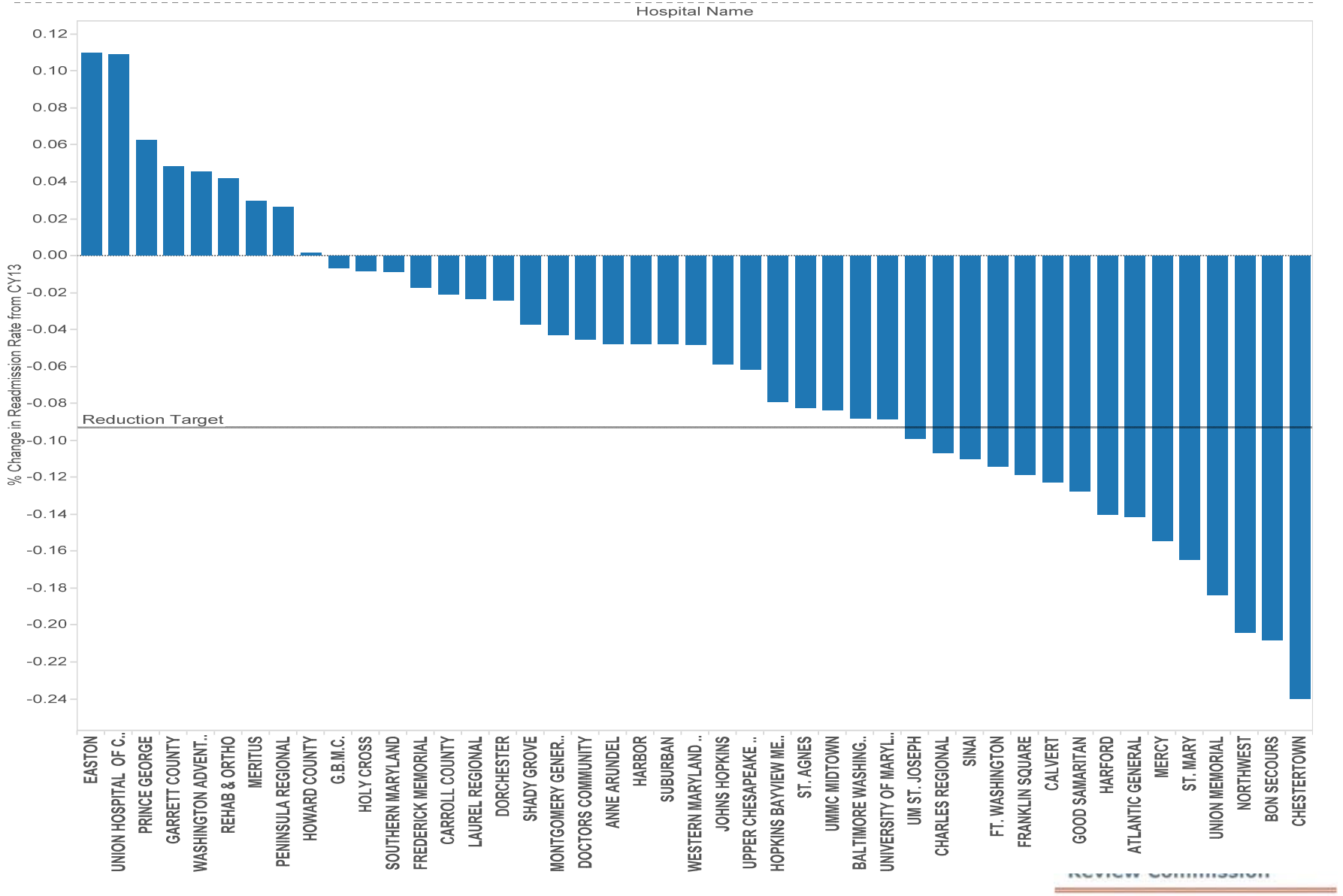
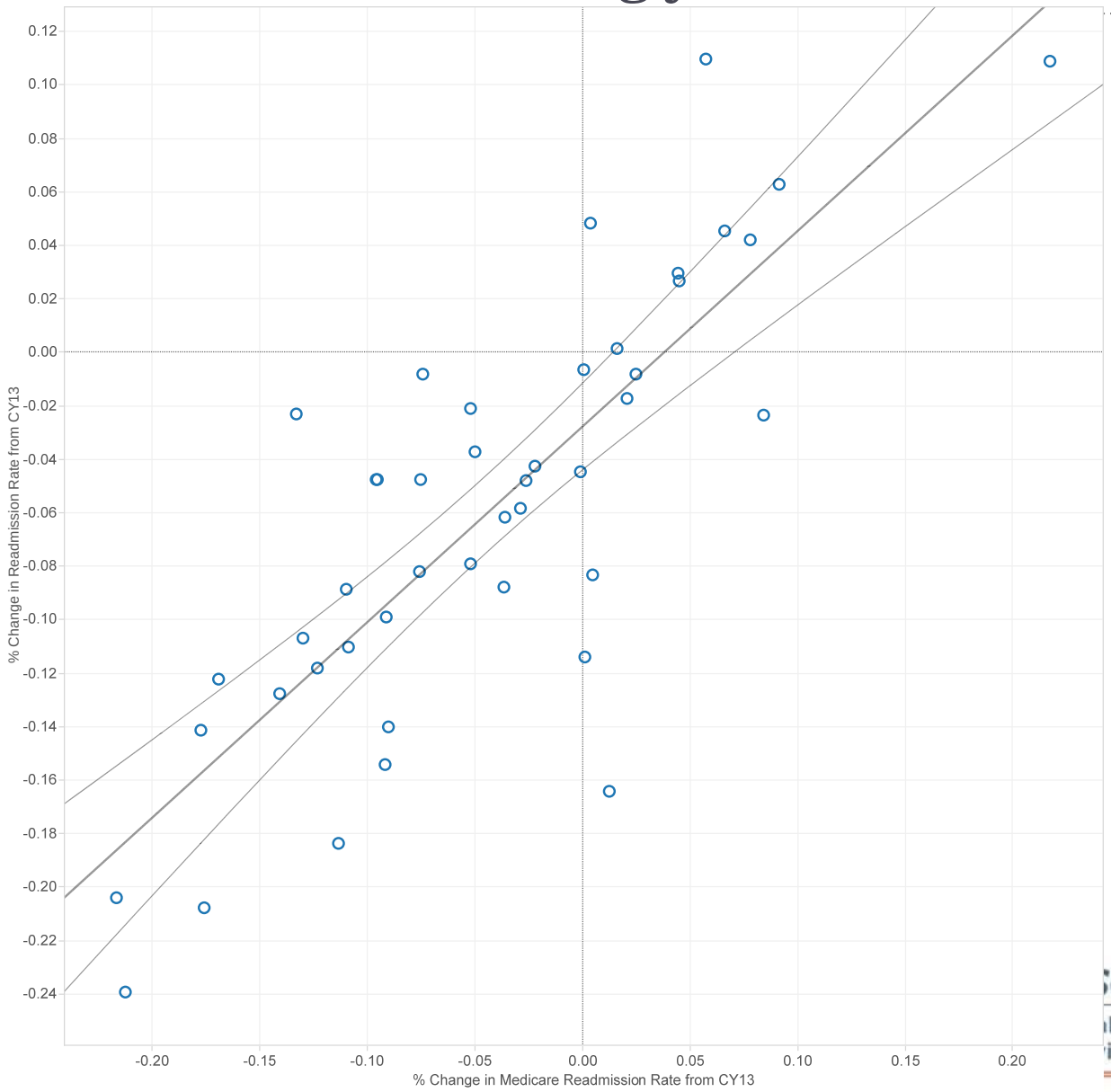
1/3 of the hospitals are meeting the reduction target, 1/4 have increases in their readmission rates (YTD August)



Considerations from FY 2017 Approved Recommendations

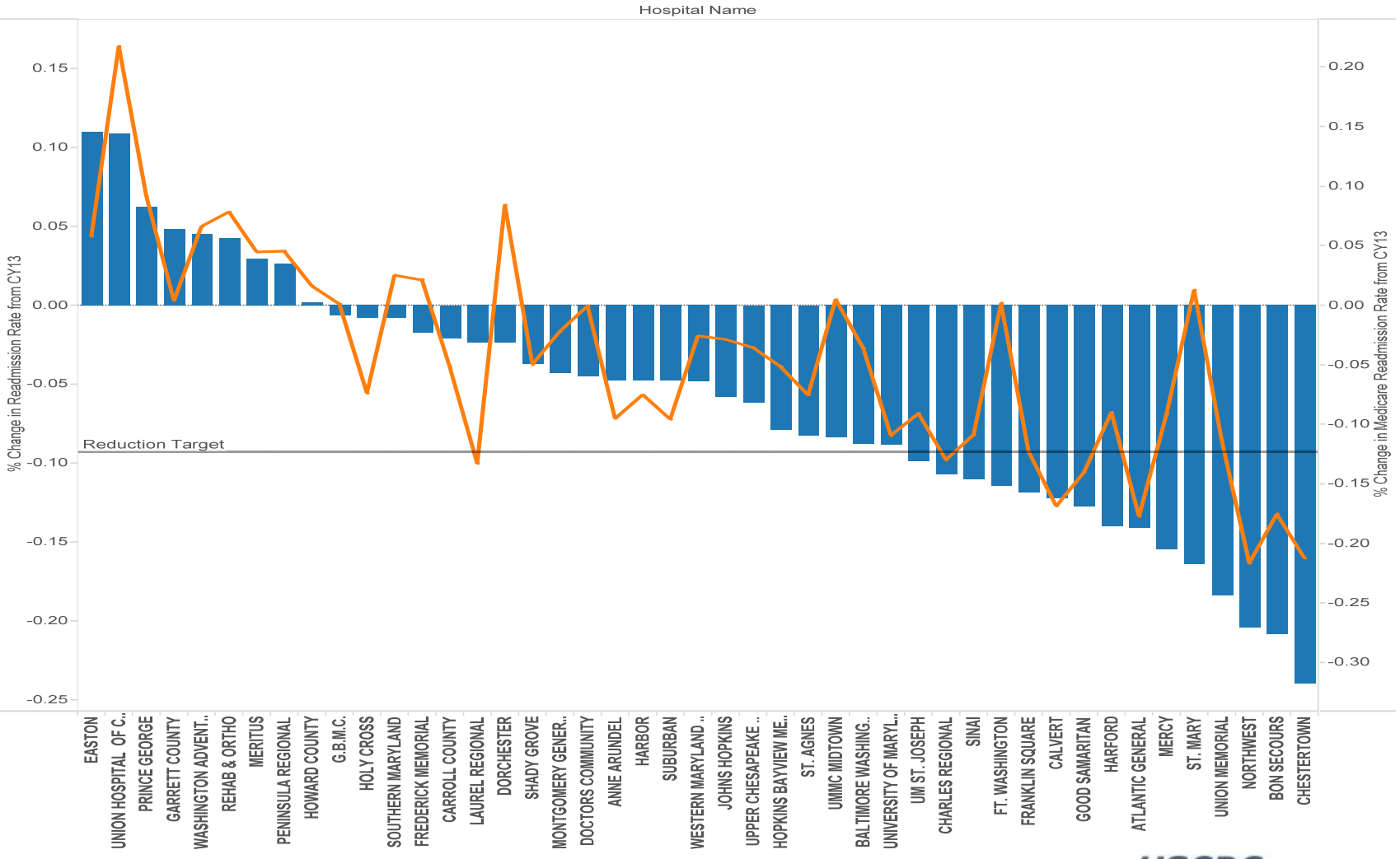
- Continue to set a minimum required reduction benchmark on all-payer basis and re-evaluate the option to move to a Medicare specific performance benchmark for CY2016 performance period.
- Continue to assess the impact of admission reductions, SES/D, all-payer, and Medicare readmission trends and make adjustments to the rewards or penalties if necessary.

Statewide All-Payer and Medicare readmission improvement rates are strongly correlated



Correlation Coefficient=0.80

Hospital Performance on All-Payer and Medicare readmission reductions vary



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Socio-Economic Factors

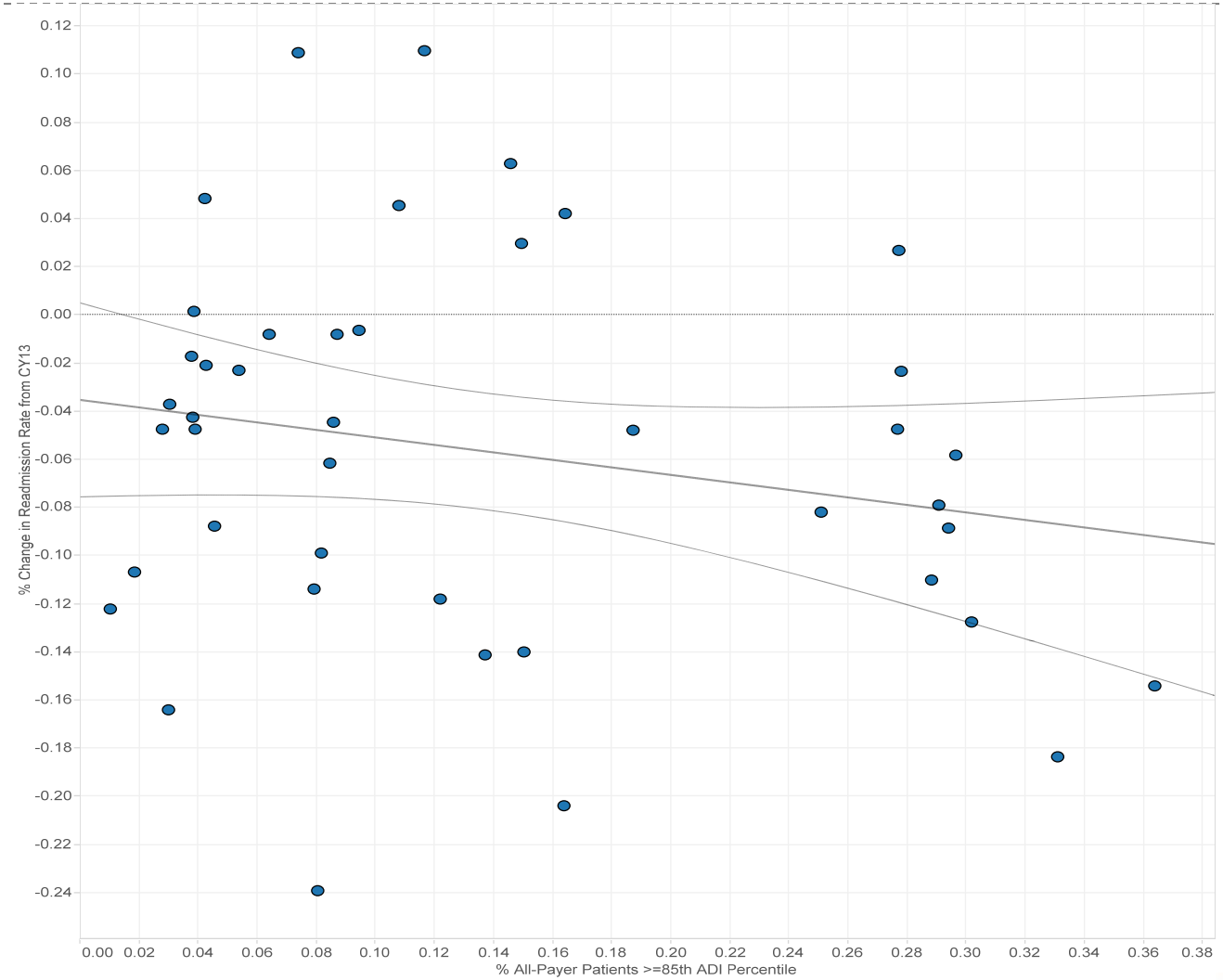
- We appreciate Dr. Amy Kind and Commissioner Dr. Steve Jencks contributions*
- Staff is working on 2013 Area Deprivation Index (ADI) at the block-group (smaller than zip code) level
- Components of ADI include*
  - Education
  - Income
  - Poverty
  - Housing Cost
  - Housing Quality
  - Employment
  - Single-parent Households

*Neighborhood Socioeconomic Disadvantage and 30-Day Rehospitalization: A Retrospective Cohort Study, *Ann Intern Med.* 2014;161(11):765-774. doi:10.7326/M13-2946

ADI and Readmissions

- Initial analysis indicate strong correlation between ADI and Readmission Rates even after controlling for case-mix
- Hospital level analysis are underway
- Preliminary results

Preliminary results show no correlation between ADI and readmission reductions



Correlation Coefficient=-0.30

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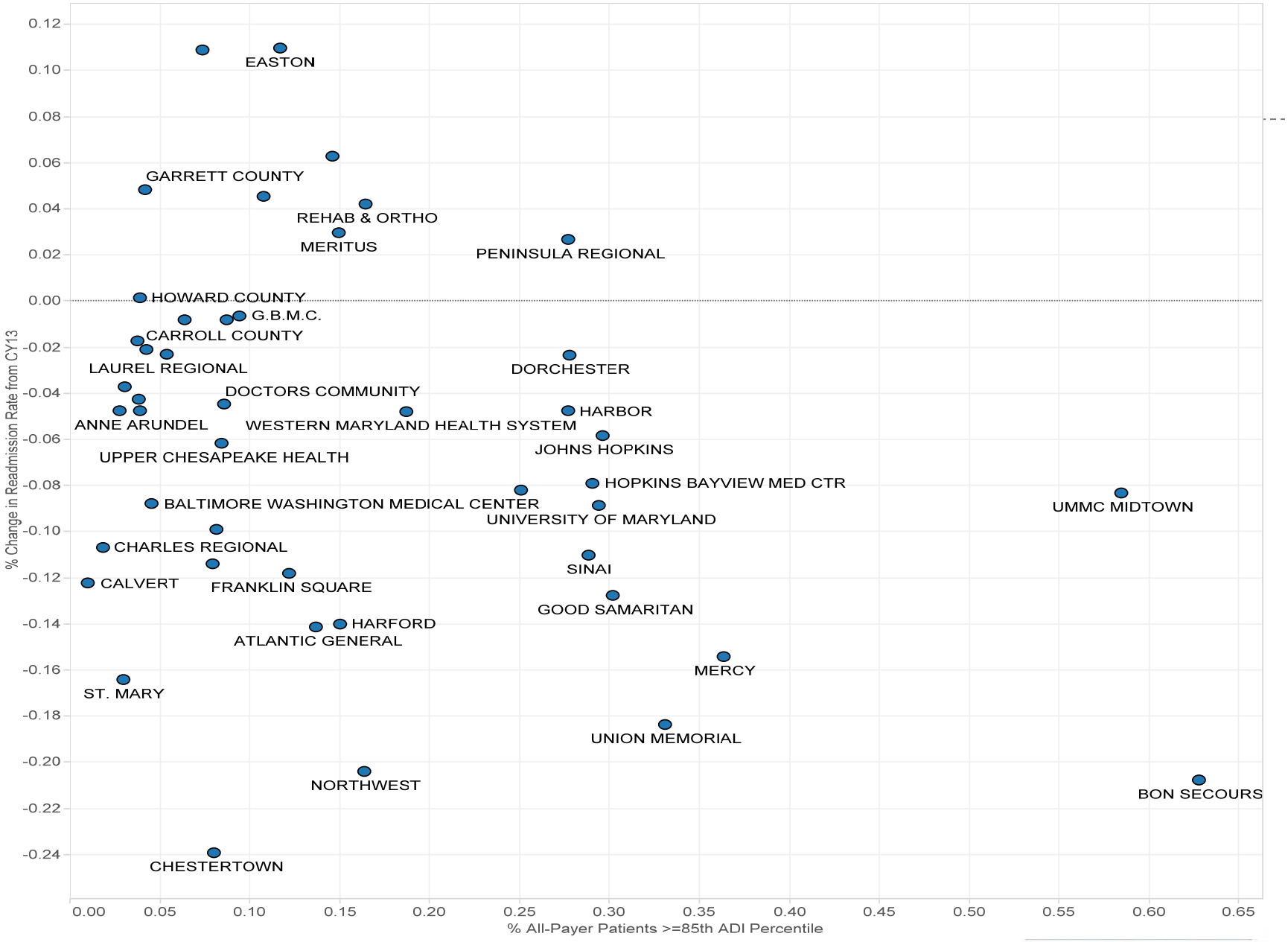
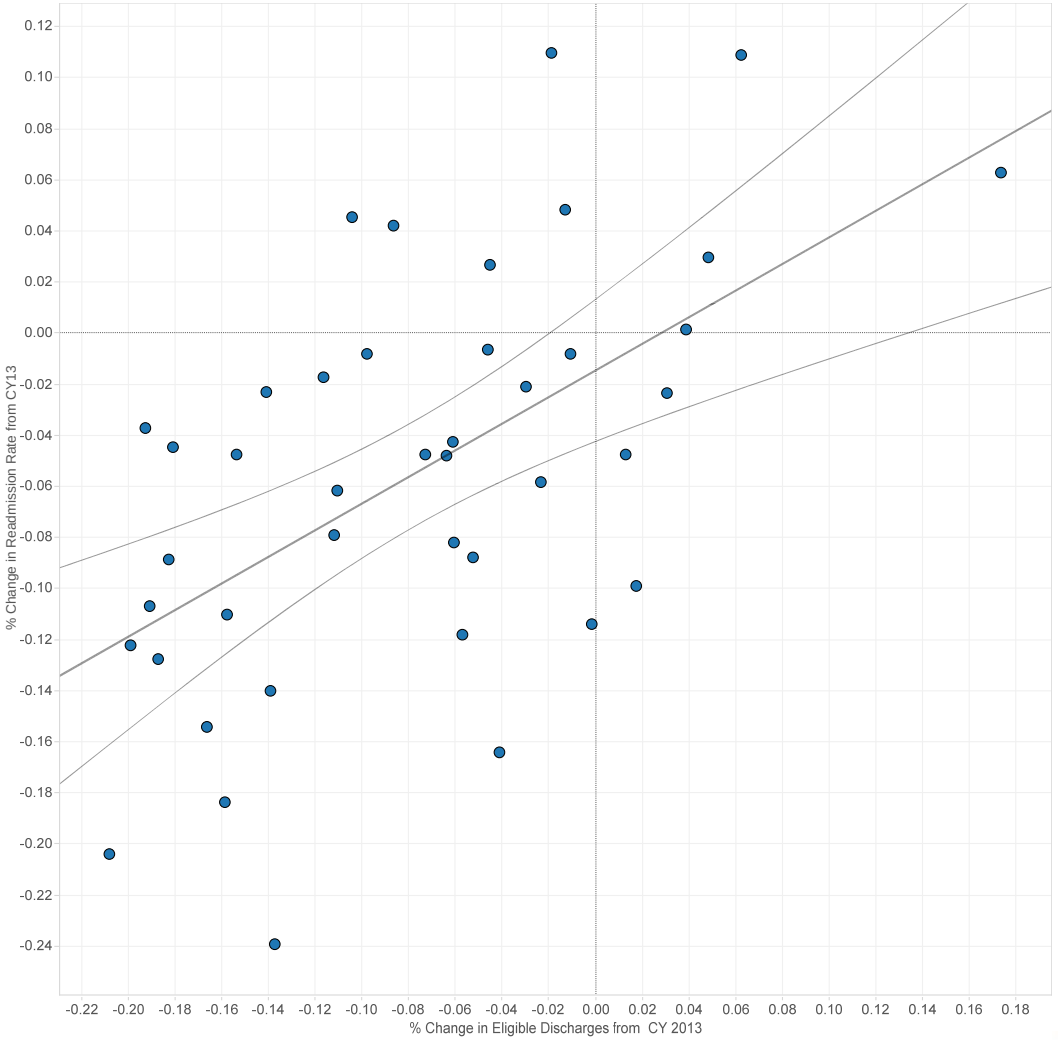

0.12
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
-0.12
-0.14
-0.16
-0.18
-0.20
-0.22
-0.24
% Change in Readmission Rate from CY13
EASTON
GARRETT COUNTY
REHAB & ORTHO
MERITUS
PENINSULA REGIONAL
HOWARD COUNTY
G.B.M.C.
CARROLL COUNTY
LAUREL REGIONAL
DORCHESTER
DOCTORS COMMUNITY
ANNE ARUNDEL
WESTERN MARYLAND HEALTH SYSTEM
HARBOR
JOHNS HOPKINS
UPPER CHESAPEAKE HEALTH
HOPKINS BAYVIEW MED CTR
BALTIMORE WASHINGTON MEDICAL CENTER
UNIVERSITY OF MARYLAND
UMMC MIDTOWN
CHARLES REGIONAL
SINAI
CALVERT
FRANKLIN SQUARE
GOOD SAMARITAN
HARFORD
ATLANTIC GENERAL
MERCY
ST. MARY
UNION MEMORIAL
NORTHWEST
BON SECOURS
CHESTERTOWN
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
% All-Payer Patients >=85th ADI Percentile

Hospitals with large readmission reductions also have large overall reductions in overall admissions



Correlation Coefficient=0.58

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Maryland Hospital Acquired Conditions (MHAC) FY 2018 Policy Final Staff Recommendations

January 13, 2016

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RY 2018 MHAC Update Presentation

- MHAC methodology changes beginning FY 2016
- Approach to assessment of the MHAC Program
- Assessment results
- Recommendations

More Recent Background: Key Changes to MHAC Methodology Beginning FY 2016

- Determine hospital scores based on case-mix-adjusted PPC rates rather than excess PPC costs.
- Prioritize PPCs that are high cost, high volume, have opportunity to improve, and are of national concern by grouping and weighting the PPCs into three tiers according to their level of priority.
- Use the better of attainment or improvement scores to strengthen incentives for low-performing hospitals to improve.
- Use a pre-set point scale developed with base year scores. To determine rewards and penalties.
- Link individual hospital performance with statewide performance by creating a "contingent" payment adjustment scale, where penalties are increased if the state does not reach pre-determined PPC reduction targets.

Assessment of the MHAC Program

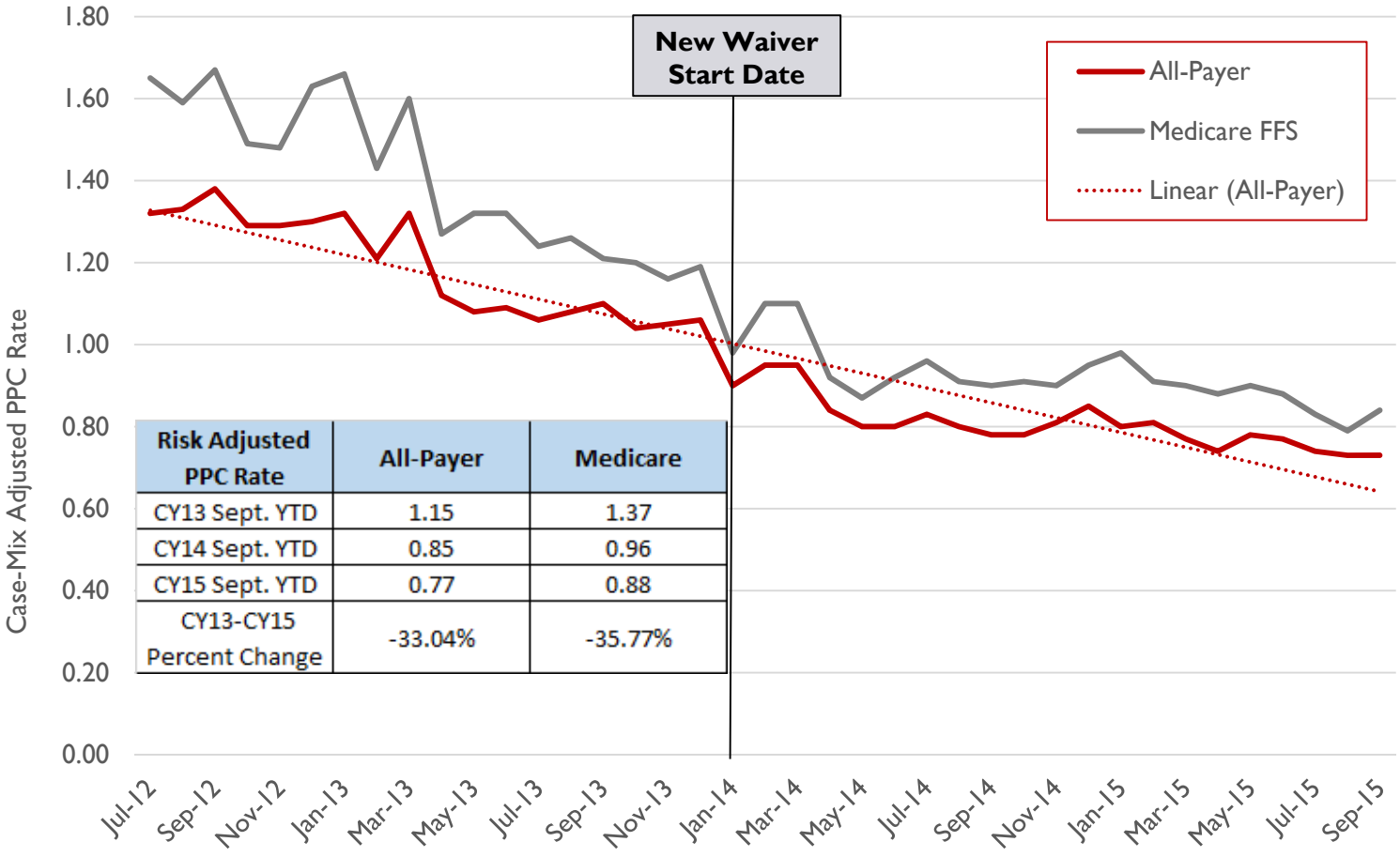
- Stakeholders and partners
  - Workgroup stakeholder analysis and input
  - Contractor analysis
  - Staff analysis
- Both qualitative and quantitative inquiry conducted
- Areas examined
  - Potentially Preventable Complication (PPC) trends over time
  - Setting the annual statewide reduction target
  - PPC use in the MHAC program
  - Payment adjustment methodology considerations

PPC Trends Over Time

There is a Cumulative Risk Adjusted Improvement Rate of 56.6 Percent Between FY 2010 and 2015

	PPC RATES						Annual Change					Avg. Annual Improvement	Total Improvement
Fiscal Year	**10***	**11***	**12***	**13****	**14****	**15****	**10-11**	**11-12**	**12-13^**	**13–14**	**14 –15**	**10–15**	**10–15**
TOTAL NUMBER OF PPCs	53,494	48,416	42,118	27,939	21,059	17,028	-9.5%	-13.0%	-18.8%	-24.6%	-19.1%	-17.0%	-61.0%
COMPLICATION RATE PER 1,000 AT-RISK DISCHARGES	1.92	1.77	1.58	1.25	0.97	0.8	-7.8%	-10.7%	-17.7%	-22.4%	-17.5%	-15.2%	-56.6%

Consistent Downward Trend in the Monthly Medicare Fee-For-Service and All-Payer PPC Rates for July 2012 through September 2015



Risk Adjusted PPC Rate	All-Payer	Medicare
CY13 Sept. YTD	1.15	1.37
CY14 Sept. YTD	0.85	0.96
CY15 Sept. YTD	0.77	0.88
CY13-CY15 Percent Change	-33.04%	-35.77%

Note: Reported as of 01-11-2016, based on final data through September 2015. Excludes PPC24.

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Setting the PPC Annual Reduction Target

Annual Reduction Target Must Take Into Account Recent Reduction Trends and Continuous Quality Improvement

- Setting a statewide MHAC reduction target is crucial in the new MHAC methodology as the maximum penalty would be higher if the target is not met.
- FY 2016 statewide MHAC reduction target was 8 percent and reduced to 7 percent in FY 2017.
- Staff recommend a reduction target of 6 percent for FY 2018.
  - Consistent with observed trends
  - Variation exists in hospital PPCs rates which provides potential for further improvements
  - The Maryland Hospital Association sent a letter on 1/4/16 disagreeing with this improvement target and recommended focusing on sustaining the gains that Maryland has already made.
  - Oher Workgroup members asserted that a significant portion of Maryland's improvement could be a result of coding changes rather than an actual improvement in the quality of care and proposed that the improvement targets should be set higher.
  - CareFirst BlueCross BlueShield voiced concern in a letter on 12/15/15 about the dramatic level of improvement in the MHAC program with PPC reductions of 33-36 percent and supported investigating potential factors contributing to these results.
  - Some Workgroup members also advocated for stronger improvement targets since HACs are included in Maryland hospitals' global budget calculations, whereas Medicare does not pay for HACs in other states.
  - HSCRC staff emphasized the need to continue to improve care and reduce costs by reducing PPC rates.

PPC Vetting on Use in the MHAC Program

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Comprehensive Measurement Strategy Balanced with Desire for Focused Program Based on Accurate and Reliable Measures

- Major strength of the MHAC program compared with the CMS HAC programs is inclusion of all patients and wide range of complications for which they are at risk.
- MHAC program includes 65 PPCs, prioritizes them into three tiers, and assigns a higher weight to PPCs in the top tiers.
- Multi-prong vetting approach included Mathematica analysis (applying reliability and validity tests to PPCs), input from 3M, and input from Performance Measurement Workgroup.

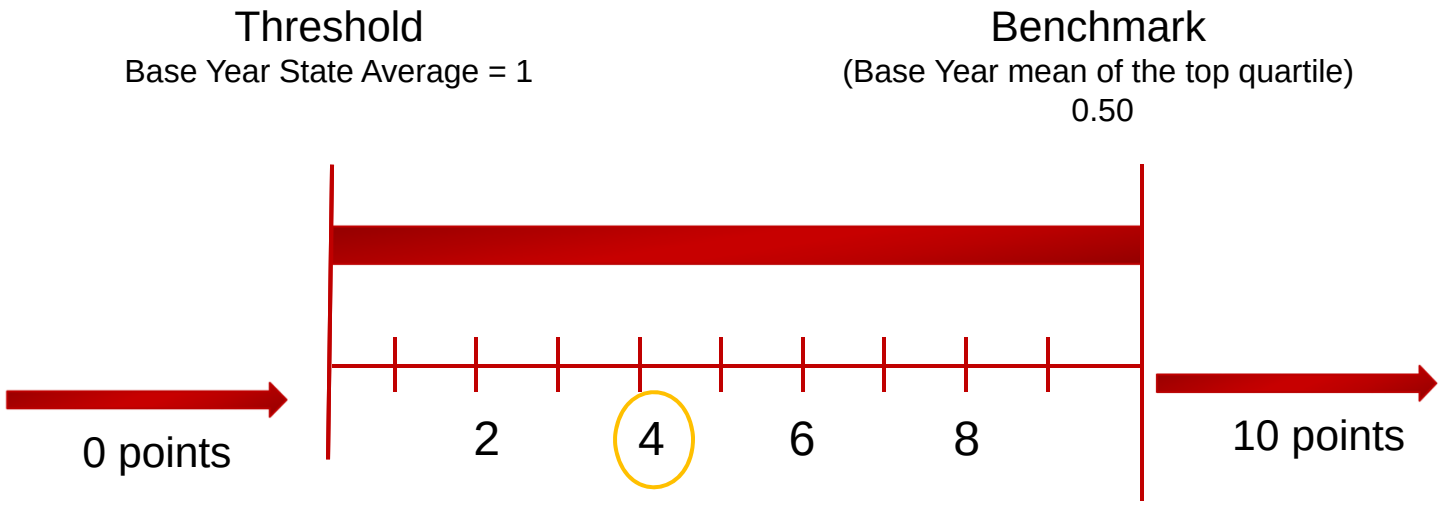
Adjustments to the PPC List and Tiering Approach

- Simplify the scoring - General consensus of Performance Measurement Workgroup is to move from a three-tiered PPC weighting system to a two-tiered weighting system in determining hospital scores (Tier 1 weighted 100%, Tier 2 weighted at 50%).
- Improve the reliability of some measures and account for the infrequent occurrence (small cell sizes) of some measures through combining some PPCs.
- Moving a small subset of PPCs to a "monitoring" status and suspending their use for payment calculation.
- In reviewing the data, HSCRC staff found that changes to the PPC list—whether combining or suspending the PPCs—had minimum impact on overall hospital scores in the MHAC program.
- Staff support the inclusion of a small number of low-volume PPCs with low statistical reliability (likely due to their small numbers) because when these PPCs occur, they constitute significant clinical events of concern.

