DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
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State Demonstrations Group

FEB 0 4 2020

Jennifer Langer Jacobs
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Division of Medical Assistance and Health Services
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Trenton, NJ 08625-0712

Dear Ms. Jacobs:

The New Jersey Department of Human Services submitted to CMS on April 30, 2018 "A Summative Evaluation of the New Jersey DSRIP Program: Findings from Stakeholder Interviews, Hospital Surveys, Medicaid Claims Data, and Reported Quality Metrics." This submission is in accordance with the Special Terms and Conditions (STC) for the state's section 1115 Medicaid demonstration, titled "New Jersey Comprehensive Waiver" (Project No. 11-W-00279/2), which requires a final evaluation report (STC #135b). This evaluation report covers the demonstration period from October 1, 2012 through June 30, 2017. CMS appreciates the state's continued efforts on evaluation activities.

The submitted evaluation report provides important qualitative and quantitative analyses highlighting the performance of the state's Delivery System Reform Incentive Payment (DSRIP) program for the demonstration period of 2012 through 2017. The report found positive qualitative results in terms of incentivizing connections with the community to drive health care improvements. Furthermore, even though the quantitative analyses were hindered by the short period to assess health outcomes, there were certain promising findings, such as asthma projects demonstrating statistically significant declines in rates of avoidable hospitalizations and emergency department visits. However, in addition to the short time period, the report specifically noted limitations to the quantitative analyses in terms of the very small number of beneficiaries enrolled in the demonstration projects compared to the total population of Medicaid beneficiaries considered in the quantitative metrics. CMS also identified potential areas for strengthening the report, and separately provided to the state constructive feedback. CMS expects that the feedback provided to the state on this report will help inform further strengthening of the program's ongoing and future evaluation efforts.

In the meantime, on October 1, 2019, CMS approved the demonstration's DSRIP evaluation design for the current period, effective from August 1, 2017 through June 30, 2022. This design incorporates more rigorous evaluation techniques that will address many of the limitations identified in the evaluation report and underscored in CMS's feedback on the report to the state.

CMS acknowledges the receipt of "A Summative Evaluation of the New Jersey DSRIP Program: Findings from Stakeholder Interviews, Hospital Surveys, Medicaid Claims Data, and Reported Quality Metrics" and is posting it to Medicaid.gov. In conformance with 42 CFR 431.424(e), it is required that the state will also make the report available on its state Medicaid website within 30 days.

We appreciate the state's cooperation and commitment to robust monitoring and evaluation of its current and future section 1115 demonstrations, and we look forward to continued collaboration.

If you have any questions, please contact your CMS project officer, Mr. Jack Nocito at 410-786-0199, or by email at Jack.Nocito@cms.hhs.gov.

Sincerely,

[redacted]

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cc: Michael Cutler, State Monitoring Lead, CMS Medicaid and CHIP Operations Group

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A Summative Evaluation of the New Jersey DSRIP Program: Findings from Stakeholder Interviews, Hospital Surveys, Medicaid Claims Data, and Reported Quality Metrics

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Acknowledgments

Prepared for the New Jersey Department of Human Services. Any opinions expressed in this report are those of the authors and do not necessarily represent the view of the New Jersey Department of Human Services.

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A Summative Evaluation of the New Jersey DSRIP Program: Findings from Stakeholder Interviews, Hospital Surveys, Medicaid Claims Data, and Reported Quality Metrics

Sujoy Chakravarty, Ph.D., Kristen Lloyd, M.P.H., Susan Brownlee, Ph.D., and Jennifer Farnham, M.S.

Executive Summary

The Delivery System Reform Incentive Payment (DSRIP) Program was approved as part of the New Jersey Medicaid Comprehensive Waiver Demonstration in October 2012. The hospital-based DSRIP program uses resources transitioned from the previously existing Hospital Relief Subsidy Fund to establish a pay-for-performance and pay-for-reporting system to achieve specific health improvement goals for the state's low income population.

Over the course of this program participating hospitals receive payments for developing, implementing, and monitoring specific disease management projects; for reporting/verifying two sets of metrics: specific quality metrics related to their adopted projects (Stage 3 metrics) and also a universal set of metrics (known as Stage 4 metrics); for improving performance assessed on the basis of the project-specific Stage 3 metrics; and for improving or maintaining performance on a core set of metrics relating to inpatient care through funding available from a Universal Performance Pool.

The Rutgers Center for State Health Policy (CSHP) was engaged to evaluate the effectiveness of New Jersey's DSRIP program in achieving its goals. We formulated specific testable hypotheses to examine the following six research questions from the DSRIP Planning Protocol (detailed in the Waiver Special Terms and Conditions document) that determine the scope of the evaluation:

1. To what extent does the DSRIP program achieve better care?
2. To what extent does the DSRIP program achieve better health?
3. To what extent does the DSRIP program lower costs?
4. To what extent did the DSRIP program affect hospital finances?
5. To what extent did stakeholders report improvement in consumer care and population health?
6. How do key stakeholders perceive the strengths and weaknesses of the DSRIP program?

This report, the DSRIP summative evaluation, presents qualitative and quantitative assessments of the impact of DSRIP program activities as well as stakeholder perceptions relating to implementation activities, DSRIP impact, and future program potential. It is comprised of four distinct chapters each covering one analytic component of our evaluation plan: key informant interviews, a hospital survey, Medicaid claims and CMS cost report analyses of hospital performance in terms of specific quality metrics, and analysis of selected hospital-reported metrics. In those chapters presenting results from the second round of key informant interviews and the hospital web-survey, comparisons are made with findings from the first round. Complete findings from the round one components can be found in the DSRIP Midpoint Evaluation (Chakravarty et al. 2015). By adding additional years of data, results from analyses of claims, cost reports, and selected hospital-reported metrics in this report supersede those in the Midpoint Evaluation. Altogether, this report covers a baseline period of 2011–2013 and the DSRIP implementation period from January 2014 through June 2017.

The table below summarizes the content, assessment period, and research questions addressed by each chapter in this report.

Chapter	Assessment Period	Research Question
1. Key informant interviews	1/2013–12/2017	5, 6
2. Hospital survey	1/2013–2/2018	5, 6
3. Analysis of Medicaid claims data	1/2014–6/2017	1, 2, 3, 4
4. Analysis of Stage 4 metrics	1/2013–12/2016	2

Key Informant Interviews

Chapter 1 discusses two rounds of semi-structured telephone interviews with key informants, including hospital staff members, members of various DSRIP Program committees and collaboratives, hospital staff from hospitals that decided not to participate or withdrew from the program (included in the first round only), outpatient partners, officials from the New Jersey Department of Health, and industry association representatives who were familiar with the program. We included safety net providers as well as those serving more income-secure populations. There was some overlap in interviewees between the first and second rounds. We conducted 12 interviews with 13 key informants in late 2014 through early 2015 (when hospitals had begun their chronic disease interventions but had not yet received patient attribution lists to be used in universal metric calculation) and 10 interviews with 29 key informants in October through December of 2017 (by this time, hospitals had received several attribution lists and payments for performance—some had been through appeals).

Participants remained enthusiastic about chronic disease management interventions and, for the most part, with the Learning Collaboratives, where they were able to discuss their interventions. They generally remained unsatisfied with reporting requirements, particularly with respect to the universal metrics, but also in some cases with the project-specific metrics when they felt that the metric did not fairly represent outcomes. With the universal metrics (reported for all attributed patients), many participants found them to be a significant burden and also questioned the purpose or value of reporting those metrics. By the second round of interviews, most interviewees reported positive effects on health outcomes from the chronic disease interventions but generally could not say how overall costs were affected. Participants generally thought that concurrent policy developments had supported DSRIP goals, though they were nervous about potential retrenchments of Medicaid coverage. Finally, participants offered suggestions for future rounds of DSRIP or DSRIP-like programs, including paring down required metrics, restricting participation exclusively to safety net hospitals, involving hospitals and outpatient partners in program design, and devoting more resources to outpatient partners and information technology.

Hospital Survey

The second round of the web survey of DSRIP-eligible hospitals in New Jersey was conducted in January-February of 2018 and examined whether the hospitals faced continued barriers in implementing the program's requirements and whether the hospitals felt that the program was beneficial and contributed to the Triple Aim of better care, better health, and lower cost through improvement. In addition to overall results for all responding hospitals, the hospitals were also divided into two groups based on the percentage of Medicaid, CHIP, and charity care patients they served ("High Medicaid" and "Low Medicaid" hospitals), and cross-tabulations of all survey items by these two groups were conducted. Key findings include:

- Support for the disease management goals of the DSRIP program was cited as the most important reason for applying (same as on the first round of the survey from 2015).
    - High Medicaid hospitals were much more likely than Low Medicaid hospitals to rate as very important seeing the DSRIP program as an opportunity for more financial resources.
- Most of the hospitals felt that these program specifications/requirements were either clear from the beginning or were unclear initially but clarified over time. This was a significant improvement in perception from the 2015 survey.
    - High Medicaid hospitals were more likely to report that the requirements for the Stage 2 Activities: Chronic Medical Condition Redesign and Management remained unclear compared to the Low Medicaid hospitals.
- About four-in-ten of the hospitals felt that the requirements for the Stage 3 and 4 Activities continued to increase over time, but this was an improvement from 2015.

- About half of the hospitals chose a cardiac project for their DSRIP program and nearly a third chose a diabetes project.
- The participating hospitals average 4.8 project partners (an increase from 4.0 in 2015).
    - Most of the project partners were physician practices.
- Almost half of the hospitals reported that they were already working with the partners before DSRIP was implemented (down from 2015).
- Nearly four-in-ten recruited other community organizations such as schools to be partners (up from 2015), just over ¼ recruited physician practices as partners (up from 2015), and about one-in-five hospitals recruited other clinical partners such as community health centers (down from 2015).
    - High Medicaid hospitals were more likely than Low Medicaid hospitals to recruit physician practices as partners or other clinical partners such as community health centers or FQHCs, whereas Low Medicaid hospitals tended to be more likely than High Medicaid hospitals to already be working with partners before DSRIP was implemented.
- Nearly six-in-ten hospitals reported that the DSRIP program strengthened the relationship with their clinical partners, and no hospitals felt the program weakened this relationship.
- Forty percent of hospitals reported that they were unable to recruit at least one partner because the organization was not able to share the necessary data (up from 2015), and 20% reported that they were unable to recruit a partner because the organization was already participating in the DSRIP program with a different hospital (up from 2015).
- Over 1/3 of hospitals reported they initially faced a lot of EHR problems related to interoperability and reporting requirements, and over 40% reported some problems.
    - High Medicaid hospitals were much more likely than Low Medicaid hospitals to face a lot of EHR problems.
- About 60% of hospitals reported that EHR problems related to interoperability and reporting requirements had decreased over time. Only a few reported an increase.
- About ¾ of the Stage 4 hospital inpatient/ED chart-based metrics were obtainable from the hospitals' EHR (up from 2015).
    - For the hospitals' data reporting partners, nearly half of their outpatient chart-based metrics were obtainable from an EHR (up from 2015).
- Hospitals reported that, on average, more than half of their attribution rosters overlapped between the prospective and retrospective versions each year, and just over 1/3 of their final attributed patients were included in their DSRIP care management project during demonstration year 5.
    - High Medicaid hospitals had more attribution roster overlap than Low Medicaid hospitals.

- More than 40% of hospitals reported they initially faced a lot of problems matching the population enrolled in their DSRIP program intervention with the low income patients on their DSRIP patient attribution roster. Another 20% faced some problems. However, most hospitals reported that these attribution-related problems decreased over time.
- The re-application process was rated by the hospitals as low difficulty (improved from moderate difficulty for the application process in 2015).
- All the Stage 1 and Stage 2 activities were given a minor difficulty rating by the hospitals (very little change from 2015). Among the Stage 1 activities, maintaining a multi-therapeutic medical and support team dedicated to DSRIP was rated as slightly more difficult than the others. Among the Stage 2 activities, ongoing monitoring of program outcomes was rated as slightly more difficult.
- All the Stage 3 project-specific metrics and Stage 4 universal metrics were rated as less difficult than the 2015 ratings by at least one full point. Collection and verification of the outpatient metrics for both stages were rated as more difficult than collection and verification of the hospital inpatient/ED project-specific metrics.
    - High Medicaid hospitals rated the verification measures as more difficult than the Low Medicaid hospitals.
- Ratings of the impact of the DSRIP program on quality of care and population health for all of the program aspects were positive, but changed little from 2015. The chronic disease management programs were rated as having the most positive impact.
- All the community health-related changes due to the DSRIP program were rated positively as "some improvement" by the hospitals and changed little from 2015. The one exception was patient access to health care services which improved by over a point.
- Overall, the hospitals gave a positive rating to the financial impact of DSRIP on their own hospital's finances, up from a slightly negative rating in 2015.
- All the Learning Collaborative activities, DSRIP Training Webinars, and Frequently Asked Questions (FAQs) on the DSRIP website were rated as substantially more useful than in 2015. Identification of best practices was rated as most useful.
- Almost all the hospitals were using rapid-cycle evaluation tools.
    - The Learning Collaborative and dashboards facilitated the use of rapid-cycle tools for more than ½ the hospitals, up from 1/3 in 2017.
- For the ease or difficulty ratings for the hospitals to accomplish various DSRIP activities, the ratings for the staff, patient, and partner measures changed little from 2015, but there were substantial improvements from negative to positive for the reporting measures. Understanding reporting timelines was rated as the easiest to accomplish.
    - Low Medicaid hospitals rated maintaining support of key hospital leadership for DSRIP and creating involvement and enthusiasm among staff as easier than High Medicaid hospitals.

- Hospitals agreed most that "the DSRIP program improved chronic disease management processes at my hospital for the better," followed by "the DSRIP program fostered community partnerships that have a positive impact on social determinants of health."
- Hospitals successfully achieved payment of about 60% on average of the performance metrics in demonstration year 4.
    - Low Medicaid hospitals successfully achieved payment of more of these metrics than High Medicaid hospitals.

In general, the hospitals responded more positively to the DSRIP program on this survey than they did on the 2015 survey, including their perceptions regarding DSRIP program specifications/requirements and the usefulness of Learning Collaborative activities. Most of the hospitals who responded to the survey felt that the DSRIP program had improved quality of care and population health, particularly patient access to health care services, and the program was now having a positive impact on hospital finances. Hospitals also felt that the reporting requirements had clarified over time, but there were still some concerns about increasing requirements, particularly for High Medicaid hospitals.

Initial EHR problems related to interoperability and reporting requirements with program partners were still cited as a major issue, and also more so for High Medicaid hospitals. Problems with matching the DSRIP-enrolled patients to the low income patients on the DSRIP attribution roster still exist, although these have decreased over time.

Overall, general perceptions about the DSRIP program were favorable, and responding hospitals successfully achieved payment for 60.1% on average of the performance metrics in demonstration year 4.

Analysis of Medicaid Claims Data

Chapter 3 examines the impact of the DSRIP program on patient care, patient health, costs of care, and hospital finances through quantitative analysis of quality metrics calculated primarily from Medicaid fee-for-service claims and encounter data, and an analysis of hospital-level financial information from hospital cost reports. Multiple metrics were used to test the first four evaluation hypotheses aligned with research questions 1 through 4 that were the focus of this chapter. We compared changes in outcomes from a baseline period of 2011–2013 to the DSRIP implementation period, January 2014-June 2017, between DSRIP-participating hospitals (or areas with such hospitals) and appropriate comparison groups. It is important to remember the program effects reported in this chapter are computed for the overall Medicaid population and do not include charity care patients.

Findings relevant to each hypothesis were as follows:

Hypothesis 1: DSRIP hospital projects improve care and outcomes related to the project focus area.

- There were statistically significant improvements reflected in decreasing rates of avoidable asthma hospitalizations and ED visits for asthma attributable to the asthma disease management programs. For adults ages 18 and older, there were no statistically significant changes in initiation and engagement in alcohol or other drug treatment in regions served by hospitals adopting chemical addiction/substance abuse programs, but the direction of effect estimates indicate possible improvements in initiation but decreases in engagement. Among children ages 13-17, there was a marginally significant negative effect of CA/SA DSRIP projects on initiation and engagement for AOD treatment. Pneumonia readmission rates worsened at the hospital conducting a pneumonia DSRIP project compared to hospitals with DSRIP projects in other focus areas. Quality indicators for other chronic diseases showed no significant changes attributable to DSRIP activities.

Hypothesis 2: The DSRIP program improves the quality of ambulatory care, both recommended and preventive, with positive effects on population health.

- There were no positive impacts of the DSRIP program detected on quality of ambulatory care. As a geographic area's exposure to DSRIP-participating hospitals increased, rates of avoidable emergency department visits worsened (increased in magnitude) from baseline to the end of the fifth demonstration year, and this change was statistically significant. Costs associated with these avoidable visits increased accordingly and this negative impact was also statistically significant. The likelihood that a Medicaid beneficiary utilized inpatient care for mental health conditions also increased over the DSRIP implementation period, but though this was a statistically significant finding, the magnitude was too small to be meaningful. Results for readmission rates were mixed and none were statistically significant.

Hypothesis 3: The DSRIP program will reduce racial/ethnic and gender disparities in avoidable hospital admissions, treat-and-release ED visits, and hospital readmissions.

- Changes in racial/ethnic disparities in 30-day readmissions or avoidable hospital use that could be attributed to DSRIP showed an even mix of positive and negative results, and most effects were either not statistically significant or based on small sample sizes which limit their reliability. The two statistically significant results indicate improvements in disparities. There was a statistically significant reduction in disparities for heart failure readmissions among minorities of other racial/ethnic groups compared to whites that could be attributable to DSRIP activities. For this same population group, there was also a statistically significant reduction in disparities in avoidable inpatient admissions in regions served by DSRIP-participating hospitals. DSRIP impacts on gender disparities were

also mixed with the only marginally significant results indicating an increase (worsening) of disparities between females and males in readmissions following COPD hospitalizations.

Hypothesis 4: Hospitals receiving incentive payments do not experience adverse financial impacts.

- There was no statistically significant evidence of an adverse impact of DSRIP activities on hospitals' total or operating margins through the end of the fifth demonstration year.

In general, estimates of program impact show differing success by chronic condition focus area, and indications of declines in the quality of ambulatory care alongside some progress towards reduction of disparities as a result of DSRIP-participating hospitals' activities. Over the DSRIP implementation years, DSRIP hospitals' asthma management projects have positively impacted asthma outcomes in the area Medicaid population. Other disease focus areas have not had clinically meaningful (very small magnitude) or robust effects on the population-level. Overall, rates of avoidable emergency department visits and associated costs have shown a DSRIP-attributable increase. The most reliable effects of DSRIP on racial/ethnic disparities have been positive, reducing heart failure readmissions and avoidable inpatient visits for patients of other racial/ethnic groups compared to Whites. Through 2016, there were no significant negative impacts of DSRIP on hospital finances reflected in cost report data.

Analysis of Stage 4 Metrics

We conducted an analysis of the 2013, 2014, 2015, and 2016 Stage 4 Metrics for all DSRIP participating hospitals in New Jersey. Most of these Stage 4 Metrics are derived from Medicaid Management Information System (MMIS) administrative claims data. In this analysis, within-subjects' analyses of variance (ANOVAs) were conducted to assess change over time from 2013 to 2016 for each of the metrics across all 50 New Jersey hospitals participating in the DSRIP program. We also indicate what percentage of hospitals improved for each metric based on performance in the first and last years. Key findings include:

- For each hospital's eligible attributed children's and adolescents' access to primary care practitioners (PCPs) during each measurement year, significant improvements over the initial years were reported for children ages 7-11 years and for adolescents ages 12-19 years. However, in years 2015 and 2016, declines were reported for all four child and adolescent PCP access measures, and these declines were much sharper for two of the four measures in 2016. The percentage of adolescents ages 12-19 years visiting a PCP showed the steepest decline in 2016. One-fourth of hospitals improved from 2013 to 2016 for PCP access for children ages 12-24 months, 12.2% improved for children ages 25 months to 6 years, 2.0% improved for children ages 7-11 years, and 4.1% improved for adolescents ages 12-19 years.

- Hospital admission rates for both chronic obstructive pulmonary disease (COPD) and heart failure in each hospital's attributed patients ages 18 years and older significantly improved (decreased in magnitude) from 2013 to 2014, but then showed increases for 2015 (and also in 2016 for COPD). About 1/3 of the hospitals showed improved hospital admission rates for COPD from 2013 to 2016, while over half (57.1%) showed improved admission rates for heart failure.
- The percentage of each hospital's attributed patients infected with HIV who had two or more CD4 T-cell counts taken during each measurement year significantly improved from 2013 to 2014 and, although slightly lower than the rate in 2014, the rates for 2015 and 2016 were still higher than the 2013 rate. About six in 10 hospitals (61.2%) showed an improvement in this metric from 2013 to 2016.
- Preventive screening in women for cervical cancer and chlamydia changed little from 2013 to 2014, but significantly improved in 2015 and/or 2016. About 2/3 (67.3%) of the hospitals showed an improvement in cervical cancer screening from 2013 to 2016, while nearly ¾ (73.5%) of hospitals showed an improvement in chlamydia screening.
- The metric for low birth weight infants changed little from 2013 to 2014, worsened in 2015, and then improved in 2016 to less than the 2013-2014 percentages. More than five in 10 (56.8%) hospitals showed an improvement in this metric from 2013 to 2016.
- The rates for most of the metrics for childhood immunization status (the percentage of two-year-old attributable children for each hospital who received each of 10 different vaccines) significantly decreased from 2013 to 2016. These decreases were particularly large for the HiB, MMR, and VZV vaccines. About nine in 10 hospitals showed declining rates for most of the vaccines from 2013 to 2016; the exceptions were the HepA and HepB vaccines which had a few less hospitals showing declining rates (eight in 10 and seven in 10, respectively).
    - The remaining vaccine metrics were different combinations of the above vaccines. All nine of these combination vaccines declined from 2013 to 2016, although five of the declines were not statistically significant. For all the combination vaccine metrics, roughly four in 10 hospitals showed improved rates from 2013 to 2014.
- All three metrics for well-child visits in the first 15 months of life improved from 2013 to 2016 (i.e., during the first 15 months of life, the percentage of children with zero well-child visits decreased from 2013 to 2016, while the percentage of children with one to three or four or more well-child visits increased from 2013 to 2016). The majority (74.4%, 59.0%, and 71.8%, respectively) of hospitals showed improved rates from 2013 to 2016 for the three well-child visits metrics.
- The mean percentage for the metric for hospital acquired potentially preventable venous thromboembolism (the percentage of each hospital's admitted patients who did not receive venous thromboembolism prophylaxis before being diagnosed with venous

thromboembolism out of all of each hospital's attributable patients who developed venous thromboembolism following admission to the hospital; collected for the years 2014-2016 only) across the 23 DSRIP participating hospitals who reported it was 11.8% in 2014, worsened to 19.0% in 2015, then improved in 2016 to 9.0%; however, these changes were not statistically significant. About one in four (23.1%) hospitals improved from 2014 to 2016.

- For tobacco use screening & cessation intervention (the percentage of patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12 month period who were screened for any type of tobacco use and, for those identified as tobacco users, received tobacco cessation counseling intervention), the mean percentage for this metric improved from 2015 to 2016, although the change was not statistically significant. About seven in 10 (71.4%) hospitals improved from 2015 to 2016.

The hospitals showed improvement from 2013 to 2016 in 10 out of 34 Stage 4 Metrics, including heart failure admission rate, Cd4 t-cell count, cervical cancer and chlamydia screening, low birth weight, well-child visits, hospital acquired venous thromboembolism, and tobacco screening/cessation intervention in coronary artery disease patients. All of the child/adolescent PCP access measures and all of the vaccination measures worsened from 2013 to 2016 (although a few of the vaccination rate declines were not statistically significant).

Discussion

This report examines various sources of information to identify the effects of the NJ DSRIP program using a combination of qualitative and quantitative research techniques. The study periods differ across the different components, but collectively cover all of the DSRIP transition and implementation years, from October 2012 through June 2017.

Stakeholders generally perceive that DSRIP interventions have achieved better care and improved health for patients enrolled in their chronic disease intervention programs. Our claims-based analysis supports such improvements for one disease focus area only – we found a positive impact on asthma outcomes in the overall Medicaid population. Gains for other chronic diseases may take a longer time to become apparent. Stage 4 metrics which are indicators of care quality outside hospitals' disease management projects, suggest receipt of recommended and preventive care has increased for attributed patients. At the same time, broader improvements in access to care and the quality and efficiency of care, as captured by avoidable use metrics, have not been realized for the overall Medicaid population.

Costs associated with avoidable ED visits increased in the Medicaid population served by DSRIP hospitals compared to non-DSRIP hospitals. There was no significant positive or negative impact

of DSRIP on hospital finances as measured by total margin and operating margin through 2016. Stakeholders did not have a clear sense of DSRIP's impact on costs, but most hospitals felt that DSRIP was starting to have a positive impact on hospital finances. Nevertheless, strong exceptions were taken to this point of view by some hospitals who stressed the financial strain introduced by the DSRIP program.

The strengths of the DSRIP program according to stakeholders were the opportunity it provided to redesign care of chronic conditions for patients. On average, hospitals agreed that the DSRIP program improved chronic disease management processes at their hospital for the better, and that the DSRIP program fostered community partnerships that have a positive impact on social determinants of health. The weaknesses of the DSRIP program according to stakeholders had primarily to do with the reporting requirements of the program. These required a large investment of time and resources which were perceived as a distraction from patient care. Questions remained about the value and validity of the metric-oriented approach in conveying the significant efforts and progress made by hospitals in caring for their low-income patients.

A Summative Evaluation of the New Jersey DSRIP Program: Findings from Stakeholder Interviews, Hospital Surveys, Medicaid Claims Data, and Reported Quality Metrics

Sujoy Chakravarty, Ph.D., Kristen Lloyd, M.P.H., Susan Brownlee, Ph.D., and Jennifer Farnham, M.S.

Introduction

The Delivery System Reform Incentive Payment (DSRIP) Program was approved as part of the New Jersey Medicaid Comprehensive Waiver Demonstration in October 2012. The hospital-based DSRIP program uses resources transitioned from the previously existing Hospital Relief Subsidy Fund to establish a pay-for-performance and pay-for-reporting system to achieve specific health improvement goals for the state's low income population.

The objective of the DSRIP program is aligned to a large extent with the Healthy New Jersey 2020 (HNJ 2020) plan that sets the pathway for comprehensive disease prevention and health promotion for New Jersey residents. Under DSRIP, implementation of specific disease management projects relate to three of the five leading health indicators in HNJ 2020 (NJDOH 2013, 6). Specifically, the eight focus areas including a) asthma b) behavioral health c) cardiac care d) chemical addiction/substance abuse e) diabetes f) HIV/AIDS g) obesity and h) pneumonia may potentially impact three areas of HNJ 2020 health promotion or disease prevention namely, access to primary care; heart disease related outcomes; and obesity prevention.

DSRIP Program Overview

The DSRIP program aims to achieve population health improvement by focusing hospitals on quality of care for their low-income patients in Medicaid, CHIP (Children's Health insurance Program) and the charity care population. Training for hospitals on the DSRIP program and application process began in mid-2013 and applications were due in September 2013. Of the 63 eligible hospitals, 55 applied.[1] All hospitals' plans were approved by May 2014, near the end of demonstration year 2 (DY2). The majority of hospitals selected programs in cardiac and diabetes

[1] Some hospitals withdrew from DSRIP during the implementation period so that by the end of DY5, 49 hospitals remained in the program.

care, with none choosing an HIV/AIDS project, and only one hospital each with projects in the pneumonia and obesity focus areas. After initial project approval, a pay-for-reporting and pay-for-performance (P4P) arrangement incentivized hospitals' progress through four cumulative stages over the three remaining demonstration years (June 2014-June 2017). These stages were infrastructure development (Stage 1), chronic medical condition redesign and management (Stage 2), quality improvements (Stage 3), and population-focused improvements (Stage 4). All hospitals were required to complete their pilot phase and begin implementation of their full DSRIP programs by March 31, 2015. In Stages 3 and 4, hospitals had to report on a menu of project-specific and population health-related quality metrics calculated for their specific state-determined attributed population. Hospitals' first report on Stage 3 and 4 metrics was due on April 30, 2015 and established baseline performance. In later years a greater proportion of DSRIP dollars were tied to measurable improvement over baseline in outcome metrics. The first pay-for-performance results were finalized and approved at the end of DY4 with payments made to hospitals in July 2016, the first month of DY5. The pay-for-performance payments for DY5 were issued in October 2017, during the first of three extension years for the DSRIP program under the New Jersey Medicaid Comprehensive Waiver Renewal (CMS 2017).