Payment Adjustment Methodology

MHAC Score: Attainment Score

PPC 55 – Attainment Score



Hospital = 0.78

Calculates to an attainment score of 4

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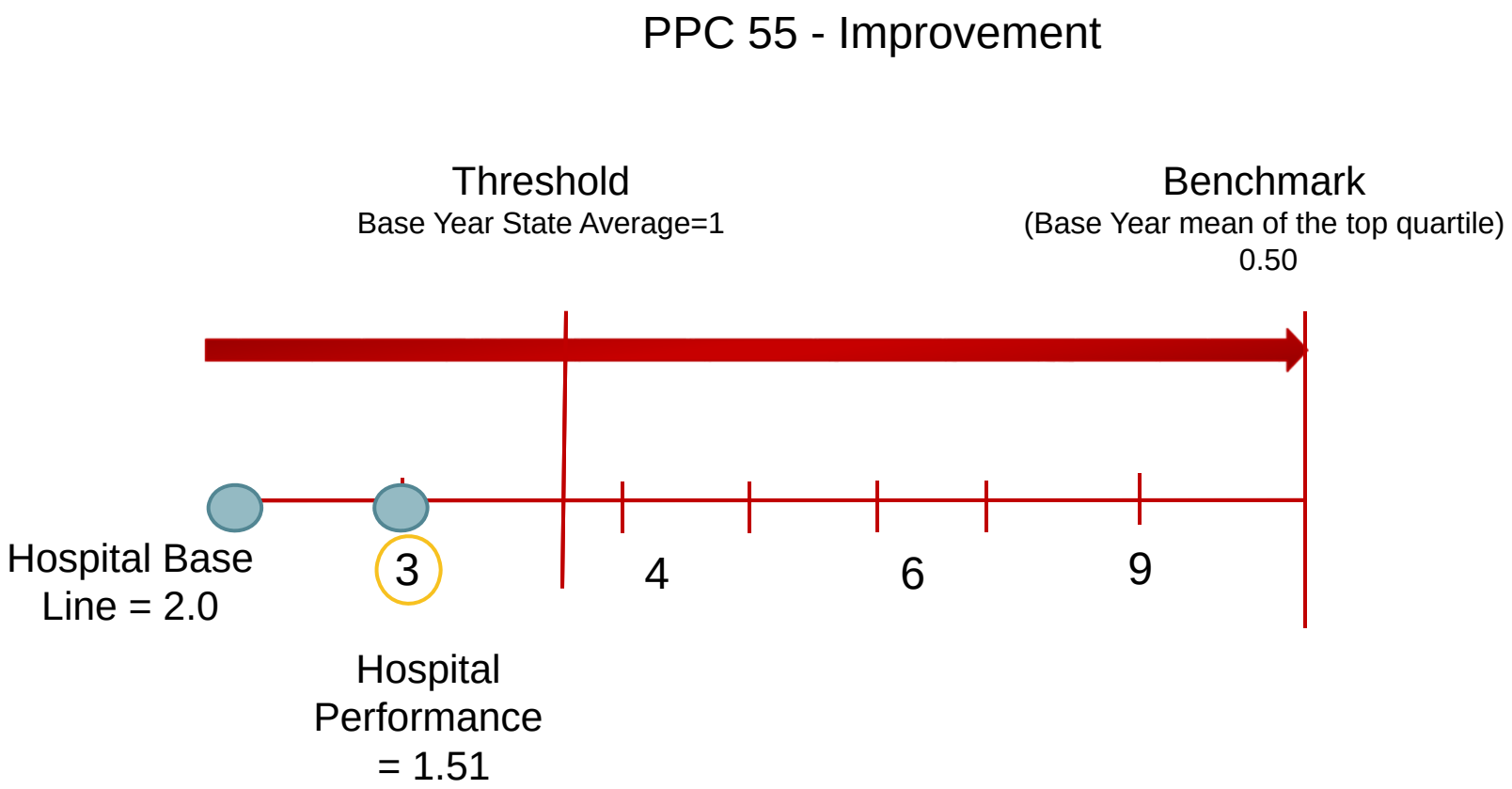
MHAC Score: Better of Attainment or Improvement



Calculates to improvement score of 3
Attainment score of 0

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Overall MHAC Score

Attainment/Improvement Points

Number of PPCs*10

- 0.10 means case-mix adjusted PPC rate is below the base year state average rate in almost all PPCs and no improvement.
- 0.90 means hospital is either at or better than the top quartile base year performance for most PPCs or significant improvements.

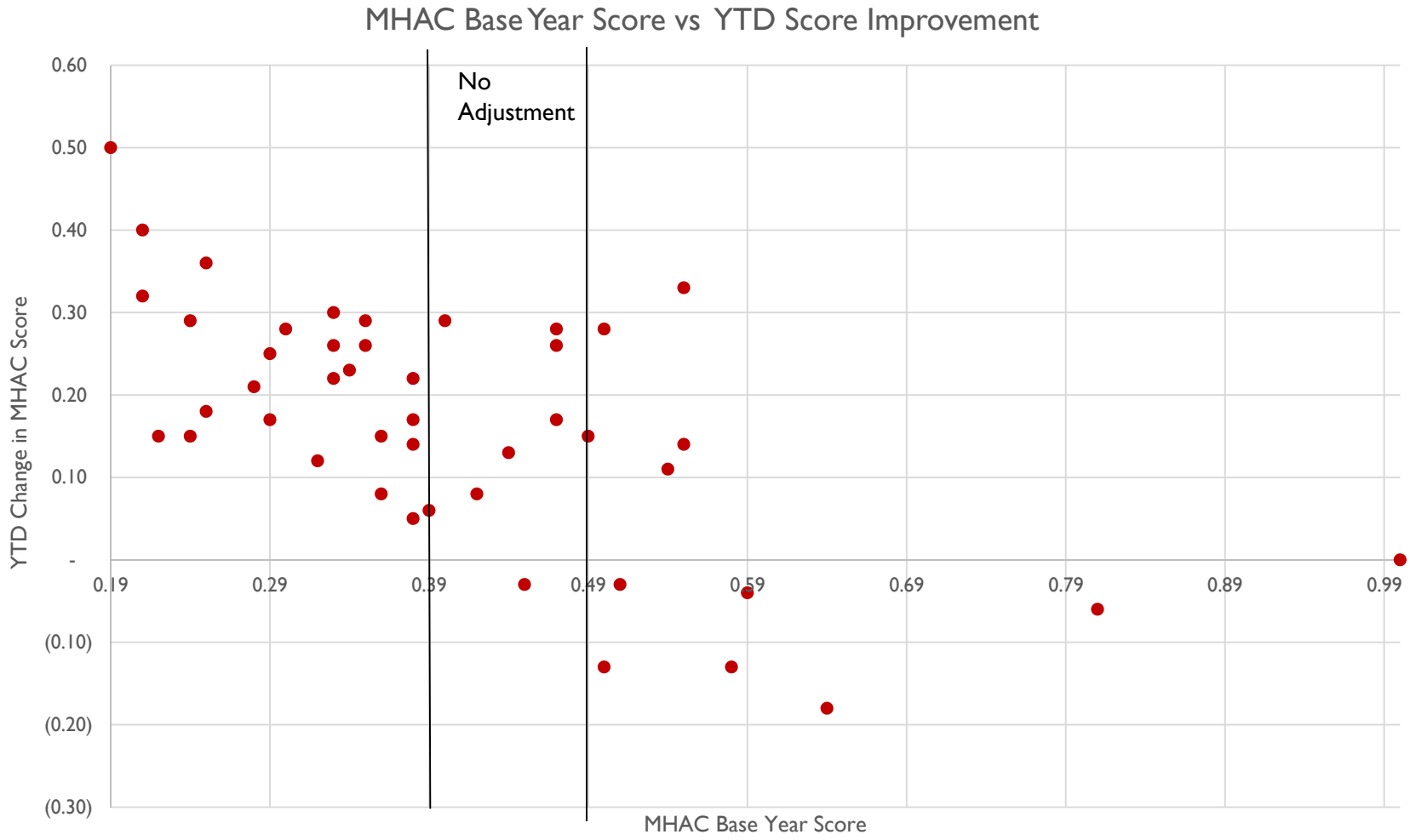
FY 2016 Payment Adjustment Methodology; Pre-set Points, Contingent Scale, No-Adjustment Zones

Final MHAC Score		Below State Quality Target	Exceed State Quality Target
Scores less than or equal to	**0.17**	**-3.00%**	**-1.00%**
	0.27	-2.12%	-0.58%
	0.37	-1.24%	-0.17%
	0.38	-1.15%	-0.12%
	0.39	-1.06%	-0.08%
	0.40	-0.97%	-0.04%
	0.41	-0.88%	0.00%
	0.42	-0.79%	0.00%
	0.43	-0.71%	0.00%
	0.44	-0.62%	0.00%
	0.45	-0.53%	0.00%
	0.46	-0.44%	0.00%
	0.47	-0.35%	0.00%
	0.48	-0.26%	0.00%
	0.49	-0.18%	0.00%
	0.50	-0.09%	0.00%
	0.51	0.00%	0.03%
	0.52	0.00%	0.07%
	0.53	0.00%	0.10%
	0.54	0.00%	0.13%
	0.55	0.00%	0.17%
	0.56	0.00%	0.20%
	0.57	0.00%	0.23%
	0.67	0.00%	0.57%
	0.77	0.00%	0.90%
Scores greater than or equal to	**0.80**	**0.00%**	**1.00%**

Scores for the scaling basis are determined by attainment points in the base year.

Payment adjustments vary depending on the state MHAC target but fixed for each score.

PPC Scores Year-to-Date Show that Hospitals in the Hold Harmless Zone Continue to Improve



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Staff Response to Comments

- FY 2016 changes to the MHAC program were considered in conjunction with one another and had broad stakeholder support so the revisions overall were done in multiple related dimensions.
- Staff believes that a contingent scaling approach creates a balanced approach by maintaining hospital-level incentives with hospital-specific payment adjustments that are also tied to a statewide improvement goal.
- Provides strong incentives for collaboration between hospitals to share best practices and for continued improvement.
- Staff note that applying a blanket penalty after the fact would contradict the program principle of determining program impact ahead of the performance period and would not provide a fair assessment individual hospital performance.

Staff Recommendations

Staff Recommend Keeping the Current FY2017 MHAC Methodology for FY2018

- Staff believe the current approach balances hospital-specific incentives with state goals, sets continuous specific quality improvement goals, and focuses the payment adjustments on best and worst performers.
- Specific recommendations to update the MHAC policy for FY 2018 include the following:
  - The program should continue to use the same scaling approach:
    - The program should continue the contingent scaling approach, where a higher level of revenue is at risk if the statewide improvement target is not met. Rewards should only be distributed if the statewide improvement target is met.
    - Hold-harmless (no-adjustment) zones should be created to focus the payment adjustments to both ends of the performance spectrum.
    - Rewards should not be limited to the penalties collected.
  - The statewide reduction target should be set at 6 percent, comparing FY 2015 with CY 2016 risk-adjusted PPC rates.

Final Recommendation for Modifying the Maryland Hospital-Acquired Conditions Program for FY 2018

January 13, 2016

Health Services Cost Review Commission
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Baltimore, Maryland 21215
(410) 764-2605
FAX: (410) 358-6217

This final recommendation was approved by the Commission at the January Public Meeting.

Table of Contents

LIST OF ABBREVIATIONS

CMMI	Center for Medicare and Medicaid Innovation
CMS	Centers for Medicare & Medicaid Services
CY	Calendar year
DRG	Diagnosis-related group
FFY	Federal fiscal year
FY	Fiscal year
HAC	Hospital-acquired condition
HSCRC	Health Services Cost Review Commission
MHAC	Maryland hospital-acquired condition
PPC	Potentially preventable complication
PSI	Patient safety indicator

INTRODUCTION

A hospital-acquired condition (HAC) occurs when a patient goes to the hospital for one condition but develops another condition during that hospital stay. The second condition—such as an adverse drug reaction or an infection at the site of a surgery—is referred to as hospital-acquired.[1] HACs can lead to 1) poor patient outcomes, including longer hospital stays, permanent harm, and death, and 2) increased costs.[2] Over the past decade, the Centers for Medicare & Medicaid Services (CMS) has implemented several programs to improve the quality of care for Medicare participants, including a program to reduce the frequency of HACs. Because of the state's long-standing Medicare waiver for its all-payer hospital rate-setting system, special considerations were given to Maryland hospitals, including exemption from the federal Medicare hospital quality programs, one of which is the HAC program. Instead, the Maryland Health Services Cost Review Commission (HSCRC or Commission) implements various Maryland-specific quality-based payment programs, which provide incentives for hospitals to improve their quality performance over time. The HSCRC implemented the Maryland Hospital-Acquired Conditions (MHAC) program in state fiscal year (FY) 2011.

Maryland entered into a new All-Payer Model agreement with the Center for Medicare and Medicaid Innovation (CMMI) on January 1, 2014. One of the requirements under this new agreement is for Maryland to reduce the incidence of HACs by 30 percent by 2018. In order to meet this target, the Commission approved several methodological changes to the program for FY 2016, which are discussed in further detail in the background section of this report. The Commission approved additional revisions to the methodology for FY 2017. The purpose of this report is to provide background information on the MHAC program and to make recommendations for the FY 2018 MHAC methodology and targets.

BACKGROUND

1. Federal HAC Programs

Medicare's system for the payment of inpatient hospital services is called the inpatient prospective payment system. Under this system, patients are assigned to a payment category called a diagnosis-related group (DRG), which is a method of categorizing costs so that Medicare can determine how much to pay for the hospital stay. DRGs are based on a patient's primary diagnosis and the presence of other conditions; patients with higher co-morbidities or complications are categorized into higher-paying DRGs.[3] Historically, Medicare payments under this system were based on the volume of services. However, beginning in federal fiscal year (FFY) 2009, CMS stopped assigning patients to higher-paying DRGs if certain conditions were *not* present on the patient's admission, or, in other words, if the condition was acquired in the hospital and could have reasonably been prevented through the application of evidence-based

[1] Cassidy, A. (2015, August 6). Health Policy Brief: Medicare's Hospital-Acquired Condition Reduction Program. *Health Affairs*. Retrieved from http://www.healthaffairs.org/healthpolicybriefs/brief.php?brief_id=142.
[2] Ibid.
[3] Ibid.

guidelines. CMS identified 11 conditions that are presumed to be acquired in the hospital if the diagnosis is not present on the patient's admission. CMS will not assign these patients to more expensive DRGs, and thus does not pay, for these HACs.[4] This policy is referred to as the HAC (present on admission indicator) program.[5] Since non-payment on a case-by-case basis affects only a small fraction of claims, the impact of this program was estimated to be very limited. The program resulted in $21 million in savings in federal fiscal year (FFY) 2010.[6] Maryland hospitals were exempt from the payment adjustments under this program.

CMS expanded the use of HACs in payment adjustments in FFY 2015 with a new program entitled the "Hospital-Acquired Condition Reduction Program" under authority of the Affordable Care Act. In this program, CMS ranks hospitals according to performance on a list of HAC quality measures and reduces Medicare payments to the hospitals in the lowest performing quartile. Since the HAC program began, the maximum penalty has been set at 1 percent of total DRG payments. The CMS HAC measures for FFY 2017 are listed in Appendix I of this report and include measures of patient safety developed by the Agency for Healthcare Research and Quality and measures of healthcare-associated infections developed by the Centers for Disease Control and Prevention.[7] Prior to the new All-Payer Model Agreement, CMS required the HSCRC to submit an annual exemption request demonstrating that outcomes and cost savings of the Maryland-specific program met or exceeded those of the CMS federal program. Under Maryland's new All-Payer Model agreement, this requirement was replaced by the 30 percent HAC reduction goal, as well as a requirement to match the aggregate amount of revenue at risk in quality-based payment adjustments with the amount at risk in the Medicare programs.

2. Overview of the MHAC Program

As discussed in the introduction section of this report, Maryland is exempt from the federal HAC programs, and, instead, HSCRC has implemented the MHAC program since FY 2011. The MHAC program is based on a classification system developed by 3M called potentially preventable complications (PPCs). PPCs are defined as harmful events that develop after the patient is admitted to the hospital and may result from processes of care and treatment rather than from the natural progression of the underlying illness. Therefore, these events are considered potentially preventable. 3M developed 65 PPC measures that are identified through secondary diagnosis codes that are not present on the patient's admission. Examples of PPCs include accidental puncture/laceration during an invasive procedure or infections related to central venous catheters.

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[4] Ibid.
[5] For more information on the federal HAC Present on Admission program, see https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HospitalAcqCond/index.html
[6] CMS. (2012, December). Report to Congress: Assessing the Feasibility of Extending the Hospital Acquired Conditions (HAC) IPPS Payment Policy to Non-IPPS Settings. Retrieved from https://innovation.cms.gov/Files/x/HospAcquiredConditionsRTC.pdf
[7] For more information on the federal HAC Reduction program, see https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/HAC-Reduction-Program.html.

The initial methodology for the MHAC program was in place until FY2016. This methodology estimated the percentage of inpatient revenue associated with an excess number of PPCs. The excess number of PPCs was estimated by comparing hospitals' observed PPC rate to a statewide average PPC rate given the diagnoses and severity of illness (or "case-mix") of the hospital's patient population. The marginal cost of each PPC was estimated using a statewide regression analysis. Those PPCs that are deemed to have measurement biases, or those with marginal associated costs that were not statistically significant, were excluded from the program. Next, the payment adjustment approach assessed penalties to hospitals that had higher PPC costs than the statewide average and granted rewards to hospitals with lower PPC costs than the statewide average. The payment adjustments were proportionate to a hospital's difference from the statewide average (this is referred to as continuous scaling). Rewards were adjusted to ensure that the final net impact of the scaling to the state was zero (i.e., revenue neutral). In general, the payment adjustments process resulted in fewer hospitals receiving penalties and consequently limited the amount of revenue available for the rewards.

HSCRC modified the guiding principles of those originally established for the MHAC program to conform to the goals of its new All-Payer Model agreement with CMMI; they include the following:

- The program must improve care for all patients, regardless of payer.
- The breadth and impact of the program must meet or exceed the Medicare national program in terms of measures and revenue at risk.
- The program should identify predetermined performance targets and financial impact.
- An annual target for the program must be established in the context of the trends of complication reductions seen in the previous years, as well as the need to achieve the new All-Payer Model goal of a 30 percent cumulative reduction by 2018.
- The program should prioritize PPCs that have high volume, high cost, opportunity for improvement, and are areas of national focus.
- Program design should encourage cooperation and sharing of best practices.
- The scoring method should hold hospitals harmless for a lack of improvement if attainment is highly favorable.
- Hospitals should have the ability to track their progress during the performance period.

HSCRC also modified the program's methodology to achieve these new goals and guiding principles under the new All-Payer Model agreement. These changes affected performance years beginning with calendar year (CY) 2014, which were applied to rate years beginning with FY 2016.[8] The key changes to the methodology are listed below (see Appendix II for a more detailed description of the revised methodology).

[8] The performance period for PPCs is measured on a calendar year basis, and the results of these measures are then used in the hospitals' rate calculations, which are set on a fiscal year basis.

- Determining hospital scores based on case-mix-adjusted PPC rates rather than excess PPC costs. The rationale for this change was to simplify and align the measurement with the quality improvement methods, where hospitals focus shifted to the PPC rates rather than the number of excess PPCs and costs.
- Prioritizing PPCs that are high cost, high volume, have opportunity to improve, and are of national concern by grouping and weighting the PPCs into three tiers according to their level of priority. This tiering approach replaced the previous PPC-specific weighting approach that used marginal costs, which changed the weights of a small number of PPCs significantly from year to year— it should be noted that this in turn created challenges for hospitals to have a continued focus on high-rate PPCs.
- Using the better of attainment or improvement scores, which will strengthen incentives for low-performing hospitals to improve. Previously, payment adjustments were calculated separately for hospital attainment and improvement rates that were based on a few PPCs.
- In determining payment rewards/penalties, using a preset point scale developed with base year scores. This was a shift from the original approach to determining payment adjustments, which were calculated based on the relative ranking of hospitals, to improve the financial predictability of the program. In addition, the revised methodology lifts the revenue neutrality requirement (i.e., the statewide total amount of rewards can exceed the total amount of penalties) in scaling payments to reward hospitals with better performance adequately.
- Linking individual hospital performance with statewide performance by creating a "contingent" payment adjustment scale, where penalties are increased if the state does not reach pre-determined PPC reduction targets. Although there is substantial debate over the effectiveness of collective incentives, staff and the hospital industry believe that "contingent" scaling creates a balanced approach by maintaining hospital-level incentives with hospital-specific payment adjustments, that are also tied to a statewide improvement goal. In addition to contingent scaling, "hold-harmless zones" were created to focus payment adjustments on better and worse performing hospitals.

ASSESSMENT

In order to develop the MHAC methodology and targets for FY 2018, the HSCRC solicited input from stakeholder groups, including hospitals, payers, researchers, and other industry experts. The Performance Measurement Workgroup[9] discussed pertinent issues and potential changes to Commission policy for FY 2018 that may be necessary to enhance the HSCRC's ability to continue to improve the quality of care, reduce costs related to HACs, and continue to meet CMMI's waiver targets. In its October, November, and December meetings, the Workgroup reviewed analyses and discussed issues related to 1) statewide PPC trends, 2) the list of PPCs and options for ranking this list into tiers, 3) the annual statewide MHAC adjustment target, and 4) the payment adjustment methodology. This section of the report provides an overview of the data reviewed and issues discussed by the Workgroup.

[9] For more information on the Performance Measurement Workgroup, see http://www.hscrc.state.md.us/hscrc-workgroup-performance-measurement.cfm.

Statewide PPC Trends

The state continued to make significant progress in reducing complications, as measured both in terms of the actual number of PPCs and risk-adjusted PPC rates in FY 2015. Figure 1 below presents the PPC reduction trends in Maryland between FY 2010 and FY 2015. In this figure, the blue columns labeled "PPC Rates" display the number of PPC complications occurring in each year and the rate of PPC complications, which may be interpreted as the number of PPCs per 1,000 at-risk discharges. The yellow columns in the figure labeled "Annual Change" show the percent change between each year, e.g., from FY 2010 to 2011. Finally, the green columns display the percent change over the entire measurement period of FY 2010 through 2015. Because the goal of the program is to reduce PPCs, the negative percent changes in this figure may be interpreted as a performance improvement. Overall, the number and rate of PPCs decreased significantly, with a cumulative risk adjusted improvement rate of 56.6 percent between FY 2010 and 2015.

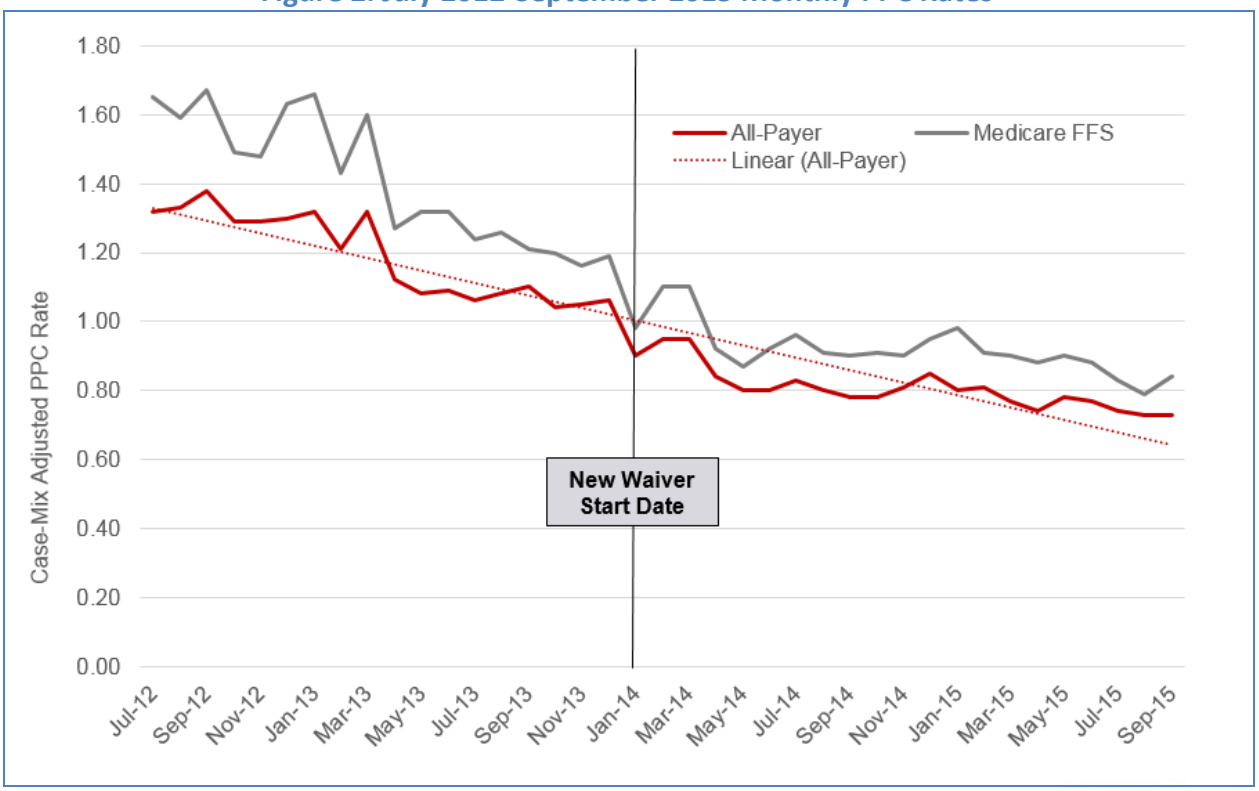
Figure 1. PPC Reduction Trends in Maryland, FY 2010-2015

	PPC RATES						Annual Change					Avg. Annual Improvement	Total Improvement
Fiscal Year	**10***	**11***	**12***	**13****	**14****	**15****	**10-11**	**11-12**	**12-13^**	**13–14**	**14 –15**	**10–15**	**10–15**
TOTAL NUMBER OF PPCs	53,494	48,416	42,118	27,939	21,059	17,028	-9.5%	-13.0%	-18.8%	-24.6%	-19.1%	-17.0%	-61.0%
COMPLICATION RATE PER 1,000 AT-RISK DISCHARGES	1.92	1.77	1.58	1.25	0.97	0.8	-7.8%	-10.7%	-17.7%	-22.4%	-17.5%	-15.2%	-56.6%

*PPC version 30 and FY 2010 norms
**PPC version 32 and FY 2014 norms
^Percent change from FY 2012 to FY 2013 uses FY 2013 values (not shown) using PPC v. 30 and FY 2010 norms.

HSCRC staff also analyzed monthly PPC rates for Medicare fee-for-service and all payers for July 2012 through September 2015 (Figure 2). The gray line in this figure shows the monthly PPC rate for Medicare fee-for-service, while the red line shows the monthly PPC rate for all payers, inclusive of Medicare fee-for-service. Both lines show a fairly consistent downward trend between July 2012 and September 2015.

Figure 2. July 2012-September 2015 Monthly PPC Rates



While Maryland has already achieved the CMMI target of a 30 percent reduction in MHACs, HSCRC staff and other stakeholders have concerns that some of this reduction may be attributable to changes in hospital coding rather than actual performance improvements. The HSCRC continues to conduct coding audits of ten hospitals per year. Following higher reduction levels in PPCs, the number of cases selected specifically for POA audits were increased substantially and additional selection criteria were added to audit PPCs with highest levels of improvement, cases with changes in their PPC status between preliminary and final data, and cases with hospice/palliative care codes. In the current auditing period, HSCRC added criteria to target PPCs that may be under-coded (e.g., cases with an excessive length of stay where no PPC was coded); staff will report findings to the Commission going forward as they become available.

PPC List and Tier Adjustments

One of the major strengths of the MHAC program compared with the CMS HAC programs is the inclusion of a wide range of complications and all patients who are at risk of developing these complications. The current MHAC program includes 65 PPCs, prioritizes them into three tiers, and assigns a higher weight to PPCs in the top tiers. Appendix III contains a list of PPCs and their tiers. While one of the guiding principles of the program calls for a comprehensive measurement strategy, this aim needs to be balanced with a desire to have a focused measurement strategy that relies on accurate and reliable measures; the accuracy and reliability of each PPC rate are important factors in considering which PPCs to include in the payment program.

HSCRC contracted with Mathematica Policy Research to conduct analyses testing the reliability and validity of the 65 PPC measures and to make suggestions for improvement to HSCRC's methodology. Mathematica presented the results of this analysis to the Performance Measurement Workgroup during their November 20th meeting (see Appendix IV for Mathematica's Report). 3M also reviewed the results of Mathematica's analysis and provided HSCRC staff with comments. Based on the results of the Mathematica analysis and input from 3M and the Performance Measurement Workgroup, HSCRC staff support the following changes to the PPC list and the tiering methodology for FY 2018:

- Moving from a three-tiered PPC weighting system to a two-tiered weighting system, with tier 1 weighted at 100 percent and tier 2 weighted at 50 percent in the scoring calculations. The rationale for this change is to simplify the scoring and payment adjustment calculations for the program. Staff recommend to include about one-third of the measures in tier 1.There was general consensus among Performance Measurement Workgroup members for this change in approach.
- Combining some PPC measures that are clinically similar for scoring purposes. The rationale for this change is to improve the reliability of some of the measures and to account for the infrequent occurrence (small cell sizes) of some of the measures. For example, for two separate PPCs related to gastrointestinal complications, Mathematica found that these measures individually have low reliability, so HSCRC staff recommend combining them into a single measure to improve their reliability. In addition to the statistical attributes of the PPCs, the clinical relationships among candidate combinations are an important factor in considering whether to combine PPCs. A few PPCs with a low number of cases in the lowest weighted tier were combined in FY 2017. There was some disagreement among Performance Measurement Workgroup members on which specific measures to combine for FY 2018 based on the expanded list of PPCs that scored low on reliability and validity testing. Overall, staff support creating a handful of combination measures for FY 2018.
- Moving a small subset of PPCs to a "monitoring" status, suspending their use for payment calculation for FY 2018. While some Workgroup members advocated for suspending additional measures, other members were concerned that suspending a measure would diminish its importance. Specifically, there was discussion about suspending some of the serious but rare PPCs (i.e., never-events) due to the fact that the infrequent occurrence led to low reliability. Overall, staff support suspension of a handful of PPC measures for FY 2018. However, staff recommend to continue to include serious but rare complications because of their clinical significance.

In late December, staff circulated the PPC list, recommendations for PPC tiers, and recommendations for combining and suspending measures to the Performance Measurement Workgroup members and requested feedback prior to the next Workgroup meeting in late January. In reviewing the data, HSCRC staff found that changes to the PPC list—whether combining or suspending the PPCs—had minimum impact on overall hospital scores in the MHAC program. Staff support the inclusion of a small number of low-volume PPCs that Mathematica determined to have low statistical reliability (likely due to their small numbers) because when these PPCs occur, they constitute significant clinical events of concern. Staff will finalize the list after receiving the requested feedback and issue a memorandum to the industry with the final PPC list. The PPC list with staff recommendations is in Appendix V.

Annual Statewide MHAC Reduction Target

Setting a statewide MHAC reduction target is crucial in the new MHAC methodology, as the maximum penalty would be higher if the target is not met. In the initial years, the statewide target was calculated based on historical improvement rates and the five-year 30 percent improvement target established by the new All-Payer Model agreement. In FY 2016, the statewide MHAC reduction target was 8 percent, and this was reduced to 7 percent in FY 2017. HSCRC staff presented a recommended reduction target of 6 percent in the draft recommendation and presented to the Performance Measurement Workgroup. In a letter dated January 4, 2016, the Maryland Hospital Association expressed disagreement with this improvement target and recommended instead that the policy should focus on sustaining the gains that Maryland has already made. Other Workgroup members, however, asserted that a significant portion of Maryland's improvement could be a result of coding changes rather than an actual improvement in the quality of care and proposed that the improvement targets should be set higher. In a letter dated December 15, Jonathan Blum, representing CareFirst BlueCross BlueShield, voiced concern about the dramatic level of improvement in the MHAC program, with PPC reductions of 33-36 percent, and supported investigating potential factors contributing to these results.[10] Some Workgroup members also advocated for stronger improvement targets in light of the fact that HACs are included in Maryland hospitals' global budget calculations, whereas Medicare does not pay for HACs in other states. HSCRC staff emphasized the need to continue to improve care and reduce costs by reducing PPC rates and requested Workgroup members to provide suggestions for estimating the extent to which the MHAC improvements are a result of coding changes.

Based on these discussions and a broad range of opinions voiced, staff recommend setting a 6 percent improvement target for FY 2018, which is consistent with observed trends and is a reduction from last year's 7 percent improvement target. Although substantial improvements have been realized, a significant variation exists in hospital PPCs rates, which provides potential for further improvements and would be in line with continuous quality improvement as part of the three-part aim. Staff are currently analyzing MHAC results in light of other quality measurement results, such as the Centers for Disease Control and Prevention's National Healthcare Safety Network infection rate measures, but caution that measures with differing specifications may be correlated but should not yield the same results.

Payment Adjustment Methodology

Staff do not recommend any changes to the payment adjustment methodology at this time. The CY 2014 changes to the MHAC program, which were first applied to FY 2016 hospital rates, were considered in conjunction with one another and had broad stakeholder support. In addition to changes in the PPC measurement and scoring methodology, the payment methodology was revised substantially in multiple related dimensions.

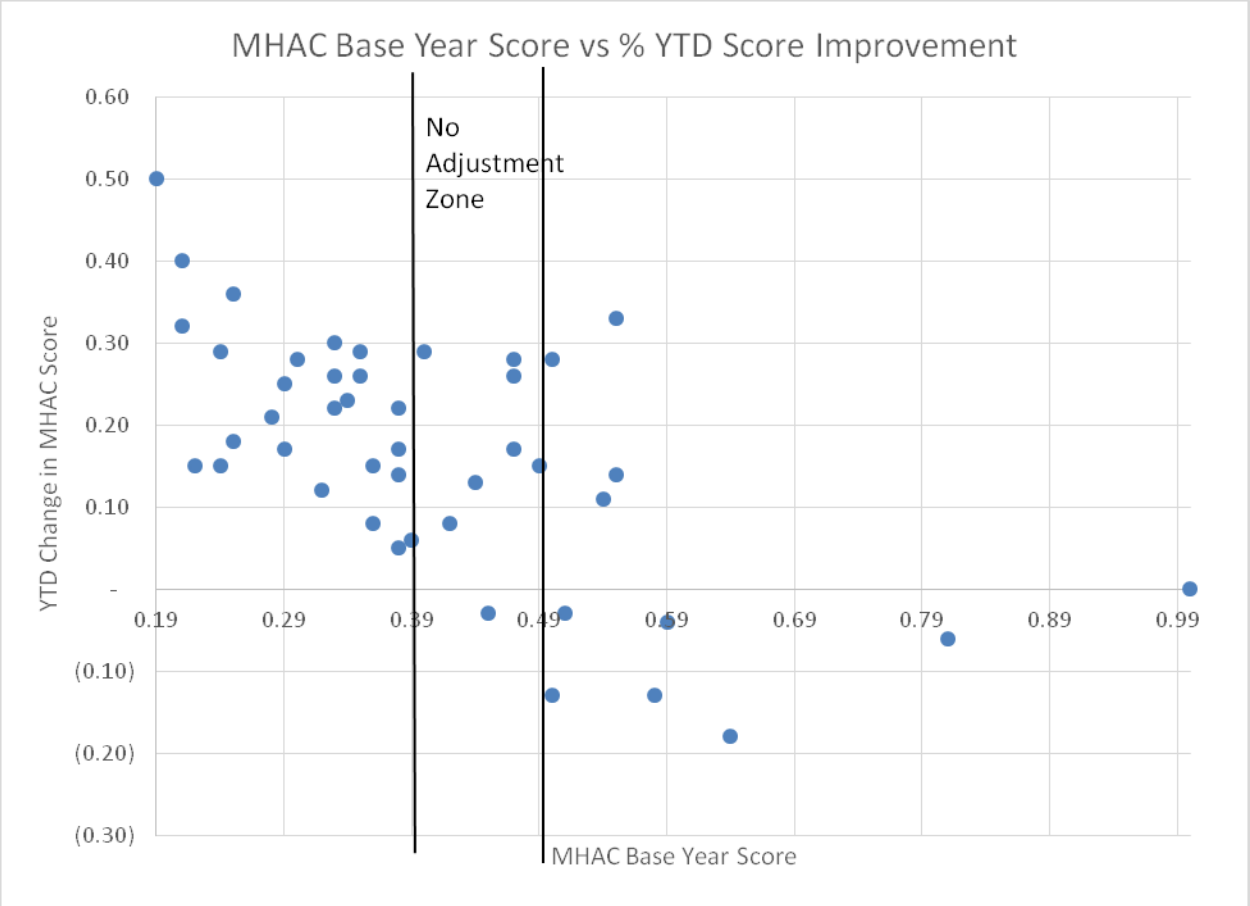
[10] Staff received only two comment letters, which are included at the end of this recommendation.

In his December 15th letter, Jonathan Blum, representing CareFirst BlueCross BlueShield, asserted that the MHAC program would be enhanced with some changes to the payment adjustment methodology. First, Mr. Blum recommended replacing the two-tiered scaling approach with a single scale without a hold-harmless zone. He stated that this would provide incentives that are proportionate to hospital performance and increase individual accountability. Second, Mr. Blum recommended, rather than using two scales with higher amounts of revenue at risk if a statewide collective PPC reduction target is not met, applying a penalty to all hospitals as part of the update factor determination after the performance period is completed if the statewide improvement target is not met. This would support the sharing of information and best practices among hospitals.

Staff continue to advocate that a contingent scaling approach provides strong incentives for collaboration between hospitals to share best practices and continue to improve to ensure that the statewide target is achieved. Appendix VI presents pre-set scaling points and year to date results for FY2017. Based on the results using January to September data, four hospitals are receiving a penalty totaling $2 million, 12 hospitals are in the hold-harmless zone and 30 hospitals are receiving rewards, totaling $17.5 million as the state met the reduction goal of 7 percent. Staff note that applying a penalty after the fact, as recommended by CareFirst, would contradict with the program principle of determining program impact ahead of the performance period. Even if the determination is made after the fact, a blanket penalty applied to all hospitals regardless of their PPC performance would not produce a fair assessment of hospital performance. Staff believes that statewide improvement goal is still needed to continue the progress and balance collective accountability with hospital level performance.

In evaluating the impact of the hold-harmless zone, staff analyzed the year-to-date results in PPC scores to examine whether hospitals that started in the hold-harmless zone improved. Figure 3 plots the changes in MHAC scores (vertical axis) against the baseline scores (horizontal axis), which have a range of 0.17 to 1 points. The FY 2017 scale set the no-adjustment zone between 0.40 to 0.50 points based on the distribution of hospitals in the base year. As the chart indicates, all but one hospital in the hold-harmless zone continued to improve. The average improvement was 0.22 points for the hospitals in the penalty zone, 0.15 points for those that started in the no-adjustment zone, and 0.02 points for those that were in the reward zone. It is important to note that as the maximum score cannot exceed 1 point, the opportunity to improve diminishes with higher scores. The data indicate that hospitals in the hold-harmless zone continued to improve, likely reflecting the impact of contingent scaling (they would have received penalties if the state did not meet the target) and incentives to achieve positive financial adjustments.

Figure 3. A Comparison of Hospital's Base Year MAC Score with Year-to-Date Improvement



Some Workgroup members expressed concern about the impact of small hospitals on establishing the expected PPC benchmark values, noting that the majority of the high-performing hospitals are small hospitals. HSCRC staff note that this is consistent with national quality programs since, according to a Government Accounting Office analysis of the federal Hospital Value-Based Purchasing program, small hospitals and hospitals with better financial performance generally had higher payment adjustments, i.e., larger bonuses or smaller penalties.[11] As the benchmarks for full points are set at the top 25 percent of the best performing hospital levels, small hospitals are also contributing disproportionately to setting the scores of the rest of the hospitals in the state. Staff are evaluating the impact of small hospitals on benchmarks and will work with the Performance Measurement Workgroup to make adjustments that would mitigate some of these concerns. In addition to the impact of the size of the hospitals, the PPC measures tend to focus on surgical cases, which may contribute to differential performance among hospitals. Although risk adjustment accounts for differences in all-patient refined

[11] United States Government Accounting Office. (2015, October). Hospital Value-Based Purchasing, Report to Congressional Committees. Retrieved from. http://www.gao.gov/assets/680/672899.pdf

diagnosis-related groups (APR DRG) and severity of illness (SOI) levels between hospitals, the number of PPCs in which each hospital is measured against may vary depending on hospitals' service lines. For example, hospitals that provide obstetrical services would be measured against additional PPCs related to obstetrical care that would not apply to hospitals that do not provide obstetrical care. Shifting the pay-for-performance programs' focus to condition-specific measures is a goal that staff believe holds great promise moving forward. This condition-specific focus would allow for the creation of composite measures that combine different dimensions of quality measurement on a specific group of patients, such as readmissions, complications, mortality, patient satisfaction, avoidable utilization, and costs. The Performance Measurement Work group will discuss these approaches in the strategic planning process in the context of the larger set of programs and overarching system goals in the upcoming months.

RECOMMENDATIONS

Based on this assessment, HSCRC staff recommend keeping the current FY2017 MHAC methodology for FY2018, as this current approach balances hospital-specific incentives with state goals, sets continuous specific quality improvement goals, and focuses the payment adjustments to best and worst performers. Below are the specific recommendations to update the MHAC policy for FY 2018:

1) The program should continue to use the same scaling approach:
   a) The program should continue the contingent scaling approach, where a higher level of revenue is at risk if the statewide improvement target is not met. Rewards should only be distributed if the statewide improvement target is met.
   b) Hold-harmless zones should be created to focus the payment adjustments to both ends of the performance spectrum.
   c) Rewards should not be limited to the penalties collected.
2) The statewide reduction target should be set at 6 percent, comparing FY 2015 with CY 2016 risk-adjusted PPC rates.

APPENDIX I.
MEASURES FOR THE FEDERAL HAC PROGRAM

CMS HAC MEASURES Implemented Since FFY 2012

HAC 01: Foreign Object Retained After Surgery
HAC 02: Air Embolism
HAC 03: Blood Incompatibility
HAC 04: Stage III & Stage IV Pressure Ulcers
HAC 05: Falls and Trauma
HAC 06: Catheter-Associated Urinary Tract Infection
HAC 07: Vascular Catheter-Associated Infection
HAC 08: Surgical Site Infection - Mediastinitis After Coronary Artery Bypas Graft (CABG)
HAC 09: Manifestations of Poor Glycemic Control
HAC 10: Deep Vein Thrombosis/Pulmonary Embolism with Total Knee Replacement or Hip Replacement
HAC 11: Surgical Site Infection – Bariatric Surgery
HAC 12: Surgical Site Infection – Certain Orthopedic Procedure of Spine, Shoulder, and Elbow
HAC 13: Surgical Site Infection Following Cardiac Device Procedures
HAC 14: Iatrogenic Pneumothorax w/Venous Catheterization

CMS HAC Reduction Program Measures Implemented Since FFY 2015

- Domain 1- the Agency for Health Care Research and Quality composite PSI #90 which includes the following indicators:
    - Pressure ulcer rate (PSI 3);
    - Iatrogenic pneumothorax rate (PSI 6);
    - Central venous catheter-related blood stream infection rate (PSI 7);
    - Postoperative hip fracture rate (PSI 8);
    - Postoperative pulmonary embolism (PE) or deep vein thrombosis rate (DVT) (PSI 12);
    - Postoperative sepsis rate (PSI 13);
    - Wound dehiscence rate (PSI 14); and
    - Accidental puncture and laceration rate (PSI 15).
- Domain 2- two healthcare-associated infection measures developed by the Centers for Disease Control and Prevention's (CDC) National Health Safety Network:
    - Central Line-Associated Blood Stream Infection and
    - Catheter-Associated Urinary Tract Infection.

For the FY 2017 CMS HAC Reduction program, CMS decreased the Domain 1 weight from 25 percent to 15 percent and increased the Domain 2 weight from 75 percent to 85 percent.

CMS also expanded the data used for CLABSI and CAUTI measures and will include data from pediatric and adult medical ward, surgical ward, and medical/surgical ward locations, in addition to data from adult and pediatric ICU locations.

APPENDIX II.
PPC MEASUREMENT DEFINITION AND POINTS CALCULATION

Definitions

The PPC measure would then be defined as:

Observed (O)/Expected (E) value for each measure

The threshold value is the minimum performance level at which a hospital will be assigned points and is defined as:

Weighted mean of all O/E ratios (O/E =1)

(Mean performance is measured at the case level. In addition, higher volume hospitals have more influence on PPCs' means.)

The benchmark value is the performance level at which a full 10 points would be assigned for a PPC and is defined as:

Weighted mean of top quartile O/E ratio

For PPCs that are serious reportable events, the benchmark will be set at 0.

Performance Points

Performance points are given based on a range between a "Benchmark" and a "Threshold," which are determined using the base year data. The Benchmark is a reference point defining a high level of performance, which is equal to the mean of the top quartile. Hospitals whose rates are equal to or above the benchmark receive 10 full attainment points.

The Threshold is the minimum level of performance required to receive minimum attainment points, which is set at the weighted mean of all the O/E ratios which equals to 1. The improvement points are earned based on a scale between the hospital's prior year score (baseline) on a particular measure and the Benchmark and range from 0 to 9.

The formulas to calculate the attainment and improvement points are as follows:

- Attainment Points: [9 * ((Hospital's performance period score - threshold)/(benchmark – threshold))] + .5, where the hospital performance period score falls in the range from the threshold to the benchmark
- Improvement Points: [10 * ((Hospital performance period score -Hospital baseline period score)/(Benchmark - Hospital baseline period score))] -.5, where the hospital performance score falls in the range from the hospital's baseline period score to the benchmark.

APPENDIX III.
MHAC FY 2017 PPC LIST, TIERS, AND WEIGHTING

PPC #	PPC Description	Threshold	Benchmark	Tier
1	Stroke & Intracranial Hemorrhage	1	0.5241	3
2	Extreme CNS Complications	1	0.3027	3
3	Acute Pulmonary Edema and Respiratory Failure without Ventilation	1	0.4884	1
4	Acute Pulmonary Edema and Respiratory Failure with Ventilation	1	0.4837	1
5	Pneumonia & Other Lung Infections	1	0.4365	1
6	Aspiration Pneumonia	1	0.5393	1
7	Pulmonary Embolism	1	0.3464	1
8	Other Pulmonary Complications	1	0.3321	2
9	Shock	1	0.3119	1
10	Congestive Heart Failure	1	0.2272	2
11	Acute Myocardial Infarction	1	0.4624	2
12	Cardiac Arrhythmias & Conduction Disturbances	1	0.5443	3
13	Other Cardiac Complications	1	0.165	3
14	Ventricular Fibrillation/Cardiac Arrest	1	0.5482	1
15	Peripheral Vascular Complications Except Venous Thrombosis	1	0.3271	3
16	Venous Thrombosis	1	0.2739	16
17	Major Gastrointestinal Complications without Transfusion or Significant Bleeding	1	0.5111	2
18	Major Gastrointestinal Complications with Transfusion or Significant Bleeding	1	0.086	2
19	Major Liver Complications	1	0.3394	2
20	Other Gastrointestinal Complications without Transfusion or Significant Bleeding	1	0.441	3
21	Clostridium Difficile Colitis	1	0.3427	3
23	GU Complications Except UTI	1	0.1973	3
25	Renal Failure with Dialysis	See Combined PPC 67		3
26	Diabetic Ketoacidosis & Coma			3
27	Post-Hemorrhagic & Other Acute Anemia with Transfusion	1	0.5607	2
28	In-Hospital Trauma and Fractures	1	0.3471	1
29	Poisonings Except from Anesthesia	1	0.185	3
30	Poisonings due to Anesthesia	0	0	3
31	Decubitus Ulcer	0	0	1
32	Transfusion Incompatibility Reaction	0	0	3
33	Cellulitis	1	0.3511	3
34	Moderate Infectious	1	0.0533	3
35	Septicemia & Severe Infections	1	0.3298	1
36	Acute Mental Health Changes	1	0.2437	3
37	Post-Operative Infection & Deep Wound Disruption Without Procedure	1	0.5343	1

PPC #	PPC Description	Threshold	Benchmark	Tier
38	Post-Operative Wound Infection & Deep Wound Disruption with Procedure	1	0.1119	1
39	Reopening Surgical Site	1	0.3355	3
40	Post-Operative Hemorrhage & Hematoma without Hemorrhage Control Procedure or I&D Proc	1	0.6201	1
41	Post-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D Proc	1	0.0583	2
42	Accidental Puncture/Laceration During Invasive Procedure	1	0.5286	1
43	Accidental Cut or Hemorrhage During Other Medical Care	See Combined PPC 67		3
44	Other Surgical Complication - Mod	1	0.3496	3
45	Post-procedure Foreign Bodies	0	0	3
46	Post-Operative Substance Reaction & Non-O.R. Procedure for Foreign Body	0	0	3
47	Encephalopathy	1	0.2274	3
48	Other Complications of Medical Care	1	0.4184	2
49	Iatrogenic Pneumothorax	1	0.1123	1
50	Mechanical Complication of Device, Implant & Graft	1	0.3371	3
51	Gastrointestinal Ostomy Complications	1	0.1031	3
52	Inflammation & Other Complications of Devices, Implants or Grafts Except Vascular Infection	1	0.5224	3
53	Infection, Inflammation & Clotting Complications of Peripheral Vascular Catheters & Infusions	1	0.1142	3
54	Infections due to Central Venous Catheters	1	0.1906	1
55	Obstetrical Hemorrhage without Transfusion	1	0.5011	3
56	Obstetrical Hemorrhage with Transfusion	1	0.4447	3
57	Obstetric Lacerations & Other Trauma Without Instrumentation	1	0.6149	3
58	Obstetric Lacerations & Other Trauma With Instrumentation	1	0.3936	3
59	Medical & Anesthesia Obstetric Complications	1	0.4924	3
60	Major Puerperal Infection and Other Major Obstetric Complications	1	0.166	3
61	Other Complications of Obstetrical Surgical & Perineal Wounds	1	0.3701	3
62	Delivery with Placental Complications	1	0.2963	3
63	Post-Operative Respiratory Failure with Tracheostomy	See Combined PPC 67		3
64	Other In-Hospital Adverse Events			3
65	Urinary Tract Infection without Catheter	1	0.5268	1
66	Catheter-Related Urinary Tract Infection	1	0	1
67	Combined PPC* (PPC 25, 26, 43, 63, 64)	1	0.1301	3

*Starting in FY 2017, these Tier 3 PPCs with a low benchmark and weight were combined into 1 PPC.

APPENDIX IV.
MATHEMATICA POLICY RESEARCH REPORT

MATHEMATICA Policy Research

REPORT

FINAL REPORT

Reliability and Validity Testing Results for Potentially Preventable Complication (PPC) Measures in the MHAC Program

December 31, 2015

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CONTENTS

TABLES

FIGURES

EXECUTIVE SUMMARY

Measures of quality are the foundation of the programs implemented by the Heath Services Cost Review Commission to promote improved quality of care in Maryland hospitals. The effectiveness and fairness of one such program, the Maryland Hospital Acquired Condition (MHAC) program, are underpinned by the statistical reliability and validity of the Potentially Preventable Complication (PPC) measures used to calibrate consequential program components such as hospital rankings and provider incentives.

In this study we test the statistical reliability, predictive validity, and convergent validity of the PPC measures used in the MHAC program.

Reliability testing compares the meaningful signal (i.e., between-provider variation) of the measure result against the unrelated noise (i.e., within-provider variation). A measure with high reliability can distinguish providers according to their measure results.

Validity testing assesses whether the measure result accurately reflects underlying performance. We focus on two components in this study:

- *Predictive validity*, which evaluates the ability of current measure results to predict future performance. We assess predictive validity by correlating results for the same PPC in different time periods (from calendar year [CY] 2012 to quarters 1 and 2 of CY 2015).
- *Convergent validity*, which assesses the agreement between current measure results and commensurate external measures and criteria. We address convergent validity by correlating PPCs with analogous Patient Safety Indicators (PSIs) developed by the Agency for Healthcare Research and Quality and with all-payer mortality rates.

Key findings

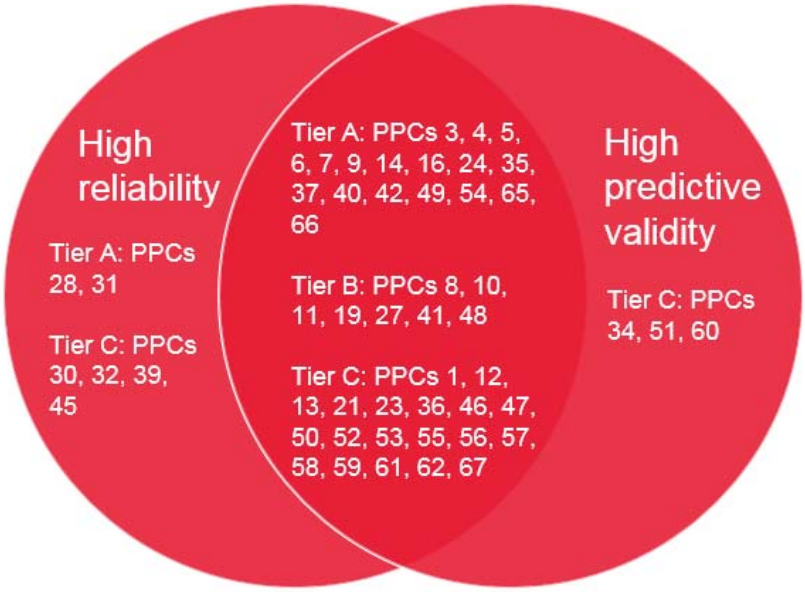
Our testing of the reliability and validity of PPCs in the MHAC program showed the following:

- **As used in the MHAC program, most PPC measures demonstrate moderate to high reliability and adequate predictive validity.** In tier A,[1] which contains the highest-priority measures given the greatest weight in score calculations, all PPCs but one (PPC 38) show moderate to high reliability or adequate validity. Among all PPCs, nine (15 percent) are low in reliability and predictive validity, but most of these are in tier C, as summarized in Figure ES.1.

[1] In the current MHAC program, PPCs are classified into three tiers based upon their costs and prevalence among hospitals. Specifically, tier A includes statewide high-cost, high-volume PPCs and those matching hospital-acquired conditions (HACs) in the Centers for Medicare & Medicaid Services (CMS) HAC Reduction Program. Remaining PPCs with high Medicare frequency (> 60 percent) and high number of occurrences in Maryland hospitals (> 43) are classified in tier B. The remaining PPCs are in tier C. The weights for each tier are as follows: 100 percent for tier A, 60 percent for tier B, and 40 percent for tier C.

- **Correlation of PPC measures with risk-adjusted mortality and PSI rates demonstrates the convergent validity of PPCs.** Of PPCs that can be matched with similar PSIs, only one lacks a statistically significant correlation with its analog. PPC 38 has consistently low correlations with its PSI counterpart (PSI 14), possibly due to its low reliability and low predictive validity. Several PPCs are positively correlated with all-payer mortality.

Figure ES.1. Classification of PPCs based on reliability and predictive validity testing



Recommendations

Based on our findings, we recommend testing how PPCs with low reliability scores can be combined into composite measures; in cases of very low scores, we recommend testing the impact of removing them from the program. We tested the strategy of raising the minimum sample size threshold of both at-risk cases and expected PPC cases but found it did not meaningfully improve the reliability of measures included in the program.

We recommend monitoring of PPCs' reliability and validity in future years in response to changes in coding practices and improvements in hospital performance. For example, implementation of ICD-10 or changes in coding practice may affect measure properties. Performance improvements may affect the stability of norms used to standardize the measures and variation in hospitals' performance, and hence reliability.

I. OVERVIEW

A. Background on the MHAC program

The Health Services Cost Review Commission (HSCRC) implemented hospital quality initiatives to encourage high quality and efficient patient care. Hospital quality measures are tied to reimbursement under the Maryland Hospital Acquired Conditions (MHAC) program, Quality Based Reimbursement program, and Readmissions Reduction Incentive Program, all of which incentivize hospitals to improve quality and efficiency.

The MHAC program was implemented in state fiscal year (FY) 2011.[2] Its purpose is to link hospital payment to hospital performance for a set of Potentially Preventable Complication (PPC) measures developed by 3M Health Information Systems. PPCs are defined as complications occurring during hospital admission that may result from care and treatment rather than underlying disease progression. HSCRC monitors hospitals' performance in the MHAC program through scores based on hospitals' risk-adjusted PPC measures during the performance period. The MHAC scoring methodology provides a system of payment incentives based on how a hospital's complication rates compare to statewide target rates for each of the selected MHAC categories. Under this approach, hospitals have financial incentives to reduce complication rates.[3]

The effectiveness and fairness of the MHAC program is underpinned by the statistical reliability and validity of the measures used to calibrate consequential program components such as hospital rankings and provider incentives. Valid and reliable measures make it more likely that hospitals' efforts to improve their rates will result in both better care and financial benefits. To support HSCRC's assessment of the effectiveness and fairness of the MHAC program, we conducted systematic reliability and validity testing of all PPC measures in the program. This testing should shed light on whether measured increases in PPC occurrence reflect an actual increase in complications, or – as some members of the Performance Measurement and Payment Models Workgroup speculate – are due instead to changes over time in measurement practices and in the interpretation of PPC definitions (HSCRC 2015).

B. Reliability and validity testing methods

In this report, we present the results of tests of the statistical reliability, convergent validity, and predictive validity of PPC measures:

- Reliability testing compares between-provider variation (signal) and within-provider sampling variation (noise).
- Validity testing is of two types:
    - Predictive validity is judged by the correlation of PPCs across years from calendar year (CY) 2012 to quarters 1 and 2 of CY 2015.

[2] The state of Maryland 2011 fiscal year runs from July 1, 2010, to June 30, 2011.

[3] Maryland HSCRC, "Complications: Maryland Hospital Acquired Conditions (MHAC)," http://www.hscrc.state.md.us/init_qi_MHAC.cfm.

- Convergent validity is judged by the correlation of PPC measure results with external measures, specifically Patient Safety Indicators (PSIs) from the PSI-90 Composite[4] and all-payer mortality rates.

1. Reliability testing

In reliability testing, we calculate reliability as the signal-to-noise ratio, which is the ratio of the variation in hospital performance rates to the total variation of the measure (which includes random fluctuation). In other words, reliability informs us whether differences in measure results between providers are due to differences in their underlying performance. The signal variance characterizes the magnitude of differences in underlying performance between providers, also known as between-hospital variance. The total variation is calculated by adding to the signal variance other random variation – for example, variation due to sampling (noise variance). Thus

$$\text{Measure reliability} = \frac{\text{signal variance}}{\text{signal variance} + \text{noise variance}}$$

Reliability can be measured for each hospital and increases with the sample size of observations available from that hospital, as sampling variance is reduced. In general, high measure reliability implies that the differences in hospitals' measure results are meaningful for distinguishing their performance.

We estimate the signal and noise variance components for reliability through a two-stage statistical model, where the between-hospital variation is calculated using a beta-binomial model (Adams 2009). A detailed specification of the reliability method can be found in Appendix A.

2. Predictive validity

Predictive validity indicates that current measure results can be used as a criterion to evaluate future performance. In the MHAC program, PPC measures are used to monitor hospitals' performance and incentivize them to improve the quality of care they offer. For instance, in the FY 2017 MHAC program, a hospital's payment adjustment is determined by its PPC performance in CY 2015. In order for improvement in rates to identify improvement in performance, differences in rates should be consistently related to differences in performance, expressed in the correlation of hospitals' results over time. A PPC measure with relatively stable measure results and trend indicates that the measure can be used to monitor a hospital's underlying improvement over time, and that changes in measure results are not caused by random fluctuations such as errors, or changes in coding practice. In the predictive validity test, we analyze the correlations for hospital PPC rates across years using data from CY 2012 to the first two quarters in CY 2015. A PPC measure has predictive validity if it exhibits a significant positive correlation between consecutive time periods.

3. Convergent validity

Convergent validity captures the degree to which the tested measure agrees with external measures or criteria that are commensurate with the underlying construct of interest (Sireci

[4] PSI-90 Composite is a weighted average of the reliability-adjusted observed-to-expected ratios of 11 PSIs. See AHRQ (2010).

2005). In convergent validity testing, we examine the weighted correlations of hospitals' PPC rates with their rates for analogous PSIs from the PSI-90 Composite for three different year-long time periods (FY2013, FY2014, and CY2014). To account for the sample size effect, each hospital is weighted based upon the number of PPCs expected in that hospital in FY 2014.[5] We confirm a PPC with strong convergent validity if the weighted correlation is statistically significant ($p < .05$) over time. In addition, we conduct correlation analysis between hospitals' PPC rates and their all-payer risk-adjusted mortality rates. These are measures that are also expected to improve with improvements in patient safety. Thus a positive correlation evidences the validity of PPCs, PSIs, and mortality measures.

II. RELIABILITY TESTING RESULTS

A. Data source

Reliability is estimated using PPC performance metrics based on PPC counts during two years, FY 2014 and FY 2015; metrics are risk adjusted using FY 2014 norms.

B. Reliability testing results

1. PPC measure-level reliability summary

We choose 0.4 for the value of reliability below which we deem a measure to have low reliability. In other words, a PPC is reliable if at least 40 percent of its total variation comes from the signal variance. According to this criterion, 12 PPCs have low reliability based on testing results. Nine of these 12 PPCs are in tier C, whereas only one – PPC 38 – is in tier A (Table II.1). Generally, PPC measures in tier A tend to have higher reliability than PPCs in tiers B and C. A more detailed reliability summary of each PPC can be found in Appendix B.

Table II.1. PPCs with low reliability

Low-reliability PPC[a]	Description	Tier	Number of hospitals with the PPC	Number of hospitals with low reliability rate for PPC[b]	Percentage of hospitals with low reliability rate for PPC
38	Post-Operative Wound Infection & Deep Wound Disruption with Procedure	A	23	23	100.0
17	Major Gastrointestinal Complications Without Transfusion or Significant Bleeding	B	41	27	65.9
18	Major Gastrointestinal Complications with Transfusion or Significant Bleeding	B	38	38	100.0
2	Extreme CNS Complications	C	31	22	71.0
15	Peripheral Vascular Complications Except Venous Thrombosis	C	29	29	100.0

[5] The FY 2017 MHAC program uses FY 2014 data as norm for the risk adjustment.

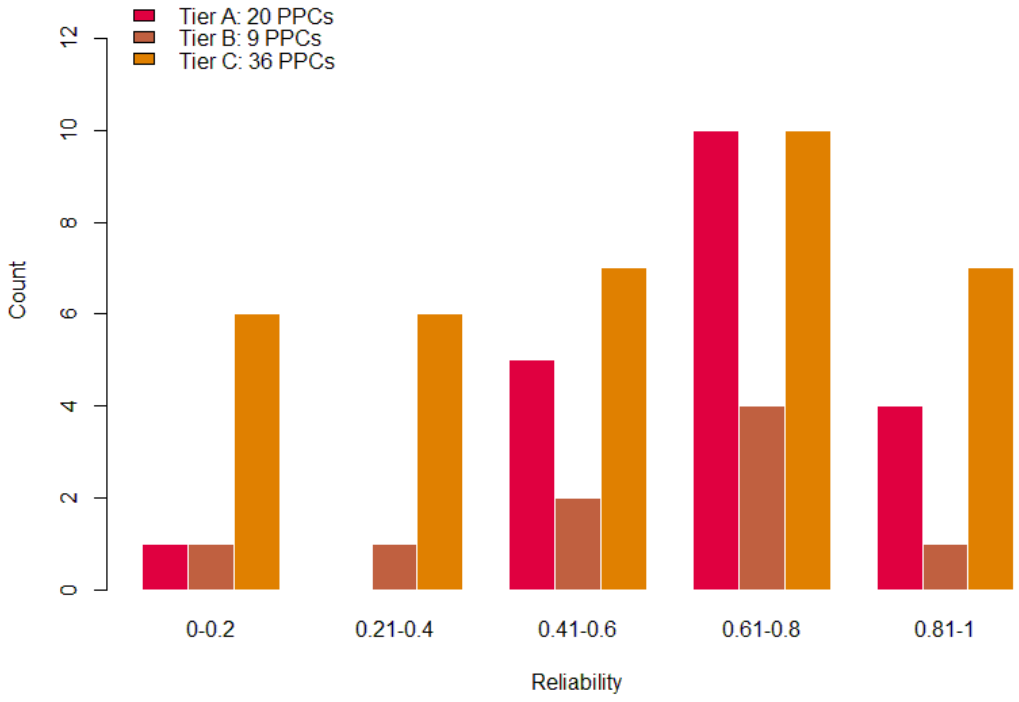
Low-reliability PPC[a]	Description	Tier	Number of hospitals with the PPC	Number of hospitals with low reliability rate for PPC[b]	Percentage of hospitals with low reliability rate for PPC
20	Other Gastrointestinal Complications Without Transfusion or Significant Bleeding	C	34	34	100.0
29	Poisonings Except from Anesthesia	C	33	16	48.5
33	Cellulitis	C	40	26	65.0
34	Moderate Infections	C	32	27	84.4
44	Other Surgical Complication–Moderate	C	33	33	100.0
51	Gastrointestinal Ostomy Complications	C	37	24	64.9
60	Major Puerperal Infection and Other Major Obstetric Complications	C	27	27	100.0

Source: Reliability is estimated using pooled FY 2014 and FY 2015 data as performance period. All risk-adjusted PPC measures are indirectly standardized using FY 2014 norms.

[a] A PPC measure is considered to have low reliability if its reliability estimate is below 0.4. The five PPCs measuring serious reportable events are excluded from the list. PPCs are listed numerically within each tier.

[b] A hospital's PPC measure is considered to have low reliability if this hospital's reliability estimate for the PPC is below 0.4.

Figure II.1. Distribution of reliability estimate for PPCs, by tier



2. Hospital-level reliability summary

In addition to testing the reliability of each PPC measure, we also evaluated the reliability each hospital's rate for that PPC. The hospital-level reliability of a PPC indicates the reliability with which a hospital's PPC measure manifests its performance compared to other hospitals. PPCs with low measure-level reliability generally have low hospital-level reliabilities. For PPC 38, for example, it is difficult to distinguish any given hospital from the others (Table II.1), and the hospital-level reliabilities of this PPC, along with those of PPCs 18, 15, 20, 44, and 60, are below the 0.4 threshold for all hospitals.

We summarized hospital-level reliabilities for all PPCs by bed size and found that small hospitals exhibit more low-reliability PPCs than larger hospitals (see Table II.2). For example, hospitals with bed size between 1 and 85 have an average of 21 PPC measures with low reliability, whereas hospitals with more than 258 beds have only 11 low-reliability PPCs, on average.

Table II.2. Low hospital-level reliability PPC count, by hospital size

Bed size [a]	Low-reliability PPC count by hospital		
	Minimum count	Average count	Maximum count
1–85	7	21	28
86–200	13	21	24
201–258	11	17	22
More than 258	7	11	21

Source: Reliability is estimated using pooled FY 2014 and FY 2015 data as performance period. All risk-adjusted PPC measures are indirectly standardized using FY 2014 norms.

[a] Bed size groups are determined by quartiles of bed sizes for hospitals in the MHAC program using FY 2015 data.

C. Methods to improve PPC measures' reliability and overall impact

1. Increasing the minimum case size requirement for hospital PPC exclusion

One way to improve the reliability of measures used in the program is to increase the minimum case size required for including a hospital's PPC result in its score. Increasing the minimum case size requirement would exclude PPCs for hospitals with small sample sizes (whose PPC results are subject to more sampling error).

In the FY 2017 MHAC program, a hospital's PPC result will be excluded if fewer than 10 cases are at risk for the PPC, or if the number of expected cases is less than 1. To test the effect of this change on measure reliability, we increased the threshold to 20 at-risk cases and 2 expected cases. Although this change has some positive impact on the reliability of measures used in the program, the overall effect is marginal (see Table II.3).

Table II.3. Impact on measure reliability of increasing the hospital-level PPC sample requirement

	Hospital-level PPC exclusion rule	
Measure reliability	Current rule (at-risk PPCs less than 10, or expected PPC less than 1)	Test scenario (at-risk PPCs less than 20, or expected PPC less than 2)
Minimum	0.000	0.000
1st quartile	0.395	0.378
Median	0.621	0.642
3rd quartile	0.767	0.771
Maximum	0.965	0.965

Source: Reliability is estimated using pooled FY 2014 and FY 2015 data as performance period. All risk-adjusted PPC measures are indirectly standardized using FY 2014 norms.