Evaluation Overview

The Rutgers Center for State Health Policy (CSHP) was engaged to evaluate the effectiveness of New Jersey's DSRIP program in achieving its goals. We formulated specific testable hypotheses to examine the following six research questions from the DSRIP Planning Protocol (detailed in the Waiver Special Terms and Conditions document) that determine the scope of the evaluation:

1. To what extent does the DSRIP program achieve better care?
2. To what extent does the DSRIP program achieve better health?
3. To what extent does the DSRIP program lower costs?
4. To what extent did the DSRIP program affect hospital finances?
5. To what extent did stakeholders report improvement in consumer care and population health?
6. How do key stakeholders perceive the strengths and weaknesses of the DSRIP program?

The hypotheses were tested utilizing a mix of quantitative and qualitative methods. The findings are presented in two reports: a midpoint evaluation completed in September 2015, focusing on the DSRIP planning and early implementation period (through the first half of DY3), and a summative evaluation covering the full implementation period (through the end of DY5).

This report, the DSRIP summative evaluation, presents qualitative and quantitative assessments of the impact of DSRIP program activities as well as stakeholder perceptions relating to

implementation activities, DSRIP impact, and future program potential. It is comprised of four distinct chapters each covering one analytic component of our evaluation plan. These include key informant interviews, a hospital survey, claims-based analysis of hospital performance in terms of specific quality metrics, and analysis of selected hospital-reported metrics.

Fielded after the end of the fifth demonstration year, the second round of key informant interviews and the hospital web survey examine individual stakeholder and hospital-level responses to structured questions relating to research questions 5 and 6. In these chapters, comparisons are made with findings from the first round of key informant interviews and the hospital web survey, both of which were fielded during the third demonstration year. Complete findings from these round one components can be found in the DSRIP Midpoint Evaluation (Chakravarty et al. 2015).

To examine specific hypotheses related to research questions 1–4, we conduct a quantitative analysis of independently-calculated metrics related to patient access to care, quality of care, patient health, and costs of providing care using Medicaid claims and managed care encounter data. These analyses cover a baseline period of 2011–2013 and the DSRIP implementation period from January 2014 through June 2017. The results from this analysis capture the impact of all hospital implementation activities for the DSRIP program on changes in outcomes for the overall Medicaid population that can be calculated using administrative data. We also look for any program effect on hospital finances based on Medicare Cost Reports over the period 2014–2016. Finally, we use hospital reported data through the end of the first half of DY5 to examine whether specific trends existed in metrics reported by all hospitals that indicated a positive or negative impact of the program on the attributed DSRIP population.

The table below summarizes the content, assessment period, and research questions addressed by each chapter in this report.

Chapter	Assessment Period	Research Question
1. Key informant interviews	1/2013–12/2017	5, 6
2. Hospital survey	1/2013–2/2018	5, 6
3. Analysis of Medicaid claims data	1/2014–6/2017	1, 2, 3, 4
4. Analysis of Stage 4 metrics	1/2013–12/2016	2

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Chapter 1: Evaluation Findings Based on Key Informant Interviews

Introduction

Key informant interviews are part of the qualitative evaluation of the DSRIP program. They are designed to 1) directly address research questions specified in the Waiver Special Terms and Conditions document related to stakeholder perceptions of improvements in consumer care and population health as well as stakeholder perceptions of strengths and weaknesses of the program, 2) assist in designing other components of the evaluation, such as the web survey and 3) inform the evaluation and help interpret findings by querying stakeholders for potential program and implementation issues, some of which may not have been anticipated at the time of the initial research design. Two rounds of key informant interviews were conducted—one in late 2014-early 2015 and another in late 2017.

Methods

Subject Recruitment

The research protocol was approved by the Institutional Review Board at Rutgers. Two rounds of telephone interviews were conducted. The first round was conducted from mid-October of 2014 through mid-February of 2015, consisting of 12 interviews with 13 key informants. These interviews were described in our midpoint evaluation (Chakravarty et al. 2015). The second round was conducted from October through December of 2017, and consisted of 10 interviews with 29 key informants (five of the interviews consisted of one key informant, four consisted of two to four informants, and one included a large team of informants). Interviewees included hospital staff members, members of various DSRIP Program committees and collaboratives, hospital staff from hospitals that decided not to participate or withdrew from the program (included in the first round only), outpatient partners, officials from the New Jersey Department of Health, and industry association representatives who were familiar with the program. Our candidate list included Quality and Measures Subcommittee members since they could speak to the program's development as well as their individual hospital's experience, and Learning Collaborative leaders, who organized group discussions providing information and support to hospitals selecting similar chronic disease projects. We included safety net providers as well as those serving more income-secure populations. There was some overlap in interviewees between the first and second

rounds: five individuals, representing five different organizations, participated in both the first and second round of interviews.

Question Development

The interview questions (available in the Appendix) were constructed so as to address the research questions detailed in DSRIP Planning Protocol based on the Waiver Special Terms and Conditions. Question formulation was informed by knowledge gained by CSHP researchers through participation in various meetings, conference calls, and information published or distributed regarding the DSRIP program. An initial draft of questions was piloted in the summer of 2014 in three informal telephone interviews conducted with stakeholders knowledgeable about program operations. These pilots facilitated refinements to the initial draft of the questions for the first round of interviews. For the questions used in the second round of interviews, researchers considered findings from the midpoint evaluation (Chakravarty et al. 2015) as well as information gleaned from later meetings, conference calls, and information distributed regarding the DSRIP program.

Questioning Strategy

Interviewers used a semi-structured list of basic questions with detailed potential follow-up questions noted in advance and also created new follow-up questions at the time of the interview if appropriate. See appendix for questions.

Documentation and Analysis

One CSHP researcher participated in all interviews and created a preliminary summary of each interview that was reviewed and edited by the other two research team members to ensure agreement across the team on the content of each interview. The interviews were audio-recorded and the recordings were consulted in any case where the researchers' notes were unclear. Each research team member independently analyzed the interviews to identify what they believed to be the themes that emerged from the interviews. The team then met as a group to discuss their individual analyses and any differences were discussed. There were no basic disagreements about themes, though there were a few minor differences in emphasis.

Findings

In this section we discuss findings related to topics covered in the two rounds of interviews, including how views on these topics shifted over time. We also offer a description of the context—i.e., the status of DSRIP implementation, during the rounds of interviews, and a brief summary of the findings.

Context, Round 1 Interviews (late 2014–early 2015)

Our first round of interviews occurred early in DSRIP implementation—participants had begun their chronic disease interventions, which were being assessed by pre-specified quality metrics (Stage 3), but had not yet received the patient attribution lists that would be used in the calculation of their quality measures.

Context, Round 2 Interviews (late 2017)

By this time, participants had received several attribution lists and had received payments for performance. Some participants had been through appeals of their performance results. In addition, they had more extensive experience with their chronic disease interventions.

Summary of Findings

In brief, participants remained enthusiastic about chronic disease management interventions and, for the most part, with the Learning Collaboratives, where they were able to discuss their interventions. They generally remained unsatisfied with reporting requirements, particularly with respect to the universal metrics, but also in some cases with the project-specific metrics when they felt that the metric did not fairly represent outcomes. With the universal metrics (reported for all attributed patients,), many participants found them to be a significant burden and also questioned the purpose or value of reporting those metrics. By the second round of interviews, most reported positive effects on health outcomes from the chronic disease interventions but generally could not say how overall costs were affected. Participants generally thought that concurrent policy developments had supported DSRIP goals, though they were nervous about potential retrenchments of Medicaid coverage. Finally, participants offered suggestions for future rounds of DSRIP or DSRIP-like programs, including paring down required metrics, restricting participation exclusively to safety net hospitals, involving hospitals and outpatient partners in program design, and devoting more resources to outpatient partners and information technology.

Interview Topics

Topic	Round 1	Round 2
Chronic disease programs & population health	Hospitals were enthusiastic about chronic disease management and population health improvement, though uncertain about which specific interventions are best.	Hospitals remain enthusiastic about chronic disease management and population health improvement. Most felt that their DSRIP initiatives underscored the importance of connecting with the community outside the hospital and helped them to do so. However, lack of resources for outpatient partners may have limited these connections.

In our first round of interviews, we found that most hospitals had some ongoing chronic disease management and/or population health initiatives with or without DSRIP (i.e., even those who withdrew or did not participate still engaged in such programs). Many were not able to single out one or more of the project types (asthma, diabetes, heart disease, etc.) as more potentially transformative than others in the first round of interviews, and we didn't hear comments noting performance differences among the project types in the second round of interviews.

Several interviewees noted the importance of connecting with community resources outside the hospital in order to effectively manage chronic diseases, and felt that DSRIP helped them to do this. For example, one interviewee said, *"part of our understanding of the DSRIP program from the beginning—we thought it's a hospital project, and then as we move along the DSRIP program, we realize it's really not a—it is a hospital project, but you will be more successful if you go outside and do your outreach program."* The interviewee described this as a *"very slow and very painful realization."* Later, this interviewee noted that they could have found better data for their project with outpatient partners and that *"this program ... should have been defined as an outpatient program from the beginning."*

However, the program design did not allocate new resources for outpatient partners--the funding pool was based on the historical Hospital Relief Subsidy Fund, which had compensated hospitals based on the numbers of uninsured and Medicaid patients they served (Kitchenman 2014; NJDOH 2013). While hospitals could choose to compensate partners (and some did, although our anecdotal sense was that such compensation was limited), the funds would have to come out of their resources, which many hospitals, particularly the safety-net hospitals, felt were quite limited already. Perhaps because of the lack of new funds for outpatient partners, some hospitals encountered trouble recruiting outpatient partners, and the small number of partners or potential partners with whom we spoke seemed to feel less positively than the hospitals about the DSRIP as a catalyst for hospital/community relations. One hospital noted that potential partners were familiar with another state's program that allocated resources to partners and were expecting the same from this hospital, when in fact the hospital did not have the resources to provide funding: *"partners … think we're getting money … but we're only getting money for the care we've already been giving to patients, even outside of the project … and we did have a fair number that dropped out of the program early on when they realized we could not pay them … …* [in] *New York state, an extraordinary amount of DSRIP money was designed to flow through to communities… and their feeling is well, where's our money—you want us to collect data, where's the money for that, you want us to do this, you want us to do that, so the feeling is they're not getting their share, they're being asked to do extra work, we're just bringing more patients to them—if we weren't there, other people would be referring to them, so there's really no upside, there's no incentive for any of the community partners to be involved with this on any level."*

Topic	Round 1	Round 2
DSRIP outcomes	Participants thought it too early to determine definite outcomes from the program, either positively or negatively.	Most participants seemed to feel that there were positive care outcomes resulting from the chronic disease programs. Participants were not sure if there were significant cost savings to the delivery system as a result of these programs, and also seemed unsure of the value of the universal metrics.

Most chronic disease interventions had only been operating for a few months at the time of our first round of interviews, so there was not yet definitive data as to their outcomes. Many reported positive preliminary results for the patients in their programs. There was also concern that the cost burden of reporting and the uncertainties of dealing with patient attribution lists would sap hospital resources that could otherwise be used to improve care.

In the second round of interviews, most participants seemed to feel that there were positive health outcomes for patients as well as staff satisfaction as a result of the chronic disease interventions. One program told us that program metrics showing success rates in the low 20's had risen up to the 80's and 90's (where 100 would be perfect) over the course of their program. One interviewee mentioned helping an outpatient partner access a program that could be helpful to both the organization and its patients. Interviewees were generally less sure about whether there were improvements in the cost of care, though some noted decreased readmission rates.

However, there was still a sense among many interviewees that data reporting requirements had taken resources away from clinical care.

One interviewee noted the value of the flexibility DSRIP gave hospitals to use funds as needed for interventions, which in at least one case they felt had led to health system improvements by recognizing the value of particular interventions which otherwise may not have been accomplished e.g, hospital funding for home visits: *"one of the things that DSRIP has done is allow hospitals to fund certain initiatives that might not be reimbursed under the traditional fee-for-service system … for example, home visits—that one, in particular, is getting more uptake in fee-for-service reimbursement systems, but when DSRIP started, that was not being reimbursed for in Medicaid—the home intervention for children with asthma, and so DSRIP provided a money stream to allow hospitals to do that. And now, based on that data … MCOs are starting to reimburse for that or if they're not they're being pushed to, either by the state or the federal government."*

Topic	Round 1	Round 2
Burden of reporting	Reporting requirements were seen as a significant burden that was unevenly distributed across hospitals and reporting partners due to differences between hospitals in the level of technology and the number of low-income patients.	Advocacy resulted in a reduction in some measures that hospitals found particularly burdensome, but reporting remained a significant and unevenly distributed burden, with hospitals with fewer resources (due to scale or focus on lower-income patients) having the highest burden.

In both our first and second rounds of interviews, we found that some hospitals were much further along in the implementation of electronic records than others, and some have interoperable systems with outpatient partners. For these hospitals and their partners, chart-based measures pose a smaller burden than for others lacking such systems. Other hospitals and their reporting partners for whom the measures in question are not recorded electronically had to hire abstractors to extract the metrics from paper-based charts. This is a significant cost for these hospitals and partners. Even where hospitals have an EMR, there is still a burden associated with time expended by IT personnel and validation of data. As described by one hospital: *"there was a lot of time and money spent here by our IT people, and our clinical staff, to be able to add especially the Stage 4 metrics into our clinical information system in order to be able to try to get the information out of the system … The validation of the data also takes a very long time—of our own data, to make sure that the information that is coming out of our EMR is accurate."*

Though no definitive data was available, it seems likely that safety net hospitals are more adversely affected by the reporting requirements since they have larger share of low-income populations to report on and also tend to have tight budgets. One interviewee felt that safety net hospitals were also disadvantaged by the structure of the program because they were already operating with fewer financial resources, meaning that the additional requirements were particularly burdensome, and because hospitals with no patients for a given measure (often among hospitals serving few Medicaid/charity care patients) were graded positively and received payment for the measure: *"safety nets are operating at about half the margin of the state average, so they're already less equipped to deal with additional burden, so some of these additional administrative issues … were more felt at safety net hospitals … some participants in the program with very few patients in certain measures … such low Medicaid/charity care populations … some measures, they had zero patients in the denominator, and yet, because of the way the program was structured, they were still getting paid … not a good return on investment for the state."*

An interviewee who had reviewed the quality metrics noted that there was a high degree of data variability for the chart-based measures in particular, which reduced their utility in determining performance.

Topic	Round 1	Round 2
Value of reporting	Reporting is an important component of the program tied to payments, yet many participants are unsure of the value of measures to be reported.	Participants continued to question measures in both the project-specific component and the universal component, as well as the construction of the attribution model, which most seemed to feel was insufficiently transparent.

In our first round of interviews, most interviewees were unsure of the reasons for reporting measures beyond those related to their specific interventions, and also the selection process for such measures. Many claimed they had asked and had not received an answer. In some cases, the measures are collected for other purposes such as accreditation or hospital reports to CMS, but interviewees told us that in other cases the measures required by the DSRIP program have been dropped by other reporting stewards, leading interviewees to question why they are required to report them for this program. In April 2015, CMS approved a reduction in the number of measures after reviewing recommendations from the NJ Hospital Association (Fishman 2015).

During our first round of interviews, hospitals had not yet received their attribution rosters. By our second round, they had received several iterations of them and most seemed to find them lacking in transparency and utility in helping them to address population health issues. The models are retrospective and created using utilization patterns in Medicaid and charity care data, possibly attributing patients who may not be actively visiting the hospital or any of its project partners during the implementation period. Most interviewees seemed to feel that they could not verify how metrics regarding their hospital were calculated—where issues occurred with another provider, the hospital was not able to see the utilization information. Several reported that it appeared to them that the composition of the lists changed significantly from period to period, which limited their ability to reach out to their population. One hospital expressed frustration at the continually shifting population for which they were accountable: *"when the attribution model changes, and you're getting paid based upon the efforts that you can put into your attributed population, and your attributed population changes every 6 months, that's an issue … this month, I'm, you know, focusing on this patient, and next month, well, he fell off the list, so now I gotta focus on this one over here … don't forget that insurance changes amongst patients as well … we're moving back and forth."* A nonhospital interviewee noted that the purpose of the lists was not to identify particular individuals but to measure population health in the hospital service area, and this interviewee felt that the existing methods, while not perfect, were the best way to do that subject to data availability and privacy regulations.

There were also other issues mentioned with the way that performance results were calculated from the data, with a particular concern articulated that hospitals that were already high performers were penalized for small backslides that could be caused by just a few patients, while low performers who demonstrated an improvement that still left them relatively low in the performance hierarchy would be rewarded. Interviewees seemed to feel that concerns raised about this were addressed, though they were not all satisfied with the time that elapsed in addressing the issue.

In addition to the universal metrics, some hospitals raised concerns about the metrics that were used in their chronic disease interventions, specifically that some follow-up care metrics were constructed in a way that missed some types of care, limiting their ability to assess important domains of care. Some participants also felt that, in retrospect, it was easier to meet the metrics in some interventions. One interviewee in a position to have seen the metrics from a large number of projects did not necessarily see this pattern, noting that none of the projects appeared easy; however, another interviewee who had seen a number of different projects did feel that they were not equitable.

Topic	Round 1	Round 2
DSRIP administration	The program's evolving nature and delays in the finalization of approvals and details caused anxiety and confusion.	Communication with CMS remained an issue throughout the program, and some hospitals experienced significant delays in accessing funds during appeals. Levels of anxiety and confusion seemed lower in our second round of interviews, but satisfaction with the administration of the program was low in both rounds of interviews.

Because the program's design was not complete at the beginning of the application process, all involved reported uncertainty in our first round of interviews. For safety-net hospitals with already tight budgets standing to lose significant financial resources, the anxiety was significant. Some of the specific factors cited causing anxiety or confusion in our first round of interviews included:

- The fast turnaround time required to submit complicated DSRIP applications left hospitals scrambling to complete the applications.
- Difficulty getting answers about program requirements led to the involvement of a hospital advocacy group to resolve confusion.
- Significant delays in notification of project approvals caused uncertainty regarding whether hospitals should move ahead with planned projects. Hospitals worried that if they did not move forward they might face future penalties by not meeting targets if timelines were not adjusted. On the other hand, if they moved ahead with an unapproved

project, they might have to change it significantly in a way that could cause a loss of scarce resources.

- There was a significant increase (perception was at least a tenfold increase) in the number of measures to be reported. In cases where measures have to be manually abstracted from medical charts, this involves significant costs for hospitals. Many interviewees felt that the character of the program changed as it was implemented from a chronic disease management intervention focus to a heavy reporting focus.
- The delay in design and notification to hospitals of their attributed populations caused uncertainty and anxiety about whether their intervention populations were different from the populations for whom the performance payments would be calculated. Some interviewees were dubious about the use of attribution modeling for a low-income population that may move around and get care from different places, making it difficult to assign them with certainty.
- Uncertainty about requirements for project partners led some to go without any, despite seeing the value of partnerships. There was concern that the requirement that a reporting project partner only participate with one hospital could disrupt existing relationships.

In our second round of interviews, many of the initial uncertainties had been clarified, and there had been a small reduction in the number of measures that were required to be reported. There was still dissatisfaction in the amount of time that hospitals had to wait to learn the results of appeals, which caused revenue uncertainties. While interviewees seemed to anticipate delayed responses from CMS and seemed less upset about it than in the first round in the way they expressed themselves during interviews, they were still unsatisfied in this regard.

One interviewee discussed the effect of delays with respect to the negative cash flow implications from delayed payments and potentially unreasonable workloads when delays compound work requirements in a short time frame (e.g., delayed payment information with a limited appeal window overlapping with renewal application deadlines) : *"it's such an unreasonable expectation to put on providers … we're already many months into DY6, and we haven't even been given the template to be able to fill out our renewal applications because CMS hasn't approved them yet. It also affects cash flow … monthly incremental payments for certain stages of the program, and hospitals have had to go many months without those payments … hopeful to get DY4 and DY5 adjustments at the end of October, and we're also waiting for the DY6 renewal application and progress report forms to be done. Hospitals, when they get their payment information, are going to have 30 days to scramble to do appeals, and because CMS hasn't approved the renewal application also at the same time you're going to need manpower to do those forms … it's ridiculous, really … to expect the hospitals to work this way."*

Another interviewee discussed ramifications of the uncertainty with respect to program continuation/renewal: *"one of the issues we had, not in the original 5 year demo, but with the renewal demo DY6-8, is, hospitals had no idea if and how the program was going to be extended, so they were having to make decisions, do we—we've hired on this staff, we've invested in these resources here, do we have to let them go—there were literally people that were fearful of their job and actually left, so people who had been working on the project, had the knowledge, working knowledge, up and went, because there was no word as to whether this program was going to be extended or not. And then the STCs of the renewal come out in early August, some of those people are gone, they've already got other jobs, so now you have to train more people."*

Topic	Round 1	Round 2
Learning collaboratives	Participants spoke very positively of the Learning Collaboratives.	Many participants spoke positively of the Learning Collaboratives, though some who felt repeatedly tapped for expertise were less sure that it was a good use of their time, and there was frustration at the lack of opportunity to question CMS directly. Some participants developed their own collaboratives involving more frequent communication.

Discussion of the Learning Collaboratives was very positive in our first round of interviews. The collaborative meetings give participants a chance to network with others working on similar projects, sharing information and knowledge, and also providing peer support. Interviewees in the first round uniformly felt that the knowledge exchanged through the Learning Collaboratives would help participants improve their chronic disease management programs and improve consumer health. They also noted that Learning Collaboratives have been well-attended.

Responses in our second round of interviews were more mixed. Most were still positive. Some were frustrated in that CMS was not available for questions at the collaborative meetings, meaning that state officials or the contractor for the program had to note questions, then ask CMS and respond in future meetings. In addition, some participants were asked to present more than others, and in some cases this led them to feel that collaboratives were not useful for them. Others were very enthusiastic and wanted more frequent meetings. Some groups created their own collaboratives for more frequent discussion, either based in a geographic region or in a type of intervention. One interviewee suggested that it may be useful to have presenters from other states.

Topic	Round 1	Round 2
Effect of concurrent policies	The effect of concurrent policy developments on DSRIP program objectives was uncertain.	Most participants seemed to feel that concurrent policy developments were either neutral or supportive, though they worried about the effects of future federal policy developments, such as any retrenchment of the Medicaid expansion.

In many ways, concurrent policy developments such as the expansion of Medicaid, Medicare penalties for readmission, and the formation of accountable care organizations, reinforce similar principles as the DSRIP.

Medicaid Expansion: Interviewees in the first round were uncertain as to the effect of the Medicaid expansion on hospital patient care and available resources. While formerly uninsured people would gain coverage with the expansion, it was unclear whether this would make up for a decrease in availability of funds formerly dedicated to the uninsured. Interviewees believed that Medicaid not paying for the full cost of care, and some low-income individuals not being eligible for the expansion due to immigration status means that there will be continuing shortfalls in financing care; interviewees were also unsure how these shortfalls will be met. In the second round, interviewees were worried about potential retrenchment in Medicaid or other increases in uninsured patients.

Readmission Penalties: Medicare penalties for readmissions, while attempting to encourage quality of care, decrease available resources for hospitals. One interviewee in our first round noted that these penalties do not adjust for the socio-economic status of the patient population served by hospitals, which affects the potential for readmission independent of the care received at the hospital. Several second round interviewees brought up the general challenges in serving vulnerable patients that are disproportionately faced by safety net hospitals, with one noting: *"one of the things that the safety net community hospitals have to struggle with is that the patients that they're serving don't have a lot of the at-home supports that patients in wealthier communities have."* See Bennett (2018) for a discussion of these issues.

Other Policies: Several existing quality and pay-for-performance programs require measures reporting, and interviewees in both our first and second round of interviews hoped that these requirements could be aligned across programs to reduce the reporting burden faced by hospitals.

Suggestions for Future Rounds of DSRIP

In both rounds of interviews, stakeholders had suggestions for improvements to future rounds of DSRIP or DSRIP-like programs. They are summarized by topic in the table below.

Topic	Round 1	Round 2
Program design	• Finalize requirements before rollout • Involve outpatient partners in program development	Wide involvement of industry in program development (not just associations), including outpatient partners.
Participants	Some thought participation should be restricted to safety net hospitals.	More thought that participation should be restricted to safety net hospitals for sake of equity (more need for those hospitals) and efficiency (hard to create interventions for small low-income populations served by non-SNHs)
Measures	• Have a smaller set of reporting metrics with a clearly defined purpose (i.e., how will data be used to improve care) • Monitor attribution model to ensure consistency	Measures should be focused, fair (i.e., not penalize high performers who experience a small setback), transparent and provide real-time feedback to allow participants to respond quickly. Measures should also be aligned with other payers.
Resources	Resources should be set aside for outpatient partners.	Assistance with information technology should be provided to hospitals/partners who lack resources, to ensure better health information tracking and exchange ability. Additional resource provisions should be made for outpatient partners.

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Appendix A: Interview Question Guides, Round One Interviews

DSRIP Interview Question Guide, Participating Hospitals

As you know, the NJ DSRIP program introduces a hospital incentive payment system based on pay-for-reporting and pay-for-performance. The program's objective is to improve access and quality of care in communities served by hospitals participating in the DSRIP program, resulting in better health and lower costs. Our questions relate to the experience of hospitals participating in these programs and perceptions of the program's potential to improve access, healthcare and health.

1. **What are the hospital experiences to date in understanding the DSRIP program requirements?**
2. **What are the hospital experiences to date in implementing the initial requirements of the DSRIP program relating to application, approval, planning and other early implementation processes?**
3. **Do the hospitals feel that the DSRIP program will facilitate their ability to improve access and quality of care? If so, do they feel these improvements will result in positive effects on population health?**
4. **What specific components of the program, if any, will make the greatest contribution to promoting one or more of the triple aims: better care, better health, and lower costs? Which of the triple aim(s) will the program promote? Can you give some specific examples of program components that will promote the aims?**
5. **Similarly, what program requirements/characteristics, if any, pose challenges to participating hospitals in terms of implementation and consequently achieving the desired outcomes?**
6. **Among the eight chronic disease project areas, are there some that offer the greatest potential for improvement through this program? Which ones?**
7. **What improvements in care and health, if any, have already been noted in your communities as a result of the DSRIP activities?**
8. **What problems in care and health, if any, have already been noted in your communities as a result of the DSRIP activities?**
9. **Will other concurrent policy changes (e.g., Medicaid expansion, readmission penalties, ACOs) impact DSRIP activities or outcomes? If so, in what ways?**

10. **What has been the experience of the hospitals related to the learning collaborative and rapid cycle improvement tools? Have these program features aided in the process of project implementation and advanced DSRIP health improvement goals? If so, in what ways?**
11. **Is there anything else that we should know about hospital experiences and potential of the DSRIP but have not asked about?**

DSRIP Interview Question Guide, Nonparticipating Hospitals

As you know, the NJ DSRIP program introduces a hospital incentive payment system based on pay-for-reporting and pay-for-performance. The program's objective is to improve access and quality of care in communities served by hospitals participating in the DSRIP program, resulting in better health and lower costs. Our questions relate the experience of hospitals and other stakeholders participating in these programs and perceptions on the program's potential to improve access, improve health and lower costs.

1. **Our understanding is that your hospital, along with several others, chose not to participate in DSRIP. What factors would you say led to your decision not to participate?**
2. **How involved did you get in the process before deciding not to submit an application?**
3. **What do you think about the potential of the DSRIP program to improve access and quality of care in the state as a whole? Do you think it could improve population health? How relevant is this to your own patient population?**
4. **What specific components of the program, if any, will make the greatest contribution to promoting one or more of the triple aims: better care, better health, and lower costs? Which of the triple aim(s) will the program promote? Can you give some specific examples of program components that will promote the aims?**
5. **Similarly, what program requirements/characteristics, if any, pose challenges to participating hospitals in terms of implementation and consequently achieving the desired outcomes?**
6. **Among the eight project areas, are there some that offer the greatest potential for improvement through this program? Which ones?**
7. **What improvements in care and health, if any, have already been noted as a result of the DSRIP activities?**
8. **What problems in care and health, if any, have already been noted as a result of the DSRIP activities?**
9. **Will other concurrent policy changes (e.g., Medicaid expansion, readmission penalties, ACOs) impact DSRIP activities or outcomes? If so, in what ways?**
10. **In terms of future program design, what kinds of changes would make you more likely to participate?**
11. **Is there anything else that we should know about hospital experiences and potential of the DSRIP but have not asked about?**

DSRIP Interview Question Guide, Nonparticipating Hospitals (Withdrawn)

As you know, the NJ DSRIP program introduces a hospital incentive payment system based on pay-for-reporting and pay-for-performance. The program's objective is to improve access and quality of care in communities served by hospitals participating in the DSRIP program, resulting in better health and lower costs. Our questions relate the experience of hospitals and other stakeholders participating in these programs and perceptions on the program's potential to improve access, improve health and lower costs.