2. Creating composite PPCs

At the suggestion of HSCRC, we evaluated the reliability of composite measures based on combinations of clinically related PPCs. Compositing mitigates the low reliability of individual PPCs by creating a single measure with greater reliability, although it also obscures information provided by the component measures.

Table II.4 presents the estimated reliabilities of these composite PPC measures. In general, combining PPCs leads to a new measure with high reliability; the exceptions are the combinations of PPCs 29 and 30 and of PPCs 33 and 34. In a few cases, the reliability of the composite is lower than the maximum reliability among the component measures. In addition, since combining multiple PPCs into a new measure entails the loss of information contained in individual component PPCs, the programmatic and clinical implications of using composites, as well as possible alternative options, should be considered. The combination of PPCs 40, 41, 42, and 44 offers an example of possible issues arising from composites: all but PPC 44 have high reliabilities (above 0.7), whereas PPC 44 has extremely low reliability (near zero), and combining the four PPCs to mitigate the low reliability of PPC 44 would sacrifice information from the three high-reliability PPCs. An alternative to compositing would be to drop PPC 44 from the program.

Because results from PPCs are combined to create a total MHAC score, that score will be a more statistically reliable measure of hospital performance than its individual components. Composites within that total score are helpful if they produce a measure useful to hospitals or contribute to producing a total score with desirable properties. Even if new composites are created, individual component scores can still be reported to hospitals, which can use information about measure reliability and validity to judge how much significance to attach to variations in specific measures.

Table II.4. Reliability testing summary for potential composite PPCs

PPC	Description	Tier	Hospital count	Reliability
2	Extreme CNS Complications	C	31	0.349
36	Acute Mental Health Changes	C	35	0.649
Combined 2, 36			**40**	**0.644**
15	Peripheral Vascular Complications Except Venous Thrombosis	C	29	0.067
16	Venous Thrombosis	A	41	0.738
Combined 15, 16			**43**	**0.723**
17	Major Gastrointestinal Complications Without Transfusion or Significant Bleeding	B	41	0.344
18	Major Gastrointestinal Complications with Transfusion or Significant Bleeding	B	38	0.104
20	Other Gastrointestinal Complications Without Transfusion or Significant Bleeding	C	34	0.000
Combined 17, 18, 20			**45**	**0.415**
29	Poisonings Except from Anesthesia	C	33	0.395
30	Poisonings due to Anesthesia	C	46	NA[a]
Combined 29, 30			**33**	**0.396**
33	Cellulitis	C	40	0.339
34	Moderate Infections	C	32	0.319
Combined 33, 34			**41**	**0.348**
37	Post-Operative Infection & Deep Wound Disruption Without Procedure	A	42	0.485
38	Post-Operative Wound Infection & Deep Wound Disruption with Procedure	A	23	0.091
Combined 37, 38			**43**	**0.488**
40	Post-Operative Hemorrhage & Hematoma Without Hemorrhage Control Procedure or I&D Procedure	A	45	0.770
41	Post-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D Procedure	B	27	0.712
42	Accidental Puncture/Laceration During Invasive Procedure	A	43	0.810
44	Other Surgical Complication–Moderate	C	33	0.062
Combined 40, 41, 42, 44			**45**	**0.875**
60	Major Puerperal Infection and Other Major Obstetric Complications	C	27	0.118
61	Other Complications of Obstetrical Surgical & Perineal Wounds	C	31	0.634
62	Delivery with Placental Complications	C	32	0.638
Combined 60, 61, 62			**32**	**0.617**

Source: Reliability is estimated using pooled FY 2014 and FY 2015 data as performance period. All risk-adjusted PPC measures are indirectly standardized using FY 2014 norms.

[a] The PPC 30 event is so rare in the performance period that its reliability cannot be evaluated based on the data.

NA = not applicable.

III. VALIDITY TESTING RESULTS

A. Predictive validity

In predictive validity testing, we use data from CYs 2012, 2013, 2014, and the first two quarters of CY 2015 as separate performance periods, indirectly standardized using norms from FY 2014. We produce three pairs of correlations of PPC performance metrics from consecutive time periods: CY 2012 and CY 2013; CY 2013 and CY 2014; and CY 2014 and the first two quarters of CY 2015. We then calculate for each PPC the weighted correlation of hospital PPC performance metrics between two consecutive years, where the hospital weight is based upon the number of PPCs expected for the hospital in FY 2014 (this method accounts for the sample size effect in each hospital). Appendix C exhibits the correlation results for each PPC.

We classify a PPC's predictive validity as adequate if at least one of the PPC pairs is positively correlated with statistical significance ($p < .05$). As shown in Table , 46 of the 61 PPCs (75 percent) are adequately correlated over time according to this standard. Tier C has a higher proportion of uncorrelated PPCs (31 percent) than tier A (15 percent) and tier B (22 percent). Of the 15 uncorrelated PPCs, nine are also characterized by low reliability: PPC 38 in tier A, PPCs 17 and 18 in tier B, and PPCs 2, 15, 20, 29, 33, and 44 in tier C (see Table II.1. PPCs with low reliability).

Table III.1. Predictive validity analysis

Predictive Validity	Tier A PPCs	Tier B PPCs	Tier C PPCs
Adequate	3, 4, 5, 6, 7, 9, 14, 16, 24, 35, 37, 40, 42, 49, 54, 65, 66	8, 10, 11, 19, 27, 41, 48	1, 12, 13, 21, 23, 34, 36, 46, 47, 50, 51, 52, 53, 55, 56, 57, 58, 59, 60, 61, 62, 67
Total	**n = 17 (85 percent)**	**n = 7 (78 percent)**	**n = 22 (69 percent)**
Low	28, 31, 38	17, 18	2, 15, 20, 29, 30, 32, 33, 39, 44, 45
Total	**n = 3 (15 percent)**	**n = 2 (22 percent)**	**n = 10 (31 percent)**
Tier total	**n = 20**	**n = 9**	**n = 32**

B. Convergent validity

To assess convergent validity, we estimate the correlation between PPCs and external measures and corresponding Agency for Healthcare Research and Quality PSIs. As Table shows, most pairs of hospital risk-adjusted PSI rates and corresponding hospital PPC measure (or combination of PPC measures[6]) are consistently correlated. PSI 11 (postoperative respiratory failure rate) is not consistently correlated with its analog, the combination of PPCs 3, 4, and 63; this inconsistent correlation may be due to the fact that PPC 63, as a component of the composite PPC 67, has low measure reliability. The correlation of PSI 14 with PPC 38 is not statistically significant in any year; PPC 38's low measure reliability and unstable measure results may lead to the low correlations. Though a positive correlation between PSIs and PPCs is evidence of

[6] The performance metric for combined PPCs is calculated as a ratio of summed observed PPCs over summed expected PPCs across the combined PPCs list.

validity for both measures, an absent or weak correlation is not evidence that either is invalid. Though PPCs and PSIs measure similar constructs in health care quality and patient safety, they differ in measure specifications and in the patients they target,[7] and neither can be considered a gold standard in this comparison.

Table III.2. Correlations between PPCs and PSIs

		Correlation coefficient by time period		
PSI	**PPC**	**FY2013**	**FY2014**	**CY2014**
PSI 03: Pressure Ulcer	PPC 31: Decubitus Ulcer	0.499*	0.411*	0.466*
PSI 06: Iatrogenic Pneumothorax	PPC 49: Iatrogenic Pneumothorax	0.513*	0.618*	0.419*
PSI 07: Central Line–Associated BSI	PPC 54: Infections due to Central Venous Catheters	0.542*	0.588*	0.848*
PSI 09: Perioperative Hemorrhage or Hematoma Rate	PPC 41: Post-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D Procedure	0.169	0.568*	0.480*
PSI 11: Postoperative Respiratory Failure Rate	PPC 3: Acute Pulmonary Edema and Respiratory Failure Without Ventilation PPC 4: Acute Pulmonary Edema and Respiratory Failure with Ventilation PPC 63: Post-Operative Respiratory Failure with Tracheostomy	0.229	0.532*	0.116
PSI 12: Postoperative PE or DVT	PPC 7: Pulmonary Embolism PPC 16: Venous Thrombosis	0.714*	0.924*	0.880*
PSI 13: Postoperative Sepsis	PPC 35: Septicemia & Severe Infections	0.219	0.432*	0.692*
PSI 14: Postoperative Wound Dehiscence	PPC 38: Post-Operative Wound Infection & Deep Wound Disruption with Procedure	0.373	0.164	0.218
PSI 15: Accidental Puncture or Laceration	PPC 42: Accidental Cut or Hemorrhage During Invasive Procedure	0.577*	0.799*	0.768*

Source: Calculations for PPCs use base period FY 2014 and three different performance periods (CY 2013, CY 2014, and FY 2014). Calculations for PSIs reflect the risk-adjusted rate from CY 2013, CY 2014, and FY 2014, standardized using the FY 2014 norms.

* Indicates the correlation is statistically significant ($p < .05$).

The hospital mortality rate is another external measure that can be used to confirm convergent validity. Table III.3 shows several PPC measures strongly correlated with the all-payer risk-adjusted mortality rate. Such results are evidence that PPCs have convergent validity.

[7] For example, the inclusion and exclusion rules differ for PPCs and the related PSIs. In addition, most PSIs are restricted to surgical patients, whereas most of their PPC counterparts consider both surgical and medical patients.

In the case of PPC 2, these results indicate that monitoring may be important in spite of the PPC's low reliability.

Table III.3. PPCs that are highly correlated with mortality rates

PPC[a]	Description	Tier	Correlation with mortality rate	Also low reliability?
4	Acute Pulmonary Edema and Respiratory Failure with Ventilation	A	0.405	No
9	Shock	A	0.388	No
14	Ventricular Fibrillation/Cardiac Arrest	A	0.450	No
54	Infections due to Central Venous Catheters	A	0.389	No
2	Extreme CNS Complications	C	0.453	Yes
50	Mechanical Complication of Device, Implant & Graft	C	0.453	No
52	Inflammation & Other Complications of Devices, Implants or Grafts Except Vascular Infection	C	0.377	No

Source: PPC performance metrics use FY 2014 as base period and CY 2014 as performance period; mortality rate uses the CY 2014 risk-adjusted mortality rate.

[a] PPCs are listed numerically within each tier.

IV. CONCLUSIONS

In our review of the reliability and validity of PPC measures used in the MHAC program, we found the following:

- **As used in the MHAC program, most PPC measures demonstrate moderate to high reliability and adequate predictive validity.** In tier A, which contains the highest-priority measures given the greatest weight in score calculations, all PPCs but one (PPC 38) exhibit moderate to high reliability or predictive validity. Among all PPCs, nine (15 percent) are low in reliability and predictive validity, but most of these are in the lowest-priority tier, tier C.
- **Correlation of PPC measures with risk-adjusted mortality and PSI rates demonstrates the convergent validity of PPCs.** Of PPCs that can be matched with similar PSIs, only one lacks a statistically significant correlation with its analog. PPC 38 has consistently low correlations with its PSI counterpart (PSI 14), possibly due to its low reliability and low predictive validity. Several PPCs are positively correlated with all-payer mortality.

Based on this analysis, we make the following recommendations concerning the use of PPC measures in the MHAC program:

Consider the development of PPC composites that combine low-reliability PPCs with other clinically similar PPCs. Combining relevant PPCs into a new composite measure increases the effective sample size in the measure calculation, which reduces the sampling variation and yields a new measure with increased reliability. Based on preliminary testing, the reliability of some candidate PPC composites is greater than the low reliabilities of certain component PPC measures. If an appropriate composite cannot be formed, consider dropping the measure. Considerations for developing composites include the clinical coherence of the composite created and its usefulness to hospitals. It is undesirable, for example, to combine measures across tiers, or to lose the information contained in reliable measures by combining them with unreliable measures. Moreover, the use of composites need not deprive hospitals of the information contained in individual PPCs. Even if new composites are created and used in total score calculation, component PPCs' performance can still be reported to hospitals, which can use information about the components' reliability and validity to assess the meaningfulness of changes in their rates.

Consider an increase in the minimum case size to improve effective reliability of the PPCs in the MHAC program. Based on our simulation study, increasing the PPC exclusion threshold to at-risk PPC count of less than 20 and expected PPC count of less than 2 would improve the measure reliability for some PPCs used in the MHAC program. Preliminary testing shows that the improvement is marginal, however, and although higher standards in PPC inclusion might produce greater improvement, increasing the threshold could also have detrimental effects. For example, MHAC scores for small hospitals would be based on fewer measures, which might make them incommensurate with scores of large hospitals based on more measures.

Conduct annual reviews of PPC reliability and validity. We recommend monitoring of PPCs' reliability and validity in future years in response to changes in coding practices and improvements in hospital performance. For example, implementation of ICD-10 or changes in coding practice may affect measure properties. Performance improvements may affect the stability of norms used to standardize the measures and variation in hospitals' performance, which may in turn affect both noise and signal variance, and hence reliability.

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APPENDIX A

STATISTICAL METHODS FOR RELIABILITY TESTING

From the definition of PPC performance metrics used for the MHAC program, a PPC rate for hospital *j* can be formulated as

$$r_j = \frac{O_j}{E_j} = \frac{\sum_{i \in C_j} \sum_{k=1}^{n_{ij}} X_{j,k}^{(i)}}{\sum_{i \in C_j} n_{ij} \cdot N_i},$$

where C_j is the list of all categories associated with hospital *j*, n_{ij} is the number of at-risk discharges in APR-DRG SOI (All Patient Refined Diagnosis Related Group and severity of illness) category *i* in the performance period, $X_{j,k}^{(i)}$ is the PPC status (1 = yes, 0 = no) for discharge *k* in category *i* and hospital *j*, and N_i is the norm PPC rate for APR-DRG SOI category *i*, which is determined based on the base period data.

We use a signal-to-noise framework in reliability testing for the PPCs. Specifically, for each PPC, we estimate the two components of variation that produce the PPC performance metric: between-provider variation (also known as signal variance) and within-provider variation (also known as noise variance). Conceptually, the ratio of the signal variances to noise variances determines how well the measures can discern the performance of one provider from the next. We estimate these components of variation through a two-stage modeling framework:

- **Within-provider variation.** For this component, we assume that discharges within each APR-DRG and SOI category *i* across all hospitals follow the same underlying risk of a PPC numerator event, i.e., they are Bernoulli trials with parameter N_i. Specifically, an at-risk case X from category *i* has probability N_i that it incurs a PPC (coded as 1) and probability 1-N_i that it does not (coded as 0). Thus, the number of a hospital's PPC events within each APR-DRG and SOI category follows a binomial distribution,[8] and based on this data-generating mechanism we can estimate the within-provider variation for each hospital (say, hospital *j*) as well as the overall within-provider variation, denoted as $Var_{within-hospital-j}$ and Var_{within}, respectively. The variation *within hospital j*'s performance metric (i.e., noise) is calculated as

$$Var_{within-hospital-j} = Var(r_j) = \sum_{i \; in \; C_j} \frac{1}{\left(\sum_{i \; in \; C_j} n_{ij} \cdot N_i\right)^2} Var\left(\sum_{k=1}^{n_{ij}} X_{j,\,k}^{(i)}\right)$$

$$= \sum_{i \; in \; C_j} \frac{n_{ij} \cdot N_i \cdot (1 - N_i)}{\left(\sum_{i \; in \; C_j} n_{ij} \cdot N_i\right)^2}.$$

[8] Another way to understand the model framework is to view the total count of a hospital's PPC events (for example, the total number of PPC 1 events for hospital A) as a pooled binomial distribution, where each binomial distribution represents the distribution of the PPC within certain APR-DRG and SOI categories.

The overall within-provider variation is calculated as the weighted average of hospital-specific variances: $Var_{within} = \frac{1}{n_{tot}} \sum_j n_j \cdot Var_{within-hospital-j}$, where $n_{tot} = \sum_j n_j$ is the total number of at-risk discharges in the performance period across all hospitals and the overall mean rate $mean_{oa}$ is calculated as a weighted average of each hospital's performance rate, so that $mean_{oa} = \frac{1}{n_{tot}} \sum_j n_j \cdot r_j$.

- **Between-provider variation.** For this component, we assume that the true performance of hospital *j* for each PPC measure, which is estimated by $\frac{O_j}{E_j}$ times the statewide PPC rate, follows a Beta distribution. We apply this model to derive the signal variance through a SAS macro (Adams 2009) using maximum likelihood estimation, denoted as $Var_{between-hospital}$:

$$Var_{between-hospital} = \frac{\alpha \cdot \beta}{(\alpha+\beta+1)(\alpha+\beta)^2} \cdot \frac{1}{statewide\ rate^2}.$$

Using these results, the reliability estimate for the PPC measure is calculated as

$$reliability = \frac{Var_{between-hospital}}{Var_{between-hospital} + Var_{within}},$$

and the reliability estimate of such a PPC measure for hospital *j* is calculated as

$$reliability\ for\ hospital\ j = \frac{Var_{between-hospital}}{Var_{between-hospital} + Var_{within-hospital-j}}.$$

APPENDIX B

RELIABILITY OF PPCS

PPC	Description	Tier	Number of hospitals meet PPC inclusion threshold	Reliability	Minimum hospital reliability	Maximum hospital reliability
1	Stroke & Intracranial Hemorrhage	C	42	0.417	0.093	0.821
2	Extreme CNS Complications	C	31	0.349	0.178	0.662
3	Acute Pulmonary Edema and Respiratory Failure Without Ventilation	A	45	0.877	0.381	0.981
4	Acute Pulmonary Edema and Respiratory Failure with Ventilation	A	45	0.710	0.156	0.950
5	Pneumonia & Other Lung Infections	A	45	0.728	0.277	0.938
6	Aspiration Pneumonia	A	45	0.653	0.204	0.864
7	Pulmonary Embolism	A	43	0.614	0.177	0.874
8	Other Pulmonary Complications	B	40	0.663	0.242	0.965
9	Shock	A	44	0.790	0.333	0.961
10	Congestive Heart Failure	B	41	0.873	0.568	0.959
11	Acute Myocardial Infarction	B	45	0.600	0.165	0.859
12	Cardiac Arrhythmias & Conduction Disturbances	C	9	0.958	0.909	0.979
13	Other Cardiac Complications	C	33	0.759	0.553	0.919
14	Ventricular Fibrillation/Cardiac Arrest	A	45	0.545	0.098	0.843
15	Peripheral Vascular Complications Except Venous Thrombosis	C	29	0.067	0.025	0.218
16	Venous Thrombosis	A	41	0.738	0.379	0.904
17	Major Gastrointestinal Complications Without Transfusion or Significant Bleeding	B	41	0.344	0.131	0.686
18	Major Gastrointestinal Complications with Transfusion or Significant Bleeding	B	38	0.104	0.039	0.217
19	Major Liver Complications	B	34	0.422	0.211	0.729
20	Other Gastrointestinal Complications Without Transfusion or Significant Bleeding	C	34	0.000	0.000	0.001
21	Clostridium Difficile Colitis	C	45	0.811	0.344	0.943
23	GU Complications Except UTI	C	39	0.619	0.311	0.877
24	Renal Failure Without Dialysis	A	45	0.847	0.469	0.958
25	Renal Failure with Dialysis	C	29	0.265	0.005	0.638

PPC	Description	Tier	Number of hospitals meet PPC inclusion threshold	Reliability	Minimum hospital reliability	Maximum hospital reliability
26	Diabetic Ketoacidosis & Coma	C	6	0.197	0.009	0.472
27	Post-Hemorrhagic & Other Acute Anemia with Transfusion	B	43	0.621	0.201	0.895
28	In-Hospital Trauma and Fractures	A	30	0.468	0.339	0.681
29	Poisonings Except from Anesthesia	C	33	0.395	0.229	0.631
30	Poisonings due to Anesthesia	C	46	NA[a]	NA	NA
31	Decubitus Ulcer	A	46	0.786	0.072	0.953
32	Transfusion Incompatibility Reaction	C	46	0.598	0.038	0.854
33	Cellulitis	C	40	0.339	0.118	0.707
34	Moderate Infections	C	32	0.319	0.146	0.659
35	Septicemia & Severe Infections	A	45	0.881	0.469	0.978
36	Acute Mental Health Changes	C	35	0.649	0.353	0.860
37	Post-Operative Infection & Deep Wound Disruption Without Procedure	A	42	0.485	0.094	0.871
38	Post-Operative Wound Infection & Deep Wound Disruption with Procedure	A	23	0.091	0.038	0.338
39	Reopening Surgical Site	C	26	0.597	0.343	0.854
40	Post-Operative Hemorrhage & Hematoma Without Hemorrhage Control Procedure or I&D Procedure	A	45	0.770	0.139	0.963
41	Post-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D Procedure	B	27	0.712	0.414	0.949
42	Accidental Puncture/Laceration During Invasive Procedure	A	43	0.810	0.341	0.966
43	Accidental Cut or Hemorrhage During Other Medical Care	C	11	0.767	0.045	0.981
44	Other Surgical Complication–Moderate	C	33	0.062	0.020	0.198
45	Post-Procedure Foreign Bodies	C	45	0.065	0.003	0.326
46	Post-Operative Substance Reaction & Non-O.R. Procedure for Foreign Body	C	46	0.268	0.018	1.000
47	Encephalopathy	C	38	0.780	0.494	0.941
48	Other Complications of Medical Care	B	41	0.598	0.271	0.867
49	Iatrogenic Pneumothorax	A	39	0.462	0.208	0.729

PPC	Description	Tier	Number of hospitals meet PPC inclusion threshold	Reliability	Minimum hospital reliability	Maximum hospital reliability
50	Mechanical Complication of Device, Implant & Graft	C	39	0.417	0.153	0.759
51	Gastrointestinal Ostomy Complications	C	37	0.369	0.190	0.646
52	Inflammation & Other Complications of Devices, Implants or Grafts Except Vascular Infection	C	44	0.681	0.209	0.911
53	Infection, Inflammation & Clotting Complications of Peripheral Vascular Catheters & Infusions	C	36	0.657	0.368	0.873
54	Infections due to Central Venous Catheters	A	33	0.536	0.287	0.856
55	Obstetrical Hemorrhage Without Transfusion	C	32	0.893	0.616	0.970
56	Obstetrical Hemorrhage with Transfusion	C	32	0.763	0.443	0.928
57	Obstetric Lacerations & Other Trauma Without Instrumentation	C	32	0.827	0.434	0.949
58	Obstetric Lacerations & Other Trauma With Instrumentation	C	31	0.756	0.431	0.930
59	Medical & Anesthesia Obstetric Complications	C	32	0.584	0.168	0.858
60	Major Puerperal Infection and Other Major Obstetric Complications	C	27	0.118	0.039	0.353
61	Other Complications of Obstetrical Surgical & Perineal Wounds	C	31	0.634	0.312	0.886
62	Delivery with Placental Complications	C	32	0.638	0.311	0.861
63	Post-Operative Respiratory Failure with Tracheostomy	C	11	0.229	0.002	0.783
64	Other In-Hospital Adverse Events	C	42	0.965	0.491	0.992
65	Urinary Tract Infection Without Catheter	A	45	0.744	0.261	0.934
66	Catheter-Related Urinary Tract Infection	A	35	0.767	0.527	0.928
67	Combined PPC (PPC 25, 26, 43, 63, 64)	C	44	0.932	0.667	0.986

Source: Calculations use FY 2014 data as base period and pooled FY 2014 and 2015 data as performance period.

[a] The PPC 30 event is so rare in the performance period that its reliability cannot be evaluated based on the data.

NA = not available.

APPENDIX C

CORRELATIONS OF PPC MEASURES OVER TIME
(CY 2012 THROUGH SECOND QUARTER OF CY 2015)

			CY 2012 and CY 2013		CY 2013 and CY 2014		CY 2014 and CY 2015 quarters 1 and 2	
PPC	Description	Tier	Correlation	Statistically significant[a]	Correlation	Statistically significant	Correlation	Statistically significant
1	Stroke & Intracranial Hemorrhage	C	0.332	YES	0.317	YES	0.148	NO
2	Extreme CNS Complications	C	0.201	NO	0.219	NO	0.127	NO
3	Acute Pulmonary Edema and Respiratory Failure Without Ventilation	A	0.503	YES	0.388	YES	0.644	YES
4	Acute Pulmonary Edema and Respiratory Failure with Ventilation	A	0.530	YES	0.491	YES	0.404	YES
5	Pneumonia & Other Lung Infections	A	0.239	NO	0.469	YES	0.171	NO
6	Aspiration Pneumonia	A	0.672	YES	0.467	YES	0.583	YES
7	Pulmonary Embolism	A	0.402	YES	0.442	YES	0.432	YES
8	Other Pulmonary Complications	B	0.779	YES	0.065	NO	0.255	NO
9	Shock	A	0.452	YES	0.584	YES	0.346	YES
10	Congestive Heart Failure	B	0.762	YES	0.855	YES	0.710	YES
11	Acute Myocardial Infarction	B	0.639	YES	0.509	YES	0.194	NO
12	Cardiac Arrhythmias & Conduction Disturbances	C	0.934	YES	0.643	NO	0.948	YES
13	Other Cardiac Complications	C	0.695	YES	0.280	NO	0.652	YES
14	Ventricular Fibrillation/Cardiac Arrest	A	0.430	YES	0.485	YES	0.241	NO
15	Peripheral Vascular Complications Except Venous Thrombosis	C	-0.074	NO	0.133	NO	-0.085	NO
16	Venous Thrombosis	A	0.563	YES	0.610	YES	0.410	YES

			CY 2012 and CY 2013		CY 2013 and CY 2014		CY 2014 and CY 2015 quarters 1 and 2	
PPC	Description	Tier	Correlation	Statistically significant[a]	Correlation	Statistically significant	Correlation	Statistically significant
17	Major Gastrointestinal Complications Without Transfusion or Significant Bleeding	B	0.282	NO	0.229	NO	0.162	NO
18	Major Gastrointestinal Complications with Transfusion or Significant Bleeding	B	0.259	NO	0.075	NO	-0.086	NO
19	Major Liver Complications	B	0.449	YES	0.546	YES	0.457	YES
20	Other Gastrointestinal Complications Without Transfusion or Significant Bleeding	C	-0.207	NO	-0.247	NO	0.290	NO
21	Clostridium Difficile Colitis	C	0.707	YES	0.591	YES	0.442	YES
23	GU Complications Except UTI	C	0.513	YES	0.355	YES	0.298	NO
24	Renal Failure Without Dialysis	A	0.606	YES	0.324	YES	0.505	YES
27	Post-Hemorrhagic & Other Acute Anemia with Transfusion	B	0.422	YES	0.256	NO	0.219	NO
28	In-Hospital Trauma and Fractures	A	0.057	NO	0.184	NO	0.081	NO
29	Poisonings Except from Anesthesia	C	0.211	NO	0.061	NO	-0.180	NO
30	Poisonings due to Anesthesia	C	NA[b]	NA	NA	NA	NA	NA
31	Decubitus Ulcer	A	0.196	NO	0.032	NO	0.191	NO
32	Transfusion Incompatibility Reaction	C	-0.027	NO	NA	NA	NA	NA
33	Cellulitis	C	0.147	NO	0.192	NO	-0.039	NO
34	Moderate Infections	C	0.355	YES	0.283	NO	0.095	NO

			CY 2012 and CY 2013		CY 2013 and CY 2014		CY 2014 and CY 2015 quarters 1 and 2	
PPC	Description	Tier	Correlation	Statistically significant[a]	Correlation	Statistically significant	Correlation	Statistically significant
35	Septicemia & Severe Infections	A	0.607	YES	0.484	YES	0.544	YES
36	Acute Mental Health Changes	C	0.734	YES	0.769	YES	0.681	YES
37	Post-Operative Infection & Deep Wound Disruption Without Procedure	A	0.490	YES	0.464	YES	0.297	NO
38	Post-Operative Wound Infection & Deep Wound Disruption with Procedure	A	0.121	NO	0.004	NO	0.017	NO
39	Reopening Surgical Site	C	0.277	NO	0.388	NO	0.381	NO
40	Post-Operative Hemorrhage & Hematoma Without Hemorrhage Control Procedure or I&D Procedure	A	0.429	YES	0.276	NO	0.525	YES
41	Post-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D Procedure	B	0.345	NO	0.423	YES	0.452	YES
42	Accidental Puncture/Laceration During Invasive Procedure	A	0.473	YES	0.240	NO	0.402	YES
44	Other Surgical Complication–Moderate	C	0.334	NO	0.102	NO	0.091	NO
45	Post-Procedure Foreign Bodies	C	0.194	NO	0.075	NO	-0.049	NO
46	Post-Operative Substance Reaction & Non-O.R. Procedure for Foreign Body	C	0.874	YES	-0.038	NO	-0.040	NO
47	Encephalopathy	C	0.646	YES	0.578	YES	0.265	NO
48	Other Complications of Medical Care	B	0.464	YES	0.423	YES	0.382	YES

			CY 2012 and CY 2013		CY 2013 and CY 2014		CY 2014 and CY 2015 quarters 1 and 2	
PPC	Description	Tier	Correlation	Statistically significant[a]	Correlation	Statistically significant	Correlation	Statistically significant
49	Iatrogenic Pneumothorax	A	0.428	YES	0.176	NO	-0.248	NO
50	Mechanical Complication of Device, Implant & Graft	C	0.339	YES	0.050	NO	0.397	YES
51	Gastrointestinal Ostomy Complications	C	0.325	YES	0.098	NO	0.017	NO
52	Inflammation & Other Complications of Devices, Implants or Grafts Except Vascular Infection	C	0.506	YES	0.133	NO	0.399	YES
53	Infection, Inflammation & Clotting Complications of Peripheral Vascular Catheters & Infusions	C	0.552	YES	0.518	YES	0.281	NO
54	Infections due to Central Venous Catheters	A	0.344	YES	0.181	NO	0.037	NO
55	Obstetrical Hemorrhage Without Transfusion	C	0.764	YES	0.567	YES	0.585	YES
56	Obstetrical Hemorrhage with Transfusion	C	0.754	YES	0.462	YES	0.473	YES
57	Obstetric Lacerations & Other Trauma Without Instrumentation	C	0.707	YES	0.748	YES	0.713	YES
58	Obstetric Lacerations & Other Trauma With Instrumentation	C	0.580	YES	0.393	YES	0.352	NO
59	Medical & Anesthesia Obstetric Complications	C	0.435	YES	0.208	NO	0.361	YES
60	Major Puerperal Infection and Other Major Obstetric Complications	C	0.553	YES	-0.054	NO	0.144	NO

			CY 2012 and CY 2013		CY 2013 and CY 2014		CY 2014 and CY 2015 quarters 1 and 2	
PPC	Description	Tier	Correlation	Statistically significant[a]	Correlation	Statistically significant	Correlation	Statistically significant
61	Other Complications of Obstetrical Surgical & Perineal Wounds	C	0.677	YES	0.469	YES	0.235	NO
62	Delivery with Placental Complications	C	0.727	YES	0.348	NO	0.286	NO
65	Urinary Tract Infection Without Catheter	A	0.435	YES	0.518	YES	0.472	YES
66	Catheter-Related Urinary Tract Infection	A	0.362	YES	0.228	NO	0.625	YES
67	Combined PPC (PPC 25, 26, 43, 63, 64)	C	0.815	YES	0.493	YES	0.696	YES

Source: Calculation of norms uses FY 2014 data as base period for all performance periods. .

[a] alpha = 0.05

[b] The PPC event is so rare in at least one of the performance periods that the correlation cannot be calculated based on the data.

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APPENDIX V.
HSCRC STAFF RECOMMENDATIONS FOR FY 2018 PPC TIERS, COMBINATIONS, AND EXCLUSIONS

The following table displays recommendations for the FY 2018 PPC tiers, combinations, and exclusions. The first two columns of the table display the PPC number and description, as classified by 3M. The third column displays the total number of cases for the PPC in CY 2014. For example, the first row of the table shows that there were 1,054 cases with acute pulmonary edema and respiratory failure without ventilation statewide in CY 2014. The fourth column shows the tier (1-3) for each PPC in FY 2017. The fifth column shows the Maryland Hospital Association's recommendations on which PPCs should be classified as tier 1 in FY 2018; these recommendations are indicated with a "Y." Columns six and seven indicate the PPCs that Mathematic classified as having low reliability or low stability; these are indicated with a "Y."Column eight presents Mathematica's recommendation for each measure for FY 2018. Column nine presents 3M's comments on Mathematica's recommendations; blank cells indicate that 3M had no comment. Column ten presents recommendations submitted by Lifebridge Health. Finally, column 11 presents HSCRC staff's final recommendations for FY 2018.

1. PPC #	2. PPC Description	3. Ob-served # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recom-mendations
3	Acute Pulmonary Edema and Respiratory Failure without Ventilation	1,054	1	Y			Keep in Tier 1			**Tier 1**
4	Acute Pulmonary Edema and Respiratory Failure with Ventilation	637	1	Y			Keep in Tier 1			**Tier 1**
5	Pneumonia & Other Lung Infections	674	1	Y			Keep in Tier 1			**Tier 1**
6	Aspiration Pneumonia	496	1	Y			Keep in Tier 1			**Tier 1**
7	Pulmonary Embolism	304	1	Y			Keep in Tier 1			**Tier 1**

1. PPC #	2. PPC Description	3. Ob-served # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recom-mendations
9	Shock	512	1				Keep in Tier 1. Has good reliability and stability.			**Tier 1**
14	Ventricular Fibrillation/ Cardiac Arrest	975	1	Y			Keep in Tier 1			**Tier 1**
16	Venous Thrombosis	411	1				Keep in Tier 1; Has good reliability and stability.		Agree to keep in Tier 1; Clinically disagree with combining with PPC 15. A thrombus in a vein shouldn't be compared to a thrombus in a device. Treatment and clinical risk are not the same; High risk for thrombus traveling through the vascular system to the brain, lung etc. Treatment is long term anticoagulation	**Tier 1. Do not combine with PPC 15.**
21	Clostridium Difficile Colitis	610	3	Y			Move to Tier 1. 32 hospitals have this PPC. On the low end of hospitals for Tier 1, but similar to some of the PPCs. Measure is reliable and stable. Benchmarks are reasonably high and performance mixed so room for improvement.			**Tier 1**

1. PPC #	2. PPC Description	3. Observed # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recommendations
27	Post-Hemorrhagic & Other Acute Anemia with Transfusion	503	2	Y			Move to Tier 1. Recommended by MHA and stable and reliable.		With the change to ICD 10, the definition parameters have changed; thus the definition needs to be modified to reflect appropriate timing of transfusion; prior to this PPC moving to Tier 1. This is a timing issue with transfusion. Even when the transfusion takes place within a day or two of the surgery, any subsequent transfusions will trigger the PPC.	**Tier 1**
35	Septicemia & Severe Infections	507	1	Y			Keep in Tier 1			**Tier 1**
37	Post-Operative Infection & Deep Wound Disruption Without Procedure	378	1	Y			Keep in Tier 1			**Tier 1**
38	Post-Operative Wound Infection & Deep Wound Disruption with Procedure	33	1		Y	Y	Suggest to drop from MHAC due to low reliability and stability	Disagree – serious complication		**Tier 1**

1. PPC #	2. PPC Description	3. Observed # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recommendations
40	Post-Operative Hemorrhage & Hematoma without Hemorrhage Control Procedure or I&D Procedure	920	1	Y			Keep in Tier 1			**Tier 1**
41	Post-Operative Hemorrhage & Hematoma with Hemorrhage Control Procedure or I&D Proc	130	2	Y			Move to Tier 1. Recommended by MHA and stable and reliable. However, only relevant to 27 hospitals.		Agree with moving to Tier 1 for clinical significance. However, hospitals that perform major surgeries on complex cases will be negatively impacted. It may make sense to evaluate separate benchmarks for major surgery.	**Tier 1**
42	Accidental Puncture/Laceration During Invasive Procedure	458	1				Keep in Tier 1. Has good reliability and stability.			**Tier 1**
49	Iatrogenic Pneumothorax	118	1				Keep in Tier 1. Has good reliability and stability.			**Tier 1**
54	Infections due to Central Venous Catheters	95	1				Keep in Tier 1. Has good reliability and stability			**Tier 1**
65	Urinary Tract Infection without Catheter	1,036	1	Y			Keep in Tier 1			**Tier 1**
66	Catheter-Related Urinary Tract Infection	114	1				Keep in Tier 1. Has good reliability and stability.			**Tier 1**

1. PPC #	2. PPC Description	3. Observed # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recommendations
1	Stroke & Intracranial Hemorrhage	369	3				Tier 2			**Tier 2**
2	Extreme CNS Complications	77	3		Y	Y	Add to combined PPC with other measures. Put combined measure in Tier 2.	Disagree with combining with another PPC for a new "measure." Most are sentinel events or nearly so.		**Monitor**
8	Other Pulmonary Complications	348	2				Tier 2			**Tier 2**
10	Congestive Heart Failure	271	2				Tier 2			**Tier 2**
11	Acute Myocardial Infarction	430	2				Tier 2			**Tier 2**
12	Cardiac Arrhythmias & Conduction Disturbances	359	3				Tier 2			**Tier 2**
13	Other Cardiac Complications	94	3				Tier 2			**Tier 2**
15	Peripheral Vascular Complications Except Venous Thrombosis	83	3		Y	Y	Drop from MHAC due to low reliability and stability	Disagree with dropping. These are serious complications and should be tracked	Agree with Mathematica for dropping. This usually stems from a clotted vascular line and not a serious occurrence. Treatment involves a clot dissolving medication to be infused into the line. The line is then usable; or if not, the line can simply be removed, thus a low risk for an untoward	**Monitor**

1. PPC #	2. PPC Description	3. Ob-served # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recom-mendations
									patient event. No ongoing treatment once resolved. In the event it cannot be dropped, we do not agree combining PPCs 15 and 16. PPC 15 is of low reliability and currently in Tier 3. This combination would move it to Tier 1 and give it higher significance than clinically warranted; also prevention and treatment are not equivalent.	
17	Major Gastrointestinal Complications without Transfusion or Significant Bleeding	209	2		Y	Y	Add to combined PPC with other measures with low reliability and stability over time. Put combined measure in Tier 2.	Could understand moving this to the lowest Tier	Agree with HSCRC to combine 17 & 18, as these are clinically similar conditions.	**Tier 2 Combine 17, 18 for scoring. Report cases separately.**
18	Major Gastrointestinal Complications with Transfusion or Significant Bleeding	98	2		Y	Y	Suggest drop from MHAC due to low reliability and stability	Serious complications (in-hospital bleeding requiring transfusion)	Agree with Mathematica to drop to a low tier. Although a major GI bleed is serious, it is usually due to unpreventable conditions. It is also likely to be present on admission, but hard to establish onset and etiology.	**Tier 2. Combine 17, 18 for scoring. Report cases separately.**
19	Major Liver Complications	105	2				Tier 2		Disagree that this should be combined with 17 & 18. Although they are all the GI system, PPC 20 is usually from a bowel obstruction and not a bleeding situation.	**Tier 2**

1. PPC #	2. PPC Description	3. Ob-served # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recom-mendations
20	Other Gastrointestinal Complications without Transfusion or Significant Bleeding	129	3		Y	Y	Suggest drop from MHAC due to low reliability and stability	Could understand moving this to the lowest Tier.		**Monitor**
23	GU Complications Except UTI	129	3				Tier 2			**Tier 2**
24	Renal Failure without Dialysis	1,760								
25	Renal Failure with Dialysis	32								**Tier 2. Currently Combined PPC 67 (PPC 25, 26, 43, 63, 64). Report cases separately.**
26	Diabetic Ketoacidosis & Coma	12								**Tier 2. Currently Combined PPC 67 (PPC 25, 26, 43, 63, 64). Report cases separately.**
28	In-Hospital Trauma and Fractures	59	1			Y	Move to Tier 2. Lower reliability as well			**Tier 2.**
29	Poisonings Except from Anesthesia	71	3		Y	Y	Add to combined PPC with other measures with low reliability and stability over time. Put combined measure in	Keep these in the current category as they represent sentinel		**Monitor**

1. PPC #	2. PPC Description	3. Observed # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recommendations
							Tier 2.	events		
30	Poisonings due to Anesthesia	0	3			Y	Tier 2			**Tier 2. Never Event.**
31	Decubitus Ulcer	75	1			Y	Move to Tier 2- does not have low reliability but is not stable and not recommended by MHA.			**Tier 2. Never Event.**
32	Transfusion Incompatibility Reaction	0	3			Y	Tier 2			**Tier 2. Never Event.**
33	Cellulitis	195	3		Y	Y	Add to combined PPC with other measures with low reliability and stability over time. Put combined measure in Tier 2.	Could combine PPC 33 with PPC 34 Moderate Infections, since they are clinically compatible	Want to see this modeled before agreeing to combine these; they are different enough that it might not make clinical sense.	**Monitor**
34	Moderate Infectious	87	3		Y		Add to combined PPC with other measures with low reliability and stability over time. Put combined measure in Tier 2.	Could combine PPC 33 with PPC 34 Moderate Infections, since they are clinically compatible		**Tier 2**
36	Acute Mental Health Changes	123	3				Tier 2			**Tier 2**
39	Reopening Surgical Site	103	3			Y	Tier 2			**Tier 2**

1. PPC #	2. PPC Description	3. Ob-served # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recom-mendations
43	Accidental Cut or Hemorrhage During Other Medical Care	27								**Tier 2. Currently Combined PPC 67 (PPC 25, 26, 43, 63, 64). Report cases separately.**
44	Other Surgical Complication - Mod	105	3		Y	Y	Suggest drop from MHAC due to low reliability and stability	Disagree with dropping. Could understand moving this to the lowest Tier.		**Tier 2**
45	Post-procedure Foreign Bodies	18	3			Y	Tier 2			**Tier 2. Never Event.**
46	Post-Operative Substance Reaction & Non-O.R. Procedure for Foreign Body	2	3				Tier 2			**Tier 2. Never Event.**
47	Encephalopathy	132	3				Tier 2			**Tier 2**
48	Other Complications of Medical Care	242	2				Tier 2			**Tier 2**
50	Mechanical Complication of Device, Implant & Graft	187	3				Tier 2			**Tier 2**
51	Gastrointestinal Ostomy Complications	94	3		Y		Tier 2			**Tier 2**

1. PPC #	2. PPC Description	3. Observed # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recommendations
52	Inflammation & Other Complications of Devices, Implants or Grafts Except Vascular Infection	381	3				Tier 2			**Tier 2**
53	Infection, Inflammation & Clotting Complications of Peripheral Vascular Catheters & Infusions	139	3				Tier 2			**Tier 2**

1. PPC #	2. PPC Description	3. Ob-served # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recom-mendations
55	Obstetrical Hemorrhage without Transfusion	1,033	3	Y			Move to Tier 1. 32 hospitals have this PPC. On the low end of hospitals for Tier 1 but similar to some of the PPCs. Measure is reliable and stable. Benchmarks are reasonably high and performance mixed so room for improvement.		Disagree clinically with moving to tier 1. Condition is frequently not reflective of a quality of care issue. The provider cannot control the mother's response to labor and delivery. This condition is frequently recognized early and immediate measures are taken to prevent a hemorrhage from occurring. Bleeding is often described as small amount, minimal, and not clinically a hemorrhage. These are documentation and coding guideline issues; not quality of care issues. For the obstetric PPCs in general, consideration must also be given to the fact that these PPCs are not applicable to all hospitals, thus the impact is not evenly distributed. Moreover, obstetric PPC' are not included in the CMS HAC program, thus are not a focus outside Maryland.	**Tier 2. Combine PPCs 55, 56 for scoring. Report separately.**

1. PPC #	2. PPC Description	3. Ob-served # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recom-mendations
56	Obstetrical Hemorrhage with Transfusion	494	3	Y			Move to Tier 1. 32 hospitals have this PPC. On the low end of hospitals for Tier 1 but similar to some of the PPCs. Measure is reliable and stable. Benchmarks are reasonably high and performance mixed so room for improvement.		: Disagree clinically with moving to tier 1. Condition is frequently not reflective of a quality of care issue. The provider cannot control the mother's response to labor and delivery. This condition is frequently recognized early and immediate measures are taken to prevent a hemorrhage from occurring. Revisit the definition to include only c-sections to trigger the PPC because this is the population in which this is clinically significant.	**Tier 2. Combine PPCs 55, 56 for scoring. Report separately.**
57	Obstetric Lacerations & Other Trauma Without Instrumentation	891	3				Tier 2			**Tier 2. Combine PPCs57, 58 for scoring. Report separately.**
58	Obstetric Lacerations & Other Trauma With Instrumentation	304	3				Tier 2			**Tier 2. Combine PPCs 57, 58 for scoring. Report separately.**

1. PPC #	2. PPC Description	3. Ob-served # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recom-mendations
59	Medical & Anesthesia Obstetric Complications	328	3				Tier 2		Recommend combining the following obstetric PPCs: 59, 60, 61 and 62. These are generally very low volume and combining them into one "other OB complications" group would create more stability.	**Tier 2**
60	Major Puerperal Infection and Other Major Obstetric Complications	74	3		Y		Drop from MHAC due to low reliability	Disagree with dropping. Serious and significant complications (equivalent to sentinel events)	Recommend combining the following Obstetric PPCs: 59, 60, 61 and 62. These are generally very low volume and combining them into one "other OB complications" group would create more stability.	**Tier 2**
61	Other Complications of Obstetrical Surgical & Perineal Wounds	137	3				Tier 2		Recommend combining the following Obstetric PPCs: 59, 60, 61 and 62. These are generally very low volume and combining them into one "other OB complications" group would create more stability.	**Tier 2**

1. PPC #	2. PPC Description	3. Observed # of Cases	4. FY17 Tier	5. MHA FY18 Tier 1 Recs.	6. Low Reliability	7. Low Stability	8. Mathematica FY18 Recommendations	9. 3M FY18 Recommendations	10. Lifebridge FY18 Recommendations	11. HSCRC FY18 Recommendations
62	Delivery with Placental Complications	172	3				Tier 2		Recommend combining the following Obstetric PPCs: 59, 60, 61 and 62. These are generally very low volume and combining them into one "other OB complications" group would create more stability.	**Tier 2**
63	Post-Operative Respiratory Failure with Tracheostomy	24					Tier 2			**Tier 2. Currently Combined PPC 67 (PPC 25, 26, 43, 63, 64). Report cases separately.**
64	Other In-Hospital Adverse Events	255					Tier 2			**Tier 2. Currently Combined PPC 67 (PPC 25, 26, 43, 63, 64). Report cases separately.**
67	Combined PPC* (PPC 25, 26, 43, 63, 64)		3				Tier 2		Consider placing low volume PPCs such as 28, 29, 30 and 32 in PPC 67.	**Tier 2. Currently Combined PPC 67 (PPC 25, 26, 43, 63, 64). Report cases separately.**

APPENDIX VI.
FY 2017 CONTINGENT SCALING PRESET SCORES, AND YEAR TO DATE RESULTS

Final MHAC Score		Below State Quality Target	Exceed State Quality Target
Scores less than or equal to	**0.17**	**-3.00%**	**-1.00%**
	0.18	-2.91%	-0.96%
	0.19	-2.82%	-0.92%
	0.20	-2.74%	-0.88%
	0.21	-2.65%	-0.83%
	0.22	-2.56%	-0.79%
	0.23	-2.47%	-0.75%
	0.24	-2.38%	-0.71%
	0.25	-2.29%	-0.67%
	0.26	-2.21%	-0.63%
	0.27	-2.12%	-0.58%
	0.28	-2.03%	-0.54%
	0.29	-1.94%	-0.50%
	0.30	-1.85%	-0.46%
	0.31	-1.76%	-0.42%
	0.32	-1.68%	-0.38%
	0.33	-1.59%	-0.33%
	0.34	-1.50%	-0.29%
	0.35	-1.41%	-0.25%
	0.36	-1.32%	-0.21%
	0.37	-1.24%	-0.17%
	0.38	-1.15%	-0.12%
	0.39	-1.06%	-0.08%
	0.40	-0.97%	-0.04%
	0.41	-0.88%	0.00%
	0.42	-0.79%	0.00%
	0.43	-0.71%	0.00%
	0.44	-0.62%	0.00%
	0.45	-0.53%	0.00%
	0.46	-0.44%	0.00%
	0.47	-0.35%	0.00%
	0.48	-0.26%	0.00%
	0.49	-0.18%	0.00%
	0.500	-0.09%	0.00%
	0.510	0.00%	0.03%
	0.52	0.00%	0.07%
	0.53	0.00%	0.10%
	0.54	0.00%	0.13%
	0.55	0.00%	0.17%
	0.56	0.00%	0.20%
	0.57	0.00%	0.23%
	0.58	0.00%	0.27%
	0.59	0.00%	0.30%
	0.60	0.00%	0.33%
	0.61	0.00%	0.37%
	0.62	0.00%	0.40%
	0.63	0.00%	0.43%
	0.64	0.00%	0.47%
	0.65	0.00%	0.50%
	0.66	0.00%	0.53%
	0.67	0.00%	0.57%
	0.68	0.00%	0.60%
	0.69	0.00%	0.63%
	0.70	0.00%	0.67%
	0.71	0.00%	0.70%
	0.72	0.00%	0.73%
	0.73	0.00%	0.77%
	0.74	0.00%	0.80%
	0.75	0.00%	0.83%
	0.76	0.00%	0.87%
	0.77	0.00%	0.90%
	0.78	0.00%	0.93%
	0.79	0.00%	0.97%
Scores greater than or equal to	**0.80**	**0.00%**	**1.00%**

Hospital Name	Estimated Inpatient Revenue (FY15*2.6%)	MHAC Base Year Scores	Score Change	MHAC YTD (Sept) Scores FY17	% Adjustment	$ Adjustment
WASHINGTON ADVENTIST	$161,698,669	0.34	0.01	**0.35**	-0.25%	$ (404,247)
PRINCE GEORGE	$177,243,165	0.50	(0.13)	0.37	-0.17%	$ (295,405)
SOUTHERN MARYLAND	$163,208,213	0.22	0.15	0.37	-0.17%	$ (272,014)
JOHNS HOPKINS	$1,292,515,919	0.24	0.15	0.39	-0.08%	$ (1,077,097)
EASTON	$94,828,132	0.45	(0.03)	0.42	0.00%	$ -
WESTERN MARYLAND HEALTH SYSTEM	$184,484,266	0.38	0.05	0.43	0.00%	$ -
G.B.M.C.	$201,533,345	0.25	0.18	0.43	0.00%	$ -
MERITUS	$187,434,497	0.36	0.08	0.44	0.00%	$ -
DOCTORS COMMUNITY	$136,225,391	0.32	0.12	0.44	0.00%	$ -
LAUREL REGIONAL	$77,501,975	0.39	0.06	0.45	0.00%	$ -
ATLANTIC GENERAL	$38,640,762	0.58	(0.13)	0.45	0.00%	$ -
BON SECOURS	$78,212,787	0.64	(0.18)	0.46	0.00%	$ -
ANNE ARUNDEL	$310,117,075	0.29	0.17	0.46	0.00%	$ -
GOOD SAMARITAN	$180,861,011	0.51	(0.03)	0.48	0.00%	$ -
UNION MEMORIAL	$242,505,500	0.28	0.21	0.49	0.00%	$ -
SHADY GROVE	$228,731,775	0.42	0.08	0.50	0.00%	$ -
FREDERICK MEMORIAL	$189,480,763	0.36	0.15	0.51	0.03%	$ 63,160
MONTGOMERY GENERAL	$87,652,208	0.38	0.14	0.52	0.07%	$ 58,435
SUBURBAN	$181,410,188	0.21	0.32	0.53	0.10%	$ 181,410
HOWARD COUNTY	$167,386,497	0.24	0.29	0.53	0.10%	$ 167,386
CARROLL COUNTY	$138,209,278	0.29	0.25	0.54	0.13%	$ 184,279
MERCY	$233,163,594	0.38	0.17	0.55	0.17%	$ 388,606
CHARLES REGIONAL	$76,338,049	0.59	(0.04)	0.55	0.17%	$ 127,230
NORTHWEST	$142,186,717	0.33	0.22	0.55	0.17%	$ 236,978

Hospital Name	Estimated Inpatient Revenue (FY15*2.6%)	MHAC Base Year Scores	Score Change	MHAC YTD (Sept) Scores FY17	% Adjustment	$ Adjustment
UMMC MIDTOWN	$133,787,811	0.44	0.13	0.57	0.23%	$ 312,172
UM ST. JOSEPH	$216,335,128	0.34	0.23	0.57	0.23%	$ 504,782
BALTIMORE WASHINGTON MEDICAL CENTER	$223,155,126	0.30	0.28	0.58	0.27%	$ 595,080
SINAI	$429,154,679	0.33	0.26	0.59	0.30%	$ 1,287,464
FRANKLIN SQUARE	$285,691,170	0.38	0.22	0.60	0.33%	$ 952,304
UNIVERSITY OF MARYLAND	$863,843,449	0.25	0.36	0.61	0.37%	$ 3,167,426
HOLY CROSS	$319,596,342	0.21	0.40	0.61	0.37%	$ 1,171,853
ST. AGNES	$239,121,556	0.35	0.26	0.61	0.37%	$ 876,779
UPPER CHESAPEAKE HEALTH	$148,917,096	0.33	0.30	0.63	0.43%	$ 645,307
UNION HOSPITAL OF CECIL COUNT	$67,852,189	0.49	0.15	0.64	0.47%	$ 316,644
HARBOR	$124,002,220	0.35	0.29	0.64	0.47%	$ 578,677
REHAB & ORTHO	$69,104,846	0.47	0.17	0.64	0.47%	$ 322,489
HOPKINS BAYVIEW MED CTR	$356,396,901	0.54	0.11	0.65	0.50%	$ 1,781,985
DORCHESTER	$25,127,935	0.40	0.29	0.69	0.63%	$ 159,144
PENINSULA REGIONAL	$233,728,496	0.19	0.50	0.69	0.63%	$ 1,480,280
ST. MARY	$69,520,305	0.55	0.14	0.69	0.63%	$ 440,295
HARFORD	$47,089,618	0.47	0.26	**0.73**	0.77%	$ 361,020
CHESTERTOWN	$29,416,674	0.81	(0.06)	0.75	0.83%	$ 245,139
CALVERT	$67,385,287	0.47	0.28	0.75	0.83%	$ 561,544
GARRETT COUNTY	$18,724,074	0.50	0.28	0.78	0.93%	$ 174,758
FT. WASHINGTON	$17,776,133	0.55	0.33	0.88	1.00%	$ 177,761
MCCREADY	$3,734,618	1.00	-	1.00	1.00%	$ 37,346

CareFirst BlueCross BlueShield
1501 S. Clinton St
Baltimore, MD 21224

December 15, 2015

Health Services Cost Review Commission
4160 Patterson Avenue
Baltimore, Maryland 21215

Dear Commissioners,

The purpose of this letter is to provide suggested modifications to the Health Services Cost Review Commission (HSCRC) staff draft recommendations regarding the Commission's FY 2018 Maryland Hospital Acquired Condition (MHAC) Program methodology and policy.

Recommended Changes to the FY 2018 MHAC Staff Recommendation

While we recognize the substantial efforts Maryland Hospitals have made to improve the overall quality of hospital care in the State and meet the MHAC reduction targets of the waiver agreement, [1] we believe that the effectiveness of the MHAC policy can be enhanced by the following suggested recommendations:

1. **Replace the two-tiered scaling approach with a single scale without a hold-harmless zone.** The HSCRC established the two-tiered scaling approach to tie hospitals together to meet a common State-wide improvement goal, thus promoting cooperation and data sharing activities. However, CareFirst is concerned that the policy creates a "contingent incentive" structure, which weakens individual hospital incentives. That is, a hospital will have a reduced incentive to make investments in their own MHAC improvement efforts because it faces the potential of a greatly reduced individual reward based on factors beyond its own control (i.e., the collective performance of all hospitals). Collective incentives in other areas of health payment policy (such as Medicare's previous Sustainable Growth Rate policy) have been shown to undermine individual provider incentives. We believe that a more effective approach would be to create one continuous reward/penalty scale that provides incentives in proportion to each hospital's individual performance. This reward/penalty scale should be applied to all hospitals so that each facility's performance counts toward the realization of program goals. We recommend eliminating the use of a neutral zone that holds hospitals harmless for their own performance.

2. **Assure Attainment of Statewide Targets.** To increase hospitals' incentive to "pull" cooperatively toward the overall statewide goal, the HSCRC should consider applying an ex-post-facto penalty to all hospitals at the time of the annual update factor if the state does not meet its overall improvement goal. This proposed structure will provide incentives for hospitals to share information and best practices, while increasing incentives for individual hospital performance.

   Investigate factors contributing to the dramatic improvement levels (33-36%) achieved to date. We strongly encourage the HSCRC staff to continue to investigate the reasons behind these

[1] Per the wavier agreement, Maryland hospitals must realize a cumulative reduction in MHACs of at least 30% by 2018. Between FY 2013 and FY 2015, the State-wide MHAC rate decreased with a total cumulative improvement of 36%. By comparison, the Agency for Healthcare Quality and Research (AHRQ) recently reported that interim estimates for 2014 show a 17% decline in HACs by hospitals since 2010, nationally.

reductions given the potential interrelationship between the changes financial incentives under the GBR and the large decline in reported MHACs. These activities could include: (a) gaining a better understanding of the range of variability in identifying and documenting PPCs; (b) correlating changes in MHACs with other measures such as Length of Stay by severity class; and (c) conducting more targeted coding audits. Until a complete understanding is developed, we believe the HSCRC should continue to update the base year for measuring hospital MHAC performance to the most recent year and maintain its current 7% annual statewide performance improvement target. Further, we support the staff's efforts to verify the reliability and validity of the HAC measures and we are happy to see that this effort also involves correlating hospital MHAC performance with improvements in patient outcomes. Given the changed financial incentives and apparent wide variability in practices associated with documentation and coding practices, raw reductions in the numbers and rates of MHACs may not be as indicative of actual improvements in patient care, as would be desired. We encourage the HSCRC to continue to pursue efforts to link MHAC performance to changes actual outcomes of care over time.

Thank you for the opportunity to submit these comments on the staff's draft recommendations for the HSCRC's MHAC policy. We stand ready to assist the staff and the Commission in the final development of this important initiative.

Sincerely,

Jonathan D. Blum
Executive Vice President, Medical Affairs

Maryland
Hospital Association

January 4, 2016

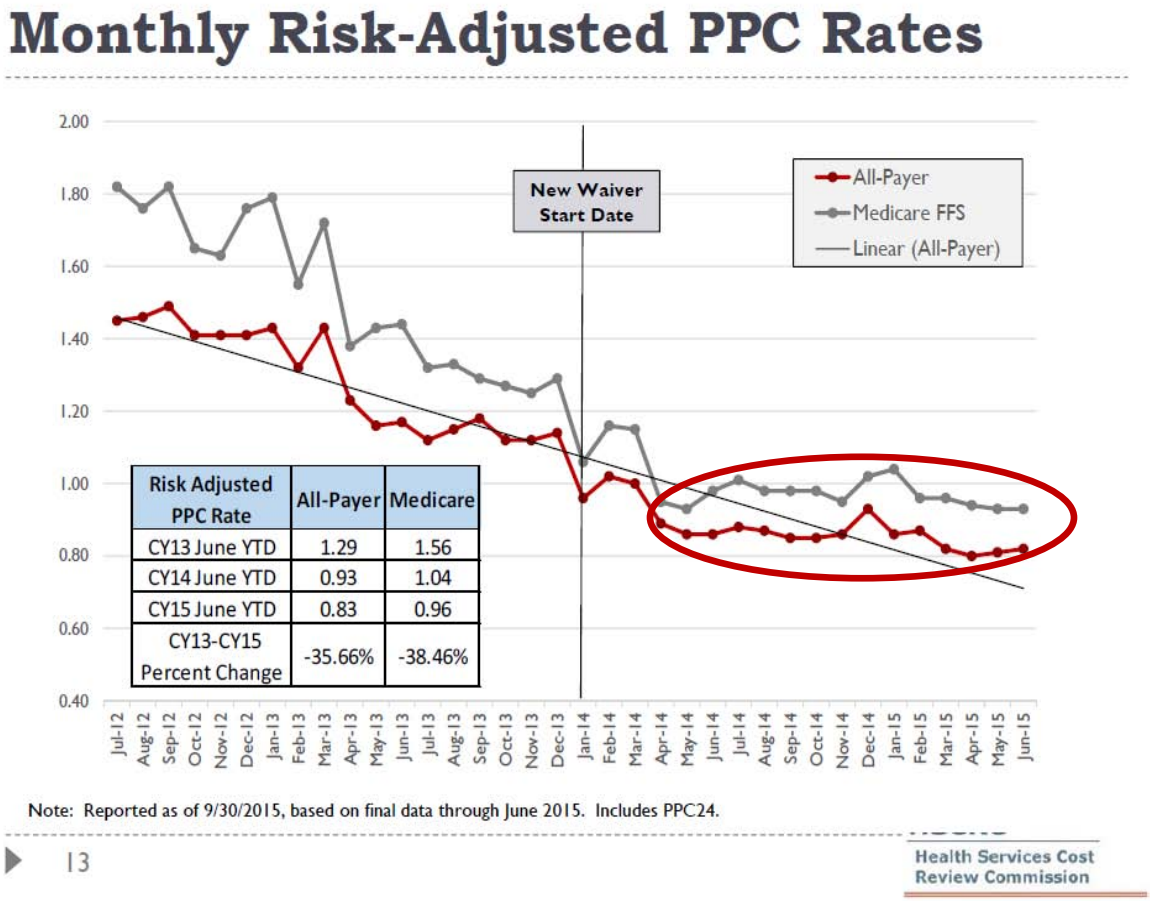
Dianne Feeney
Associate Director, Quality Initiatives
Health Services Cost Review Commission
4160 Patterson Avenue
Baltimore, Maryland

Dear Ms. Feeney:

On behalf of the 64 hospital and health system members of the Maryland Hospital Association (MHA), we appreciate the opportunity to comment on the proposed changes to the *Draft Recommendation for Modifying the Maryland Hospital Acquired Conditions (MHAC) Program for FY 2018*. We agree with continuing the two-tiered payment scale and linking payment adjustments to specific scores so that the net adjustments are not required to be zero. We disagree with setting the statewide improvement target at 6 percent. That target, combined with rebased performance expectations, creates the potential for excessive penalties even when Maryland hospitals are performing remarkably well.

Maintain the Structure of the Program
Based on the most recent final data measuring January through September 2015, Maryland's hospitals have reduced the risk-adjusted rate of complications by just over 15 percent compared to fiscal year 2014. Continued reductions in complications over the past year demonstrate that the policy provides strong incentives to support hospitals' efforts to reduce patient harm; as such we support the recommendation that the structure of the program remain essentially unchanged. Setting the scoring targets and associated payment impacts at the start of the year allows hospitals to track progress throughout the year and to clearly understand the impact on payment. The two-tiered payment scale also provides an additional incentive for hospitals to share best practices.

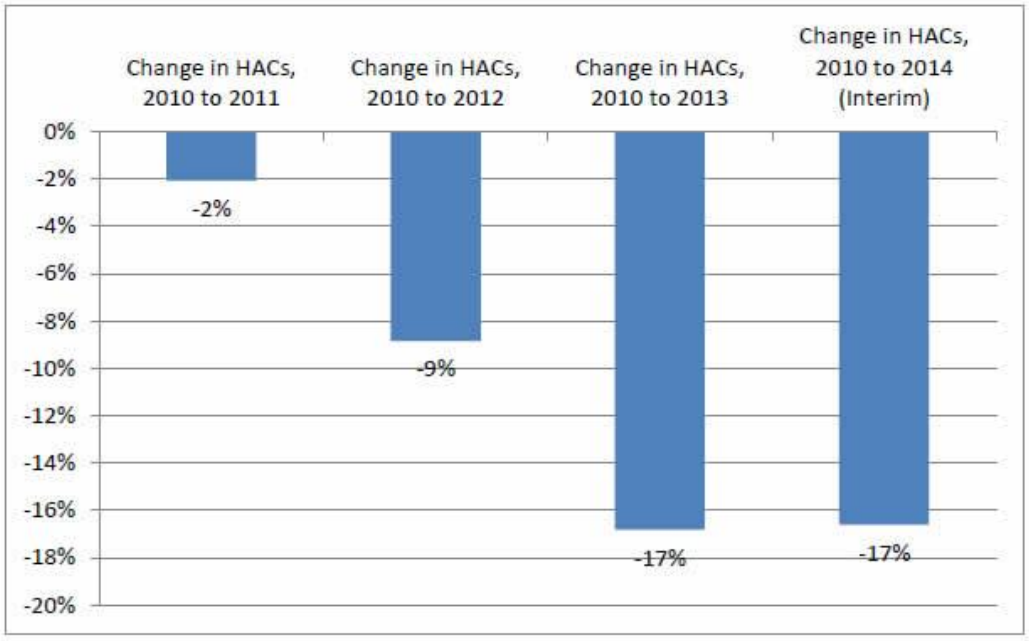
National Improvement has Leveled Off
The rate of improvement in complications is slowing both in Maryland and across the country. Although the January through September 2015 complication rate is 15 percent lower than the fiscal 2014 rate, when the current year-to-date rate is compared to the second half of fiscal 2014 (January through June of 2014), the risk-adjusted improvement is only 5.7 percent. The same plateau in the rate of improvement can also be seen in the monthly trend in complications rates (Figure 2 on page 4 of the draft staff recommendation and in the October HSCRC Monthly Monitoring Presentation, copied below). Note that the trend lines begin to flatten around April 2014.



The national improvement trend in hospital acquired conditions has also hit a plateau as described in a December 1 report by the Agency for Healthcare Research and Quality, even though national rates have not declined as much as they have in Maryland.[1] From 2010 to 2011, the national rate declined 2 percent; in 2012, that rate declined another 7 percent; and in 2013 another 6 percent, for a total 17 percent reduction from 2010 to 2013. However, in 2014, there was no additional reduction in hospital acquired complications rates.

[1] Saving Lives and Saving Money: Hospital Acquired Conditions Update downloaded on December 15 from http://www.ahrq.gov/professionals/quality-patient-safety/pfp/interimhacrate2014.html?utm_source=HHSPressRelease65&utm_medium=HHSPressRelease&utm_term=HAC&utm_content=65&utm_campaign=CUSP4CAUTI2015

Annual and Cumulative Changes in Hospital Acquired Conditions, 2010 to 2014



In absolute terms, nationally there were 121 hospital acquired conditions per 1,000 discharges in 2014, compared to 35 potentially preventable complications per 1,000 discharges in Maryland. While the two metrics are not identical, the difference in absolute complications rates in Maryland compared to the nation is marked, especially considering that Maryland measures 65 potentially preventable complications while the nation measures considerably fewer.

Sustain the Hospital Improvements and Focus Externally

Our view is that the focus of calendar year 2016 should be on sustaining the gains in reduced complications that have already been made within the hospital. HSCRC policy calls annually for re-setting the performance standards, or norms -- the statewide average rates that are the basis for the "expected" values -- to the most recent fiscal year experience. Performance in fiscal year 2015 compared to fiscal 2014 improved on average by more than 17 percent across all complications and all hospitals. This means that the average performance expectations will be 17 percent more difficult than in the previous year. While we acknowledge the HSCRC staff view that performance expectations should continue to be re-set based on most recent performance, in practice this means that hospitals must improve performance by 17 percent on average to see the same payment adjustment in fiscal 2018 as in 2017. Said another way, a hospital that maintains its current performance will see its score deteriorate by about 17 percent. A hospital that scored a 0.49 (out of a possible 1.0) this year is due a positive payment adjustment of 0.16 percent. With no change in performance, the hospital's score will drop to 0.32. Assuming the state achieves the statewide target, the hospital will be due a negative 0.06 percent adjustment; however, if the statewide target is not achieved, the hospital will see a negative 1.33 percent payment adjustment. Tying the threat of greater penalties to the expectation of a further 6 percent improvement in addition to the 17 percent improvement is out of step with performance to date.

As hospitals reduce the rate of complications, additional resources and interventions are required to achieve additional improvements. We believe those additional resources are better directed toward the external relationships and infrastructure needed to coordinate and manage care with partners outside the hospital walls. Hospitals already have strong incentives to continue to improve their MHAC performance. The reality of lower scores for maintaining the status quo and the possibility of positive and negative payment adjustments, combined with the inherent incentives of the global budget, are more than adequate to ensure continued reductions. Linking the payment scale, with higher penalties and no rewards, to regression in the rate of complications would provide an additional measure of assurance. Linking that scale to a 6 percent improvement places the emphasis in the wrong area.

Thank you for the opportunity to participate in this process and to comment on this recommendation. If you have any questions, please contact me.

Sincerely,

Traci La Valle

Traci La Valle
Vice President

GBR Infrastructure Investment – FY14 and FY15

1/13/2016

HSCRC
Health Services Cost Review Commission

Overview

- Under global budgets, Commission has included additional dollars in the rates of all hospitals to provide monies for investments for patients with the goals of improving care and improving health while also reducing avoidable utilization.
- Intent of these monies is to accelerate the development of care coordination.
- Commission required that hospitals report on all new population health investments for FY2014 and 2015.
- Reports were reviewed by a committee of HSCRC and the Department of Health and Mental Hygiene (DHMH) staff.
- While the committee believes that many of the investments reported were consistent with reporting instructions, some investments appear to itemize existing programs or programs that are outside the scope of the Infrastructure dollars.