1. **Our understanding is that your hospital initially participated but then withdrew from the program. What factors would you say led to your decision to withdraw?**
2. **How involved did you get in the process before deciding to withdraw? How difficult was it to arrive at that decision?**
3. **What do you think about the potential of the DSRIP program to improve access and quality of care in the state as a whole? Do you think it could improve population health? How relevant is this to your own patient population?**
4. **What specific components of the program, if any, will make the greatest contribution to promoting one or more of the triple aims: better care, better health, and lower costs? Which of the triple aim(s) will the program promote? Can you give some specific examples of program components that will promote the aims?**
5. **Similarly, what program requirements/characteristics, if any, pose challenges to participating hospitals in terms of implementation and consequently achieving the desired outcomes?**
6. **Among the eight project areas, are there some that offer the greatest potential for improvement through this program? Which ones?**
7. **What improvements in care and health, if any, have already been noted as a result of the DSRIP activities?**
8. **What problems in care and health, if any, have already been noted as a result of the DSRIP activities?**
9. **Will other concurrent policy changes (e.g., Medicaid expansion, readmission penalties, ACOs) impact DSRIP activities or outcomes? If so, in what ways?**
10. **In terms of future program design, what kinds of changes would make you more likely to participate?**
11. **Is there anything else that we should know about hospital experiences and potential of the DSRIP but have not asked about?**

DSRIP Interview Question Guide, FQHCs

As you know, the NJ DSRIP program introduces a hospital incentive payment system based on pay-for-reporting and pay-for-performance. The program's objective is to improve access and quality of care in communities served by hospitals participating in the DSRIP program, resulting in better health and lower costs. Our questions relate the experience of hospitals and other stakeholders participating in these programs and perceptions on the program's potential to improve access, improve health and lower costs.

1. **What are the FQHC experiences to date with the DSRIP program?**
2. **Do the FQHCs feel that the DSRIP program will improve access and quality of care with positive effects on population health? How would the hospitals and the outpatient partners contribute to achieving these aims?**
3. **What specific components of the program, if any, will make the greatest contribution to promoting one or more of the triple aims: better care, better health, and lower costs? Which of the triple aim(s) will the program promote? Can you give some specific examples of program components that will promote the aims?**
4. **Similarly, what program requirements/characteristics, if any, pose challenges to participating hospitals/FQHCs/partnerships in terms of implementation and consequently achieving the desired outcomes?**
5. **Among the project areas (asthma/pneumonia, behavioral health/chemical addiction/substance abuse, cardiac care, diabetes and obesity) are there some that offer the greatest potential for improvement through this program? Which ones?**
6. **What improvements in care and health, if any, have already been noted in your communities as a result of the DSRIP activities?**
7. **What problems in care and health, if any, have already been noted in your communities as a result of the DSRIP activities?**
8. **Will other concurrent policy changes (e.g., Medicaid expansion, readmission penalties, ACOs) impact DSRIP activities or outcomes? If so, in what ways?**
9. **As a part of the DSRIP process hospitals are involved in learning collaboratives and rapid cycle improvement tools. Are FQHCs involved in these hospital-related activities in any way?**
10. **Is there anything else that we should know about FQHC experiences related to the DSRIP program, but have not asked about?**

Appendix B: Interview Question Guides, Round Two Interviews

DSRIP Interview Question Guide, Participating Hospitals

For Hospitals

1. **What was your role or association in regard to the DSRIP program? How long have you been associated with the program (e.g., from initiation, or any other time)?**

Quality of Care

2. **What changes – either improvements or new problems – if any, occurred in in the communities you serve as a result of the DSRIP activities (observed by your organization directly, or by others)?**
    a. Did these effects vary across different groups of patients and communities?
    b. Which patients or communities were impacted the most?
    c. Were there new clinical and community partnerships formed as a result of the DSRIP program, (please describe them)?

Cost/Efficiency of Care

3. **Has the DSRIP program impacted, positively or negatively, efficiency of care? (An increase in efficiency would amount to a decrease in the cost of care without compromising quality)**

Care and Efficiency Drivers

4. **What specific components of the program, if any, were most effective in promoting one or more of the triple aims: better care, better health, and lower costs?**
5. **What specific components, if any, posed the greatest challenges to hospitals in promoting these aims?**

Implementation Difficulties

6. **In our first round of interviews, several challenges (faced by hospitals) were mentioned both due to difficulty in understanding of DSRIP requirements and also constraints faced in implementation. These included outpatient partner requirements, data reporting and EMR capability issues, and attributing populations to hospitals.**
    a. Do you agree that these were problems early in the program?
    b. Are there other early problems that I did not mention?

7. **Did these problems (understanding program requirements and implementation difficulties) persist?**
    a. Were there issues to note other than these?
    b. Which strategies were the most successful in resolving these?
    c. (Note for Interviewer only) Note that some of the confusion may have been addressed by learning collaborative meetings, training webinars, interactions with government officials

Potential Resource Constraints

8. **There was a concern in the first round of interviews that DSRIP required hospitals to perform additional activities for the same amount of money, especially safety net hospitals.**
    a. Do you agree that this was a concern early in the program?
    b. Was there a change in this perception as the program was implemented over time?
9. **Were sufficient resources allocated for the various program activities?**
    a. What aspects were not taken into account?
    b. (Note for Interviewer only) Probe on outpatient partners.
10. **What was the impact of these additional activities on hospital operations, patient care and hospital finances?**

Learning Collaborative

11. **What has been the experience of the hospitals related to the learning collaborative and rapid cycle improvement tools?**
    a. Have these program features aided in the process of project implementation and advanced DSRIP health improvement goals? If so, in what ways?
    b. What could have made the learning collaborative more useful?

Future Rounds

12. **What suggestions would you have for future DSRIP or DSRIP-like programs both in terms of policy formulation and implementation?**

Other Information

13. **Is there anything else that we should know about hospital experiences, potential of the DSRIP, or patient care, cost and health, but have not asked about?**

DSRIP Interview Question Guide, Outpatient Partners

For Outpatient Providers/FQHCs

1. **Please describe the role played by your organization in the DSRIP program e.g., data sharing, coordination of care etc.**
    a. What was your role or association in regard to the DSRIP program? How long have you been associated with the program (e.g., from initiation, or any other time)?

Quality of Care

2. **What changes – either improvements or new problems – if any, occurred in in the communities you serve as a result of the DSRIP activities (observed by your organization directly, or by others)?**
    a. Did these effects vary across different groups of patients and communities?
    b. Which patients or communities were impacted the most?
    c. Were there new clinical and community partnerships formed as a result of the DSRIP program, (please describe them)?

Cost/Efficiency of Care

3. **Has the DSRIP program impacted, positively or negatively, efficiency of care? (An increase in efficiency would amount to a decrease in the cost of care without compromising quality)**

Care and Efficiency Drivers

4. **What specific components of the program, if any, were most effective in promoting one or more of the triple aims: better care, better health, and lower costs?**
5. **What specific components, if any, posed the greatest challenges in promoting these aims?**
6. **Can you specifically comment on the role played by hospital-FQHC partnerships in advancing DSRIP aims?**

Implementation Difficulties

7. **In our first round of interviews, several challenges were mentioned both due to difficulty in understanding of DSRIP requirements and also constraints faced in implementation. These included outpatient partner requirements, data reporting and EMR capability issues.**
    a. Do you agree that these were problems early in the program?
    b. Are there other early problems that I did not mention?
8. **Did these problems persist?**
    a. Were there issues to note other than these?
    b. Which strategies were the most successful in resolving these?

c. *(Note for Interviewer only) Note that some of the confusion may have been addressed by learning collaborative meetings, training webinars, interactions with government officials*

Potential Resource Constraints

9. Were sufficient resources allocated for the various program activities, including FQHC activities?

Learning Collaboratives

10. As a part of the DSRIP program, hospitals are involved in learning collaboratives and also adopted rapid cycle evaluation strategies for real-time improvement of their DSRIP projects. Have FQHCs been involved in these activities in any way?

Future Rounds

11. What suggestions would you have for future DSRIP or DSRIP-like programs both in terms of policy formulation and implementation?

Other Information

12. Is there anything else that we should know about your experiences, potential of the DSRIP, or patient care, cost and health, but have not asked about?

Chapter 2: Web Survey for DSRIP-Participating New Jersey Hospitals (Round 2)

Introduction

In this chapter, we examine results from the 2nd web survey of DSRIP-participating hospitals in New Jersey. This survey evaluates the DSRIP program implementation and potential impact based on hospital perceptions and experiences. It examines whether the hospitals faced any barriers in implementing the program's requirements and whether the hospitals felt that the program was beneficial and contributed to the Triple Aim of better care, better health, and lower cost through improvement. A copy of the web survey questionnaire can be found in Appendix A.

Methods

The 2nd hospital web survey was designed by CSHP staff based on feedback from the key informant telephone interviews conducted earlier and information from the Learning Collaboratives. The final version of the questionnaire was programmed into Survey Monkey and pretested by CSHP staff. The DSRIP contact persons at all DSRIP-participating hospitals in New Jersey were provided to CSHP by the New Jersey Department of Health. These hospitals were emailed an advance endorsement letter on State letterhead from an official at the New Jersey Department of Health on January 23, 2018. This advance letter described the survey and its purpose, encouraged the hospitals to provide feedback on the program via the survey, and indicated that Rutgers Center for State Health Policy researchers would be conducting the survey. The email accompanying the advance letter requested that the hospitals contact CSHP staff if the survey should be sent to a different hospital representative, and CSHP followed up on these contact person changes.

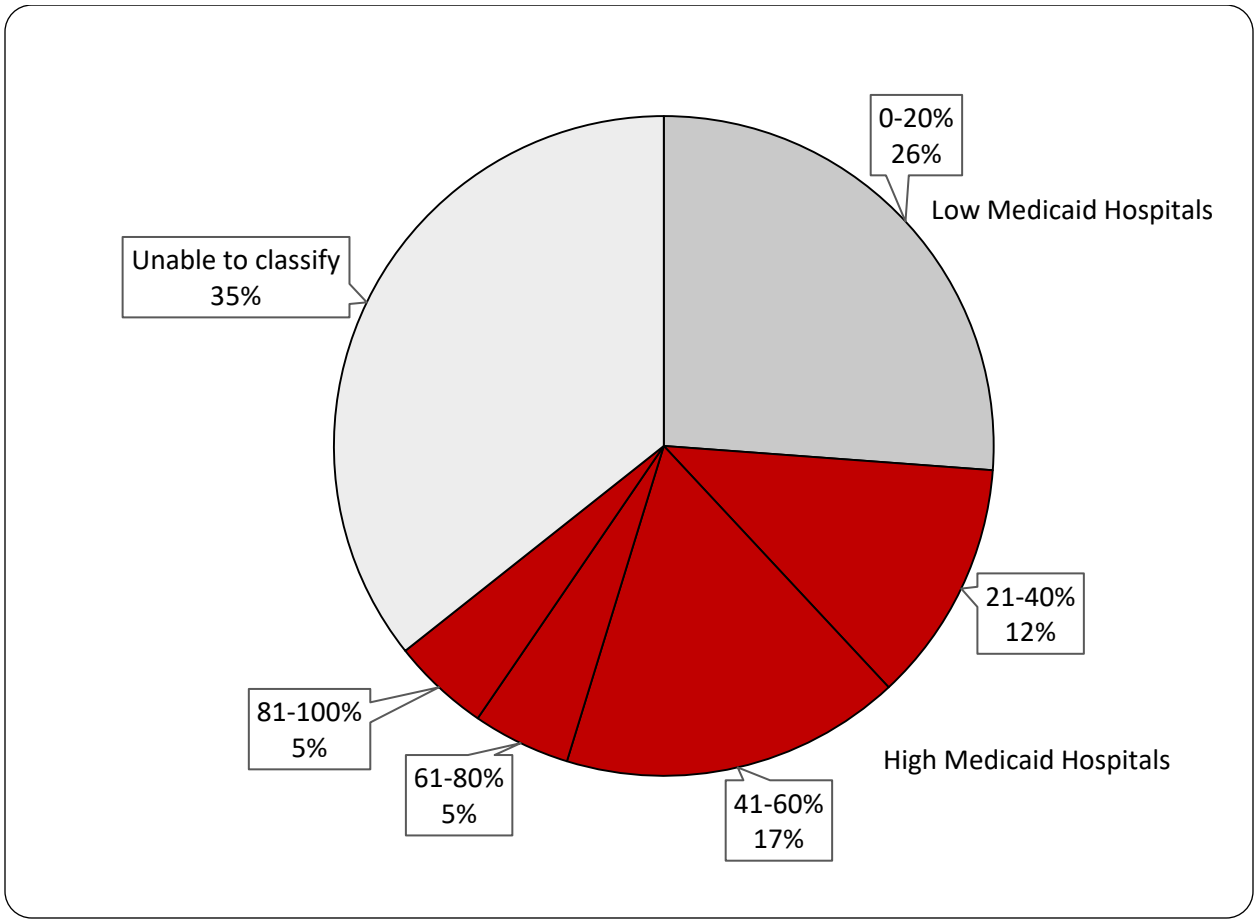
The fieldwork for the web survey of DSRIP-participating hospitals (N=49) was conducted from January 24, 2018, to February 20, 2018. An email invite sent on January 24 described the survey and contained informed consent information and a link to the web survey. Reminder emails with the consent information and survey link were sent on January 30 and February 6. The survey fieldwork closed on February 20. The advance email with DOH letter and email invites/reminders can be found in Appendix B.

There were 42 responses to the web survey for a response rate of 86%, and 25 hospitals answered most of the questions. Most of the hospital officials who responded to the survey were either department directors or DSRIP program managers.

Survey topics included hospital characteristics such as percent of patients on Medicaid/CHIP or charity care, factors in the decision to apply for the DSRIP program, perceptions regarding DSRIP program requirements, number and selection of DSRIP project partners, problems with and metrics obtainable from EHRs, percent of attributed patients in the DSRIP intervention and matching problems with the attribution list, experience with Stages 1 and 2 activities, experience with preparing Stage 3 and Stage 4 metrics, hospital perceptions relating to the effect of the DSRIP program on health outcomes, changes in community health and hospital finances due to the DSRIP program, perceptions of Learning Collaborative activities, use of rapid-cycle evaluation tools, difficulty with accomplishing DSRIP activities, general perceptions of the DSRIP program, and success in achieving pay-for-performance metrics. Many of the items were repeats from the 2015 Midpoint survey in order to assess change over time.

To understand whether the DSRIP program had a differential impact on safety net versus non-safety net hospitals, the responding hospitals were divided into two "Medicaid groups" based on their report of the percent of their patients who were Medicaid/CHIP or charity care (see Figure 2.1). The "Low Medicaid" hospitals reported 0-20% of their patients were Medicaid/CHIP or charity care (n=11), and the "High Medicaid" hospitals reported more than 20% of their patients were Medicaid/CHIP or charity care (n=16) (15 additional hospitals did not answer this question and so were not classified). This group division correlated well with a report from the Hospital Alliance of New Jersey as to which NJ hospitals are considered safety net hospitals (Ianni 2006).

Figure 2.1: Percent of Medicaid/CHIP/Charity Care Patients in DSRIP Hospitals, N=42



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Frequencies or means of all measures are presented at the end of the chapter (see Table 2.1). In the Findings section, p-values for significant differences ($p<.05$) between the Low and High Medicaid hospital groups are presented. Due to low sample size, marginally significant differences ($p<.10$) are also mentioned as tending to differ, but p-values are generally not presented. Charts for selected measures are presented in the text.

Most survey questions had item non-response below 5%. For these variables, missing values are excluded from the analysis.

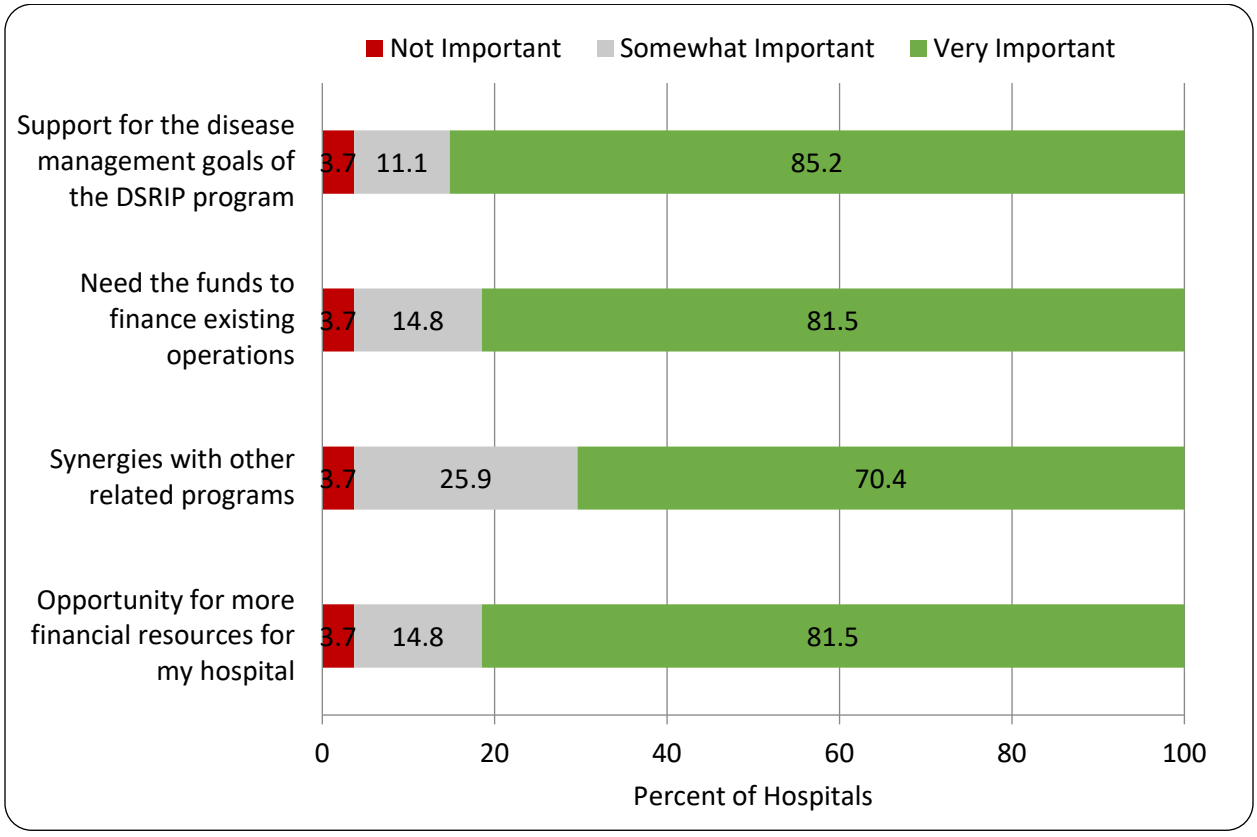
Findings

Reasons Hospitals Applied for the DSRIP Program

All of the responding hospitals are still in the DSRIP program as of the time of the 2nd survey (see Table 2.1). The 1st web survey included 4 non-participating hospitals and 2 hospitals who initially signed up for DSRIP but then withdrew.

For these DSRIP-participating hospitals, support for the disease management goals of the DSRIP program was cited as the most important reason for applying (85.2% rated this reason as very important in the decision to apply, an increase of about 9 percentage points from 2015) (see Figure 2.2). This was followed by needing the DSRIP funds to finance existing operations (81.5% rated this very important versus 70.6% in 2015) and seeing the DSRIP program as an opportunity for more financial resources (also 81.5%, a substantial increase from the 58.8% in 2015). Expecting synergies with other related programs such as hospital readmissions, ACOs, and value-based purchasing programs was cited as very important somewhat less often (70.4%, a slight increase from the 67.6% in 2015).

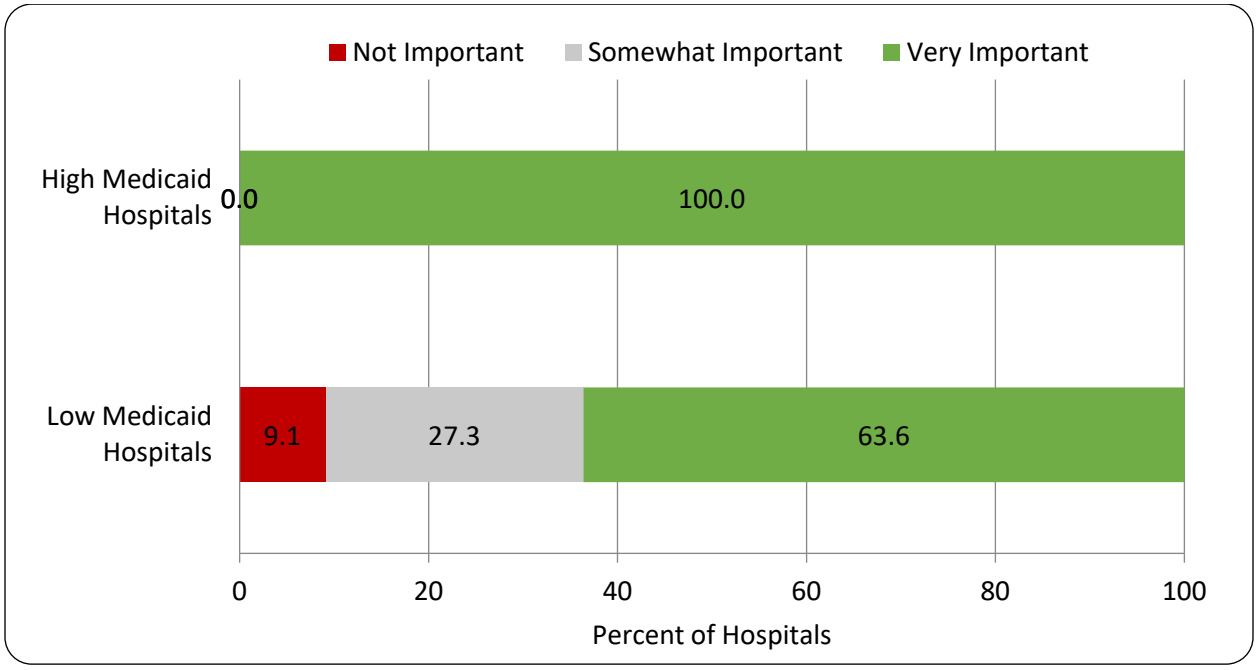
Figure 2.2: Importance of Factors in Decision to Apply for DSRIP



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

High Medicaid hospitals were more likely than Low Medicaid hospitals to rate as very important seeing the DSRIP program as an opportunity for more financial resources (High Medicaid: 100.0%, Low Medicaid: 63.6%, p=.059, marginally significant) (see Figure 2.2a). None of the other reasons for applying differed between High and Low Medicaid hospitals.

Figure 2.2a: Importance of Factors in Decision to Apply for DSRIP: Opportunity for More Financial Resources by Medicaid Hospital Group, p=.059



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Perceptions about the DSRIP Program Specifications/Requirements

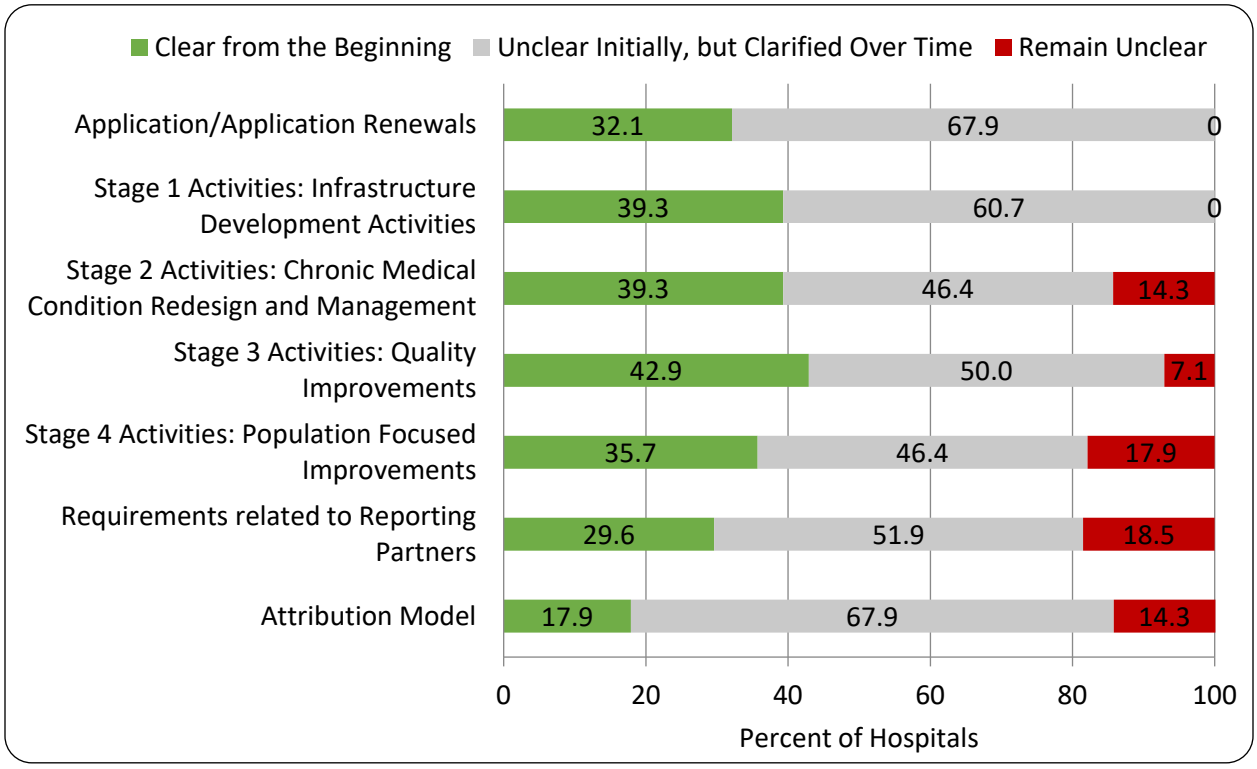
The hospitals were asked their perceptions regarding the following DSRIP program specifications/requirements, and whether they were clear from the beginning, unclear initially but clarified over time, or remained unclear:

- Application and application renewals
- Stage 1 Activities: Infrastructure Development
- Stage 2 Activities: Chronic Medical Condition Redesign and Management
- Stage 3 Activities: Quality Improvements
- Stage 4 Activities: Population Focused Improvements
- Requirements related to reporting Partners
- Attribution model

In general, most of the hospitals felt that these program specifications/requirements were either clear from the beginning or were unclear initially but clarified over time (see Figure 2.3). This was a significant improvement in perception from the 2015 survey. However, nearly one-in-five hospitals rated the Stage 4 Activities and Reporting Partner Requirements as still unclear (18.5% and 17.9%, respectively), but still much better than the 2015 'still unclear' ratings (35.3% and 44.1%, respectively). High Medicaid hospitals were more likely to report that the requirements for the Stage 2 Activities: Chronic Medical Condition Redesign and Management remained

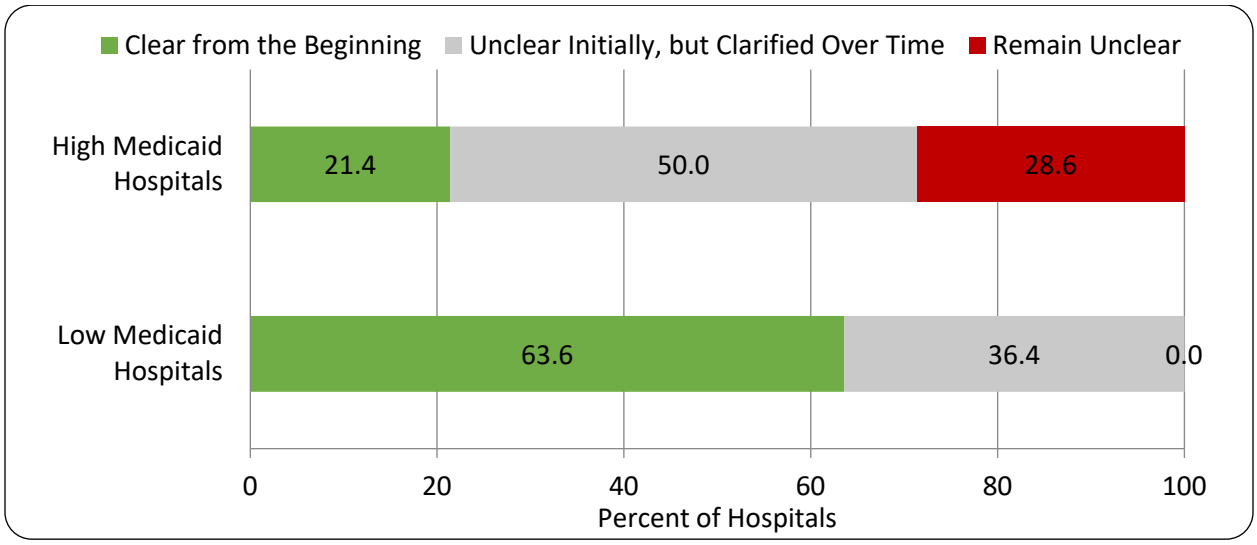
unclear compared to the Low Medicaid hospitals (28.6% vs. 0.0%, respectively, p=.046) (see Figure 2.3a). None of the other measures differed between High and Low Medicaid hospitals.