GBR Infrastructure Reports – A Snapshot

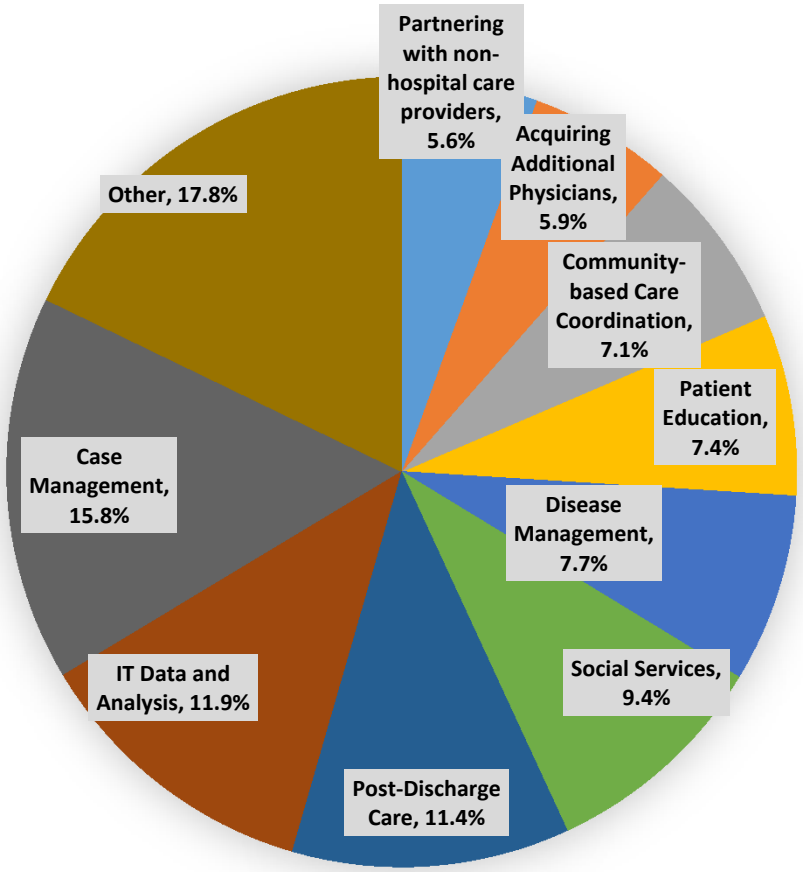
- To date, HSCRC has received reports from 44 hospitals, detailing over 850 infrastructure investments made during FY2014 and FY2015.
- The individual infrastructure investment reports are posted on the Commission's website at the following link: http://www.hscrc.maryland.gov/plans.cfm
- Infrastructure Spending:
  - Total Reported: total reported minus grant or other funds
  - Moderate Estimate: partially discounts investments that represented ongoing hospital expenditures or excluded categories
  - Conservative Estimate: wholly discounts all investments representing ongoing hospital expenditures or excluded categories.

Investment Spending	All Hospitals	GBR Only*
Total Reported	$231 M	$173 M
Moderate Estimate	$170 M	$126 M
Conservative Estimate	$116 M	$87 M

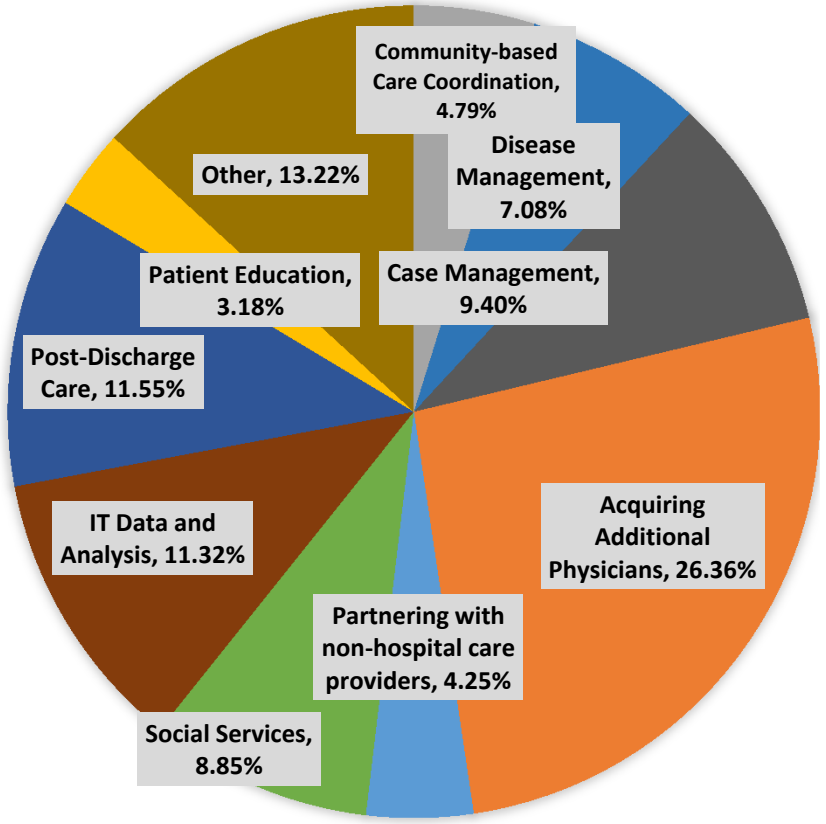
*For comparison purposes the amount of new money put into GBR hospital rates was approximately $90 M

Categories of Investments

Total Counts of Investments



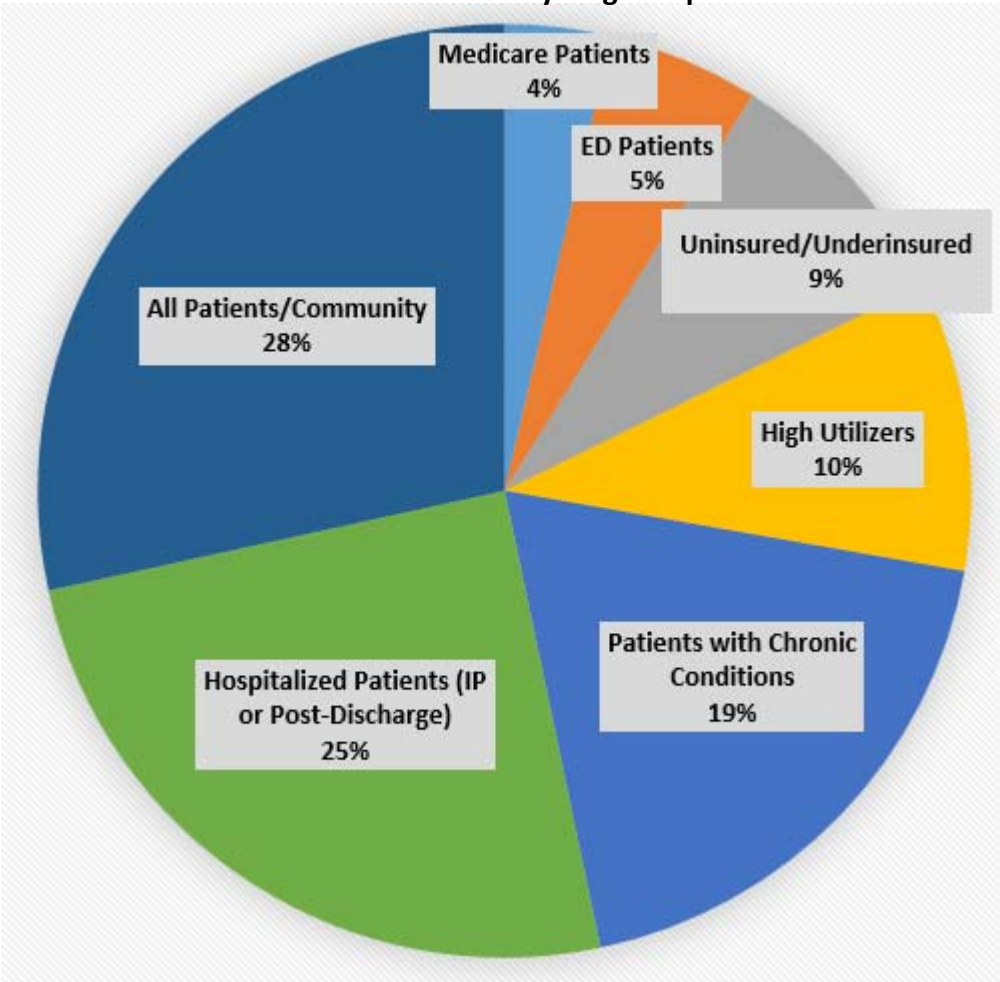
Sum of Investment Dollars less Grants



HSCRC
Health Services Cost Review Commission

Target Populations

Percent of Infrastructure Investments by Target Population



HSCRC
Health Services Cost Review Commission

Moving forward, optimal investments should:

- Focus on investments within the scope of Infrastructure Investment that should reduce PAU in the short-term.
- Partner with existing local/community health resources or links with statewide infrastructure (e.g., CRISP).
  - 57% of investments reported links
- Present and track viable outcomes/metrics to evaluate effectiveness of investments.
  - Majority of investments lacked sufficient outcomes

Next Steps

- HSCRC to revise reporting template and develop electronic submission process
  - Add more comprehensive categories and more detailed outcomes reporting
  - Alignment with other reporting
  - Reconvene subgroup of stakeholders for input

GBR Infrastructure Investment Reports FY14 and FY15

Summary Report

January 13, 2016

Health Services Cost Review Commission
4160 Patterson Avenue
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This document contains a summary of the Global Budget Revenue (GBR) investment reports for fiscal years 2014 and 2015.

INTRODUCTION

Under global budgets, the Commission has included additional dollars in the rates of all hospitals to provide monies for investments for patients with the goals of improving care and improving health while also reducing avoidable utilization. The intent of these monies is to accelerate the development of care coordination and other interventions relative to these goals, which we refer to as infrastructure investments. The Commission required that all hospitals report on their investments for fiscal years 2014 and 2015. This Summary Report provides a high-level analysis of reported investments for these past two fiscal years. This report includes an estimated range of the amount hospitals invested in infrastructure, classifies the types of infrastructure investments reported, and details strengths and weaknesses of the reports and investments. Based on our review, the Health Services Cost Review Commission (HSCRC) staff recommends several improvements to these reports for future years. These suggested improvements are outlined following the analysis. It should be noted that in order to get a full understanding of an individual hospital's activities, these reports and future reports should be examined in conjunction with the Strategic Hospital Transformation Plans, Community Benefit Reports, Community Health Needs Assessments, and any regional partnership reporting.

BACKGROUND

Recognizing the need to accelerate investment in infrastructure to support care transitions, coordination and case management to meet the All-Payer Model's hospital transformation and quality improvement goals, the HSCRC elected to build additional monies into hospital Global Budget Revenue (GBR) rates. In fiscal years 2014 and 2015, Maryland GBR hospitals received over $90 million to invest in infrastructure necessary to meet the goals outlined in Maryland's All-Payer Model. This amount does not include additional monies that were historically built into the rates of Total Patient Revenue (TPR) hospitals for infrastructure investment. Some hospitals were not under global budgets until later in 2014, and therefore may not have fully invested their infrastructure dollars until later in fiscal years 2014 or 2015.

Instructions

In this first round of infrastructure investment reporting, hospitals were given instructions regarding expenses that could be included in the reports.[1,2] The categories were previously reviewed with the Commission. In reviewing the reports, staff was attentive to the types of expenses that were reported and whether they appeared to follow the instructions. In some

[1] GBR hospitals also received infrastructure dollars in the amount of 0.40% in FY 2016.
[2] To review the Report Memo and Reporting Instructions, please visit http://hscrc.maryland.gov/documents/HSCRC_PolicyDocumentsReports/PolicyClarification/2015/GBR-Infrastructure-Reporting-02-09-2015.pdf

instances, it was difficult to determine whether the expenses reported were new expenditures, as required, or were for billable services, which should have been excluded.

Infrastructure Investment – Inaugural Reports

To date, the HSCRC has received infrastructure reports from 44 hospitals, detailing over 850 infrastructure investments made during fiscal years 2014 and 2015.[3] While hospitals were directed to submit separate reports for each fiscal year, some hospitals submitted a combined report that covered both years. The individual infrastructure investment reports are posted on the Commission's website at the following link: http://www.hscrc.maryland.gov/plans.cfm.

The reports were reviewed by a committee of HSCRC and the Department of Health and Mental Hygiene (DHMH) staff. The committee first met to discuss general impressions of the reports. Reviewers noted that there were several well-prepared reports and careful investments that displayed strong alignment with the intended purpose of the infrastructure funding. However, reviewers also expressed concern that some reports were vague or difficult to analyze and that particular investments did not meet the goals outlined or follow the instructions.

Next, each member of the review committee categorized a subset of the infrastructure investments to create an aggregate analysis of these investments. It should be noted that reviewers were asked to submit a single response for each typology below. However, reviewers found that many investments actually fell into multiple categories or category types that were not anticipated. The reviewers believe that this issue is partially related to the way that the data were reported, and that the review process will improve as HSCRC staff develops a more sophisticated reporting system in future years. The aggregate analysis is discussed in further detail below.

Summary of Investments

Financial Analysis

Hospitals reported a total infrastructure investment of $231 million dollars over the past two years, and reported enlisting over 3,300 full-time equivalents (FTEs) to complete the work of infrastructure investment.[4] Based on the committee's review, staff estimates that between $116 million (conservative estimate) and $170 million (moderate estimate) dollars were itemized for infrastructure investments that met the guiding principles for this report. In comparison to the $90 million that were included in the rates of GBR hospitals, it is estimated that the amount invested ranges from $87 million to $173 million.

[3] At this time, HSCRC has not received a GBR Infrastructure Investment report from McCready Foundation or Calvert Memorial Hospital, both TPR hospitals.

[4] FTEs listed as reported by hospitals. For hospitals with combined reports, FTEs were doubled, assuming the hospital reported annual FTEs. Also, FTEs are not necessarily new positions, and often reflect re-purposing employees to more cost-efficient initiatives.

Category Analysis

On the whole, hospitals demonstrated a strong commitment to the goals outlined. In particular, hospitals centered investments in the following areas:

- Expanding case management and care transitions;
- Increasing access to non-hospital provider care;
- Removing barriers to social services necessary for improved population health;
- Promoting patient education; and
- Increasing post-discharge support and follow-up care.

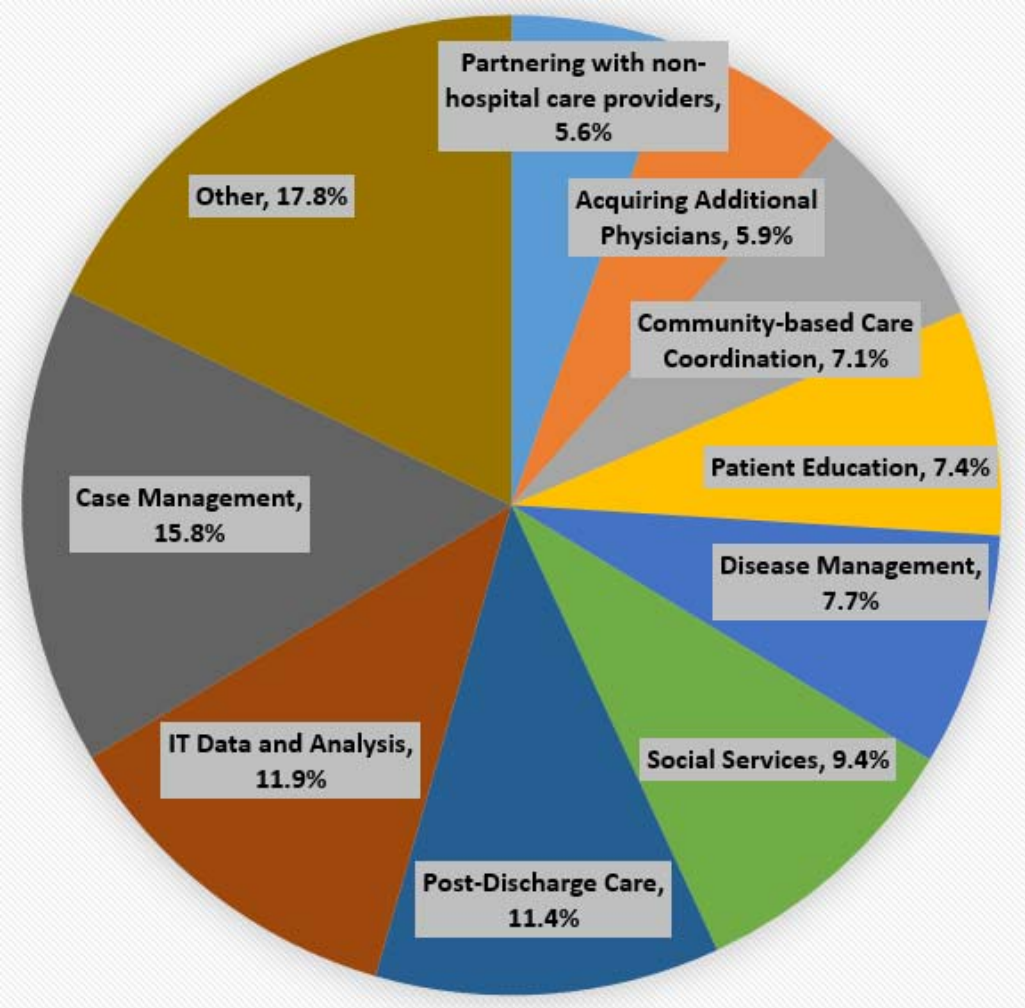
Of the hospitals' individual investments, reviewers were asked to classify investments into several mutually exclusive categories (see Figure 1).[5] Some investments could ostensibly fit into multiple categories, however reviewers classified each investment into the category they felt was most appropriate (in future years, staff plans to have hospitals self-report these categories). Based on this analysis, the top three categories (excluding "Other") are related to expansion of case management (15.8%), IT and data analysis (11.9%), and post-discharge or transitional care (11.4%). If we further group case management, post-discharge/transitional care, social services, disease management, patient education, and community based care coordination, in total these categories constitute around 50% of all investments (and 44% of total reported spending). Many of these types of investments were designed to reduce avoidable admissions and readmissions. The "Other" category primarily contains investments that the reviewers did not believe fit into another category, as well as some smaller categories such as investments in accountable care organizations and telemonitoring.

Reviewers observed large-scale monetary investments for acquiring providers/physicians. While just 5.9% of investments were for acquiring providers/physicians, this category represented 26% of total reported spending ($61.0 million). As specified in the reporting instructions under excluded expenses, the HSCRC did not intend to fund physician acquisition or subsidies with infrastructure funds. Some limited subsidies to support disease management activities may be appropriate relative to the objectives of care coordination, however. While hospitals may make investments to recruit and retain primary care or other providers required to fill critical gaps in community health infrastructure, the HSCRC staff does not believe this is an ideal strategy for improving care coordination and reducing avoidable utilization. Based on the committee's review, between $10.5 million and $35.4 million of the $61.0 million invested may meet the reporting guidelines. Investments that did not meet the reporting guidelines have been excluded. The HSCRC staff is very concerned about any use of infrastructure funds other than for the direct objective of increasing resources for care coordination and case management outside of hospitals. Failure to concentrate resources in these areas may result in

[5] The analysis below is based on counts of all reported investments (i.e., not excluding any investments that were deemed not to meet the reporting principles) and counts investments reported on a combined FY14 and FY15 twice, under the assumption that the hospitals invested in the particular line-item in both years. Because of this assumption, the number of investments is greater than the 850 referenced above.

the inability to reduce avoidable utilization. In future reporting cycles, this will be one area where HSCRC staff will need to clarify instructions.

Figure 1: Percent of Infrastructure Investments by Category



Link with Partners

As the HSCRC and the health providers of Maryland move toward care transformation during the upcoming several years, staff is hopeful that hospitals will invest in partnerships with existing community healthcare and service providers. These providers include Federally Qualified Health Centers, long-term care facilities, community primary care physicians, patients/families, health clinics, local health departments, faith-based organizations, and many others. Of the investments we reviewed, approximately 57% of investments reported partnerships with external partners or existing statewide/regional infrastructure or initiatives.

To increase the success of the healthcare transformation in Maryland, we are hopeful to continue progress toward more integrated care delivery in future years.

Target Populations

Hospitals focused investments on targeted patient populations most in need of care. These groups included:

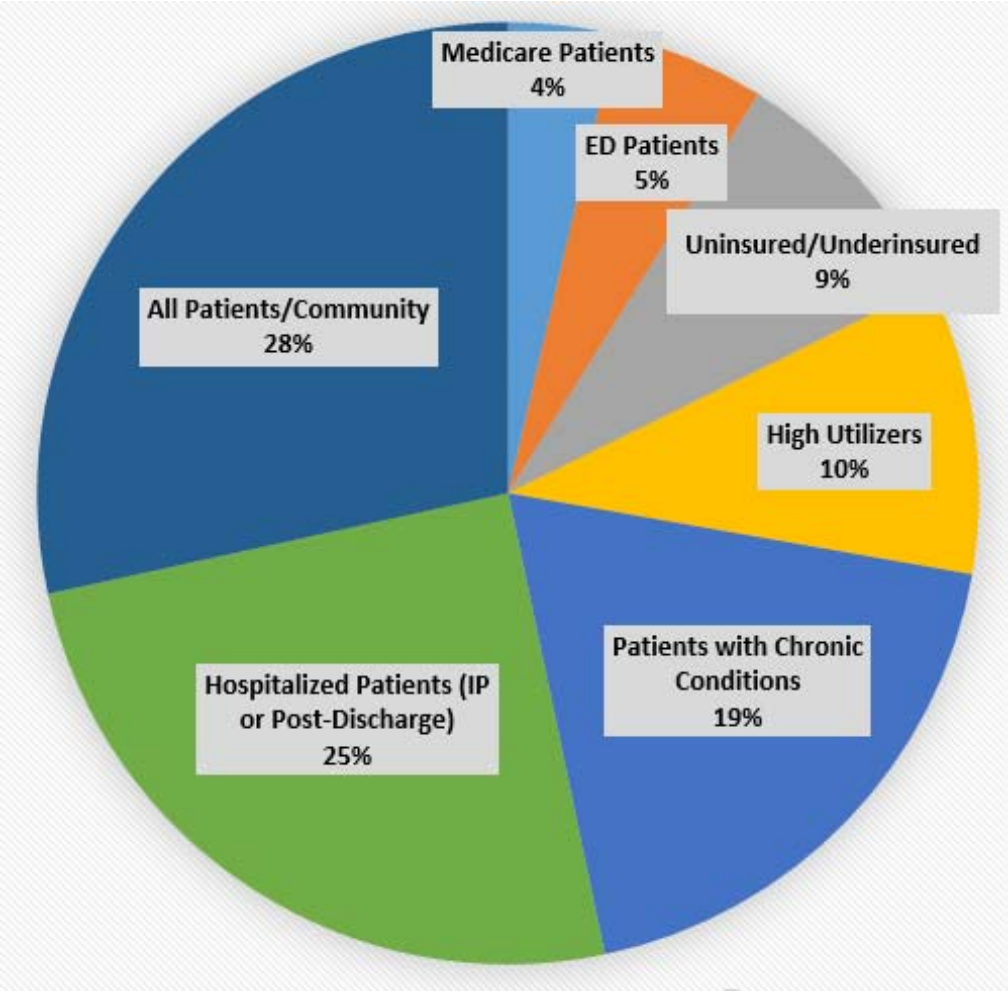
- High ER utilizers;
- Medicare patients (who have limited support in the fee-for-service system);
- Readmitted patients; and
- Patients with (multiple) chronic conditions.

The reviewers concluded that hospitals had focused infrastructure investments on hospitalized patients (particularly in post-discharge care investments), patients with chronic disease (particularly in case management), and other high utilizers.[6] Of note, while the investments specifically targeting Medicare patients appears low, many investments that targeted high utilizers, patients with chronic conditions, or hospitalized patients will also directly benefit Medicare patients. Staff hopes to modify the reporting requirements to better reflect the multiple populations served in future reports.

Hospitals invested the greatest amount of dollars in improvements for the All Patient/Community category, particularly investments in IT and analytics, as well as broader investments in population health (35% of reported spending). In general, the dollar investment closely aligned with the percentage of investments by category, as demonstrated in Figure 2 below.

[6] Reviewers were again asked to categorize target populations based on the population that *was most targeted* for improvement in each initiative. The review committee recognizes that these target populations are not mutually exclusive and, in future years, will improve the review process to more accurately gather data for all affected populations.

Figure 2: Percent of Infrastructure Investments by Target Population



Strengths, Weaknesses, and Overall Evaluation

The infrastructure investment reports had both strengths and weaknesses. Overall, the review committee was specifically impressed with investments that:

- Presented a concise but descriptive analysis of the investment;
- Based the investment on identified community/hospital needs;
- Worked with existing community partners and statewide infrastructure;
- Were broad in scope and designed to meet the requirements of the All-Payer Model such as reducing avoidable utilization; and
- Defined clear outcome measures.

While the committee believes that the majority of the investments reported are consistent with intent of the infrastructure dollars, there are concerns about particular investments, as well as concerns about some content in the reports. Specific concerns include:

- Reporting of expenses that were not the intention of the infrastructure funding (e.g., investments to reduce hospital complications, employee wellness initiatives).
- Reporting of longer term investments that were laudable and may have met the intention for the infrastructure investments, but would do little to reduce utilization of critically ill patients in the near-term.
- Reporting of on-going expenses rather than expenses for new or expanded programs (i.e., many expenses were reported for both FY14 and FY15 without clear description of expansion, and several existing hospital initiatives from prior to the infrastructure investment were also itemized). For example, care transition expenditures were already funded in prior years and have been part of the ongoing activities of hospitals for several years.
- Reporting investments that were covered by grant funding or reimbursed through payers.
- Lack of outcome data or even base period outcome measures for which performance in the future could be compared.

Based on these concerns, HSCRC staff will provide additional reporting instructions and suggest efficacious uses of infrastructure dollars in future years. We are hopeful to improve these reports so they will better reflect the important investments hospitals are making to improve population health. In addition, HSCRC staff plans to have an automated submission process for next year so that we can better aggregate and evaluate the results.

CONCLUSION

HSCRC is very excited about the ongoing investments that hospitals are making. While we know reporting improvements are needed, we believe that the inaugural infrastructure investment reports provide important information, in conjunction with the strategic hospital transformation plans and regional partnership activities, for evaluating the implementation of the All-Payer Model and investments to improve outcomes for patients.

Strategic Hospital Transformation Plans Summary Report

HSCRC Commission Meeting

January 13, 2016

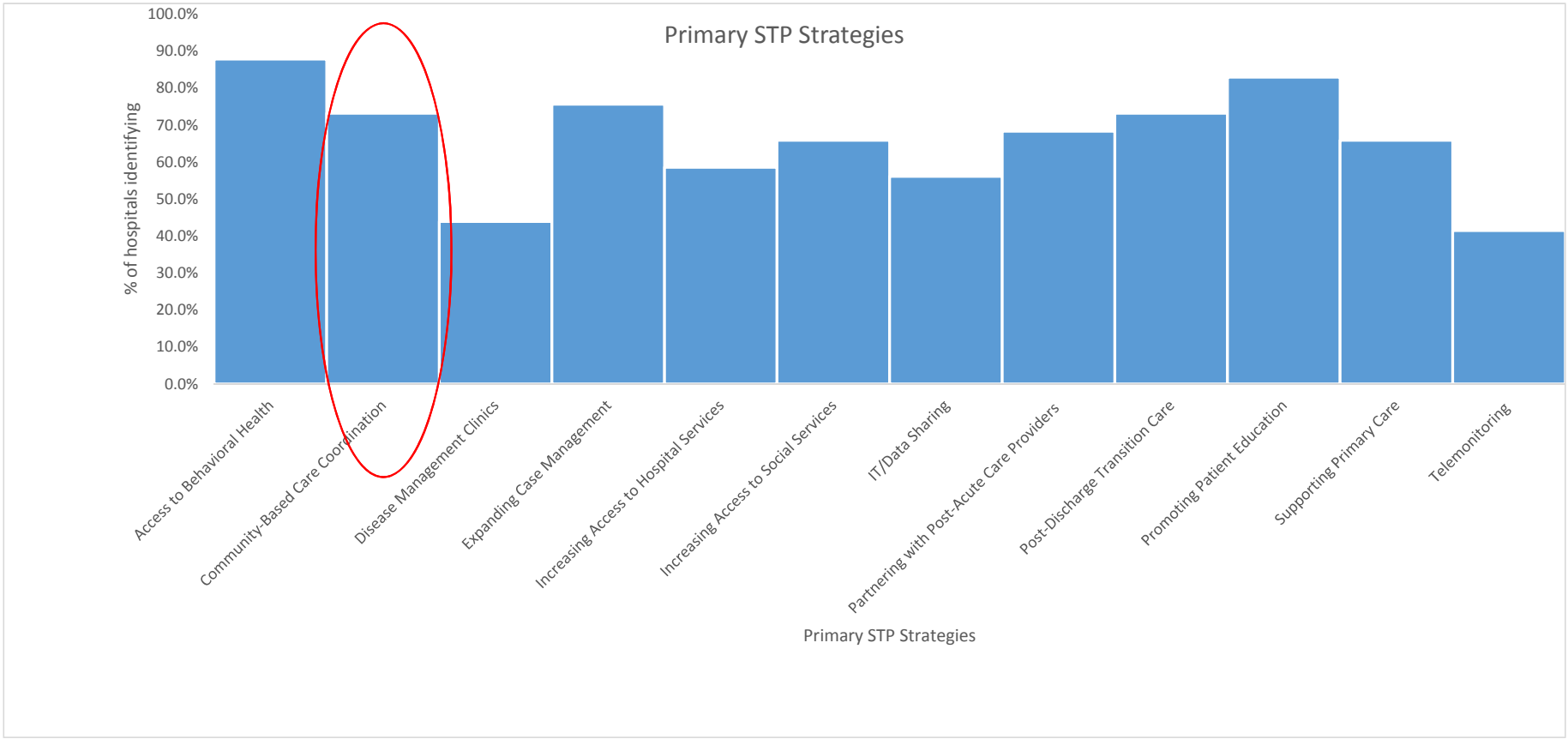
Purpose of STP Reports

- Summarize short-term and long-term strategies and incremental investment plans for improving care coordination and chronic care, reducing potentially avoidable utilization, and aligning with non-hospital providers
- Meeting future goals of:
  - Better chronic disease supports
  - Long term and post-acute care integration and coordination
  - Physical and behavioral health integration and coordination
  - Primary care supports
  - Case management and other supports for high needs and complex patients
  - Episode improvements, including quality and efficiency improvements
  - Clinical consolidation and modernization to improve quality and efficiency
  - Integration of community resources relative to social determinants of health and activities of daily living

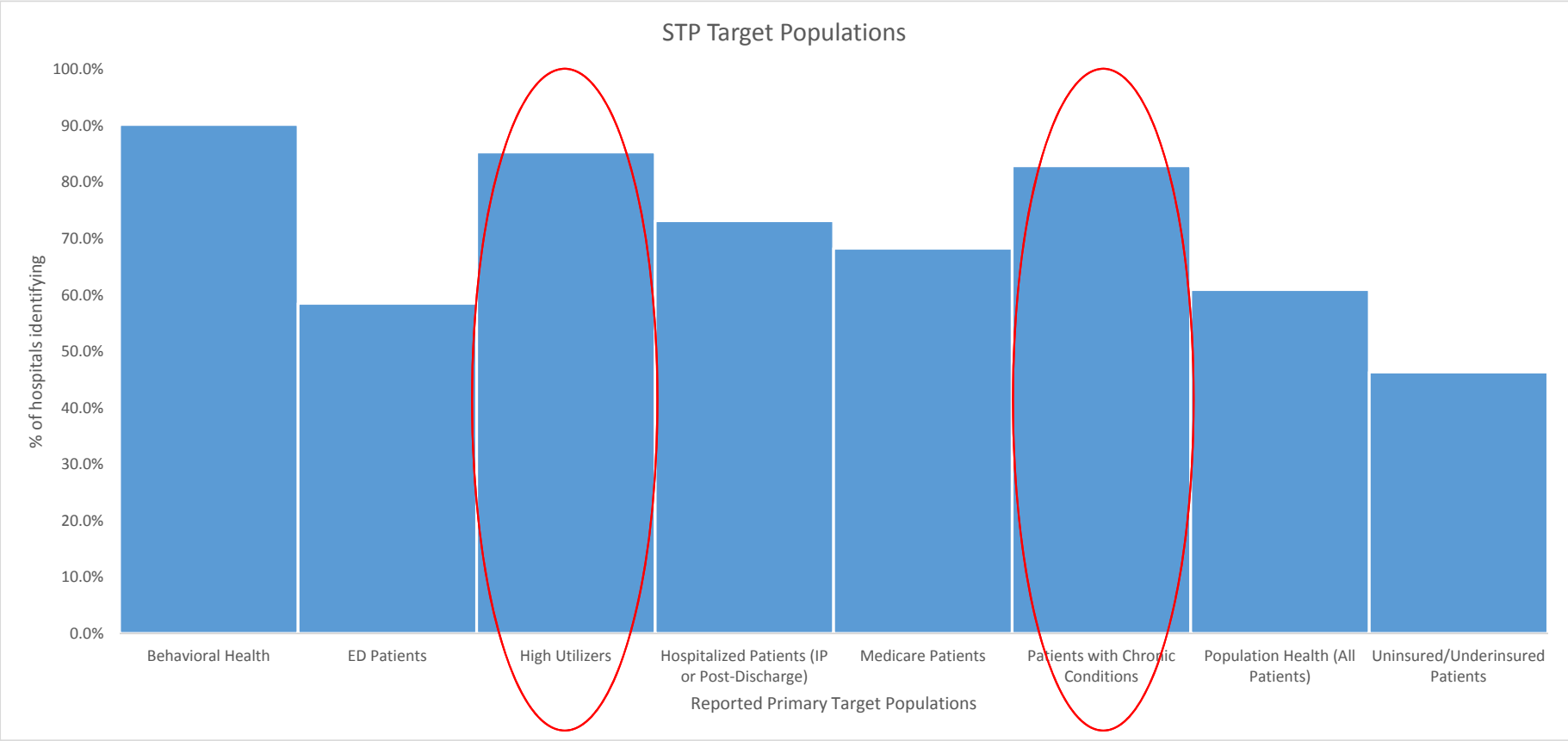
Reports Layout and Evaluation

- Sections:
  - Describe Overall Goals
  - List overall major strategies
  - Describe specific target population for each major strategy
  - Describe the metrics to measure progress
  - List participants and how partners are working on each major strategy
  - Describe the financial sustainability plan
- Review Team of HSCRC, DHMH, MHCC, CRISP Staff
- The Team submitted observations on assigned reports through a survey tool