Figure 2.3: Perceptions of DSRIP Specifications/Requirements Over Time, Part 1: Clarity



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

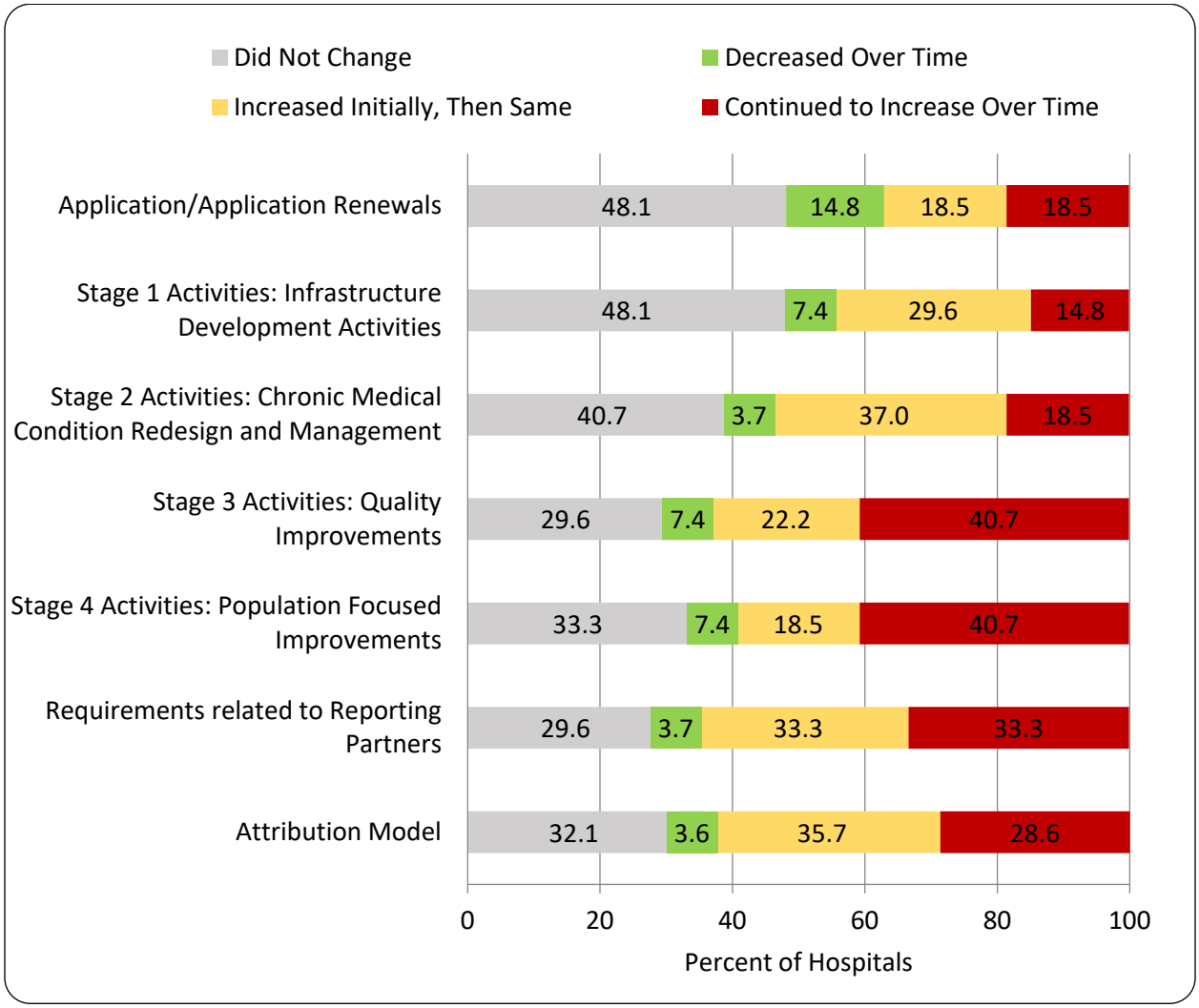
Figure 2.3a: Perceptions of DSRIP Specifications/Requirements Over Time, Part 1: Clarity, Chronic Medical Condition Redesign & Management by Medicaid Hospital Group, p=.046



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

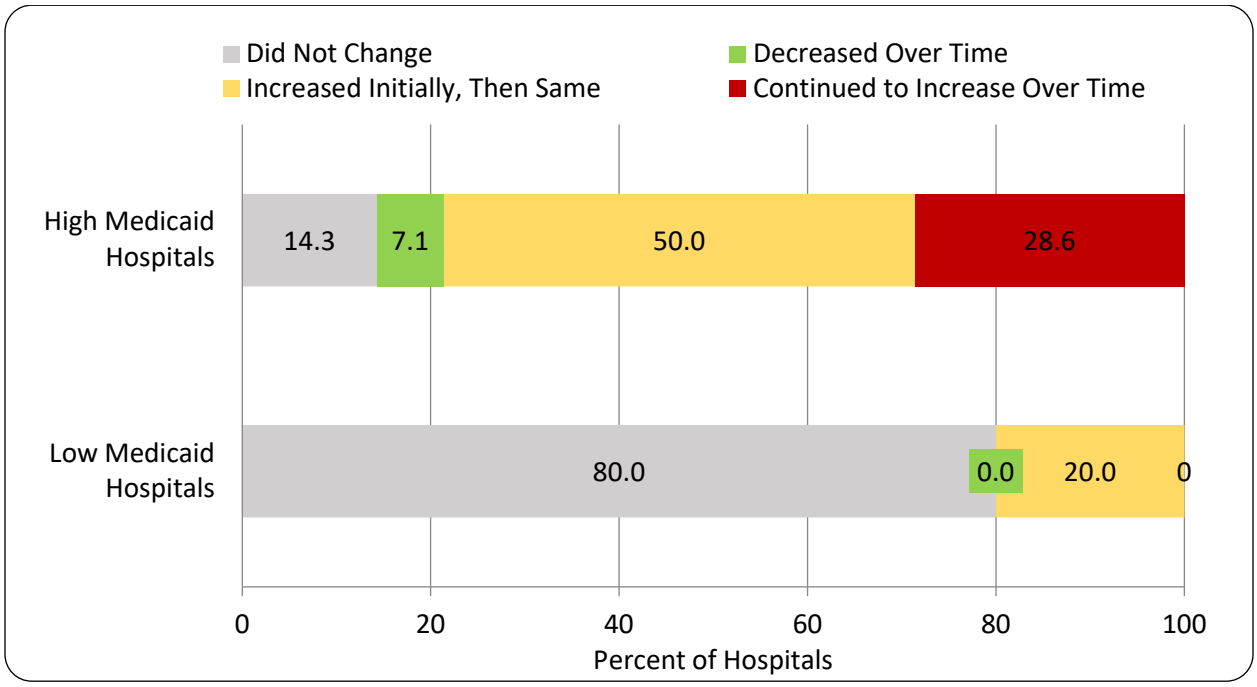
The hospitals were then asked to rate these same program requirements as to whether they did not change, decreased over time, increased initially then remained the same, or continued to increase over time (see Figure 2.4). About four-in-ten of the hospitals felt that the requirements for the Stage 3 and 4 Activities continued to increase over time (both at 40.7%), but this was an improvement from 2015 (69.7% and 52.5%, respectively). As with the clarity of requirements, High Medicaid hospitals were more likely to report that the requirements for the Stage 2 Activities: Chronic Medical Condition Redesign and Management continued to increase over time compared to the Low Medicaid hospitals (28.6% vs. 0.0%, respectively, p=.012) (see Figure 2.4a). None of the other measures differed between High and Low Medicaid hospitals.

Figure 2.4: Perceptions of DSRIP Specifications/Requirements Over Time, Part 2: Scope



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Figure 2.4a: Perceptions of DSRIP Specifications/Requirements Over Time, Part 2: Scope, Chronic Medical Condition Redesign & Management by Medicaid Hospital Group, p=.012



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

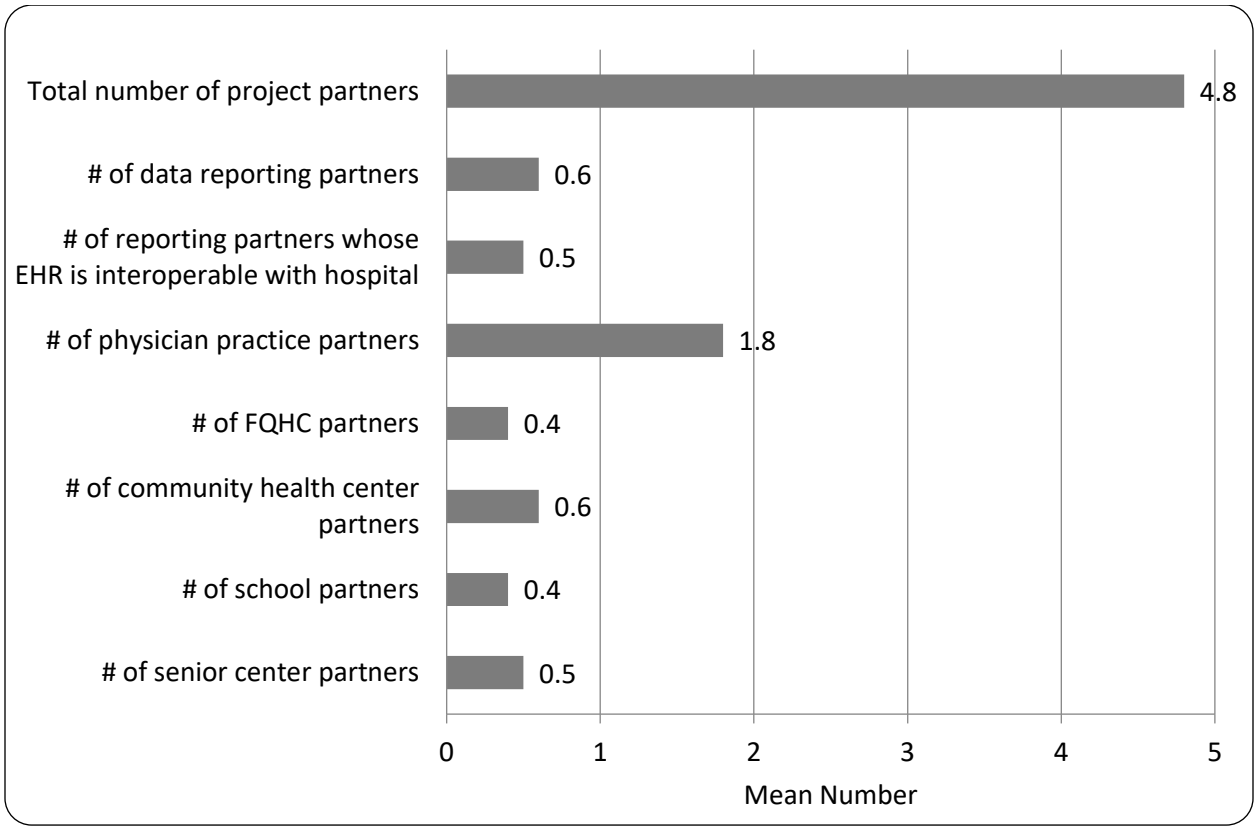
Project Area

About half (48.3%) of the hospitals chose a cardiac project for their DSRIP program and nearly a third chose a diabetes project (31.0%) (see Table 2.1).

Project Partners

The hospitals were asked about their DSRIP project partners, how many of these were data reporting partners, whether these partners had an interoperable electronic health record (EHR) with the hospital, and the number of different types of partners (see Figure 2.5). The participating hospitals average 4.8 project partners (an increase from 4.0 in 2015), 0.6 data reporting partners, and 0.5 partners have an interoperable EHR with the hospital. Most of the project partners were physician practices (average 1.8). High Medicaid hospitals tended to have more senior centers as project partners compared to Low Medicaid hospitals (0.7 vs. 0.0, respectively). None of the other measures differed between High and Low Medicaid hospitals.

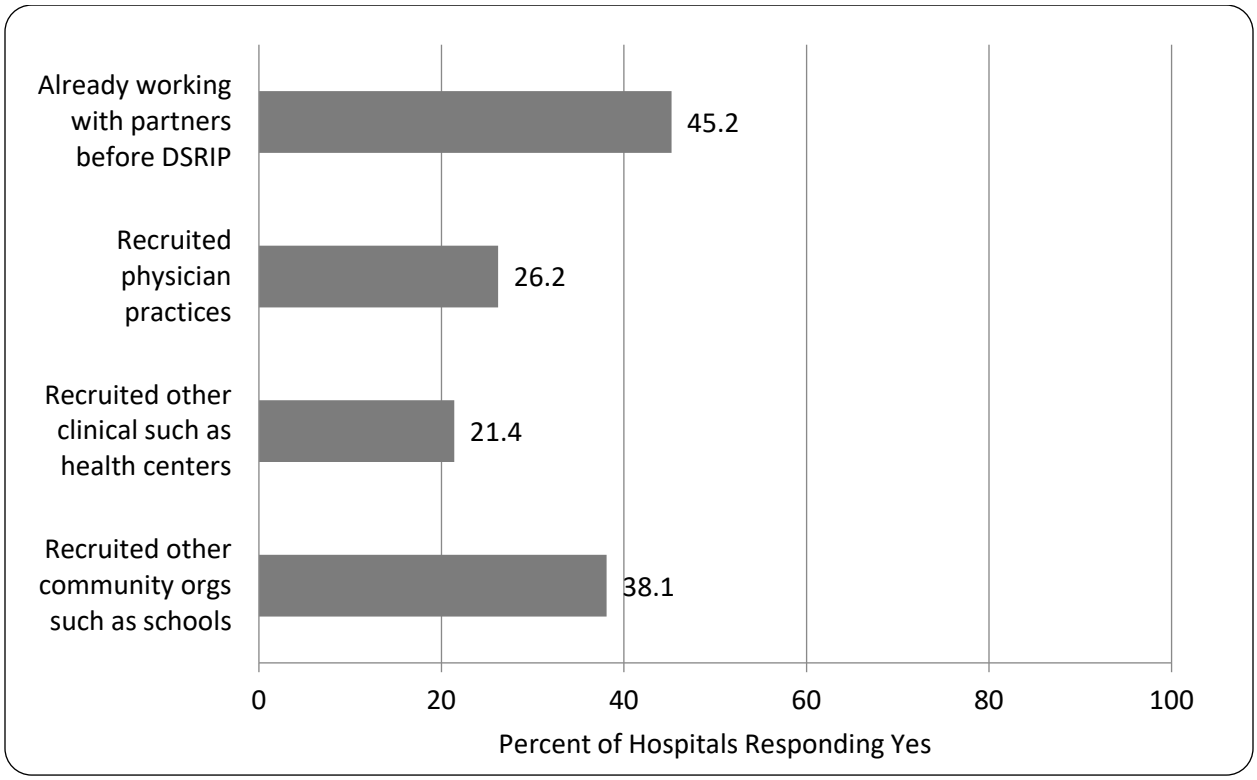
Figure 2.5: Number of Project Partners – Overall, Different Types



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

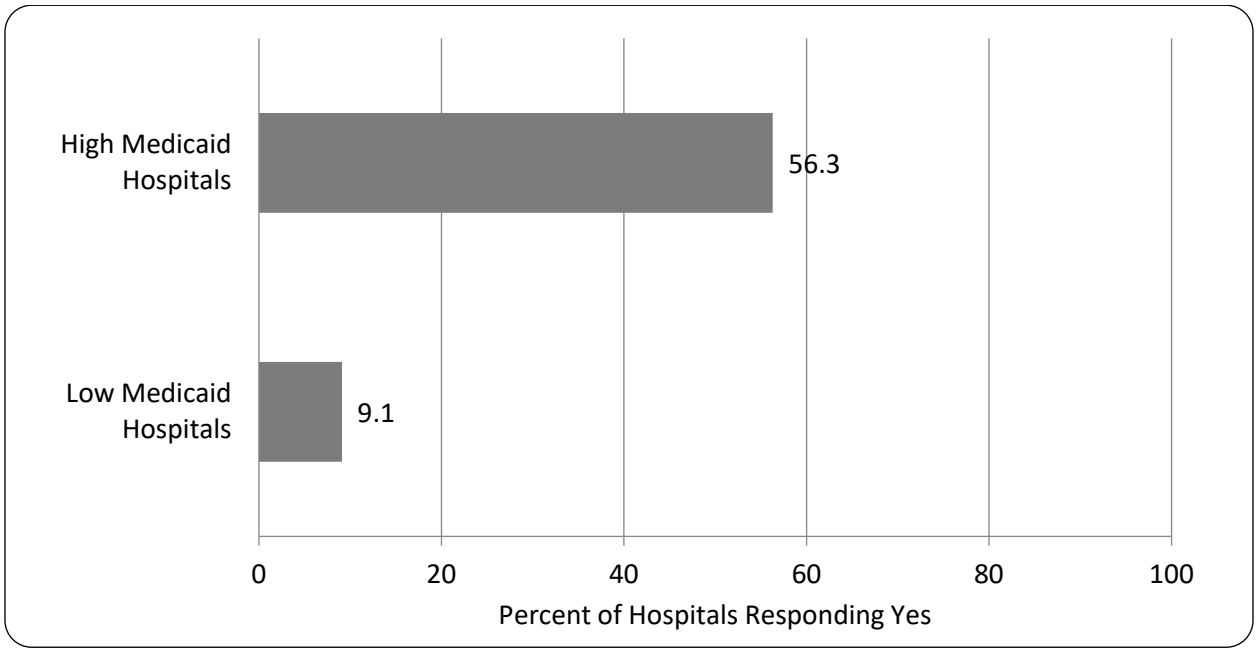
The hospitals were asked how they identified these partners, the impact of the DSRIP program on the relationship with their clinical partners, and if they were unable to recruit some partners because the organizations were unable to share the necessary data or were already participating in the DSRIP program with a different hospital. Almost half (45.2%) of the hospitals reported that they were already working with the partners before DSRIP was implemented (down from 59.5% in 2015) (see Figure 2.6). Nearly four-in-ten (38.1%) recruited other community organizations such as schools to be partners (up from 21.6% in 2015), just over ¼ (26.2%) recruited physician practices as partners (up from 13.5% in 2015), and about one-in-five (21.4%) hospitals recruited other clinical partners such as community health centers (down from 27.0% in 2015). High Medicaid hospitals were more likely than Low Medicaid hospitals to recruit physician practices as partners (56.3% vs. 9.1%, respectively, p=.013) (see Figure 2.6a) or other clinical partners such as community health centers or FQHCs (43.8% vs. 0.0%, respectively, p=.011) (see Figure 2.6b), whereas Low Medicaid hospitals tended to be more likely than High Medicaid hospitals to already be working with partners before DSRIP was implemented (81.8% vs. 50.0%, respectively).

Figure 2.6: Hospital Identification of Project Partners (select all that apply)



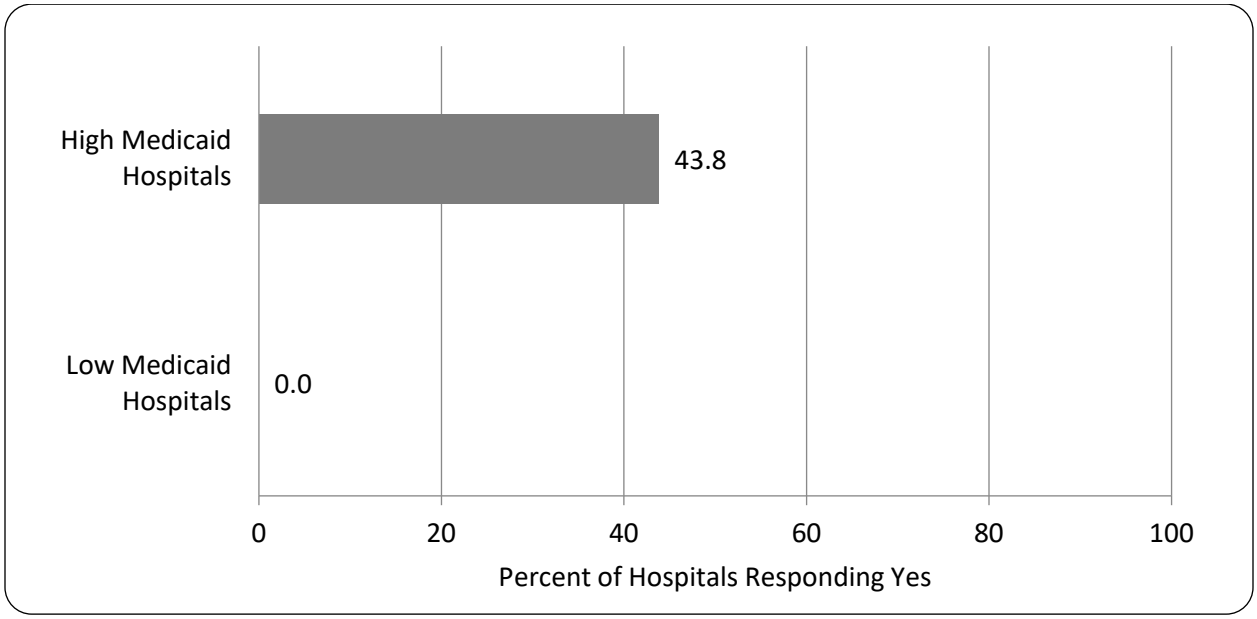
Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Figure 2.6a: Identification of Project Partners, Recruited Physician Practices as Partners by Medicaid Hospital Group, p=.013



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

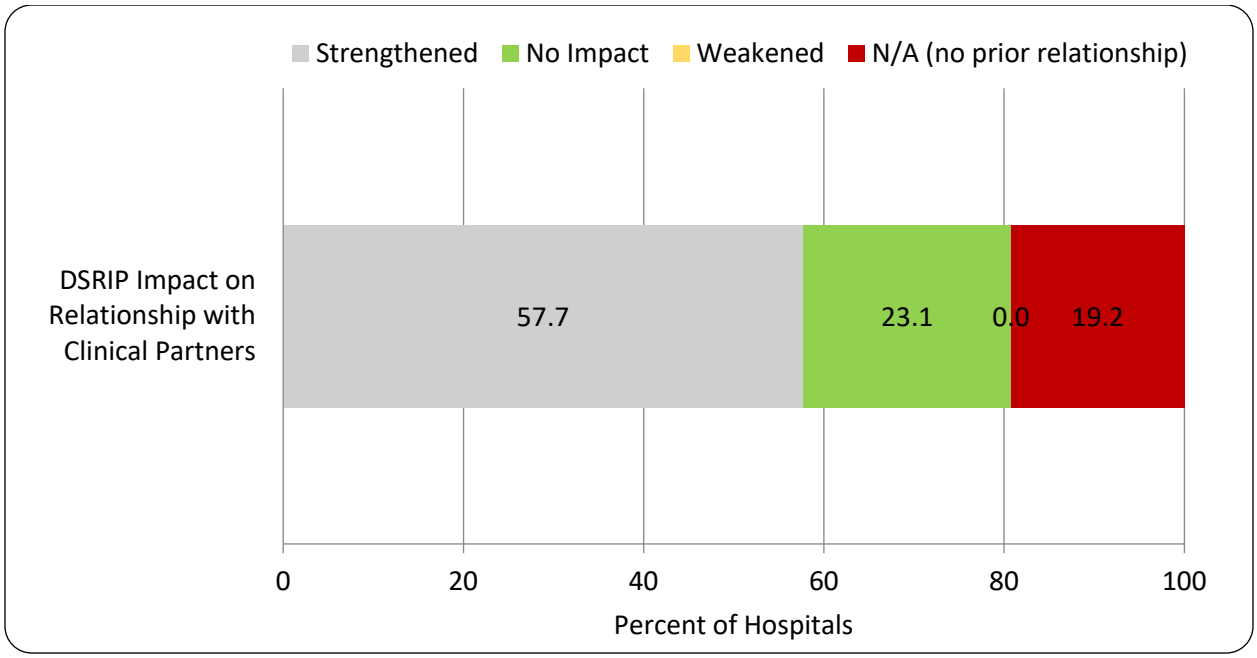
Figure 2.6b: Identification of Project Partners, Recruited Other Clinical Partners (community health centers, FQHCs) by Medicaid Hospital Group, p=.011



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Nearly six-in-ten (57.7%) hospitals reported that the DSRIP program strengthened the relationship with their clinical partners, and no hospitals felt the program weakened this relationship (see Figure 2.7). This did not differ between High and Low Medicaid hospitals.

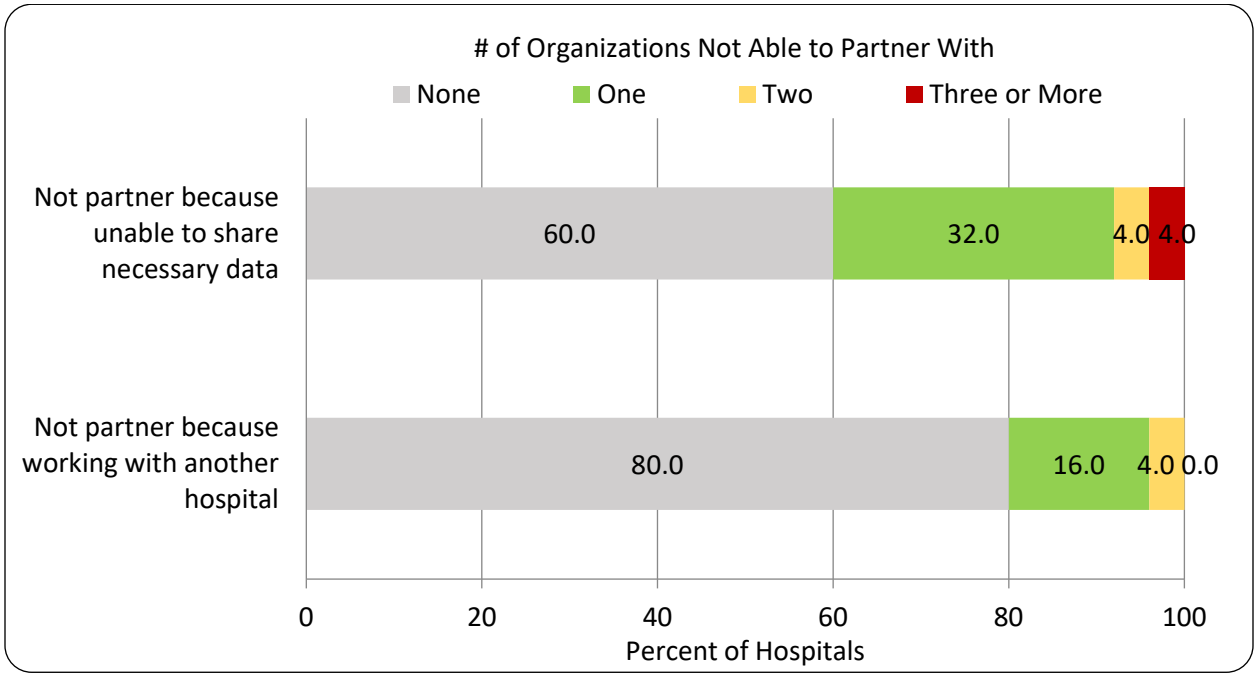
Figure 2.7: DSRIP Impact on Relationship with Clinical Partners



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Forty percent of hospitals reported that they were unable to recruit at least one partner because the organization was not able to share the necessary data (up from 17.2% in 2015) (see Figure 2.8). Twenty percent of hospitals reported that they were unable to recruit a partner because the organization was already participating in the DSRIP program with a different hospital (up from 6.9% in 2015). High Medicaid hospitals were more likely than Low Medicaid hospitals to be unable to recruit at least one partner because the organization was not able to share the necessary data (69.2% vs. 30.8%, respectively) and to be unable to recruit a partner because the organization was already participating in the DSRIP program with a different hospital (58.8% vs. 41.2%, respectively).

Figure 2.8: Reasons for Not Establishing a Reporting Partner Relationship with Organizations

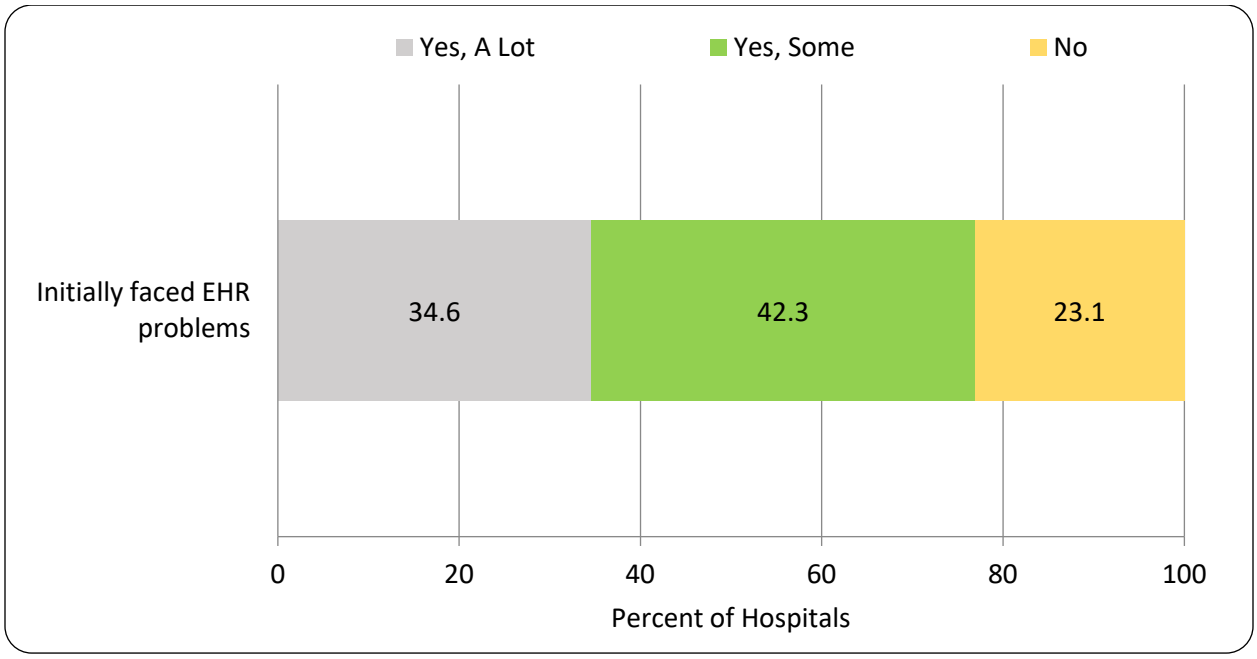


Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

EHR Interoperability with DSRIP Metrics

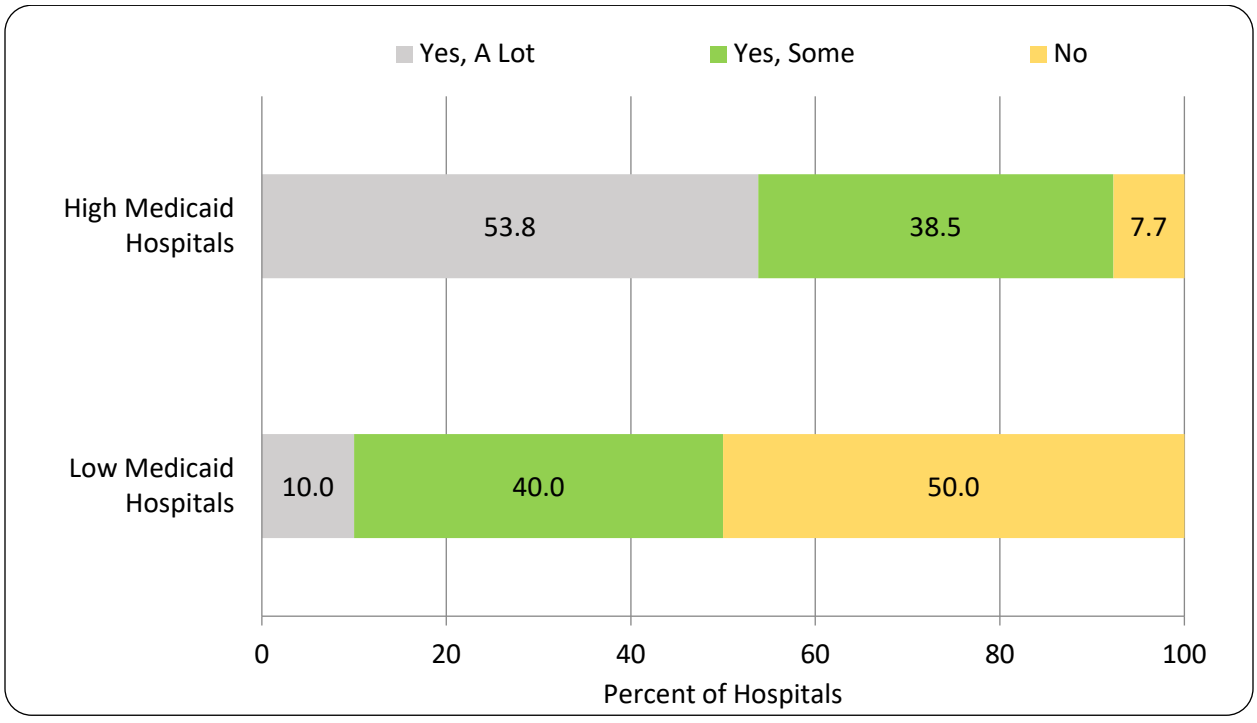
Over 1/3 (34.6%) of hospitals reported that they initially faced a lot of EHR problems related to interoperability and reporting requirements, and over four-in-ten (42.3%) reported some problems (see Figure 2.9). High Medicaid hospitals were much more likely than Low Medicaid hospitals to face a lot of EHR problems (53.8% vs. 10.0%, p=.03) (see Figure 2.9a).

Figure 2.9: Initially Faced EHR Problems Related to Interoperability & Reporting Requirements



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

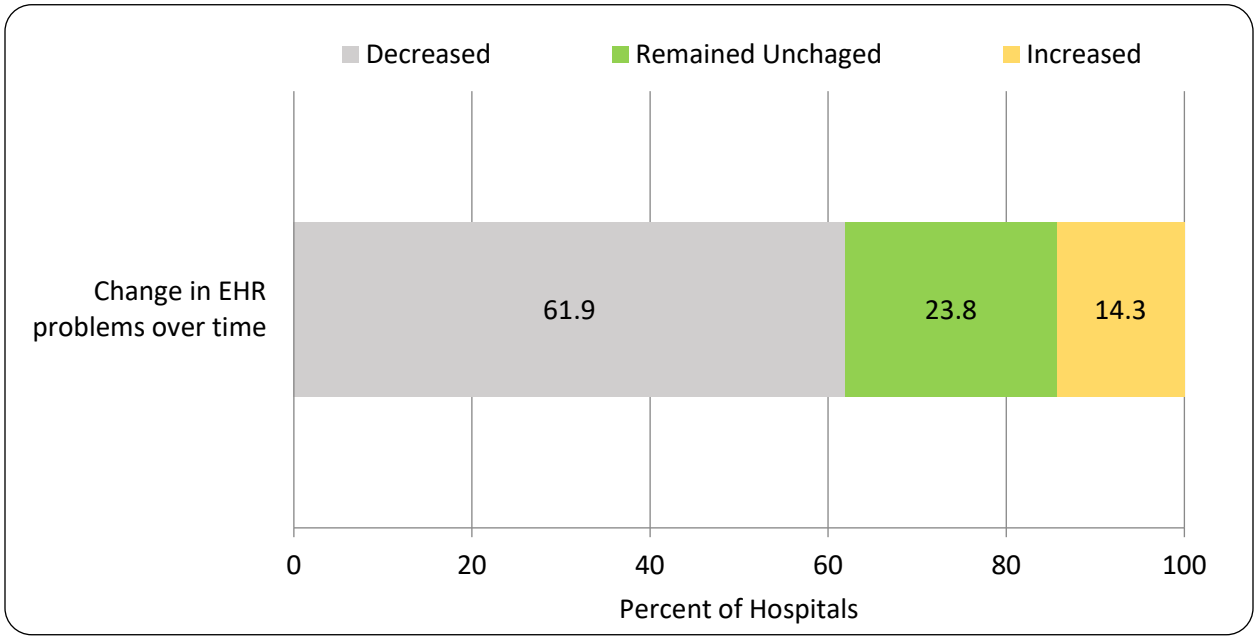
Figure 2.9a: Initially Faced EHR Problems Related to Interoperability & Reporting Requirements by Hospital Medicaid Group, p=.03



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

About six-in-ten (61.9%) hospitals reported that EHR problems related to interoperability and reporting requirements had decreased over time, and only a few (14.3%) reported that these problems had increased over time (see Figure 2.10). This did not differ between the Medicaid hospital groups.

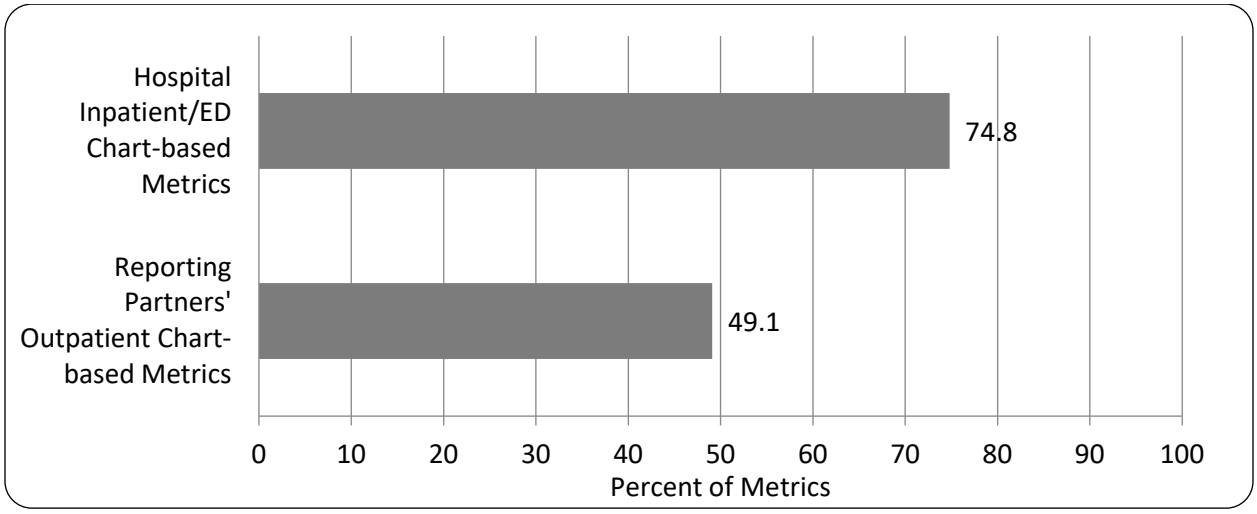
Figure 2.10: Change in EHR Problems Related to Interoperability & Reporting Requirements Over Time



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

About ¾ (74.8%) of the Stage 4 hospital inpatient/ED chart-based metrics were obtainable from the hospitals' EHR (up considerably from 42.7% in 2015) (see Figure 2.11), and this did not differ between the High and Low Medicaid hospitals (the mid-point value of the response category chosen was assigned to each hospital). For the hospitals' data reporting partners, nearly half (49.1%) of their outpatient chart-based metrics were obtainable from an EHR (up from 27.4% in 2015), and this also did not differ between the Medicaid hospital groups.

Figure 2.11: Percent of Stage 4 Metrics Obtainable from Electronic Health Record (EHR) during Demonstration Year 5

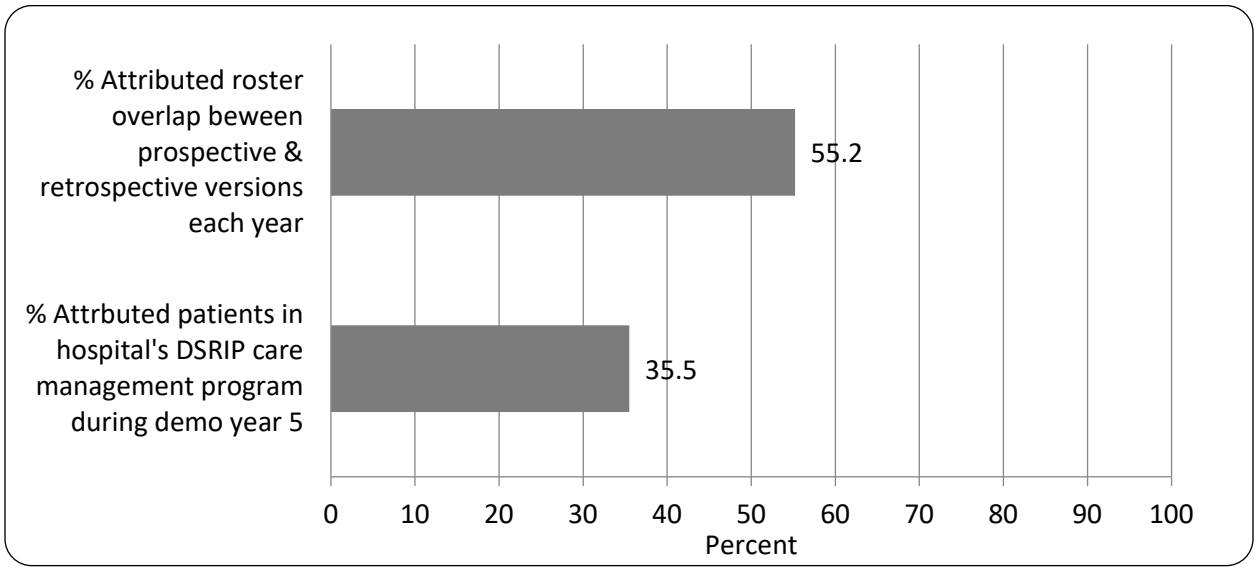


Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Attribution Rosters

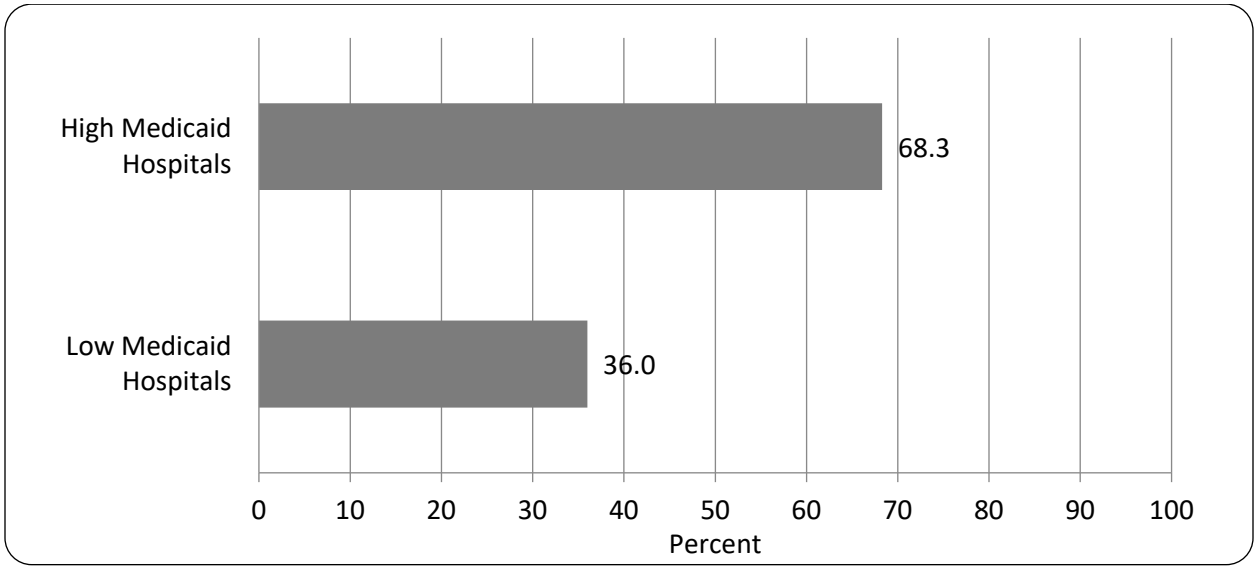
Hospitals reported that, on average, more than half (55.2%) of their attribution rosters overlapped between the prospective and retrospective versions each year, and just over 1/3 (35.5%) of their final attributed patients were included in their DSRIP care management project during demonstration year 5 (see Figure 2.12). High Medicaid hospitals had much more attribution roster overlap than Low Medicaid hospitals (68.3% vs. 36.0%, p=.002) (see Figure 2.12a), but Low Medicaid hospitals tended to have more of their final attributed patients in their DSRIP project during demonstration year 5 (50.0% vs. 25.4%).

Figure 2.12: Attributed Patient List



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

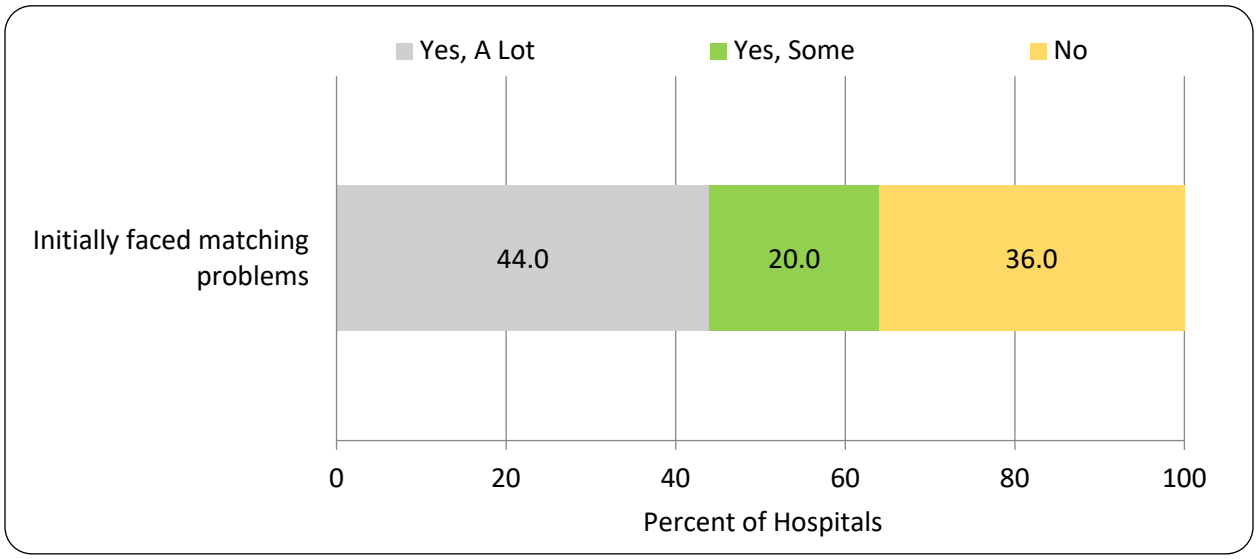
Figure 2.12a: Attributed Patient List: Percent of Attribution Roster Overlap between Prospective & Retrospective Versions Each Year by Hospital Medicaid Group, p=.002



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

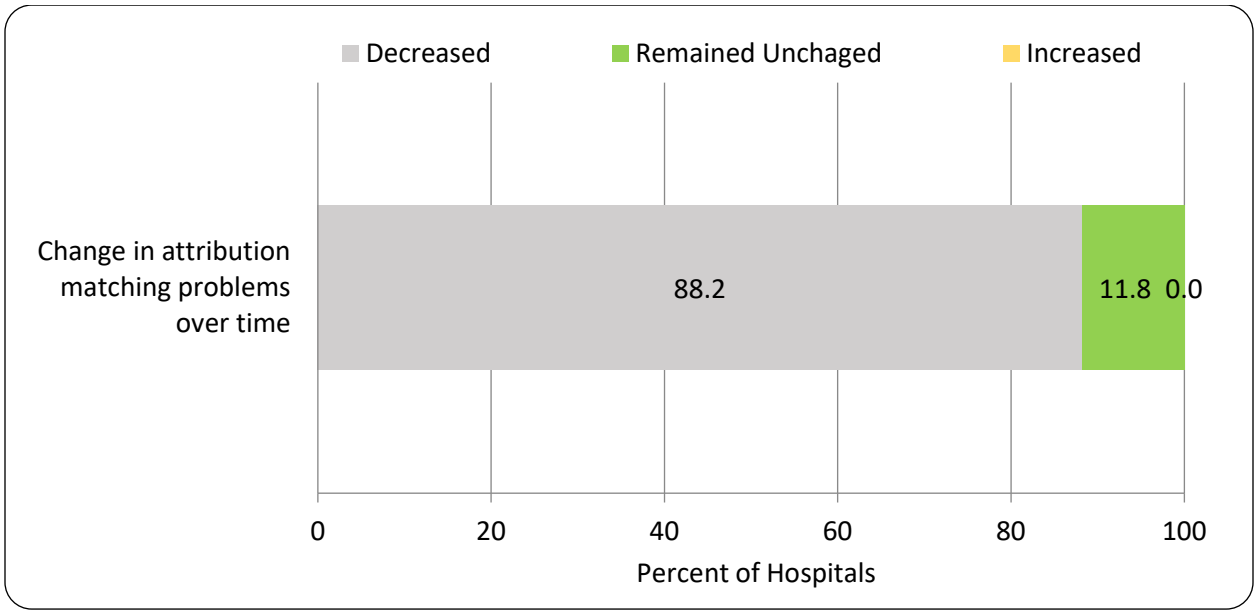
More than four-in-ten (44.0%) hospitals reported they initially faced a lot of problems matching the population enrolled in their DSRIP program intervention with the low income patients on their DSRIP patient attribution roster (see Figure 2.13). Another 20 percent faced some problems. However, most (88.2%) hospitals reported that these attribution-related problems decreased over time (see Figure 2.14). Neither of these measures differed between the Medicaid hospital groups.

Figure 2.13: Initially Faced Problems Matching DSRIP-Enrolled Population with Low Income Patients on DSRIP Attribution Roster



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Figure 2.14: Change in Matching Problems Related to Attribution Roster Over Time



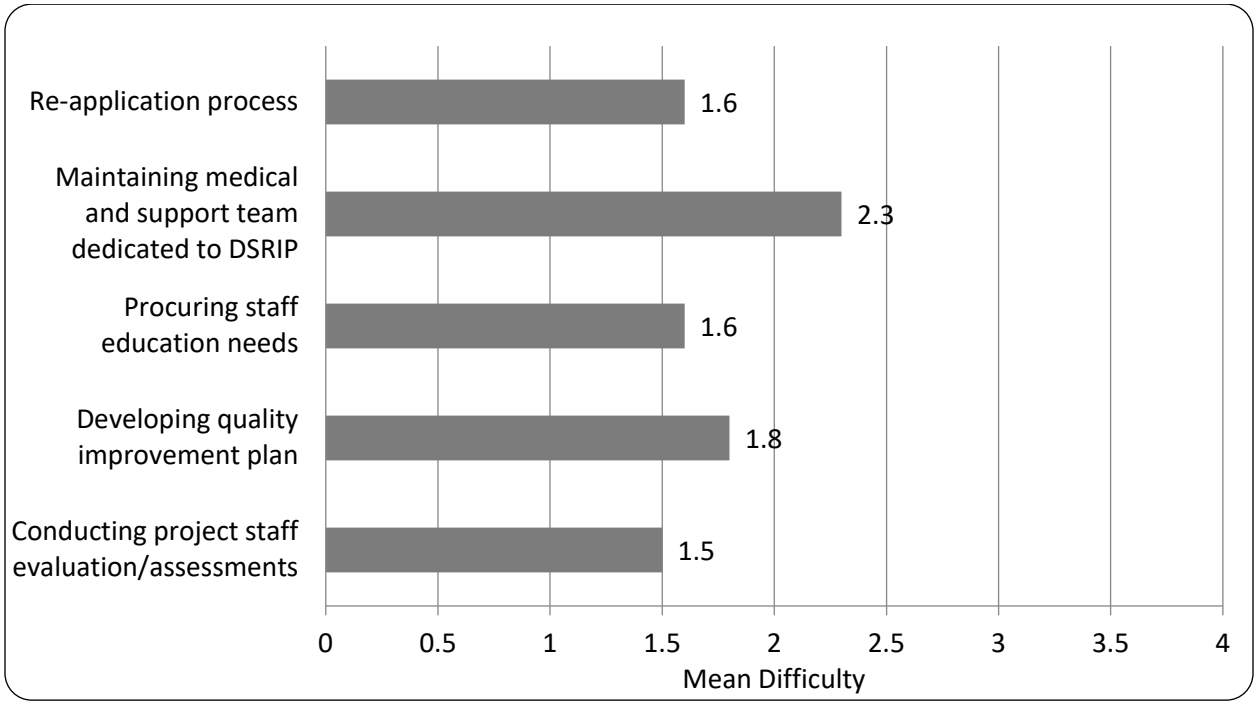
Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Perceptions about Specific Aspects of the DSRIP Program

The hospitals were asked to rate the level of difficulty experienced on a four-point scale (no difficulty=1, minor difficulty=2, moderate difficulty=3, major difficulty=4) in dealing with the following aspects of the DSRIP program: re-application process, Stage 1 activities, Stage 2 activities, Stage 3 project-specific metrics, and Stage 4 universal metrics.

The re-application process was rated by the hospitals as low difficulty (average rating=1.6, down from 3.0 for the application process in 2015) and this did not differ between the High and Low Medicaid hospitals (see Figure 2.15).

Figure 2.15: Difficulty with Re-application Process & DSRIP Stage 1 Activities: Infrastructure Development (1=none, 4=major difficulty)



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

The following Stage 1 activities were rated:

- Maintaining a multi-therapeutic medical and support team dedicated to DSRIP
- Procuring staff education needs
- Developing a quality improvement plan
- Conduct project staff evaluations/assessments

There were only slight changes in these ratings compared to 2015. Among these Stage 1 activities, maintaining a multi-therapeutic medical and support team dedicated to DSRIP was rated as slightly more difficult than the others (average rating=2.5, up from 2.3 in 2015). Conducting project staff valuations/assessments was rated as least difficult (rating=1.5, same as 2015 rating). None of the ratings for these Stage 1 activities differed between the High and Low Medicaid hospitals.