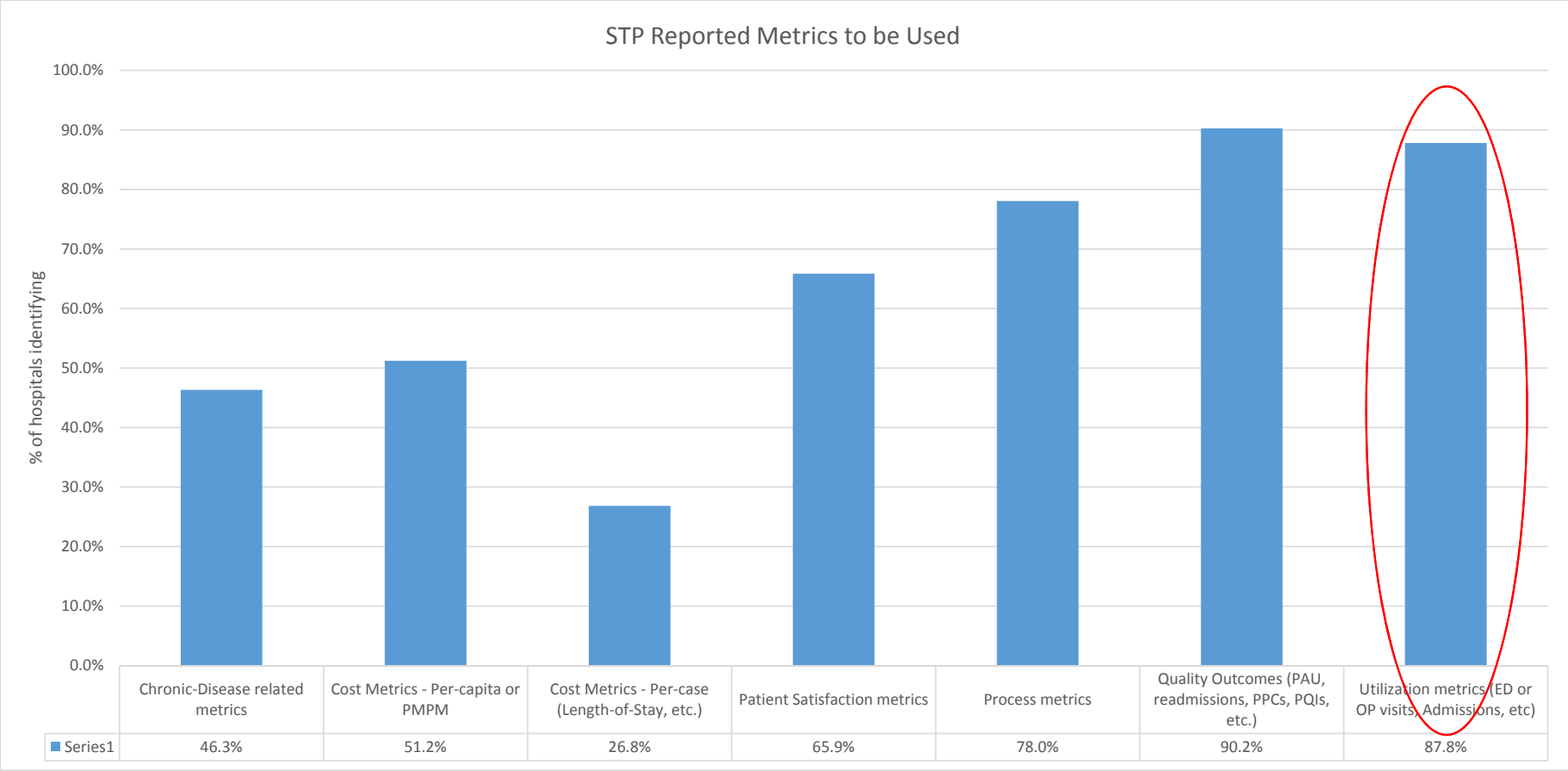
Findings – Categories of Strategies



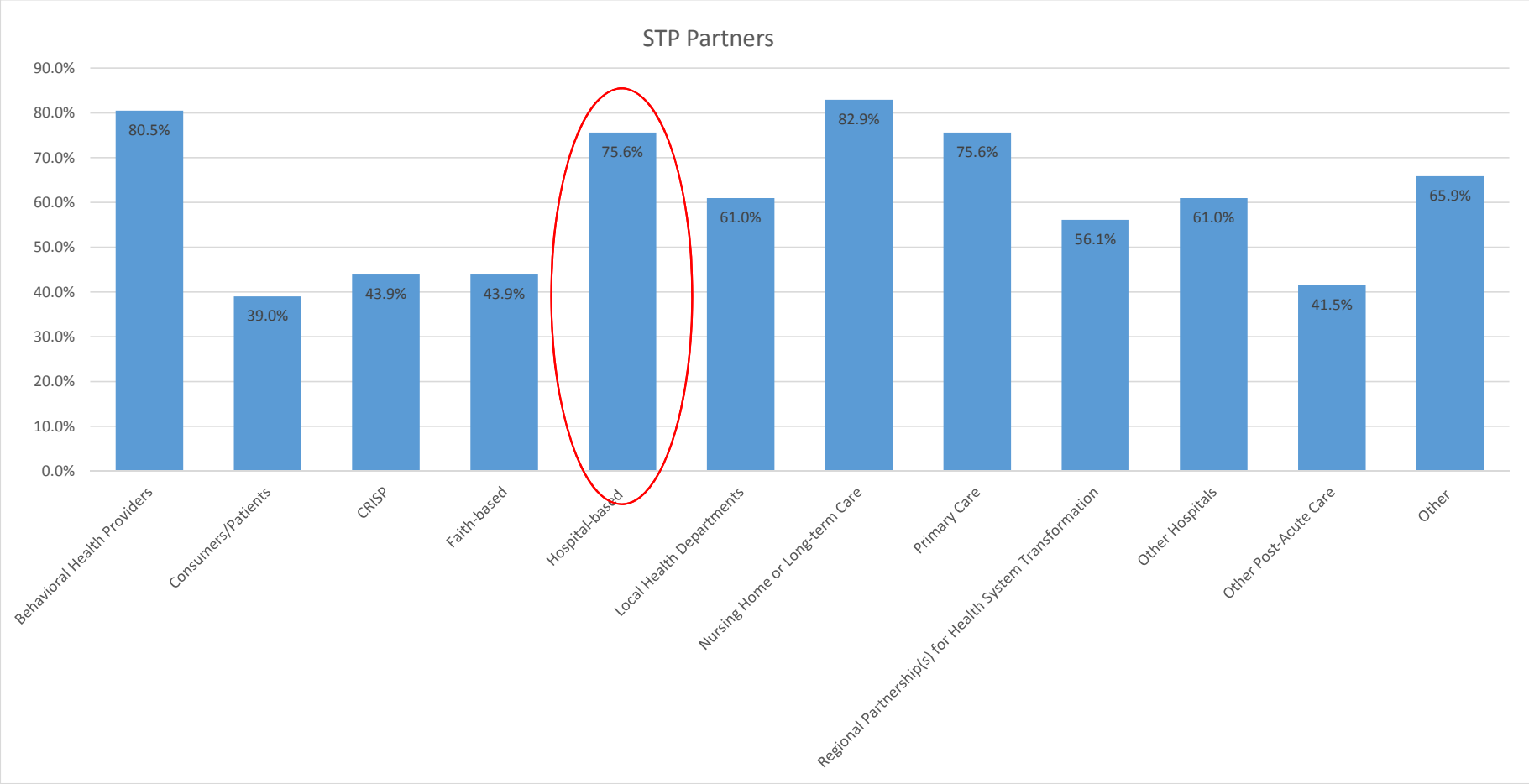
Findings – Target Populations



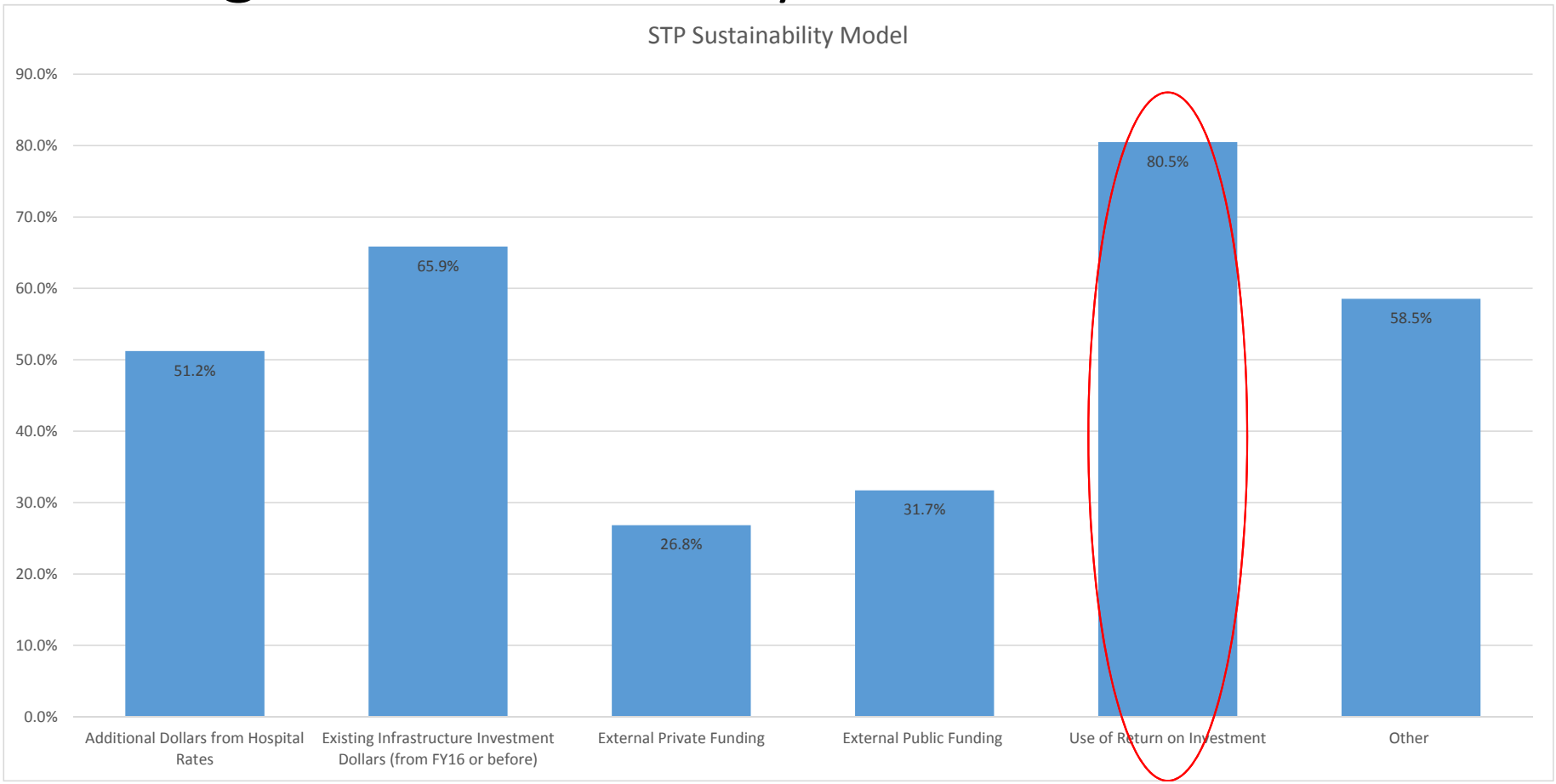
Findings – Metrics Used



Findings - Partners Reported



Findings – Sustainability Model



Strengths of the Reports

- A clear emphasis on addressing behavioral health needs.
- A point of convergence is on addressing the needs of chronically ill Medicare patients, a key component to meeting the requirements of the All-Payer Model.
- A focus on working with nursing home and long-term care providers in reducing readmissions and potentially avoidable utilization.
- A desire to involve community partners.
- An emphasis by some on supporting and improving primary care services.
- A willingness by some hospitals to consider telemedicine solutions.

Report Weaknesses

- Limited commitment to utilize statewide resources such as CRISP
- Lack of identified collaboration with patients and families.
- Many “care coordination” strategies are actually care transitions
- Little discussion on supporting community-based primary care providers (including assisting accessing chronic care managements fees and improving alignment between hospitals and other providers on the alignment of All-Payer Model goals between hospitals and physicians.)
- Hospitals tend to partner with hospital-based or hospital owned physician practices.
- Lack of identified patient/family engagement – only 39% of hospitals had initiatives that focused on this
- Limited collaboration with other hospitals focused on common target populations, with a risk of duplicated resources and an approach that does not meet the goal of patient centered focus.

Conclusion

- The strategic plans are well intended and represent a good starting point.
- Hospitals should continue to develop their plans and expand their exposure to both hospital-based and non-hospital based providers, patients/families, and other social and public service entities
- We also plan to combine the evaluations from the GBR reports, regional planning grants, and implementation proposals to determine what gaps exist and the extent to which we may need to obtain additional information or conduct interviews

Strategic Hospital Transformation Plans

Summary Report

January 13, 2016

Health Services Cost Review Commission
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This document contains a summary of the staff and review team observations of the Strategic Hospital Transformation Plans submitted to the HSCRC on December 7, 2015.

INTRODUCTION

During the June 2015 public meeting, the Commission approved a recommendation that requires all acute care hospitals in the State to submit a plan to the Commission by December 7, 2015 summarizing their short-term and long-term strategies and incremental investment plans for improving care coordination and chronic care, reducing potentially avoidable utilization, and aligning with non-hospital providers. The required "plan" is now referred to as the "Strategic Hospital Transformation Plan", or "STP", and is intended to be the broad strategic plan of the hospital toward these goals. The purpose of this summary report is to provide both qualitative and quantitative observations of the direction and focus of hospital efforts relative to:

1. Chronic disease supports
2. Long term and post-acute care integration and coordination
3. Physical and behavioral health integration and coordination
4. Primary care supports
5. Case management and other supports for high needs and complex patients
6. Episode improvements, including quality and efficiency improvements
7. Clinical consolidation and modernization to improve quality and efficiency
8. Integration of community resources relative to social determinants of health and activities of daily living

BACKGROUND

To achieve these goals, it is essential that the health system be transformed with a person centered and population health focus. In order to better understand the industry's readiness for such transformation, the Commission asked hospitals to report on their strategy to support Maryland's transformation goals; the specific interventions that are planned; and how their strategies fit into the broader population health strategy. While the Global Budget Revenue (GBR) Report represented a retrospective view of the past twelve months of spending, the STP reports are focused on investments being made over the next twelve months and longer that are designed to reduce avoidable hospitalizations and improve chronic care.

These strategic plans should draw from other required reports (GBR Infrastructure Report, Community Benefit Report, Community Health Needs Assessment, and Regional Transformation Report from Regional Partnerships, if applicable) and demonstrate how strategies are aligned.

All Maryland acute care hospitals were required to submit their STP on December 7, 2015. Each hospital was required to provide the following information and an executive summary of their strategic plan to support Maryland's goals:

1. Describe overall goals
2. List overall major strategies
3. Describe specific target population for each major strategy
4. Describe the metrics to measure progress
5. List participants and how partners are working on each major strategy
6. Describe the financial sustainability plan

Report Review

To date, the Health Services Cost Review Commission (HSCRC) has received STP reports from 45 acute care hospitals. Each report may be found on the Commission's website at: http://www.hscrc.maryland.gov/plans.cfm. Staff assembled a review team of nine individuals from the HSCRC, Department of Health and Mental Hygiene (DHMH), Maryland Health Care Commission (MHCC), and Chesapeake Regional Information System for our Patients (CRISP). These reports were divided up among the review team and responses were provided to HSCRC staff through a web-based, survey tool. Below is a summary of the general impressions from the review team. It should be noted that in order to get a full understanding of hospitals' strategic plans, these reports should be examined in conjunction with other reports such as the GBR Infrastructure Reports, Community Health Needs Assessments, Community Benefit Reports, and any regional partnership reporting. These reports will provide a context for subsequent review of the Transformation Implementation Grant proposals that will be presented for consideration at the February 2016 Commission meeting.

SUMMARY OF STRATEGIC PLANS

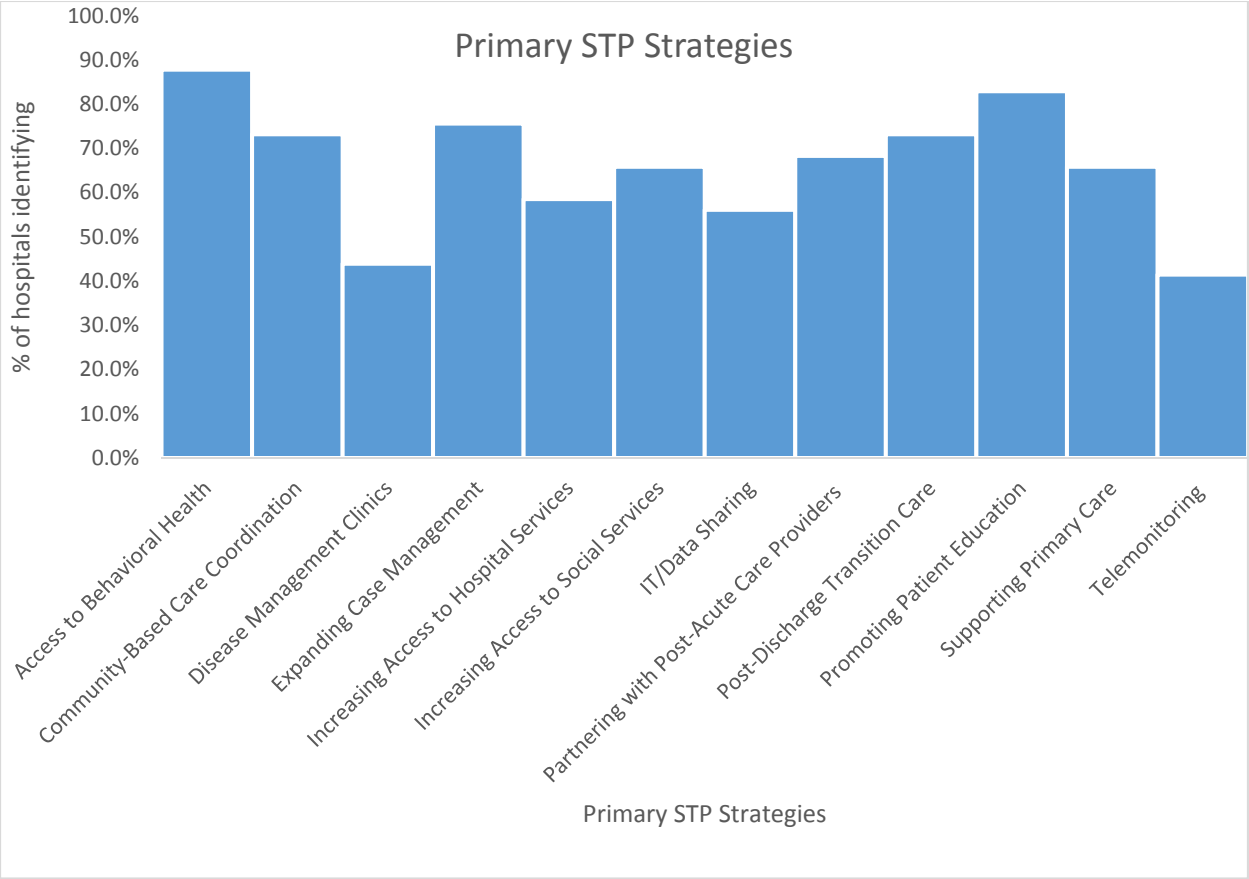
Each of the Strategic plans included a series of three to ten major strategies. The review team looked at each strategic plan as a whole; therefore, there will be multiple categories listed for each hospital as they relate to types of strategies, target populations, metrics, partners and sustainability models. Reviewers were also asked which of all of the responses were considered the most prevalent in each STP, meaning that these responses are mutually exclusive.

Category Analysis

On the whole, hospitals demonstrated a strong commitment to the goals outlined in the STP report outline. Of the 45 hospitals, the top strategies outlined in their plans were providing access to behavioral health services, promoting patient education, providing community-based care coordination, and expanding case management. Of these, the reviewers found providing community-based care coordination to be the most prevalent in the hospitals' STPs. This means that the reviewers felt that while this strategy may not have been reported the most frequently, it had a greater focus in the overall plan. However, the reviewers found that in many cases, hospitals identified "care coordination" strategies that were actually care

transition strategies that revolved around the period within 90 days of a hospital admission and were not focused beyond that window.

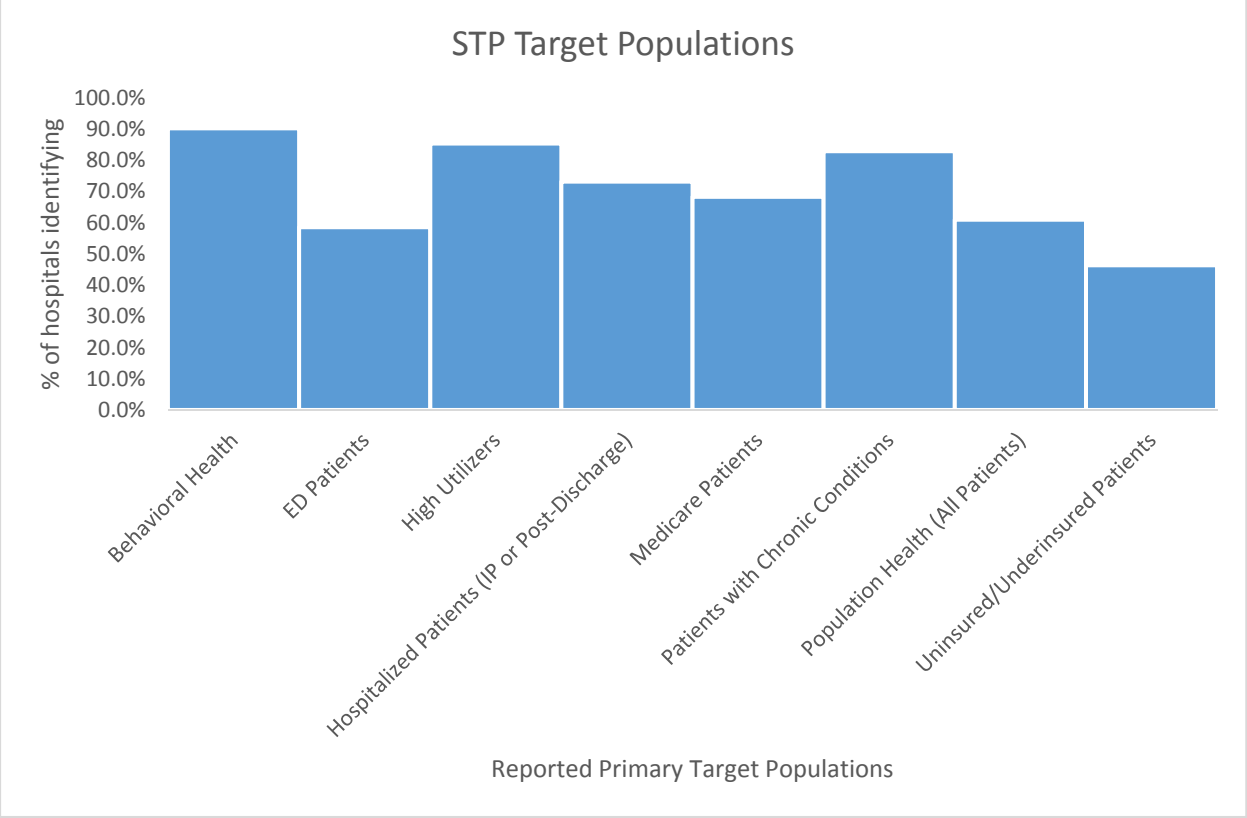
Figure 1. Top Categories of Strategies Reported



Target Population

The reviewers found that the most frequently reported target populations were individuals with behavioral health needs, high utilizers, and patients with chronic conditions. These responses are consistent with the Commission's focus on reducing Medicare costs and addressing utilization and related costs for individuals with multiple chronic illnesses. The reviewers found that 50% of the responses identified high utilizers and individuals with chronic conditions as the most prevalent in the STPs' focus.

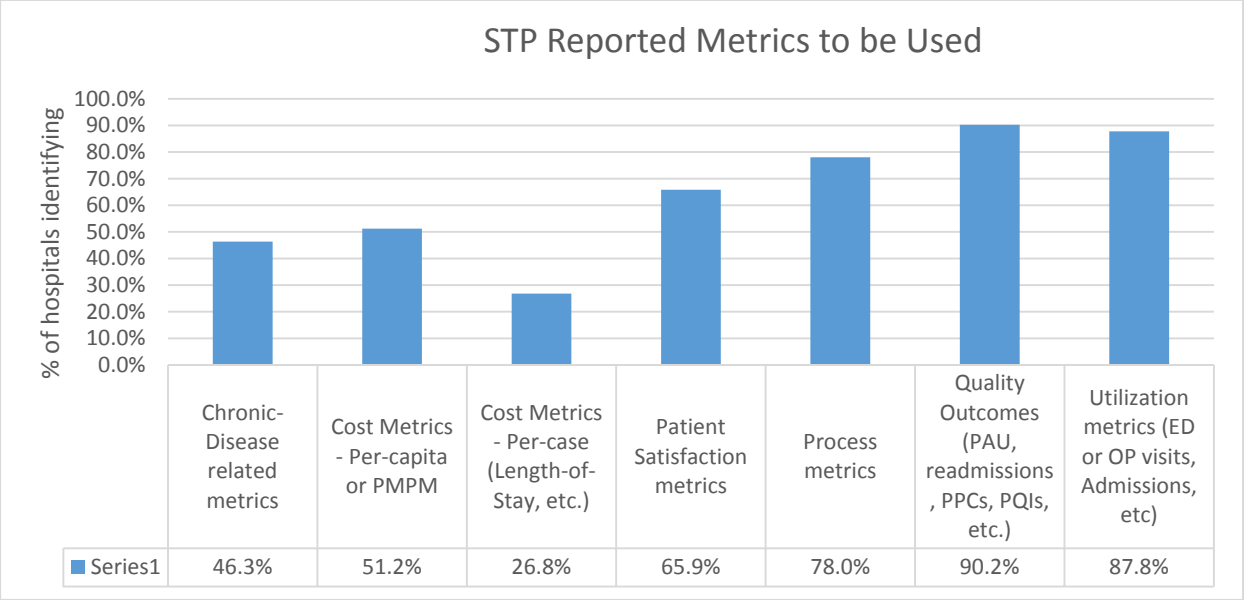
Figure 2. Most Common Reported Populations Targeted



Metrics for Determining Success on Strategies

The report template asked hospitals to report how they will measure whether they have achieved success when their strategies are implemented. The top three responses were for quality outcome measures, utilization metrics and process measures. The most prominent metric identified by the reviewers were utilization metrics such as emergency room visits, outpatient visits, and admissions. These measures are consistent with the goals of the All-Payer Model. However per-capita costs metrics and potentially avoidable utilization (PAU) reduction need to be more prominent as the system moves toward a more total cost of care model.

Figure 3. Metrics for Success

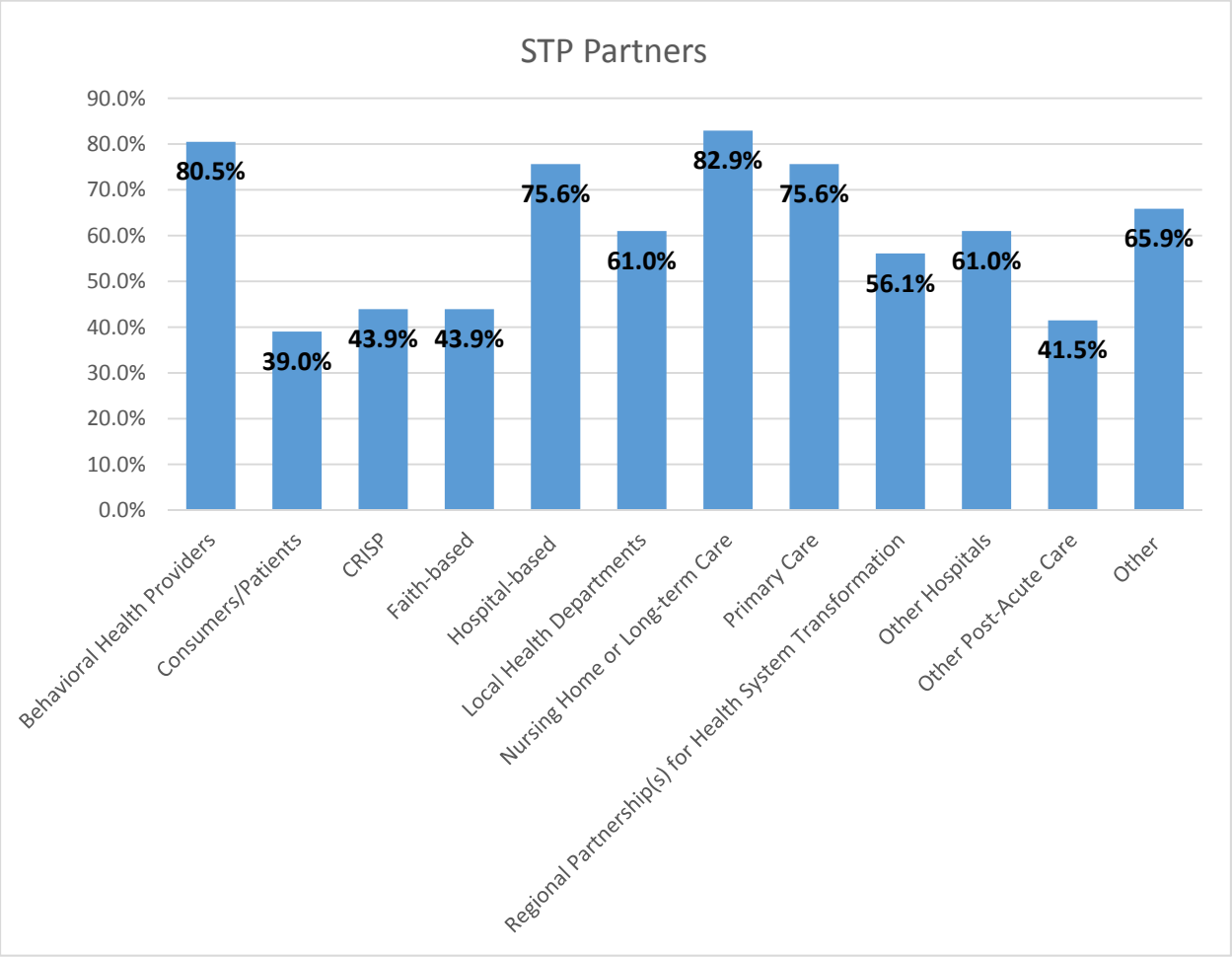


Partners and Participants

In order to succeed in care transitions, management, and coordination, it is critical that collaborations, which are focused on the patient, take place. Successful collaborations will include hospitals working with other hospitals, other community providers, patients/families, and social and public service providers. The top four partners reported in the STPs were nursing homes/long-term care providers, behavioral health providers, hospital-based physicians and staff, and primary care providers. Of these, reviewers found that the most prevalent partner strategy was with hospital-based physicians and staff. This is an indication that hospitals are looking for a hospital-based solution to care coordination and alignment.

Although nursing home/long-term care and behavioral health collaborations are more consistent with the top strategies listed in Figure 1, the report requirement did not specifically ask whether these participants will be participating through a true partnership with community providers, or whether the services will be purchased or built by the hospital. Staff continues to encourage the former to the extent that there is capacity available in the community. Capacity tends to vary by community.

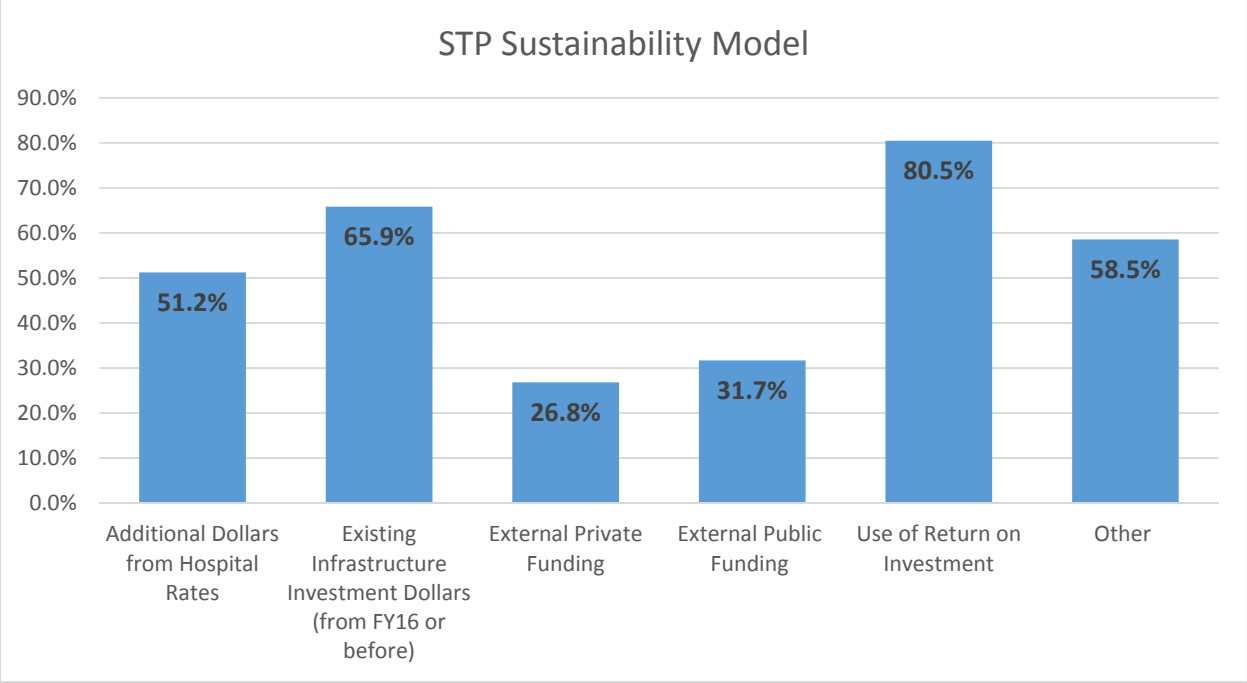
Figure 4. Participating Partners



Sustainability Model

The Commission asked hospitals to report on how they will financially sustain their strategic plan into the future. Under the global budgets, reduction in potentially avoidable utilization can provide a return on investment (ROI) to help support investments into the future. In order to achieve this return, hospitals must have a balanced plan to adjust expenses, make appropriate shifts in workforce, and continue to improve efficiency. Hospitals reported that the top three sustainability strategies are through ROI, existing infrastructure dollars, and additional dollars in rates. Of these, the most prominent response was use of ROI.

Figure 5. Sustainability Model



Strengths and Weakness and Overall Evaluation

The review team was asked to provide the strengths and weaknesses of each STP as well as any general comments.

In terms of the STP strengths, this exercise has been successful in allowing hospitals to share their strategies with the Commission and public. In tandem with the regional planning grant collaborations, there has been more discussion with hospital-based and non-hospital partners on how to improve care for patients who have the greatest needs. These reports reflect many of those discussions. Some of the observed strengths include:

- A clear focus on addressing the behavioral health needs.
- Hospitals are focused on addressing the needs of chronically ill Medicare patients which is important in meeting the requirements of the All-Payer Model.
- Focus on working with nursing home and long-term care providers in reducing readmissions and potentially avoidable utilization.
- Involving community partners.
- Some have emphasis on supporting and improving primary care services.
- Some hospitals are considering telemedicine solutions.