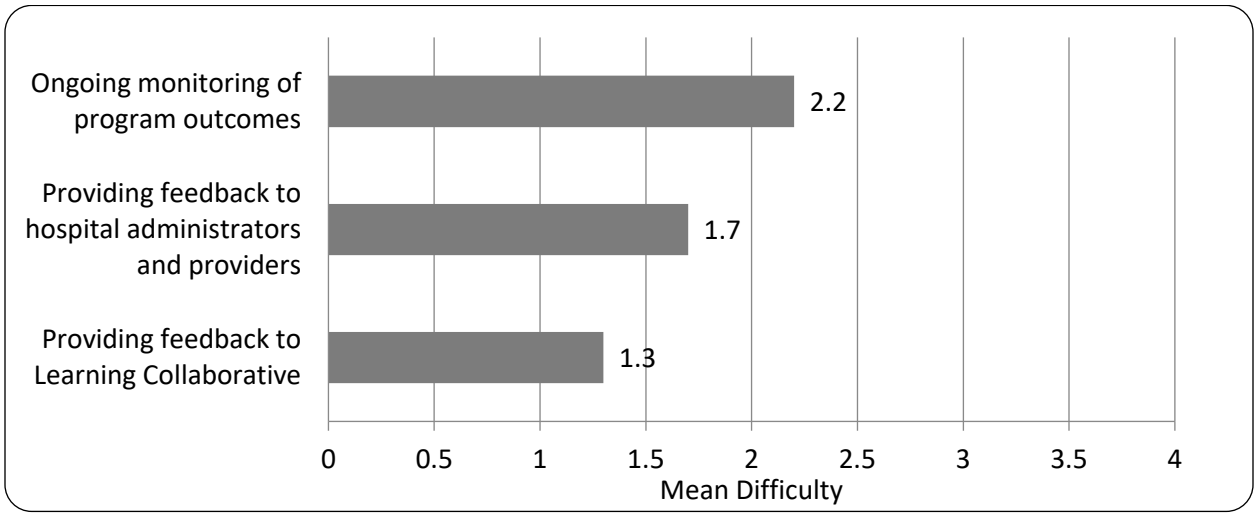
The following Stage 2 activities were rated:

- Ongoing monitoring of program outcomes
- Providing feedback to hospital administrators and participating providers
- Providing feedback to Learning Collaborative

There were also only slight changes in these ratings compared to 2015. Among these Stage 2 activities, ongoing monitoring of program outcomes was rated as slightly more difficult, but still

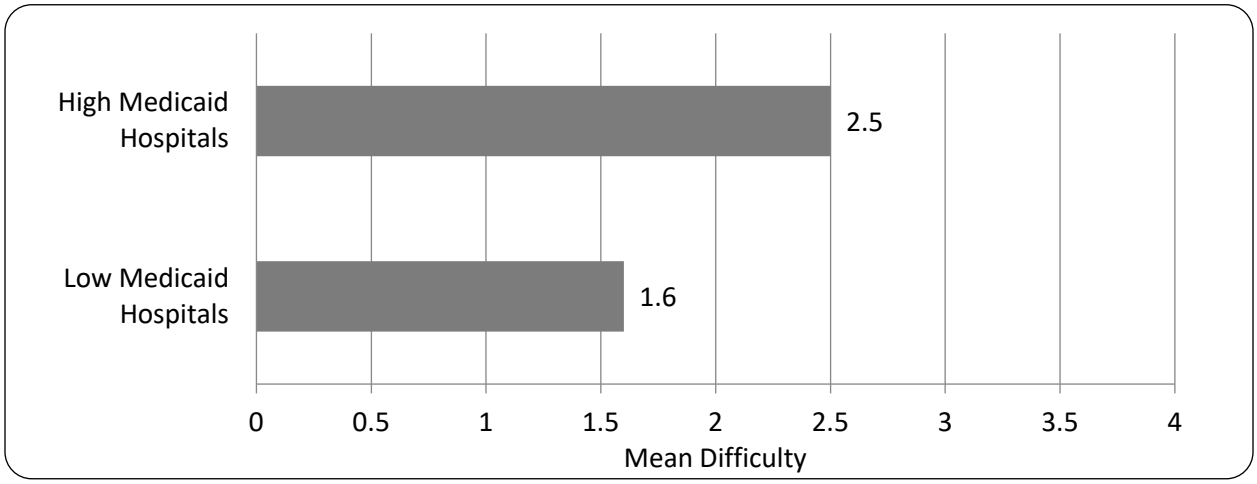
considered just above the minor difficulty level (average rating=2.3, down from 2.5 in 2015) (see Figure 2.16). Providing feedback to the Learning Collaborative was rated as least difficult (rating=1.3, down from 1.5 in 2015), followed by providing feedback to hospital administrators and participating providers (rating=1.7, up slightly from 1.6 in 2015). High Medicaid hospitals reported more difficulty than Low Medicaid hospitals with ongoing monitoring of program outcomes (2.5 vs. 1.6, respectively, p=.006) (see Figure 2.16a), and High Medicaid hospitals tended to report more difficulty than Low Medicaid hospitals with providing feedback to hospital administrators and participating providers (1.8 vs. 1.3, respectively).

Figure 2.16: Difficulty with DSRIP Stage 2 Activities: Chronic Medical Condition Redesign & Management (1=none, 4=major difficulty)



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Figure 2.16a: Difficulty with DSRIP Stage 2 Activities: Chronic Medical Condition Redesign & Management: Ongoing Monitoring of Program Outcomes by Hospital Medicaid Group, p=.006 (1=none, 4=major difficulty)



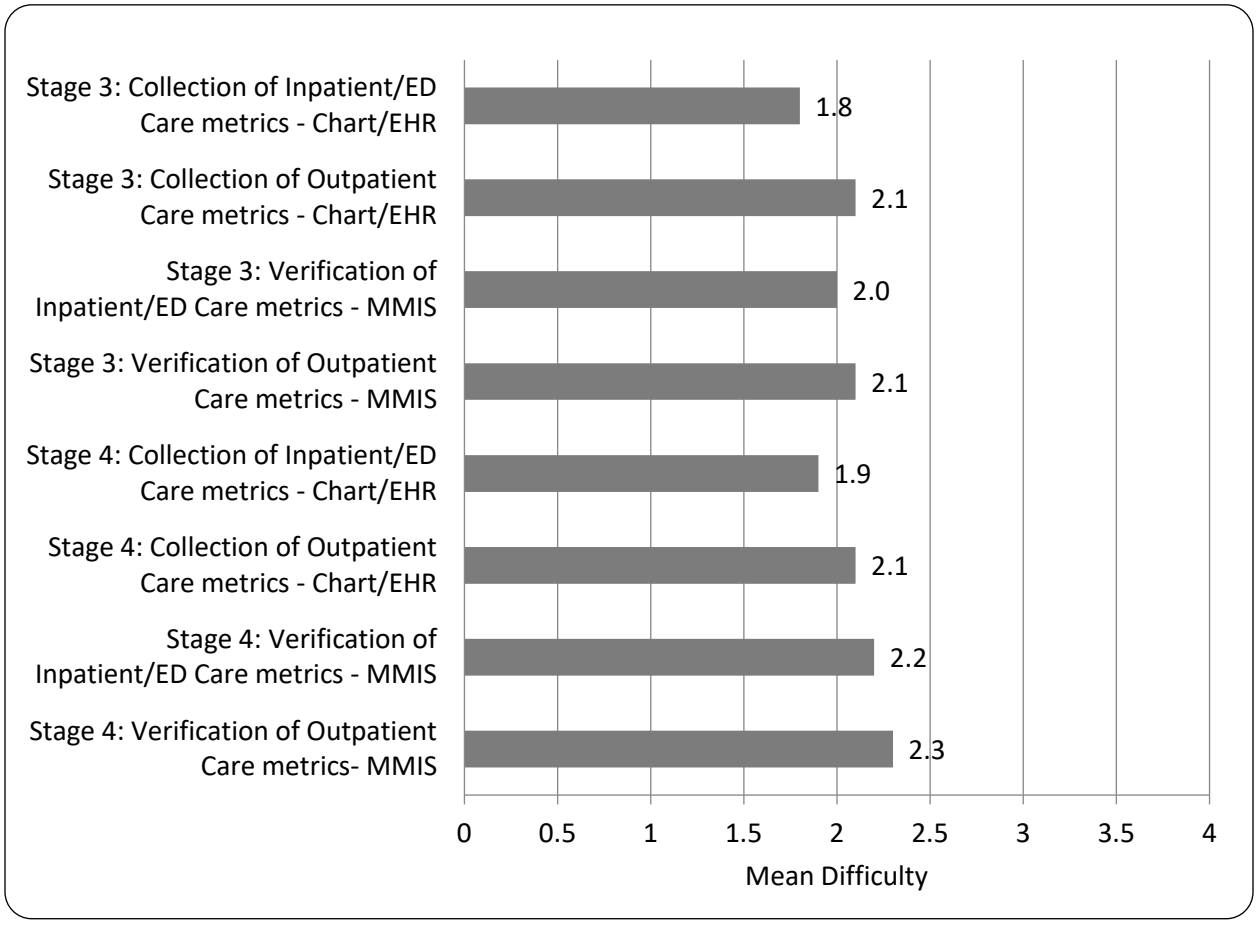
Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

The following Stage 3 project-specific metric-related activities were rated:

- Collection of hospital inpatient or ED care metrics from chart/EHR
- Collection of outpatient care metrics from chart/EHR
- Verification of hospital inpatient or ED care metrics from MMIS
- Verification of outpatient care or multi-setting care metrics from MMIS

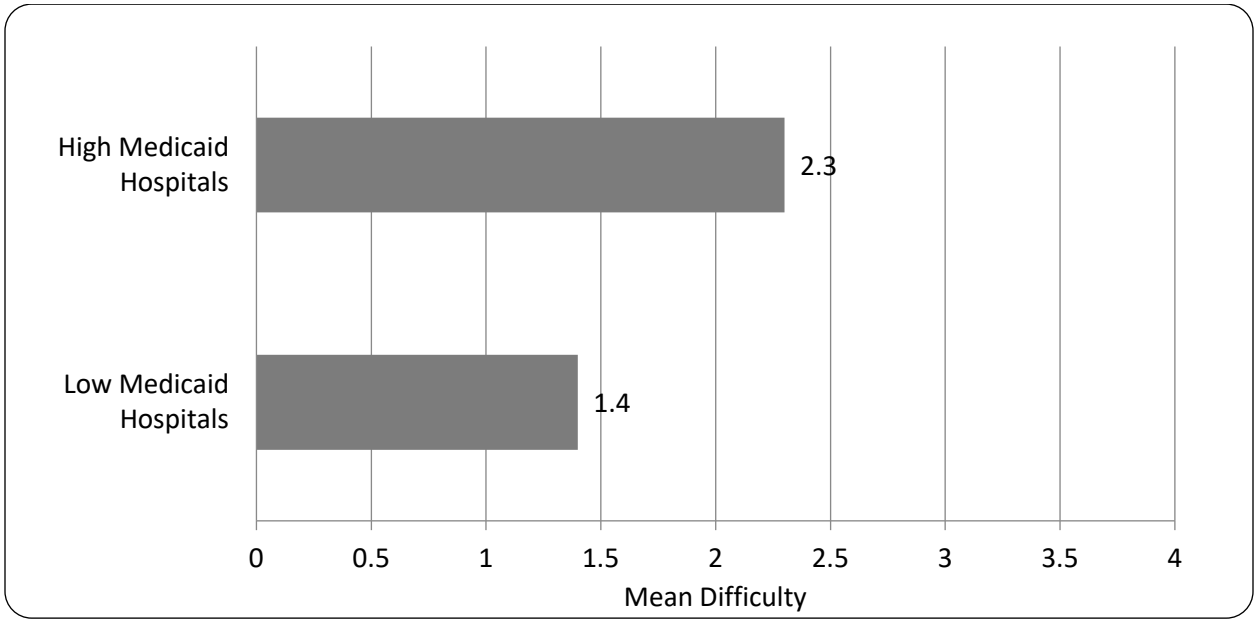
All of the Stage 3 project-specific metrics were rated as less difficult than the 2015 ratings by at least one full point. Collection and verification of the outpatient project-specific metrics (both ratings=2.1, down from 3.5 in 2015) were rated by the hospitals as slightly more difficult than collection and verification of the hospital inpatient/ED project-specific metrics (1.8 and 2.0 respectively, down from 3.2 for both in 2015) (see Figure 2.17). High Medicaid hospitals rated both verification measures as more difficult than the Low Medicaid hospitals (2.3 vs. 1.4 for the inpatient measure, p=.026; 2.5 vs. 1.5 for the outpatient measure, p=.015) (see Figures 2.17a and 2.17b).

Figure 2.17: Difficulty with DSRIP Data Requirements during Demonstration Year 5 (1=none, 4=major difficulty)



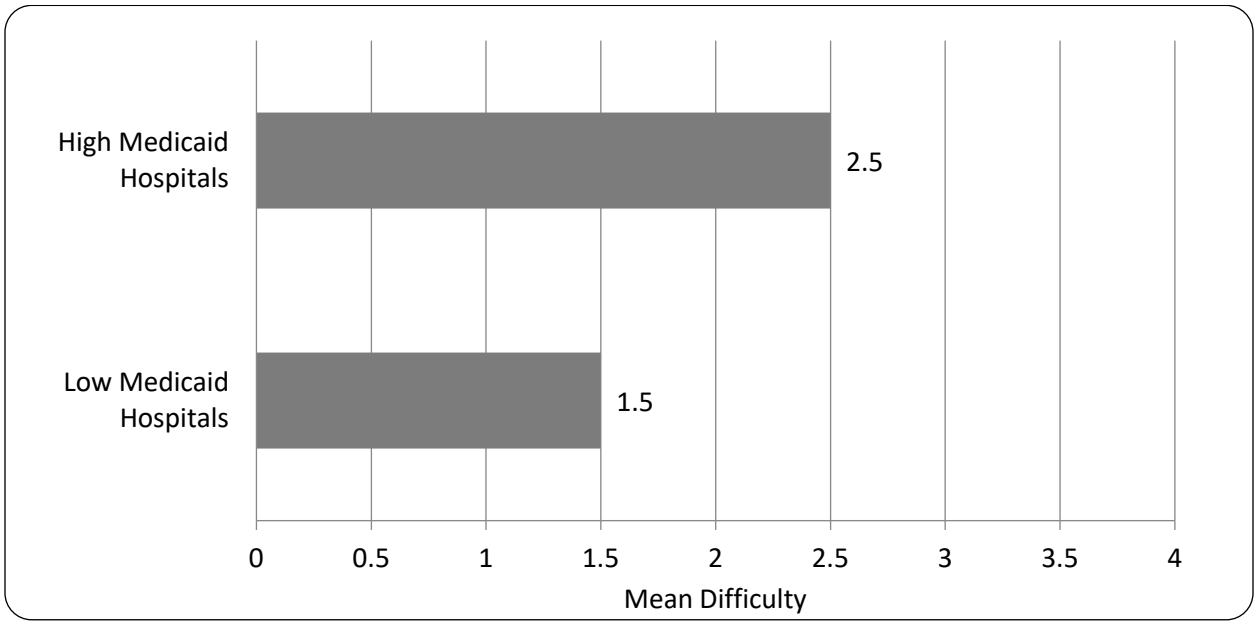
Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Figure 2.17a: Difficulty with DSRIP Data Requirements: Stage 3 Verification of Inpatient/ED Care Metrics (MMIS) by Medicaid Hospital Group, p=.026 (1=none, 4=major difficulty)



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Figure 2.17b: Difficulty with DSRIP Data Requirements: Stage 3 Verification of Outpatient/Multi-Setting Care Metrics (MMIS) by Medicaid Hospital Group, p=.015 (1=none, 4=major difficulty)



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

The following Stage 4 universal metric-related activities were rated:

- Collection of hospital inpatient or ED care metrics from chart/EHR
- Collection of outpatient care metrics from chart/EHR
- Verification of hospital inpatient or ED care metrics from MMIS
- Verification of outpatient care or multi-setting care metrics from MMIS

All of the Stage 4 universal metrics were also rated as less difficult than the 2015 ratings by at least one full point. Likewise, collection and verification of the outpatient universal metrics (ratings=2.1 and 2.3, respectively, down from 3.5 and 3.4 in 2015) were rated by the hospitals as more difficult than collection and verification of the hospital/ED universal metrics (ratings=1.9 and 2.2, respectively, down from 3.2 for both in 2015) (see Figure 2.17). High Medicaid hospitals tended to rate collection of the hospital/ED universal metrics as more difficult than the Low Medicaid hospitals. None of these measures differed between High and Low Medicaid hospitals.

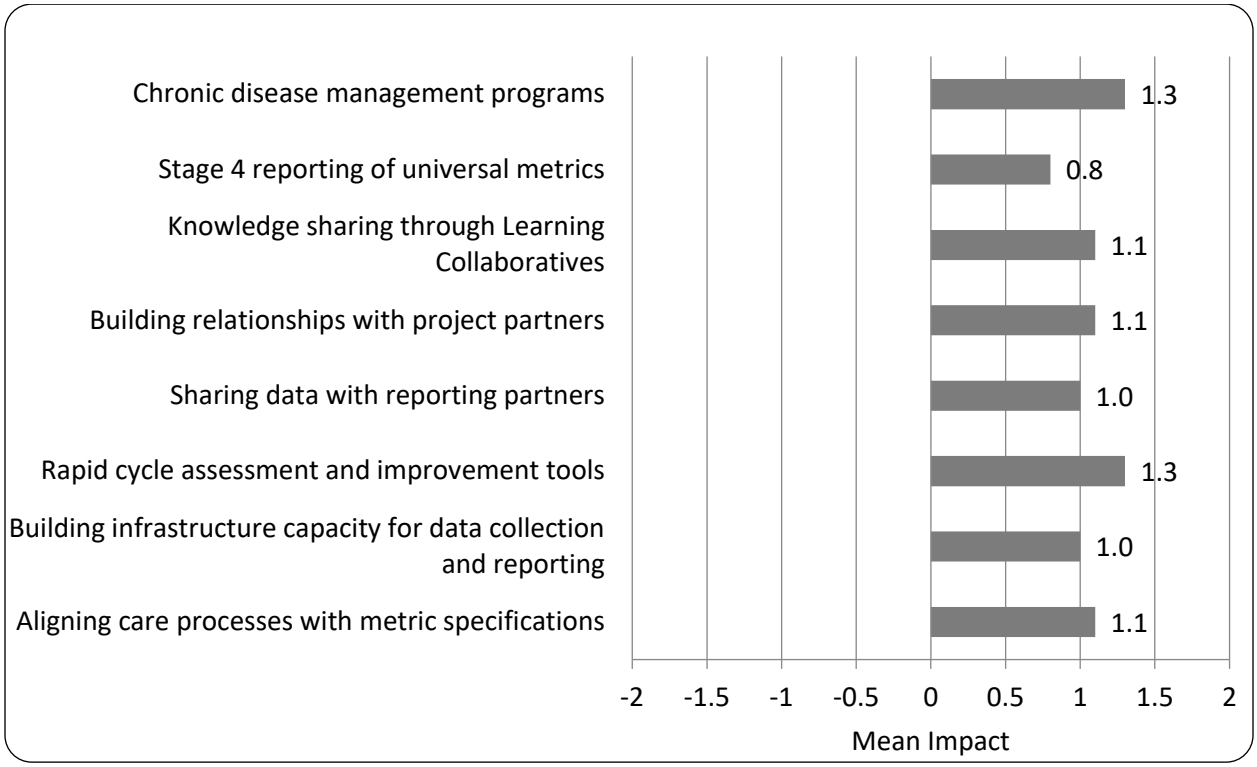
Overall Impact of DSRIP Components on Quality of Care and Population Health

The hospitals were asked to rate on a five-point scale (-2=substantially negative, -1=moderately negative, 0=little or no impact, 1=moderately positive, 2=substantially positive) the following aspects of the DSRIP program for their impact on quality of care and population health (or health outcomes):

- Chronic disease management programs
- Stage 4 reporting of universal metrics
- Knowledge sharing through Learning Collaboratives
- Building relationships with project partners
- Sharing data with reporting partners
- Rapid cycle assessment and improvement tools
- Building infrastructure capacity for data collection and reporting
- Aligning care processes with metric specifications

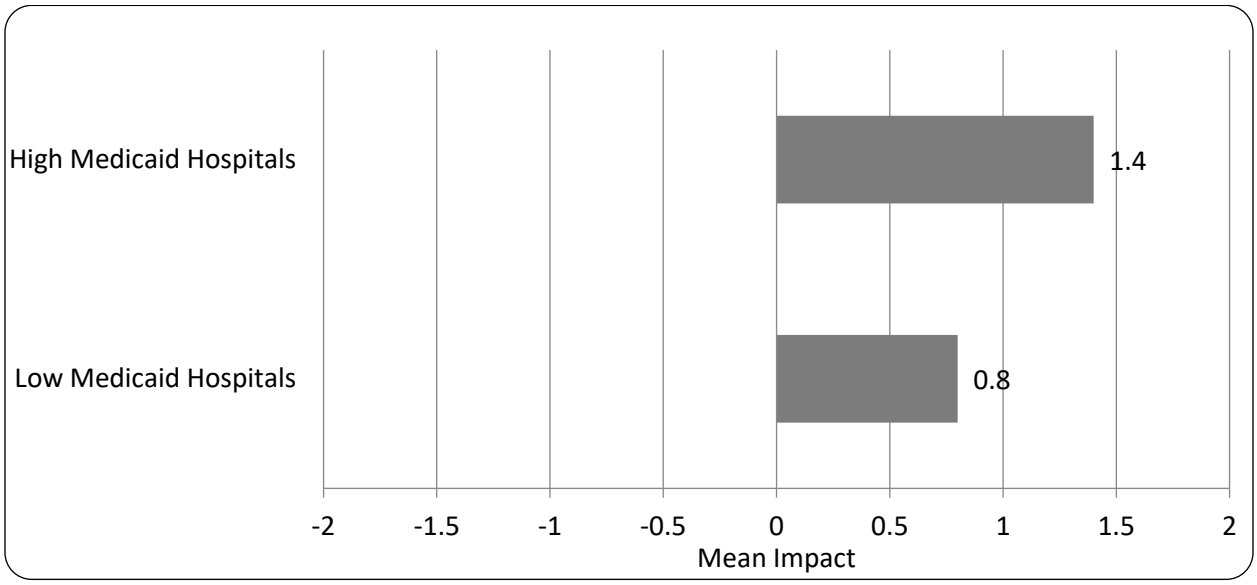
There were only slight changes in most of these ratings compared to 2015, and all of the ratings were still positive (see Figure 2.18). The chronic disease management programs and rapid cycle assessment/improvement tools (both ratings=1.3, up from 1.2 and 1.1, respectively, in 2015) were rated as having the most positive impact on quality of care and population health (both ratings=1.3, up from 1.2 and 1.1, respectively, in 2015). The Stage 4 reporting of universal metrics was rated as having the lowest impact on quality of care and population health, although it was still rated as positive on average (impact rating=0.8, up from 0.4 in 2015). High Medicaid hospitals rating building relationship with project partners as having a more positive impact than Low Medicaid hospitals (1.4 vs. 0.8, respectively, p=.039) (see Figure 2.18a). None of the other program aspects differed between High and Low Medicaid hospitals.

Figure 2.18: Impact of DSRIP Components on Quality of Care and Population Health (-2=very negative, 2=very positive)



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Figure 2.18a: Impact of DSRIP Components on Quality of Care and Population Health: Building Relationships with Project Partners by Hospital Medicaid Group, p=.039 (-2=very negative, 2=very positive)



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

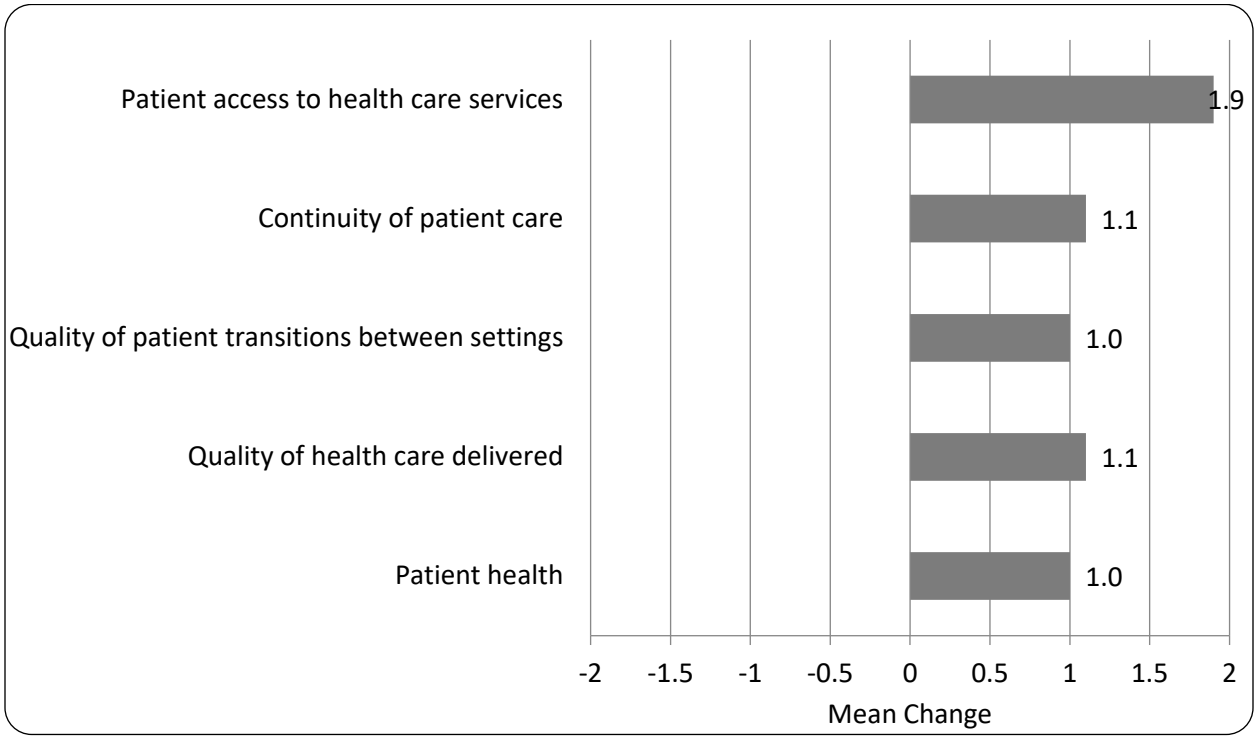
Community Health-Related Changes as a Result of DSRIP Activities

The hospitals were asked to rate on a five-point scale (-2=substantial worsening, -1=some worsening, 0=little or no impact/too early to assess, 1=some improvement, 2=substantial improvement) changes in the following health-related aspects of their community as a result of DSRIP activities:

- Patient access to health care services
- Continuity of patient care
- Quality of patient transitions between care settings
- Quality of health care delivered
- Patient health

All of these measures of change were rated positively and as "some improvement" by the hospitals, but there were few changes from the 2015 ratings. The one exception was patient access to health care services which improved by over a point (rating=1.9, up from 0.8 in 2015) (see Figure 2.19). None of these ratings differed between the High and Low Medicaid hospitals.

Figure 2.19: Changes in Community Health Due to DSRIP (-2=substantial worsening, 2=substantial improvement)

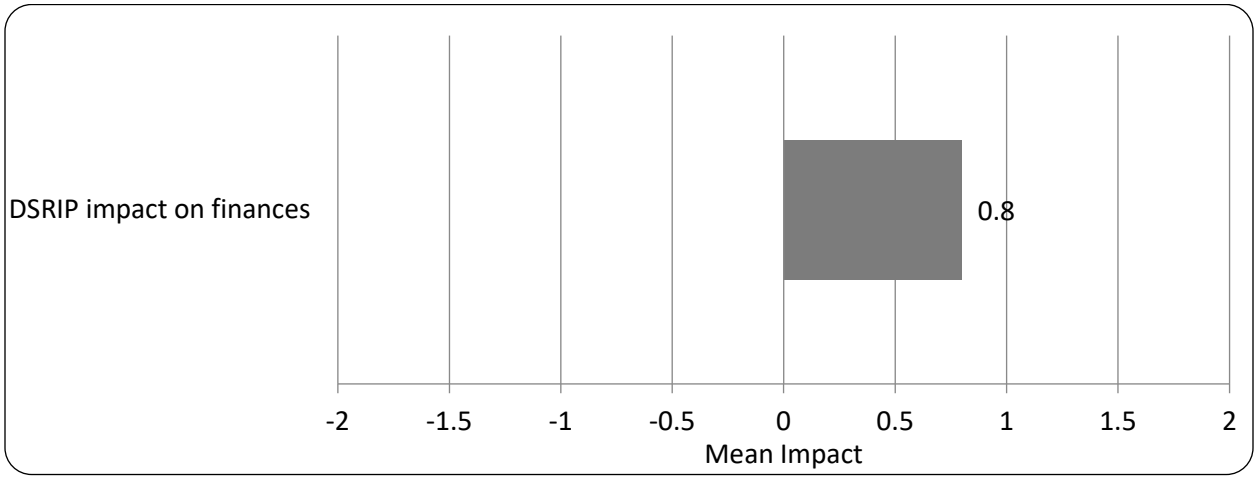


Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Overall Impact of DSRIP Program on Hospital Finances

The hospitals were asked to also rate on a five-point scale (-2=very negative, -1=negative, 0=no impact, 1=positive, 2=very positive) the impact of the DSRIP program on their hospital's finances. Overall, the hospitals gave a positive rating to the financial impact of DSRIP on their own hospital's finances (rating=0.8, up from a slightly negative rating of -0.1 in 2015) (see Figure 2.20), and this did not differ between the High and Low Medicaid hospitals.

Figure 2.20: Impact of DSRIP Program on Hospital Finances (-2=very negative, 2=very positive)



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Usefulness of Learning Collaborative Activities and Other DSRIP Resources

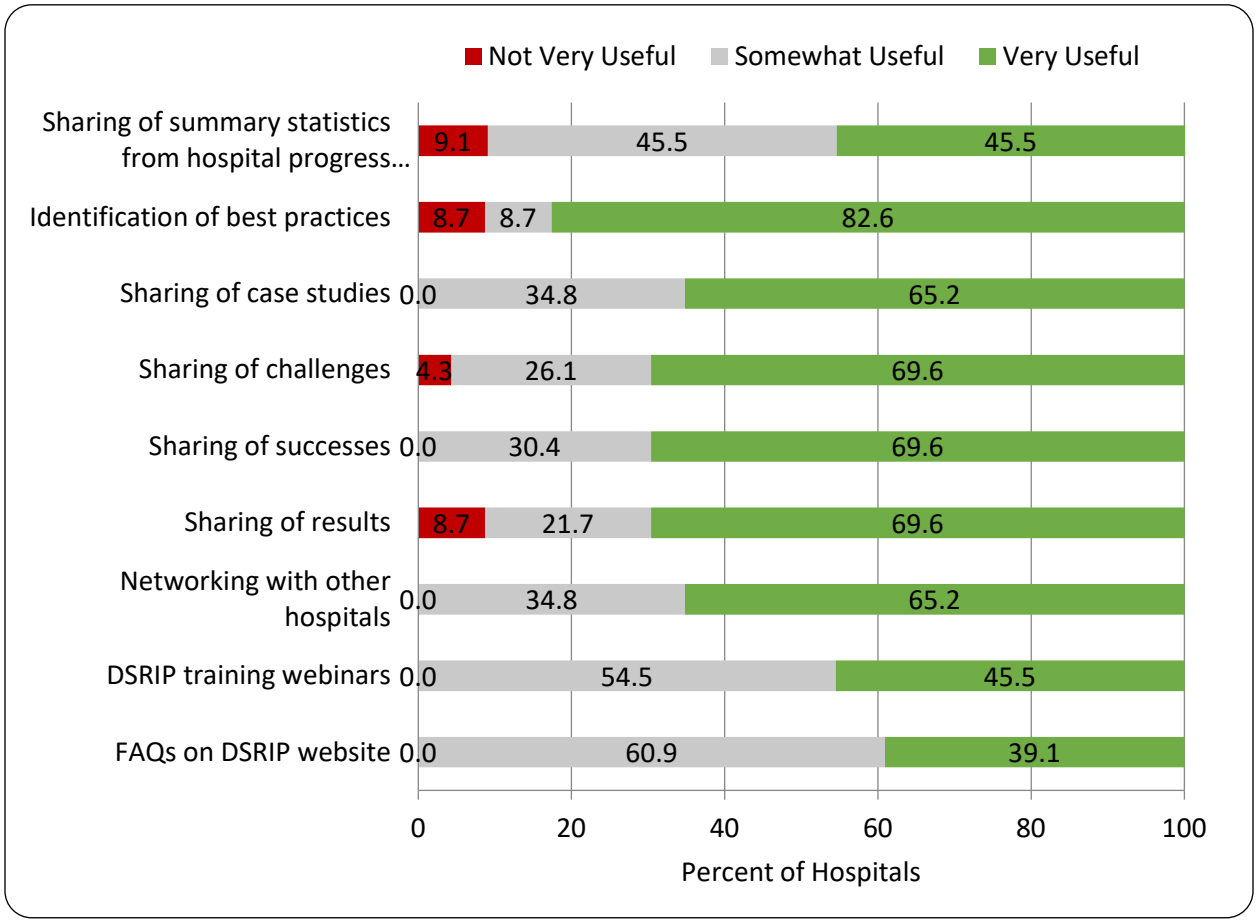
The hospitals were then asked to rate how useful the following Learning Collaborative activities were to their hospital:

- Sharing of summary statistics based on data from hospitals' progress reports and monthly Learning Collaborative surveys
- Identification of best practices
- Sharing of case studies
- Sharing of challenges
- Sharing of successes
- Sharing of results
- Networking with other hospitals

All of these measures were rated as substantially more useful than in 2015. Identification of best practices was rated as most useful (82.6% of the hospitals rated this as very useful, up from 45.2% in 2015), followed by sharing of challenges, sharing of successes, and sharing of results (69.6% rated as very useful for all three measures, up from 58.1%, 48.4%, and 38.7, respectively, in 2015) (see Figure 2.21). Less than half (45.5%) of hospitals rated as very useful the sharing of summary

statistics from hospital progress reports and Learning Collaborative surveys. None of these measures differed between High and Low Medicaid hospitals.

Figure 2.21: Usefulness of Learning Collaborative Activities and Other DSRIP Resources



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

The hospitals also rated the usefulness to their hospital of two other DSRIP resources:

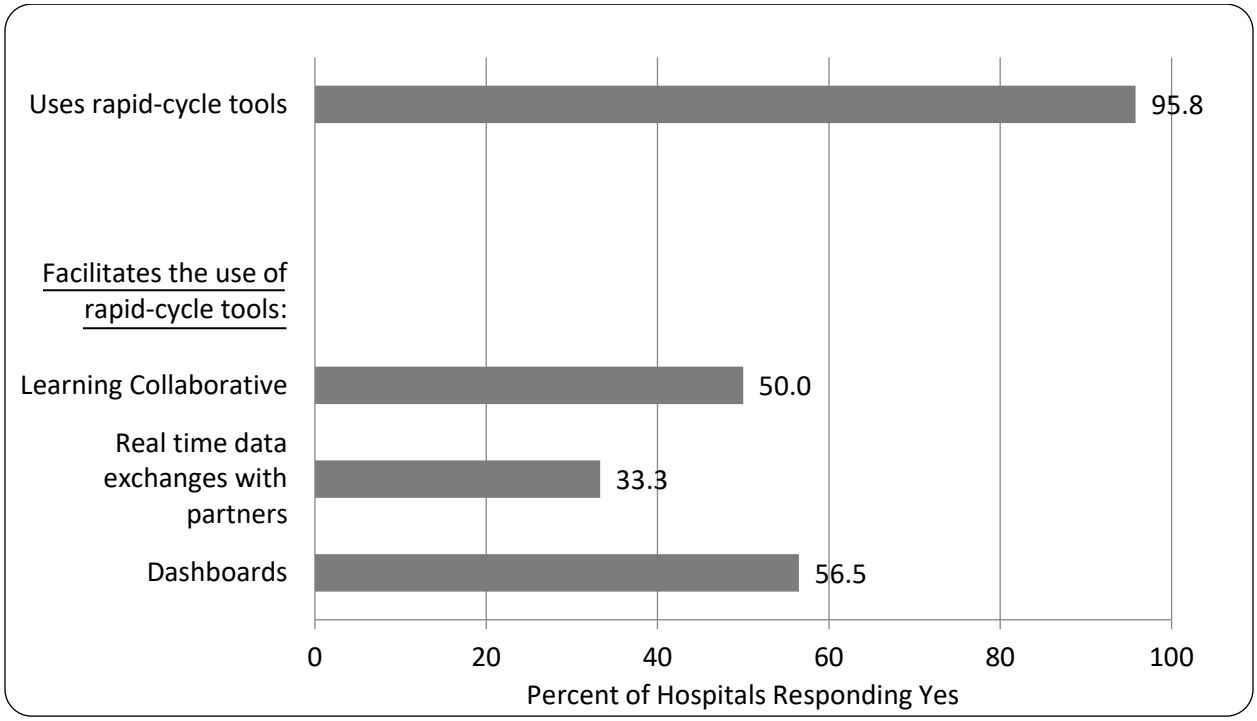
- DSRIP Training Webinars
- Frequently Asked Questions (FAQs)on DSRIP website

These resources were rated moderately useful, with 45.5% (up from 38.7% in 2015) rating the webinars as very useful and 39.1% (up from 26.7% in 2015) rating the FAQs as very useful (also see Figure 2.21). Neither measure differed between the High and Low Medicaid hospitals.

Rapid-Cycle Evaluation Tools

Almost all (95.8%, up from 87.1% in 2015) of the hospitals were using rapid-cycle evaluation tools, and this did not differ between the High and Low Medicaid hospitals (see Figure 2.22).

Figure 2.22: Percent Using Rapid-Cycle Evaluation Tools and Factors Facilitating the Use of Rapid-Cycle Tools



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

The hospitals were then asked if the following facilitated their use of rapid-cycle tools:

- Learning Collaborative
- Real time data exchanges with partners
- Dashboards

Dashboards facilitated the use of rapid-cycle tools for 56.5% (up from 37.0% in 2015) of the hospitals, and the Learning Collaboratives facilitated the use of rapid-cycle tools for 50% (also up from 37.0% in 2015) of the hospitals (also see Figure 2.22). One-third (33.3%, up from only 11.1% in 2015) of the hospitals reported that real time data exchanges with their project partners facilitated the use of rapid-cycle tools. High Medicaid hospitals tended to be more likely than Low Medicaid hospitals to report that the Learning Collaboratives facilitated the use of rapid-cycle tools (69.2% vs. 30.0%, respectively).

Level of Ease/Difficulty in Accomplishing DSRIP Activities

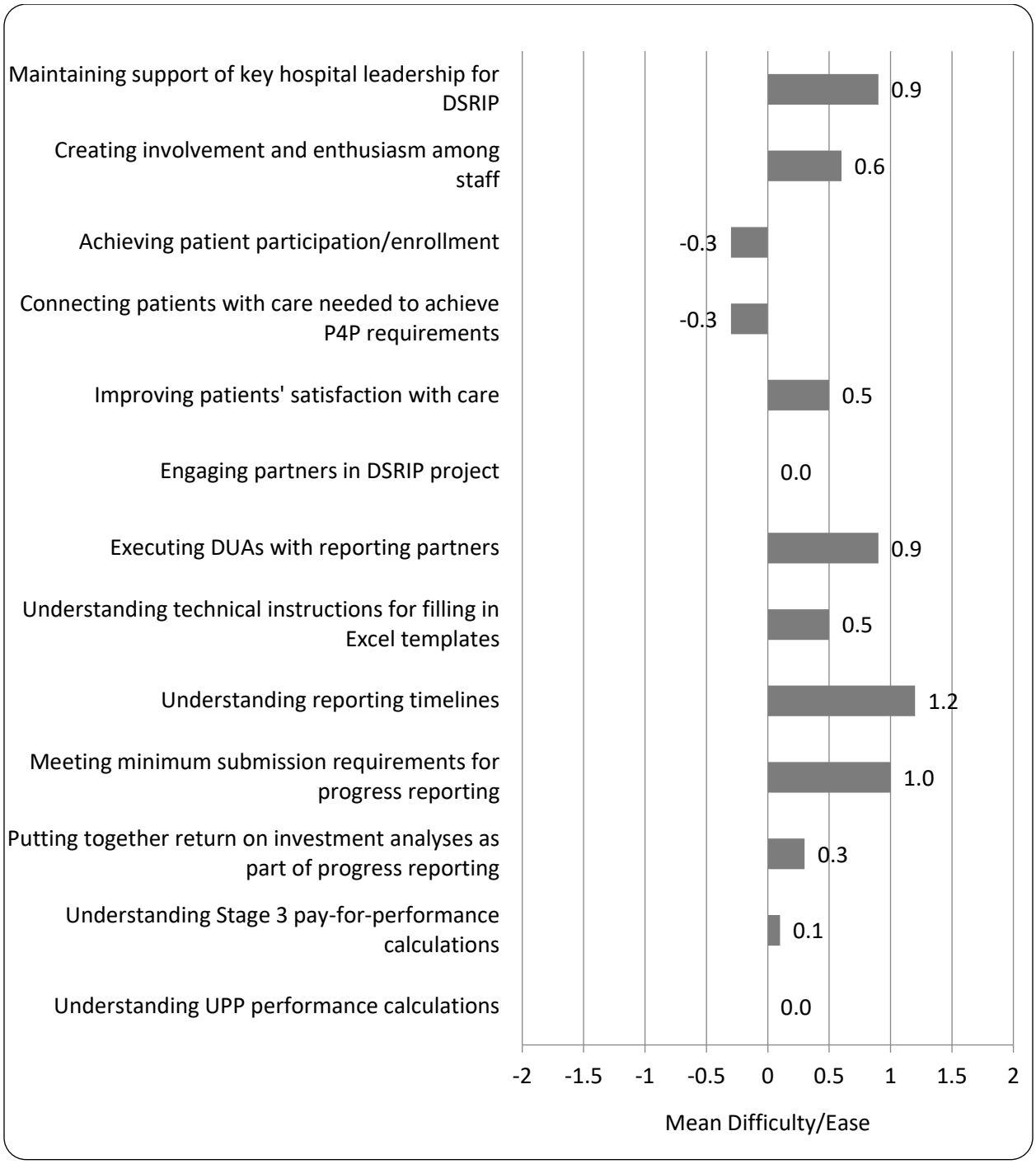
The hospitals were asked to rate on a four-point scale (-2=very difficult, -1=somewhat difficult, 1=somewhat easy, 2=very easy) how easy or difficult it had been for their hospital to accomplish the following DSRIP activities:

- Maintaining support of key hospital leadership for DSRIP
- Creating involvement and enthusiasm among staff

- Achieving patient participation/enrollment
- Connecting patients with care needed to achieve P4P requirements
- Improving patients' satisfaction with care
- Engaging partners in your DSRIP project
- Executing DUAs with reporting partners
- Understanding technical instructions for filling in Excel templates
- Understanding reporting timelines
- Meeting minimum submission requirements for progress reporting
- Putting together return on investment (economic value) analyses as part of progress reporting
- Understanding Stage 3 pay-for-performance calculations
- Understanding UPP performance tabulations

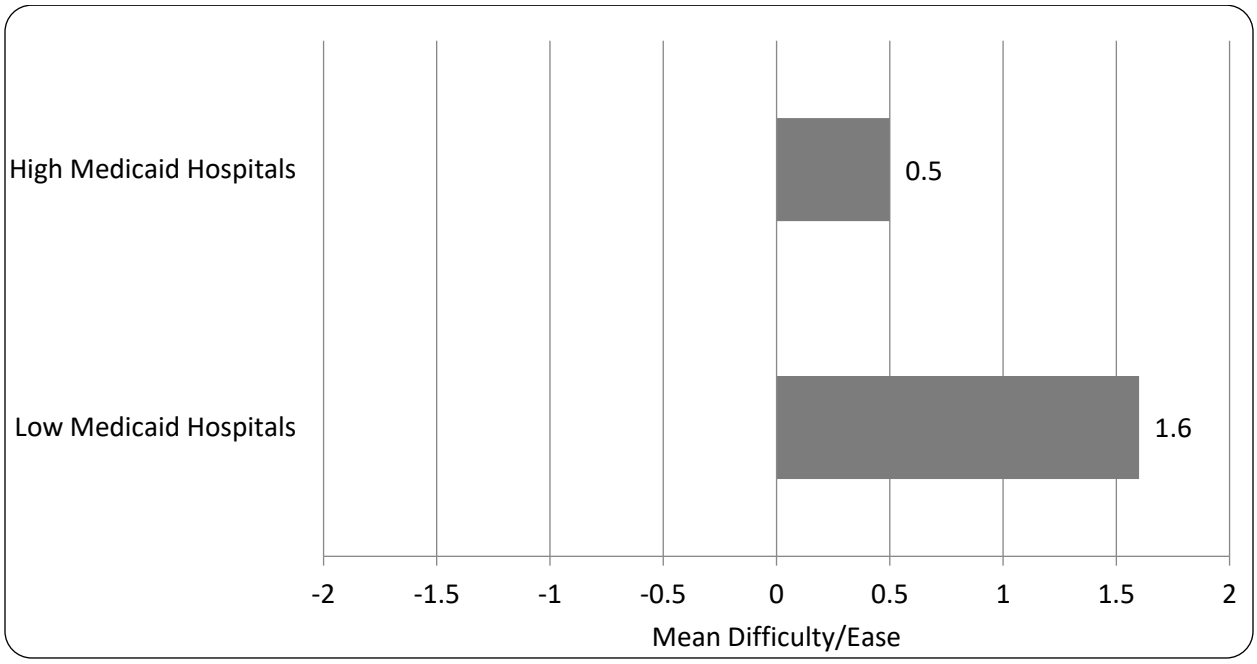
The ratings for the staff, patient, and partner measures changed little from 2015, but there were substantial improvements from negative to positive for the reporting measures. Understanding reporting timelines was rated as the easiest to accomplish (rating=1.2, up from -0.03 in 2015), followed by meeting minimum submission requirements for progress reporting (rating=1.0, up from -0.86 in 2015), maintaining support of key hospital leadership for DSRIP (rating=0.9, down from 1.1 in 2015), and executing DUAs with reporting partners (rating=0.9, up from -0.02 in 2015). Achieving patient participation/enrollment and connecting patients with care needed to achieve P4P requirements were rated as most difficult to accomplish (-0.3 for both vs. -0.3 and -0.6, respectively in 2015) (see Figure 2.23). Low Medicaid hospitals rated maintaining support of key hospital leadership for DSRIP as easier than High Medicaid hospitals (1.6 vs. 0.5, respectively, p=.028) (see Figure 2.23a). Low Medicaid hospitals also rated creating involvement and enthusiasm among staff as easier than High Medicaid hospitals (1.3 vs. 0.2, respectively, p=.049) (see Figure 2.23b), and they tended to rate understanding Stage 3 pay-for-performance calculations as easier (0.7 vs. -0.3). High Medicaid hospitals tended to rate engaging partners in your DSRIP project as easier than Low Medicaid hospitals (2.7 vs. 2.0, respectively).

Figure 2.23: Difficulty/Ease of Accomplishing DSRIP Activities (-2=very difficult, 2=very easy)



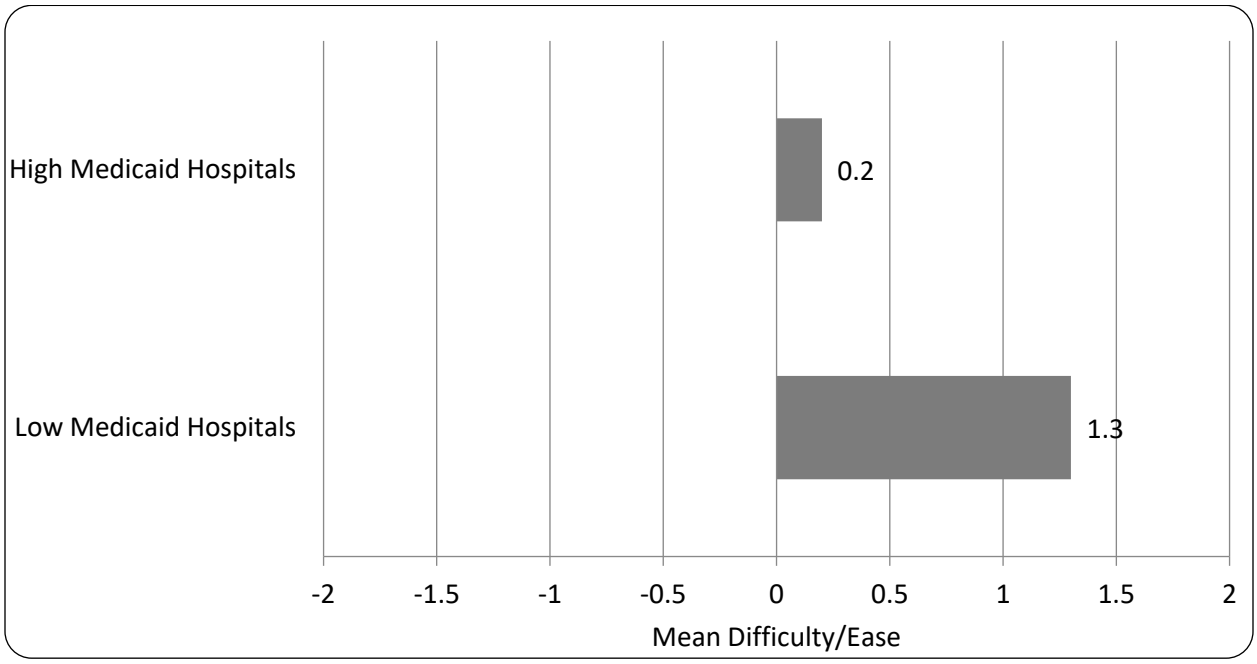
Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Figure 2.23a: Difficulty/Ease of Accomplishing DSRIP Activities: Maintaining Support of Key Hospital Leadership for DSRIP by Hospital Medicaid Group, p=.028 (-2=very difficult, 2=very easy)



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Figure 2.23b: Difficulty/Ease of Accomplishing DSRIP Activities: Creating Involvement and Enthusiasm among Staff by Hospital Medicaid Group, p=.049 (-2=very difficult, 2=very easy)



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

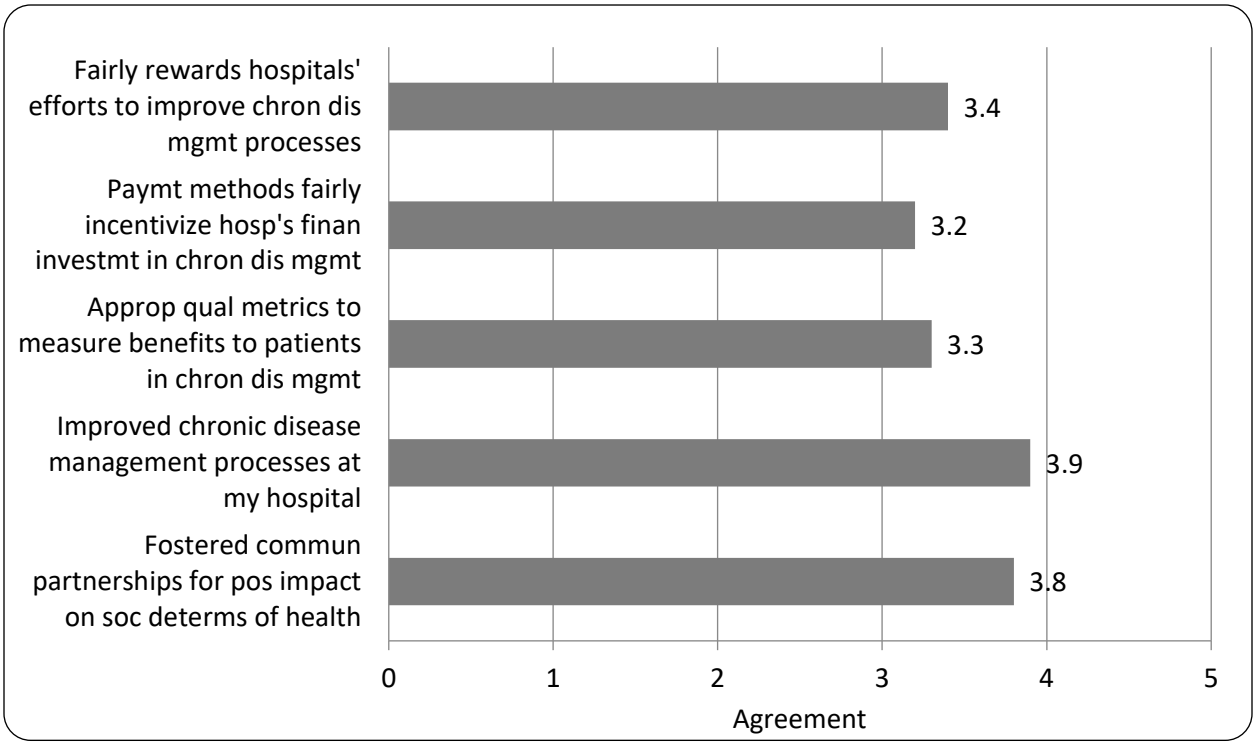
General Perceptions of the DSRIP Program

The hospitals were asked to rate on a five-point scale (1=strongly disagree, 2=somewhat disagree, 3=neutral, 4=somewhat agree, 5=strongly agree) how much they agreed with the following statements about the DSRIP program:

- Fairly rewards hospitals' efforts to improve chronic disease management processes
- Uses payment methodologies that fairly incentivize hospitals' financial investments in chronic disease management processes
- Utilizes appropriate quality metrics for measuring benefits to patients from changes in chronic disease management processes
- Improved chronic disease management processes at my hospital for the better
- Fostered community partnerships that have a positive impact on social determinants of health

These were newly-added items, and all were rated on the agreement side (see Figure 2.24). Hospitals agreed most with the statement that the DSRIP program improved chronic disease management processes at my hospital for the better (rating=3.9), followed by the statement that the DSRIP program fostered community partnerships that have a positive impact on social determinants of health (rating=3.8), and agreed least with the statement that the DSRIP program uses payment methodologies that fairly incentivize hospitals' financial investments in chronic disease management processes (rating=3.2).

Figure 2.24: Perceptions about the DSRIP Program (1=strongly disagree, 5=strongly agree)

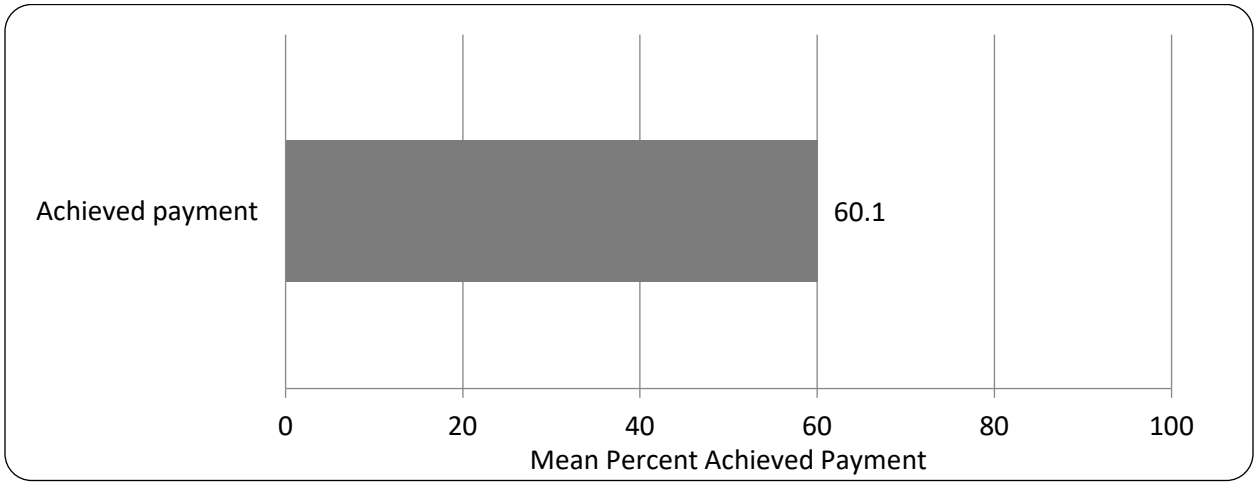


Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Successful Payment Achievement of Performance Metrics, Demonstration Year 4

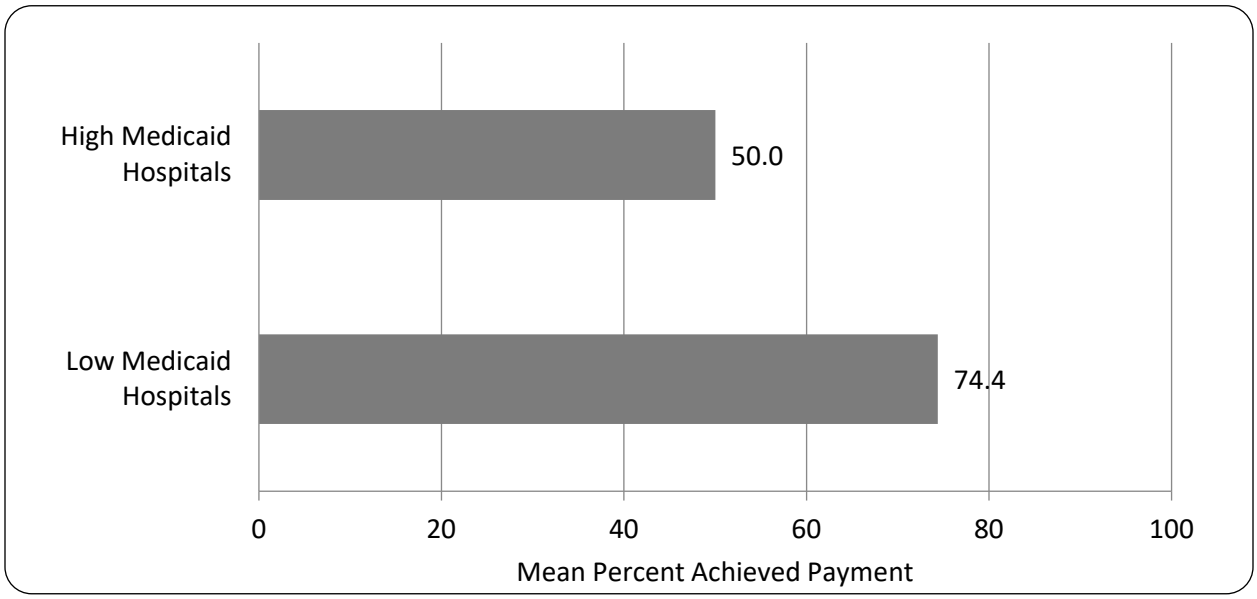
Another newly-added item asked hospitals for what percentage of the performance metrics they were able to achieve successful payment in demonstration year 4. The responding hospitals successfully achieved payment of about 60% (60.1%) on average of the performance metrics in demonstration year 4 (see Figure 2.25). Low Medicaid hospitals successfully achieved payment of more of these metrics than High Medicaid hospitals (an average of 74.4% vs. 50.0%, respectively, p=0.18) (see Figure 2.25a).