The reviewers also recognize general weaknesses in the plans as well. Many of those observations include:

- Limited commitment to utilize statewide resources such as CRISP, local health departments, and local health improvement coalitions.
- Lack of identified collaboration with patients and families.
- Many "care coordination" strategies are care transitions strategies that are focused on the first 90 days following an admission. Without broader care coordination approaches, reducing avoidable hospitalizations and achieving the full benefit for patients will be difficult.
- Little discussion on supporting community-based primary care providers (including assisting providers with accessing chronic care management fees and improving alignment between hospitals and other providers.) In order to achieve the benefits for patients and the reduction in avoidable hospitalizations, it is important to have funded, scalable approaches for better chronic care, particularly for Medicare patients, who currently have no medical home program available to them in Maryland.
- There is a tendency for hospitals to partner with hospital-based or hospital owned physicians. This may not result in necessary commitments to community based providers that are needed to ensure access to better care for all patients.
- Some STPs were vague. We will need more detail to understand the gaps in capabilities to implement the care transformation needed.
- Limited collaboration with other hospitals that are focused on the same target populations, creating a risk of duplicated resources and an approach that does not meet the goal of patient centered care.

CONCLUSION

As the All-Payer Model progresses, more importance will be placed on well-constructed and inclusive strategic plans that address the causes of avoidable hospitalizations and improve the health of the population. This effort will require input from a broad set of stakeholders. These strategic plans are a good starting point and hospitals should continue to develop these and expand its exposure to both hospital-based and non-hospital based providers, patients/families, and other social and public service entities. The Commission's goal is to understand hospitals' readiness to take the next step and to provide some constructive advice on how hospitals may progress their plans as they move forward. We hope that this exercise and report will be helpful in that progression. We also plan to combine the evaluations from the GBR infrastructure investment reports, regional planning grants, and implementation proposals to determine what gaps exist and the extent to which we may need to obtain additional information. This will be important in setting goals and determining accountability approaches for the 2017 update process.

Regional Partnership Executive Summary

January 13, 2016

HEALTH MANAGEMENT ASSOCIATES

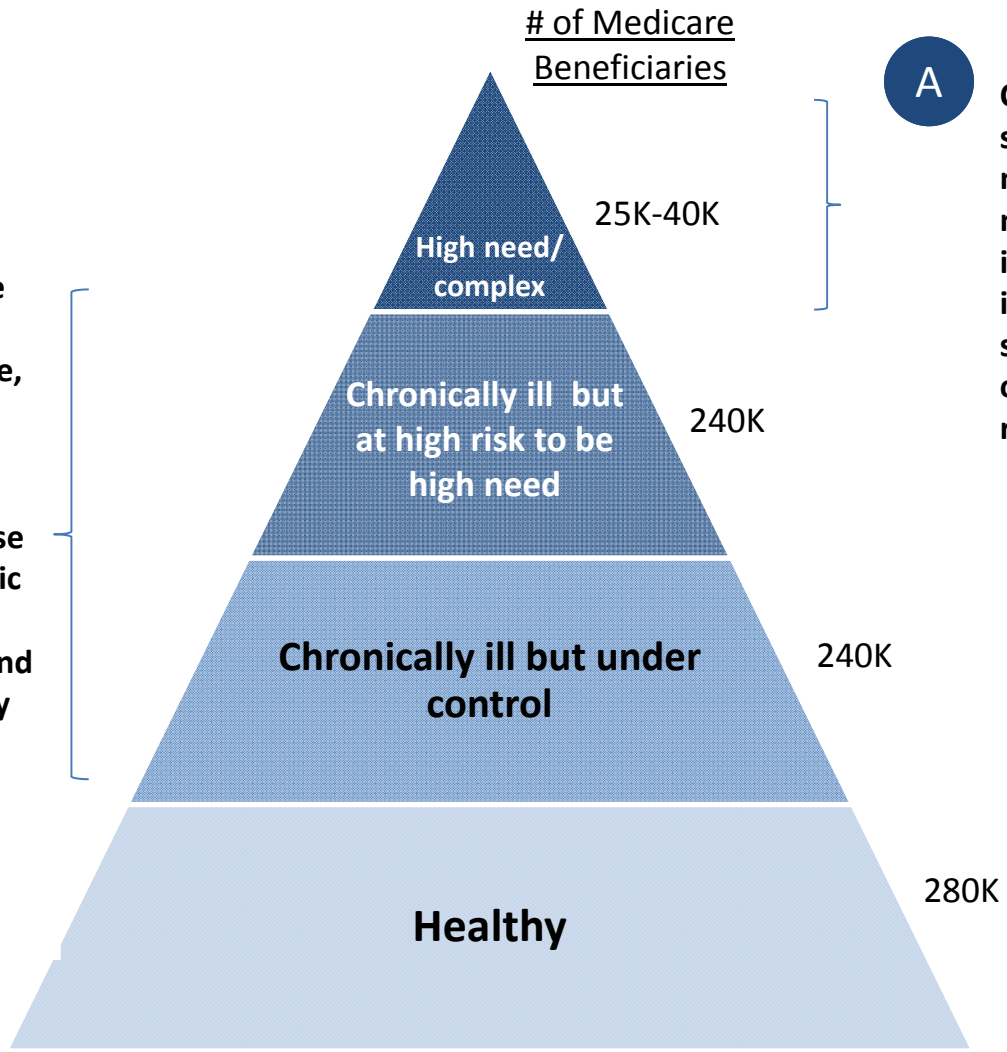
Background

- Regional Partnerships for Health System Transformation are designed to facilitate collaboration between hospitals and community-based partners. The plans target services based on patient and population needs, collaborate on analytics, and plan and develop care coordination and population health improvement approaches that reduce avoidable utilization of Maryland hospitals.

- In early 2015, HSCRC convened a multi-stakeholder Care Coordination Workgroup to focus on how to implement care coordination in Maryland. The Workgroup laid out a patient-centered approach to transforming the delivery of health care, tailoring care to persons' needs and increasing the focus on complex, high needs individuals and those with chronic conditions.

- A patient-centered approach requires an intense level of intervention for an estimated 25,000 to 40,000 individuals who are not already being supported by payers and need community based case management or other intense interventions on an extended basis. It also requires chronic care management for an estimated 200,000+ Medicare beneficiaries.

Core Approach: Tailoring Care Delivery to Persons' Needs



A

Care plans, support services, case management, new models, and other interventions for individuals with significant demands on health care resources

B

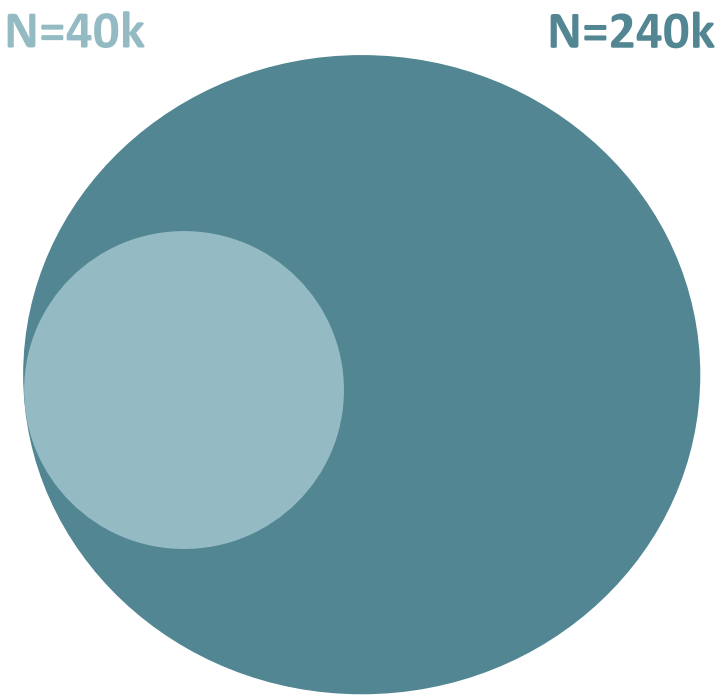
Address modifiable risks and integrate and coordinate care, develop advanced patient-centered medical homes, primary care disease management, public health, and social service supports, and integrated specialty care

C

Promote and maintain health (e.g. via patient-centered medical homes)

Priority for Care Coordination: High Needs & Chronically Ill Medicare and Dual Eligible Patients (240k of ~800k Medicare patients in Maryland)

High Needs Patients
≥ 3 IP Visits
- 3%-5% of Medicare patients
- Ideal for intense management
- 1/3 of hospital charges
- $74,000 per patient hospital charges
- 4.3 IP visit per patient



Chronically Ill, at risk of being high use
≥ 3 chronic conditions
- Ideal patients for Medicare Chronic Care Management Fee
- >1/3 of Medicare patients, 240,000 persons
- 75% of total Medicare cost

- Two-thirds of highest need patients are Medicare (HSCRC discharge data and CRISP EID)
- About one-fourth dually eligible for Medicare and Medicaid
- Nearly 2/3 of Medicare patients have 2+ chronic conditions

Analysis excludes maternity cases and hospital OP services except ER and observation

Regional Partnership Plans

The plans submitted addressed the following 10 domains:

- Goals, Strategies, and Outcomes
- Data Analytics
- Care Coordination
- Organizational Effectiveness
- Financial Sustainability Plan
- Risk Stratification, HRAs, Care profiles, Care plans
- Formal Relationships and Governance
- Physician Alignment
- New Care Delivery Models
- Population Health Improvement Plan

Target Populations

Regional Partnership	Number in Target Population	Targeted Population Total Annual Hospital Costs	Target Population
Community Health Partnership (Johns Hopkins)	Not stated in plan, but 21,223 hospitalizations so likely 5,000	$360M	Medicare or dual eligible high utilizers (3+ hospitalizations in a 12 month period) who reside in the target zip codes and have a PCP at an affiliated practice OR have no PCP but mostly utilizes a partner hospital.
West Baltimore	1,491	$131M	Medicare or dual eligible patients from WBC partner hospitals with 3+ bedded hospital encounters greater than 24 hours in a 12 month period in an inpatient, inpatient observations or ED setting; the patient suffers from 2+ chronic conditions and does not suffer from a Major Mental Health Diagnosis.
Bay Area	1,152	$53M	Medicare and Dual-Eligible individuals with a utilization pattern of 3+ inpatient or observation >24 hour encounters (bedded care) in FY2015 at either or both hospitals.
Trivergent	High Utilizers: 4,324 BH target: 13,078	High Utilizer Costs: $30M BH Costs: $28M	The target populations are those admitted or visited the ED with a mental health or substance abuse diagnosis; high utilizers with 3+ admits and/or observations within 12 months; 6 or more ED visits within 12 months with no associated hospitalizations.
Upper Chesapeake	8,300	$373M	Medicare and Dual Eligible patients with either high rates of hospital utilization and/or multiple chronic conditions (5+).
Nexus Montgomery	3,204 by 2018	$49M for subset of 554	Medicare and Dual Eligibles at risk for hospitalization. The target population will initially include seniors residing in 22 independent living facilities who are determined to be at risk of hospital utilization in the next six months. By the end of year one, the target population will expand to include eligible seniors found through referrals or those discharged from the hospital to SNFs/post-acute facilities living in the defined service areas of the Regional Partnership partner hospitals.
Howard County	2,338	$42M	Medicare high utilizers with 2+ hospital encounters in past 12 months living in Howard County with at least one encounter taking place at Howard County General Hospital.
Totally Linking Care in Maryland (Southern Maryland)	9,930 (subset: 369 Medicare with six specific chronic diseases)	Not listed but $30M in subset population	High-needs patients that use Southern Maryland RP-affiliated hospitals and live in the associated hospital service areas and/or in the associated counties. It appears Southern Maryland is defining high-need as 1+ hospital readmission.

Observations

- Overall, a great deal of positive energy, thoughts, and planning were demonstrated in the submitted plans. A notable standout in terms of detail and plausible impact was Nexus Montgomery. Though most plans were well constructed, others had some areas that needed more details, which we will look for in the implementation proposals.
- The RP plans included comprehensive lists of participating partners, representing hospitals, providers and community organizations, which was similar to what was found in the regional planning grant applications. Evidence of community providers participation in decision-making was not apparent. About half of the partnerships stated that they intended to include community partners as advisors in the decision-making processes, but the rest made little or no mention of the integration of community partners. Virtually none of the RPs mentioned inclusion of community partners on their Governing Boards. This raises a concern that inadequate substance is behind their stated intent to include community partners in a meaningful and engaging fashion.
- Almost all RPs included plans to utilize robust Health Risk Assessments (HRAs), but there was substantial variation in risk stratification tools. It was not clear how most RPs will involve primary care physicians in the development of care profiles and plans.

Observations

- The care management plans appeared to be aspirational, with the exception of Nexus Montgomery and Community Health Partnership of Baltimore (CHiP-B). Many of the plans were very robust care transition plans as opposed to care management plans. Again, with the exception of Nexus Montgomery and CHiP-B, the plans lacked basics, such as programs designed to form strong relationships with the primary care providers (PCPs), 24/7 care support lines for patients, and primary care physician input and involvement in care plans. We anticipate that work flows, coordination, or processes defined for participating hospitals or for contracted care management support services will be further clarified in the implementation plans that were due on December 21, 2015.

- Although there were some innovative and technologically advanced approaches proposed in the New Care Delivery Model section of the reports, there was little mention of engaging the community-based PCPs in those interventions. Most of the proposed new care delivery models could be implemented unilaterally by hospitals. In general, the RP plans offer few innovative models that would promote new clinical integration between community-based providers and result in practice transformation by community-based providers.

Observations

- Most of the RPs plan to focus on utilization, cost, quality, and process measures that are consistent with the goals of the program; however, only half listed specific outcome measures based on their individual goals and strategies.

- Almost all RPs have plans to integrate with Chesapeake Regional Information System for our Patients' (CRISP's) state-level infrastructure and seem eager to take advantage of CRISP related capabilities. All mentioned their anticipation of additional CRISP tools such as the Patient Total Hospitalization (PaTH) report, person-centered care reports, and care profiles.

- Only one RP had a relatively low risk plan to use information technology to support its efforts because their outsourced solution already exists and has been field-tested for current purposes. Given the short time before plan implementation is scheduled to occur, the rest may be at a higher risk of failure for a variety of reasons, including new, untested vendor relationships, new major IT functions planned without the required staff and organizational support, lack of identified solutions (relying on existing, possibly inadequate technology) and lack of a detailed implementation plan.

Observations

- Financial sustainability plans, with one exception, were generalized. Plans varied in the amount of detail offered in the RP implementation section. Five of the RPs included robust timelines with clear accountabilities, while three RPs included little to no implementation plan. This raises a concern that some RPs may not be ready to implement significant interventions. Some noted that these issues will be detailed in the Implementation Grant Applications that were due on December 21, 2015.

- None of the RP plans outlined a hospital-funded, outcomes-based financial incentive plan of sufficient clarity and magnitude that will divert provider attention from strict service-based, fee-for-service reimbursement or increase their attention to reducing potentially avoidable hospitalizations, re-hospitalizations, or potentially avoidable emergency department visits. Most partnerships are waiting for guidelines on this topic from the Centers for Medicare and Medicaid Services. Helping providers to leverage the Chronic Care Management fee was mentioned in three of the plans, but with little detail to support the idea of how this would be accomplished.

Recommended Next Steps

- Review the Implementation Grant Proposals, GBR Infrastructure Investment Reports, and Strategic Hospital Transformation Plans before taking next steps; many of the RPs stated that they held back some information in their plans and others may have done so without acknowledgement.

- Conduct interviews with a cross-representation of people from each of the RPs as well as other hospitals, including community providers and other partners that are identified in the plans/grant applications. Converse with them for the purpose of gaining an understanding of the extent and scope of their readiness for implementation.

- Through the interviews, assess whether the RPs and other hospitals and their partners understand ongoing care management vs. care transitions, the level to which they are actually engaging community providers, their ability to scale, and the long-term sustainability and growth potential of their models. Determine:
  - Which hospitals are ready for implementation?
  - Where are the gaps? What are the supports that needed to address the gaps?
  - How will the system be held accountable?

Recommended Next Steps

- With the information gained through this process, determine strategic next steps with the Maryland health care system and stakeholders as a whole. This includes items such as:
  - Strategies for helping the delivery system to transform
  - Centralized processes, resources, technology, technical assistance, and other transformation tools that will be needed and how they may be deployed
  - Policy and model enhancements most appropriate for the ongoing transformation in Maryland

HMA

HEALTH MANAGEMENT ASSOCIATES

Regional Partnership Plans

Executive Summary Report

JANUARY 13, 2016

Research and Consulting in the Fields of Health and Human Services Policy, Health Economics and Finance, Program Evaluation, Data Analysis, and Health System Restructuring

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ATLANTA, GEORGIA • AUSTIN, TEXAS • BAY AREA, CALIFORNIA • BOSTON, MASSACHUSETTS • CHICAGO, ILLINOIS
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INTRODUCTION

In February 2015, the Department of Health and Mental Hygiene (DHMH) and Health Services Cost Review Commission (HSCRC) released a Request for Proposal (RFP) to all hospitals offering funding through increased hospital rates to support the planning and development of *Regional Partnerships for Health System Transformation*. Awards were made to hospitals who applied for the funding to support regional planning and development initiatives with key community partners. A multi-stakeholder review committee selected 8 of 11 proposals; funding ranged from $200,000 to $400,000. Each grantee was required to submit a final Regional Transformation Plan to the HSCRC that described, in detail:

- The proposed delivery and financing model
- The infrastructure and staffing/workforce that will support the model
- The target outcomes for reducing utilization/costs and improving quality and the health of the populations targeted
- Effective strategies to continuously improve overall population health in the region

The purpose of this summary report is to provide a high-level analysis of the submissions and suggestions for next steps.

BACKGROUND

The Regional Partnerships (RPs) are a critical part of the State's approach to target high need/high-resource patients in order to improve outcomes, lower costs, and enhance patient experience. The purpose of the RPs is to foster collaboration between hospital and community-based partners to target services based on patient and population needs, collaborate on analytics, and plan and develop care coordination and population health improvement approaches that reduce avoidable utilization of Maryland hospitals. Based on recommendations from the multi-stakeholder Care Coordination Workgroup convened by HSCRC and DHMH, the initial target populations were identified as complex, high need patients with multiple hospitalizations, patients with multiple chronic conditions who are at risk of becoming high resource users, frail elders with support requirements, and Dual Eligible patients with high resource needs. Medicare fee-for-service patients are a high proportion of the target population and need additional focus because there are few supports available to them in the Maryland healthcare system.

Each of eight RPs submitted their final Regional Transformation Plans on December 7, 2015. The plans ranged from 15 to 50 pages and 150+ pages of appendices. The RPs included plans to address ten domains:

1. Goals, Strategies, and Outcomes
2. Formal Relationships and Governance
3. Data Analytics
4. Risk Stratification, Health Risk Assessments (HRAs), Care profiles, Care plans
5. Care Coordination
6. Physician Alignment
7. Organizational Effectiveness

8. New Care Delivery Models
9. Financial Sustainability Plan
10. Population Health Improvement Plan

SUMMARY OF REGIONAL PARTNERSHIP PLANS

Target Populations

Reported target populations ranged from 1,152 to 9,930. Medicare high-utilizers were included in the target population for every RP. Many defined high-utilizers as 3+ hospitalizations in a 12-month period. Some RPs included chronic conditions criteria, one RP included behavioral health/substance abuse and another RP included patients in independent living centers.

Figure 1: Reported Targeted Populations of the Regional Partnership Plans

Regional Partnership	Number in Target Population	Targeted Population Total Annual Hospital Costs	Target Population
Community Health Partnership (Johns Hopkins)	Not stated in plan, but 21,223 hospitalizations so likely 5,000	$360M	Medicare or Dual Eligible high utilizers (3+ hospitalizations in a 12 month period) who reside in the target zip codes and have a Primary Care Provider (PCP) at an affiliated practice OR have no PCP, but mostly utilizes a partner hospital.
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			months with no associated hospitalizations.
Upper Chesapeake	8,300	$373M	Medicare and Dual Eligible patients with either high rates of hospital utilization and/or multiple chronic conditions (5+).
Nexus Montgomery	3,204 by 2018	$49M for subset of 554	Medicare and Dual Eligible patients at risk for hospitalization. The target population will initially include seniors residing in 22 independent living facilities who are determined to be at risk of hospital utilization in the next six months. By the end of year one, the target population will expand to include eligible seniors found through referrals or those discharged from the hospital to Skilled Nursing Facilities (SNFs)/post-acute facilities located in the defined service areas of the RP partner hospitals.
Howard County	2,338	$42M	Medicare high utilizers with 2+ hospital encounters in past 12 months living in Howard County with at least one encounter taking place at Howard County General Hospital.
Totally Linking Care in Maryland (Southern Maryland)	9,930 (subset: 369 Medicare with six specific chronic diseases)	Not listed but $30M in subset population	High-needs patients that use Southern Maryland RP-affiliated hospitals and live in the associated hospital service areas and/or in the associated counties. It appears Southern Maryland is defining high-need as 1+ hospital readmission.

Observations

RP plans were evaluated on their proposed patient-centered, community-based care management programs, their plans for creating meaningful relationships with community providers, and their readiness for successful implementation in early 2016. Observations are as follows:

1. Overall, a great deal of positive energy, thoughts, and planning were demonstrated in the submitted plans. A notable standout in terms of detail and plausible impact was Nexus Montgomery, although structured and shared decision-making with community physicians/partners is not to be in place until year two. Though most plans were well constructed, others had some areas that needed more details, which we will look for in the implementation proposals. One plan was notable for having less specificity than others and for describing a plan with low plausibility for impact.
2. The RP plans included comprehensive lists of participating partners, representing hospitals, providers and community organizations, which was similar to what was found in the regional planning grant applications. However, meaningful participation of community providers in

decision-making appeared to be lacking. About half of the partnerships stated that they intended to include community partners as advisors in the decision-making processes, but the rest made little or no mention of the integration of community partners. Virtually none of the RPs mentioned inclusion of community partners on their Governing Boards. This raises a concern that inadequate substance is behind their stated intent to include community partners in a meaningful and engaging fashion.

3. The care management plans appeared to be aspirational, with the exception of Nexus Montgomery and Community Health Partnership of Baltimore (CHiP-B). Many of the plans were very robust care transition plans as opposed to care management plans. Again, with the exception of Nexus Montgomery and CHiP-B, the plans lacked basics, such as programs designed to form strong relationships with the primary care providers (PCPs), 24/7 care support lines for patients, and primary care physician input and involvement in care plans. Many plans did not have work flows, coordination, or processes defined for participating hospitals or for contracted care management support services. It is possible that some of these issues are addressed in the implementation plans that were due on December 21, 2015. Many of the plans indicated that significant additions would be included in the implementation proposals.
4. Almost all RPs included plans to utilize robust Health Risk Assessments (HRAs), but there was substantial variation in risk stratification tools. It was not clear how most RPs will involve primary care physicians in the development of care profiles and plans.
5. Although there were some innovative and technologically advanced approaches proposed in the New Care Delivery Model section of the reports, there was very little mention of engaging the community-based PCPs in those interventions. Most of the proposed new care delivery models could be implemented unilaterally by hospitals. In general, the RP plans offer few innovative models that would promote new clinical integration between community-based providers and result in practice transformation by community-based providers.
6. Most of the RPs plan to focus on utilization, cost, quality, and process measures that are consistent with the goals of the program; however, only half listed specific outcome measures based on their individual goals and strategies.
7. Almost all RPs have plans to integrate with Chesapeake Regional Information System for our Patients' (CRISP's) state-level infrastructure and seem eager to take advantage of CRISP related capabilities. All mentioned their anticipation of additional CRISP tools such as the Patient Total Hospitalization (PaTH), person-centered care reports and care profiles.
8. Only one RP had a relatively low risk plan to use information technology to support its efforts because their outsourced solution already exists and has been field-tested for current purposes. Given the short time before plan implementation is scheduled to occur, the rest may be at a higher risk of failure for a variety of reasons, including new, untested vendor relationships, new major IT functions planned without the required staff and organizational support, lack of identified solutions (relying on existing, possibly inadequate technology) and lack of a detailed implementation plan.
9. Almost all RPs described other community efforts and are collaborating with their Local Health Improvement Coalitions to coordinate population health efforts.
10. Financial sustainability plans, with one exception, were generalized. Plans varied in the amount of detail offered in the RP implementation section. Five of the RPs included robust timelines with clear accountabilities, while three RPs included little to no implementation plan.

This raises a concern that some RPs may not be ready to implement significant interventions. Some noted that these issues will be detailed in the Implementation Grant Applications that were due on December 21, 2015.

11. None of the RP plans outlined a hospital-funded, outcomes-based financial incentive plan of sufficient clarity and magnitude that will divert provider attention from strict service-based, fee-for-service reimbursement or increase their attention to reducing potentially avoidable hospitalizations, re-hospitalizations, or potentially avoidable emergency department visits. Most partnerships are waiting for guidelines on this topic from the Centers for Medicare and Medicaid Services. Helping providers to leverage the Chronic Care Management fee was mentioned in three of the plans, but with little detail to support the idea of how this would be accomplished.

CONCLUSION

Recommendations for next steps:

- Review the Implementation Grant Proposals, GBR Infrastructure Investment Reports, and Strategic Hospital Transformation Plans before taking next steps; many of the RPs stated that they held back some information in their plans and others may have done so without acknowledgement.
- Conduct interviews with a cross-representation of people from each of the RPs as well as other hospitals, including community providers and other partners that are identified in the plans/grant applications. Converse with them for the purpose of gaining an understanding of the extent and scope of their readiness for implementation.
- Through the interviews, assess whether the RPs and other hospitals and their partners understand ongoing care management vs. care transitions, the level to which they are actually engaging community providers, their ability to scale, and the long-term sustainability and growth potential of their models. Determine:
    - Which hospitals are ready for implementation?
    - Where are the gaps? What are the supports that need to be employed to address the gaps?
    - How will the system be held accountable?
- With the information gained through this process, determine strategic next steps with the Maryland health care system and stakeholders as a whole. This includes items such as:
    - Strategies for helping the delivery system to transform
    - Centralized processes, resources, technology, technical assistance, and other transformation tools that will be needed and how they may be deployed
    - Policy and model enhancements most appropriate for the ongoing transformation in Maryland

CRISP

CHESAPEAKE REGIONAL INFORMATION SYSTEM FOR OUR PATIENTS

ICN Infrastructure - 6 Month Update

HSCRC Commission Meeting

January 13th, 2016

7160 Columbia Gateway Drive, Suite 230
Columbia, MD 21046
877.952.7477 | info@crisphealth.org
www.crisphealth.org

ICN Infrastructure Background

- As an entity established to engage in health IT initiatives best pursued cooperatively, CRISP is well positioned to manage the buildout of shared infrastructures.
- By virtue of CRISP's governance model, the stakeholders who use CRISP services direct the work efforts and decision making of the organization and provide oversight and accountability.
- This governance model extended well for building the Integrated Care Network (ICN) infrastructure, with a new Steering Committee empaneled by the Board to provide targeted oversight of the effort.
- The ICN tools and services are being developed through both new efforts and by building on the existing HIE platform that has evolved over the last 7 years.

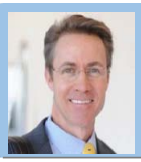
Summary of Initial Approach

CRISP organized the ICN Infrastructure buildout into seven workstreams. They include:

1. Ambulatory Connectivity
2. Data Router
3. Clinical Portal Enhancements
4. Notifications & Alerting
5. Reporting & Analytics
6. Basic Care Management Software
7. Practice Transformation

Well developed work plans have been established for the first five workstreams. Detailed work plans for the final two workstreams are under development with the incorporating additional stakeholder direction.

ICN Infrastructure Workstream Leads



Ross Martin

Program Director

Diatta Harris

Project Manager

	Calvin Ho	**1. Ambulatory Connectivity:** We are connecting more practices, physicians, long-term-care facilities, and other health providers to the CRISP network.
	Ryan Bramble	**2. Routing Data:** We are building a data router: including data normalization, patient consent management, patient-provider relationships – for sharing patient-level data.
	Steve Caramanico	**3. Clinical Portal Enhancements:** We will enhance the existing Clinical Query Portal with a care profile; a provider directory; information on other known patient-provider relationships; and risk scores.
	Ryan Bramble	**4. Notification & Alerting:** We will create new alerting tools so that notifications happen within the context of a provider's existing workflow.
	Craig Behm	**5. Reporting & Analytics:** We will expand existing CRISP reporting services and make them available to a wider audience of care managers.
	Lindsey Ferris	**6. Basic Care Management Software:** We will support care management software platforms – through data feeds, reports and potentially a basic shared care management tool.
	Cheryl Jones	**7. Practice Transformation:** We will train providers on leveraging CRISP data and service, sharing best practices and workflows, and supporting collaborative partnerships. CRISP's role is TBD and may be supportive or coordinating.

Regional Partnership Engagement

- CRISP assigned individual resources to each Regional Partnership effort to understand how CRISP ICN Infrastructure could support their evolving efforts.

- CRISP has established an MOU with most Regional Partnerships codifying a series of projects to support their connectivity and care management efforts.

- As both Regional Partnerships and other collaborations continue to evolve, CRISP will continue engagement to deploy tools and services and to seek on-going feedback as input into development efforts.

Early Progress

- The Reporting & Analytics efforts have resulted in new information products that are supportive of care management activities.
    - Notably, the **Patient Total Hospitalization (PaTH) Report** is now available to hospital care managers. Training is now underway.
    - PaTH provide patient level data to hospital care managers and relies on Cross-Hospital Data Sharing Policy.
- Strong progress has been made in the development of new infrastructures to move and view clinical information.
    - The **Data Router** is now live and delivering ambulatory encounter data to care managers in a pilot.
- CRISP Clinical Portal enhanced to provide ENS subscribers to facilitate understanding of care team
- CRISP is now receiving **Care Plans** from two participants, with others coming online soon.
    - Those Care Plans are made available to clinical users through a Care Plan-specific section of the Query Portal.
    - Work is currently underway to allow the Care Plans to be viewed directly in an EHR.

Early Progress - Cont.

- CRISP is currently pursuing three **Care Management Software pilots**
  - We are pursuing the deployment of Basic Care Management Software (Mirth Care) as well as integration with other care management platforms (Caradigm and eQHealth) deployed by Regional Partnerships.
  - Pilots will be operational by March.
- **Ambulatory connectivity** is picking up momentum. CRISP is currently capturing encounter data from over 1500 practices.
  - Deeper clinical integration is occurring, mostly with larger hospital-owned practices, but smaller practices continue to be challenging. We are pursuing multiple connectivity pathways through administrative networks (like RelayHealth and Cyfluent) and cloud-based EHRs (like athenahealth and PracticeFusion).

Timeline and Status Highlights

◆ Completed
◆ In progress
◆ Not started

	2015					2016						
Deliverable	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**% Complete**
Program Management												
ICN Steering Committee Established	◆											100%
Workstream Lead Assinged			◆									100%
Supporting Regional Partnerships/MOUs established						◆						70%
1.0 Ambulatory Connectivity												
Identify all hospital-owned ambulatory practices							◆					50%
Complete list of ambulatory practices by Regional Partnerships						◆						80%
Establish EMR Collaboration (Athena site live)					◆							100%
ECW CRISP hub live									◆			25%
2.0 Data Router												
RFP awarded			◆									100%
v.5 Consent module deployment						◆						90%
v1.0 Consent module deployment						◆						25%
3.0 Clinical Portal Enhancements												
ENS subscriber list live						◆						90%
Care alerts available in clinical portal							◆					80%
Care plans available					◆							100%

Timeline and Status Highlights - Cont

	2015					2016						
Deliverable	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	% Complete
4.0 Alerts and Notifications												
Readmission patient notification pilot live			◆									100%
Care alerts live at AAMC							◇					75%
Care Alerts live at BWMC								◇				0%
5.0 Reporting and Analytics												
Data Sharing Policy for Interhospital care coordination					◆							100%
PaTH Detail Dashbaord available to hospital care managers						◇						95%
Pilot Risk Stratification tools							◇					75%
Request Medicare data						◇						0%
6.0 Basic Care Management Software												
Mirth pilot initiation						◆						100%
Caradigm pilot initiation						◆						100%
eQHealth pilot initiation						◆						100%
7.0 Practice Transformation												
ENS webinar						◇						25%

Budget Status

- The current spend rate has us coming in below budget, though our rate of spend is accelerating.
- Decisions and the implementation pace of several work plans that are still under development could cause us to incur more or less costs.
- The most significant contributors to the budget are:
  - **Ambulatory Connectivity** – the prioritization of encounter data has thus far kept costs below budget.
  - **Basic Care Management Software** – the work plan is still under development.
  - **Practice Transformation** – the details of which will be best developed after the Ambulatory Alignment strategy is in place.
  - **Ambulatory Reporting & Analytics** – delivering robust analytics tools to 5,000 practices will be a significant undertaking if we pursue that direction.
- The original CRISP ICN Infrastructure budget for 2016 assumed roughly half of the funding would come from federal sources. A significant potential source of federal funding, called the HIE I-APD and led by DHMH, has not been finalized, though it looks promising.

Near-Term Objectives

- Accelerate Ambulatory Connectivity
  - Target priority practices to drive both encounter and clinical connectivity
- Expand Care Plan Exchange
  - Engage additional partners to share Care Plans through CRISP's recent Care Plan Exchange capability
- Medicare Data Request
  - Finalize strategy for receiving, processing, and reporting on claims data (1-2 weeks)
  - Rapidly execute data request process in conjunction with HSCRC and CMMI alignment efforts
- Risk Stratification Methodology
  - Incorporating HCC into casemix data and reports per the direction of the Reporting and Analytics Committee
  - Continuing to explore ACG, LACE, and other more advanced risk models and functionality
- Regional Partnership Projects
  - Begin project execution against the Regional Partnership commitments included in the RP – CRISP MOUs

State of Maryland
Department of Health and Mental Hygiene

John M. Colmers
Chairman

Herbert S. Wong, Ph.D.
Vice-Chairman

George H. Bone, M.D.

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Hospital Rate Setting

Sule Calikoglu, Ph.D.
Deputy Director
Research and Methodology

TO: **Commissioners**

FROM: **HSCRC Staff**

DATE: **January 13, 2016**

RE: **Hearing and Meeting Schedule**

February 10, 2016	To be determined - 4160 Patterson Avenue HSCRC/MHCC Conference Room
March 9, 2016	To be determined - 4160 Patterson Avenue HSCRC/MHCC Conference Room

Please note that Commissioner's binders will be available in the Commission's office at 11:45 a.m..

The Agenda for the Executive and Public Sessions will be available for your review on the Thursday before the Commission meeting on the Commission's website at http://www.hscrc.maryland.gov/commission-meetings-2016.cfm

Post-meeting documents will be available on the Commission's website following the Commission meeting.