Figure 25: Percentage of Performance Metrics Successfully Achieved Payment in Demonstration Year 4



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Figure 25a: Percentage of Performance Metrics Successfully Achieved Payment in Demonstration Year 4 by Hospital Medicaid Group, p=.018



Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Conclusions

In general, the hospitals responded more positively to the DSRIP program on this survey than they did on the 2015 survey, including their perceptions regarding DSRIP program specifications/requirements, patient access to health care services, and the usefulness of Learning Collaborative activities. Most of the hospitals who responded to the survey felt that the DSRIP program had improved quality of care and population health, particularly patient access to health care services, and the program was now having a positive impact on hospital finances. Hospitals also felt that the reporting requirements had clarified over time, but there were still concerns about increasing requirements, particularly for High Medicaid hospitals. Nearly all aspects of the Learning Collaboratives were rated as very useful by at least 2/3 of the hospitals, and over 80% of the hospitals rated identification of best practices as very useful.

Initial EHR problems related to interoperability and reporting requirements with program partners were still cited as a major issue, and also more so for High Medicaid hospitals. This was more of a problem for obtaining the outpatient metrics required for Stage 3 and Stage 4 reporting than for the inpatient metrics.

Problems with matching the DSRIP-enrolled patients to the low income patients on the DSRIP attribution roster still exist, although these have decreased over time. The overlap of the roster between prospective and respective versions each year was better for the High Medicaid hospitals than the Low Medicaid hospitals.

Overall, general perceptions about the DSRIP program were favorable, and responding hospitals successfully achieved payment for 60.1% on average of the performance metrics in demonstration year 4.

References

Ianni S. 2006. *Examining the State of Our Healthcare System: The Unique Challenges Facing Urban Hospitals and Their Importance in Our State*. Trenton: Hospital Alliance of New Jersey. http://www.nj.gov/health/rhc/documents/hospital_alliance.pdf.

Table 2.1: Item Frequencies and Means

	N	%
Total	**42**	**100.0**
Percentage of hospital's patients on Medicaid/CHIP or charity care		
0-20%	11	26.2
21-40%	5	11.9
41-60%	7	16.7
61-80%	2	4.8
81-100%	2	4.8
Unable to Classify	15	35.7
Is your hospital continuing in the DSRIP program?		
Yes	31	73.8
Missing	11	26.2
Importance to decision to apply for DSRIP		
Support for the disease management goals of the DSRIP program		
Very Important	23	85.2
Somewhat Important	3	11.1
Not Important	1	3.7
Need the funds to finance existing operations		
Very Important	22	81.5
Somewhat Important	4	14.8
Not Important	1	3.7
Synergies w/related progs (hosp readmiss, ACOs, value-based purchasing)		
Very Important	19	70.4
Somewhat Important	7	25.9
Not Important	1	3.7
Opportunity for more financial resources for my hospital		
Very Important	22	81.5
Somewhat Important	4	14.8
Not Important	1	3.7
Perceptions of DSRIP specifications/requirements over time - CLARITY		
Application/Application Renewals		
Specs/Reqs clear from the beginning	9	32.1
Specs/Reqs unclear initially but clarified over time	19	67.9
Specs/Reqs remain unclear	0	0.0
Stage 1 Activities: Infrastructure Development Activities		
Specs/Reqs clear from the beginning	11	39.3
Specs/Reqs unclear initially but clarified over time	17	60.7
Specs/Reqs remain unclear	0	0.0

Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Table 2.1: Item Frequencies and Means (continued)

	N	%
Total	**42**	**100.0**
Stage 2 Activities: Chronic Medical Condition Redesign and Management		
Specs/Reqs clear from the beginning	11	39.3
Specs/Reqs unclear initially but clarified over time	13	46.4
Specs/Reqs remain unclear	4	14.3
Stage 3 Activities: Quality Improvements		
Specs/Reqs clear from the beginning	12	42.9
Specs/Reqs unclear initially but clarified over time	14	50.0
Specs/Reqs remain unclear	2	7.1
Stage 4 Activities: Population Focused Improvements		
Specs/Reqs clear from the beginning	10	35.7
Specs/Reqs unclear initially but clarified over time	13	46.4
Specs/Reqs remain unclear	5	17.9
Requirements related to Reporting Partners		
Specs/Reqs clear from the beginning	8	29.6
Specs/Reqs unclear initially but clarified over time	14	51.9
Specs/Reqs remain unclear	5	18.5
Attribution Model		
Specs/Reqs clear from the beginning	5	17.9
Specs/Reqs unclear initially but clarified over time	19	67.9
Specs/Reqs remain unclear	4	14.3
Perceptions of DSRIP specifications/requirements over time - SCOPE		
Application/Application Renewals		
Specs/Regs did not change	13	48.1
Specs/Reqs decreased over time	4	14.8
Specs/Reqs increased initially, then remained same	5	18.5
Specs/Reqs continued to increase over time	5	18.5
Stage 1 Activities: Infrastructure Development Activities		
Specs/Regs did not change	13	48.1
Specs/Reqs decreased over time	2	7.4
Specs/Reqs increased initially, then remained same	8	29.6
Specs/Reqs continued to increase over time	4	14.8
Stage 2 Activities: Chronic Medical Condition Redesign and Management		
Specs/Regs did not change	11	40.7
Specs/Reqs decreased over time	1	3.7
Specs/Reqs increased initially, then remained same	10	37.0
Specs/Reqs continued to increase over time	5	18.5

Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Table 2.1: Item Frequencies and Means (continued)

	N	%
Total	**42**	**100.0**
Stage 3 Activities: Quality Improvements		
Specs/Regs did not change	8	29.6
Specs/Reqs decreased over time	2	7.4
Specs/Reqs increased initially, then remained same	6	22.2
Specs/Reqs continued to increase over time	11	40.7
Stage 4 Activities: Population Focused Improvements		
Specs/Regs did not change	9	33.3
Specs/Reqs decreased over time	2	7.4
Specs/Reqs increased initially, then remained same	5	18.5
Specs/Reqs continued to increase over time	11	40.7
Requirements related to Reporting Partners		
Specs/Regs did not change	8	29.6
Specs/Reqs decreased over time	1	3.7
Specs/Reqs increased initially, then remained same	9	33.3
Specs/Reqs continued to increase over time	9	33.3
Attribution Model		
Specs/Regs did not change	9	32.1
Specs/Reqs decreased over time	1	3.6
Specs/Reqs increased initially, then remained same	10	35.7
Specs/Reqs continued to increase over time	8	28.6
Project area selected by hospital		
Asthma	2	6.9
Behaviorial health	2	6.9
Substance abuse	1	3.4
Pneumonia	1	3.4
Obesity	0	0.0
Diabetes	9	31.0
Cardiac	14	48.3
# of project partners	24	4.8 (mean)
# of data reporting partners	26	0.6 (mean)
# of data reporting partners with interoperable EHR with hospital	21	0.5 (mean)
# of physician practice project partners	24	1.8 (mean)
# of FQHC project partners	24	0.4 (mean)
# of community health center project partners	23	0.6 (mean)
# of school project partners	23	0.4 (mean)
# of senior center project partners	23	0.5 (mean)

Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Table 2.1: Item Frequencies and Means (continued)

	N	%
Total	**42**	**100.0**
How did your hospital identify project partners? (Select all that apply)		
Already working with partners before DSRIP was implemented	19	45.2
Recruited physician practices as partners	11	26.2
Recruited other clin. partners (comm. health ctrs/FQHCs)	9	21.4
Recruited other community organizations (e.g., schools)	16	38.1
DSRIP impact on relationship with clinical partners		
Strengthened	15	57.7
No impact	6	23.1
Weakened	0	0.0
Not applicable (no prior relationship before DSRIP)	5	19.2
# of organizations not partner because unable to share necessary data		
None	15	60.0
One	8	32.0
Two	1	4.0
Three or more	1	4.0
# of organizations not partner because working with another hospital		
None	20	80.0
One	4	16.0
Two	1	4.0
Initially faced EHR problems related to interoperability & reporting reqs		
Yes, a lot	9	34.6
Yes, some	11	42.3
No	6	23.1
Change in these EHR problems over time		
Decreased	13	61.9
Remained unchanged	5	23.8
Increased	3	14.3
% hospital's inpatient/ED chart-based metrics obtainable from EHR	25	74.8
% reporting partners' outpatient chart-based metrics from EHR	23	49.1
% attributed roster overlap between prospective, retrospective ea. yr.	23	55.2
% final attributed patients in DSRIP care mgmt project during demo yr. 5	22	35.5
Initially faced probs matching DSRIP pop with low income attrib roster		
Yes, a lot	11	44.0
Yes, some	5	20.0
No	9	36.0

Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Table 2.1: Item Frequencies and Means (continued)

	N	%
Total	**42**	**100.0**
How these matching to attribution roster problems changed over time		
Decreased	15	88.2
Remained unchanged	2	11.8
Increased	0	0.0
Difficulty dealing with DSRIP program (1=none, 4=major diffic)		(Mean)
Re-application process	25	1.6
Stage 1: Maintaining medical and support team dedicated to DSRIP	25	2.3
Stage 1: Procuring staff education needs	25	1.6
Stage 1: Developing quality improvement plan	25	1.8
Stage 1: Conducting project staff evaluation/assessments	25	1.5
Stage 2: Ongoing monitoring of program outcomes	25	2.2
Stage 2: Providing feedback to hospital administrators and providers	25	1.7
Stage 2: Providing feedback to Learning Collaborative	25	1.3
Difficulty with DSRIP data requirements (1=none, 4=major diffic)		(Mean)
Stage 3: Collection of Hospital Inpatient/ED Care metrics - Chart/EHR	25	1.8
Stage 3: Collection of Outpatient Care metrics - Chart/EHR	25	2.1
Stage 3: Verification of Hospital Inpatient/ED Care metrics – MMIS	25	2.0
Stage 3: Verification of Outpatient/Multi-Setting Care metrics- MMIS	25	2.1
Stage 4: Collection of Hospital Inpatient/ED Care metrics - Chart/EHR	25	1.9
Stage 4: Collection of Outpatient Care metrics - Chart/EHR	25	2.1
Stage 4: Verification of Hospital Inpatient/ED Care metrics – MMIS	25	2.2
Stage 4: Verification of Outpatient/Multi-Setting Care metrics- MMIS	25	2.3
Impact of DSRIP on quality of care, pop health (-2=v. neg, 2=v.pos)		(Mean)
Chronic disease management programs	25	1.3
Stage 4 reporting of universal metrics	24	0.8
Knowledge sharing through Learning Collaboratives	25	1.1
Building relationships with project partners	24	1.1
Sharing data with reporting partners	22	1.0
Rapid cycle assessment and improvement tools	25	1.3
Building infrastructure capacity for data collection and reporting	25	1.0
Aligning care processes with metric specifications	25	1.1
Changes in community health due to DSRIP (-2=v. worse, 2=v.better)		(Mean)
Patient access to health care services	25	1.9
Continuity of patient care	25	1.1
Quality of patient transitions between settings	25	1.0
Quality of health care delivered	25	1.1
Patient health	25	1.0

Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Table 2.1: Item Frequencies and Means (continued)

	N	%
Total	**42**	**100.0**
Mean impact of DSRIP on hospital's finances (-2=v. neg, 2=v. pos)	25	0.8
Usefulness of Learning Collaborative/Other Activities (% very useful)		(%)
Sharing of summary stats from hosp prog repts, learning collab surveys	10	45.5
Identification of best practices	19	82.6
Sharing of case studies	15	65.2
Sharing of challenges	16	69.6
Sharing of successes	16	69.6
Sharing of results	16	69.6
Networking with other hospitals	15	65.2
DSRIP training webinars	10	45.5
FAQs on DSRIP website	9	39.1
Using rapid-cycle evaluation tools (% yes)	23	95.8
Facilitated use of rapid cycle tools (% yes)		
Learning collaborative	12	50
Real time data exchanges with partners	8	33.3
Dashboards	13	56.5
Ease/difficulty accomplishing DSRIP activities (-2=v. diffic, 2=v. easy)		(Mean)
Maintaining support of key hospital leadership for DSRIP	24	0.9
Creating involvement and enthusiasm among staff	23	0.6
Achieving patient participation/enrollment	24	-0.3
Connecting patients with care needed to achieve P4P requirements	23	-0.3
Improving patients' satisfaction with care	22	0.5
Engaging partners in DSRIP project	24	0.0
Executing DUAs with reporting partners	15	0.9
Understanding technical instructions for filling in Excel templates	23	0.5
Understanding reporting timelines	23	1.2
Meeting minimum submission requirements for progress reporting	23	1.0
Putting together ROI analyses for progress reporting	23	0.3
Understanding Stage 3 pay-for-performance calculations	23	0.1
Understanding UPP performance calculations	23	0.0
Perceptions of DSRIP program (1=strongly disagree, 5=strongly agree)		(Mean)
Fairly rewards hospitals' efforts to improve chron dis mgmt processes	24	3.4
Paymt methods fairly incentivize hosp's finan investmt in chron dis mgmt	24	3.2
Approp qual metrics to measure benefits to patients in chron dis mgmt	24	3.3
Improved chronic disease management processes at my hospital	24	3.9
Fostered commun partnerships for pos impact on soc determs of health	24	3.8
		(Mean)
% performance metrics successfully achieved payment in demo year 4	22	60.1

Source: 2018 New Jersey DSRIP 2nd Hospital Survey, Rutgers Center for State Health Policy.

Appendix A: 2018 Hospital Web Survey Questionnaire

*** 1. Introduction and Consent:**

This hospital-based survey aims to provide feedback about the planning and implementation of the first DSRIP program (2012-2017). Please complete this survey on the basis of your hospital's experience with the DSRIP application, approval, planning and implementation processes relating to this first round of the program. Respondent identities and hospital affiliations will remain confidential, and only summary data will be released from survey responses.

If you understand the statements in the email containing this survey link, and consent to participate in the study, click on the "I Agree" button to begin the survey. If not, please click on the "I Do Not Agree" button after which you will exit this program.

- ◯ I Agree
- ◯ I Do Not Agree

2. Survey Respondent
Your Work Title:

3. Hospital Name

Hospital Name

Select your hospital name from the drop-down box to the right:

Other (please specify)

4. Please estimate the overall percentage of your hospital's patients who are on Medicaid/CHIP or charity care.

- ◯ 0-20%
- ◯ 21-40%
- ◯ 41-60%
- ◯ 61-80%
- ◯ 81-100%

5. Is your hospital continuing in the DSRIP program?

- ◯ Yes
- ◯ No

6. Which of the following are reasons your hospital withdrew from the program? (Select all that apply)

- ☐ Not enough Medicaid/CHIP/charity care patients
- ☐ Incentive payment was not enough to justify costs associated with participation
- ☐ Too difficult to find project partners or fulfill project partner requirements
- ☐ Implementation process too burdensome
- ☐ Change in hospital ownership
- ☐ Reorganization as a result of mergers and acquisitions
- ☐ Other (please specify)

7. Please rate each of the following with regard to their importance to your hospital's decision to remain in the DSRIP program:

	Very Important	Somewhat Important	Not Important
Support for the disease management goals of the DSRIP program	◯	◯	◯
Need the funds to finance existing operations	◯	◯	◯
Synergies with other related programs, such as hospital readmissions, ACOs, Hospital Value-Based Purchasing Program	◯	◯	◯
Opportunity for more financial resources for my hospital	◯	◯	◯
Other (specify below)	◯	◯	◯

Specify other here

8. How would you characterize the DSRIP program specifications/requirements over time with regards to CLARITY? (check one column per row below)

	Specs/Reqs clear from the beginning	Specs/Reqs unclear initially but clarified over time	Specs/Reqs remained unclear
Application/Application Renewals	◯	◯	◯
Stage 1 Activities: Infrastructure Development Activities	◯	◯	◯
Stage 2 Activities: Chronic Medical Condition Redesign and Management	◯	◯	◯
Stage 3 Activities: Quality Improvements	◯	◯	◯
Stage 4 Activities: Population Focused Improvements	◯	◯	◯
Requirements related to reporting Partners	◯	◯	◯
Attribution model	◯	◯	◯

9. Part 2: How would you characterize the DSRIP program specifications/requirements over time with regards to SCOPE? (check one column per row below)

	Specs/Reqs did not change	Specs/Reqs decreased over the program	Specs/Reqs increased initially, and then remained the same	Specs/Reqs continued to increase over the program
Application/Application Renewals	◯	◯	◯	◯
Stage 1 Activities: Infrastructure Development Activities	◯	◯	◯	◯
Stage 2 Activities: Chronic Medical Condition Redesign and Management	◯	◯	◯	◯
Stage 3 Activities: Quality Improvements	◯	◯	◯	◯
Stage 4 Activities: Population Focused Improvements	◯	◯	◯	◯
Requirements related to reporting Partners	◯	◯	◯	◯
Attribution model	◯	◯	◯	◯

10. What project area did your hospital select?

- ◯ Asthma
- ◯ Behavioral Health
- ◯ Substance Abuse
- ◯ Pneumonia
- ◯ Obesity
- ◯ Diabetes
- ◯ Cardiac

11. A project partner is any organization helping your hospital and your patients achieve the aims of the DSRIP program (e.g., schools, clinics, physician practices, etc.).

How many project partners does your hospital have?

# of project partners: _____

12. A reporting partner is a project partner included in the attribution model and required to collect and report outpatient data.

Out of your project partners, how many are reporting partners?

# of data reporting partners: _____

13. With how many of these reporting partners does your hospital have an interoperable EHR? (Skip if your hospital does not have any reporting partners)

# of reporting partners: _____

14. Please indicate how many of each of the following types of project partners you have:

	0	1	2	3	4 or more
Physician Practice	○	○	○	○	○
FQHC	○	○	○	○	○
Community Health Center	○	○	○	○	○
School	○	○	○	○	○
Senior Center	○	○	○	○	○

Other (please specify)

_____

15. How did your hospital identify project partners? (Select all that apply)

- ☐ Already working with partners before DSRIP was implemented
- ☐ Recruited physician practices as partners
- ☐ Recruited other clinical partners such as community health centers/FQHCs
- ☐ Recruited other community organizations as partners (for example, schools)

16. If you were already working with a project partner related to clinical care (e.g., physician practice, FQHC) before DSRIP was implemented, how did the DSRIP program impact your relationship with these partners?

- ◯ Strengthened
- ◯ No impact
- ◯ Weakened
- ◯ Not applicable (no prior existing relationships)

17. In addition to your reporting partners, with how many other organizations did you want to establish a reporting partner relationship but could not because they were unable to share the necessary data?

- ◯ None
- ◯ One
- ◯ Two
- ◯ Three or more

18. With how many organizations did you want to establish a reporting partner relationship but could not because they were participating in the DSRIP program with a different hospital?

- ◯ None
- ◯ One
- ◯ Two
- ◯ Three or more

19. During the initial years of the program, did you face EHR problems relating to interoperability and reporting requirements?

- ◯ Yes, a lot
- ◯ Yes, some
- ◯ No

20. How did these problems change over time?

- ◯ Decreased
- ◯ Remained unchanged
- ◯ Increased

21. During demonstration year 5 (2017-2017), what percent of the following Stage 4 metrics were obtainable from your EHRs?

	No EHR	1-20%	21-40%	41-60%	61-80%	81-100%
Your hospital's inpatient/ED chart-based metrics	◯	◯	◯	◯	◯	◯
Your outpatient reporting partners' outpatient chart-based metrics	◯	◯	◯	◯	◯	◯

22. On average, what percentage of your hospital's attribution rosters overlapped between the prospective and retrospective versions each year?

- ◯ 0-20%
- ◯ 21-40%
- ◯ 41-60%
- ◯ 61-80%
- ◯ 81-100%

23. Please estimate the percentage of your final attributed patients that were included in your DSRIP care management project during demonstration year 5:

- ◯ 0-20%
- ◯ 21-40%
- ◯ 41-60%
- ◯ 61-80%
- ◯ 81-100%

24. During the initial years of the program, did your hospital face problems in matching the population enrolled in your DSRIP program intervention with the low income patients on your DSRIP patient attribution roster?

- ◯ Yes, a lot
- ◯ Yes, somewhat
- ◯ No

25. How did these problems change over time?

- ◯ Decreased
- ◯ Remained unchanged
- ◯ Increased

26. Please rate your hospital's experience in dealing with the following aspect of the DSRIP program:

	No difficulty	Minor difficulty	Moderate difficulty	Major difficulty
Re-application Process	◯	◯	◯	◯

27. Please rate your hospital's experience in dealing with the following aspects of the DSRIP program:

Stage 1 Activities: Infrastructure Development

	No difficulty	Minor difficulty	Moderate difficulty	Major difficulty
Maintaining a multi-therapeutic medical and support team dedicated to DSRIP	◯	◯	◯	◯
Procuring staff education needs	◯	◯	◯	◯
Developing a quality improvement plan	◯	◯	◯	◯
Conducting project staff evaluation/assessments	◯	◯	◯	◯

28. Please rate your hospital's experience in dealing with the following aspects of the DSRIP program:

Stage 2 Activities: Chronic Medical Condition Redesign and Management

	No difficulty	Minor difficulty	Moderate difficulty	Major difficulty
Ongoing monitoring of program outcomes	◯	◯	◯	◯
Providing feedback to hospital administrators and participating providers	◯	◯	◯	◯
Providing feedback to Learning Collaborative	◯	◯	◯	◯

29. Please rate your hospital's experience in dealing with the following data-related activities of the DSRIP program during demonstration year 5 (2016-2017):

Stage 3 Project-Specific Metrics (Chart/EHR or MMIS-based):

	No difficulty	Minor difficulty	Moderate difficulty	Major difficulty
Collection of Hospital/Inpatient or ED Care metrics - Chart/EHR	◯	◯	◯	◯
Collection of Outpatient Care metrics - Chart/EHR	◯	◯	◯	◯
Verification of Hospital/Inpatient or ED Care metrics – MMIS	◯	◯	◯	◯
Verification of Outpatient Care or Multi-Setting Care metrics- MMIS	◯	◯	◯	◯

30. Please rate your hospital's experience in dealing with the following data-related activities of the DSRIP program during demonstration year 5 (2016-2017):

Stage 4 Universal Metrics (Chart/EHR or MMIS-based):

	No difficulty	Minor difficulty	Moderate difficulty	Major difficulty
Collection of Hospital/Inpatient or ED Care metrics - Chart/EHR	◯	◯	◯	◯
Collection of Outpatient Care - Chart/EHR metrics	◯	◯	◯	◯
Verification of Hospital/Inpatient or ED Care metrics – MMIS	◯	◯	◯	◯
Verification of Outpatient Care or Multi-Setting Care metrics- MMIS	◯	◯	◯	◯

31. What overall impact do you think the following aspects of the DSRIP program have on quality of care and population health (or health outcomes)?

	Substantially positive	Moderately positive	Little or no impact	Moderately negative	Substantially negative
Chronic disease management programs	◯	◯	◯	◯	◯
Stage 4 reporting of universal metrics	◯	◯	◯	◯	◯
Knowledge sharing through Learning Collaboratives	◯	◯	◯	◯	◯
Building relationships with project partners	◯	◯	◯	◯	◯
Sharing data with reporting partners	◯	◯	◯	◯	◯
Rapid cycle assessment and improvement tools	◯	◯	◯	◯	◯
Building infrastructure capacity for data collection and reporting	◯	◯	◯	◯	◯
Aligning care processes with metric specifications	◯	◯	◯	◯	◯

32. How would you characterize changes in the following health-related aspects of your community as a result of DSRIP activities?

	Substantial improvement	Some improvement	Little or no change	Some worsening	Substantial worsening	Too early to assess
Patient access to health care services	◯	◯	◯	◯	◯	◯
Continuity of patient care	◯	◯	◯	◯	◯	◯
Quality of patient transitions between care settings	◯	◯	◯	◯	◯	◯
Quality of health care delivered	◯	◯	◯	◯	◯	◯
Patient health	◯	◯	◯	◯	◯	◯

33. What impact, if any, has the DSRIP program had on your hospital's finances?

- ◯ Very positive
- ◯ Positive
- ◯ No impact
- ◯ Negative
- ◯ Very negative

34. How useful were the following Learning Collaborative activities to your hospital?

	Very useful	Somewhat useful	Not very useful
Sharing of summary statistics based on data from hospitals' progress reports and monthly Learning Collaborative surveys	◯	◯	◯
Identification of best practices	◯	◯	◯
Sharing of case studies	◯	◯	◯
Sharing of challenges	◯	◯	◯
Sharing of successes	◯	◯	◯
Sharing of results	◯	◯	◯
Networking with other hospitals	◯	◯	◯

35. How useful were the following other activities to your hospital?

	Very useful	Somewhat useful	Not very useful
DSRIP Training Webinars	◯	◯	◯
Frequently Asked Questions on DSRIP website	◯	◯	◯

36. Are you using any rapid-cycle evaluation tools?

◯ Yes

◯ No

37. Have the following facilitated your use of rapid cycle tools?

	Yes	No	Not applicable
Learning Collaborative	◯	◯	◯
Real time data exchanges with partners	◯	◯	◯
Dashboards	◯	◯	◯
Other (specify below)	◯	◯	◯

Specify other here

38. How easy or difficult has it been for your hospital to accomplish each of the following DSRIP activities?

	Very Easy	Somewhat Easy	Somewhat Difficult	Very Difficult	N/A
Maintaining support of key hospital leadership for DSRIP	◯	◯	◯	◯	◯
Creating involvement and enthusiasm among staff	◯	◯	◯	◯	◯
Achieving patient participation/enrollment	◯	◯	◯	◯	◯
Connecting patients with care needed to achieve P4P requirements	◯	◯	◯	◯	◯
Improving patients' satisfaction with care	◯	◯	◯	◯	◯
Engaging partners in your DSRIP project	◯	◯	◯	◯	◯
Executing DUAs with reporting partners	◯	◯	◯	◯	◯
Understanding technical instructions for filling in Excel templates	◯	◯	◯	◯	◯
Understanding reporting timelines	◯	◯	◯	◯	◯
Meeting minimum submission requirements for progress reporting	◯	◯	◯	◯	◯
Putting together return on investment (economic value) analyses as part of progress reporting	◯	◯	◯	◯	◯
Understanding Stage 3 pay-for-performance calculations	◯	◯	◯	◯	◯
Understanding UPP performance calculations	◯	◯	◯	◯	◯

39. Please rate your agreement with the following statements about the DSRIP program:

	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
Fairly rewards hospitals' efforts to improve chronic disease management processes	◯	◯	◯	◯	◯
Uses payment methodologies that fairly incentivize hospitals' financial investments in chronic disease management processes	◯	◯	◯	◯	◯
Utilizes appropriate quality metrics for measuring benefits to patients from changes in chronic disease management processes	◯	◯	◯	◯	◯
Improved chronic disease management processes at my hospital for the better.	◯	◯	◯	◯	◯
Fostered community partnerships that have a positive impact on social determinants of health	◯	◯	◯	◯	◯

40. For what percentage of the following performance metrics did your hospital successfully achieve payment in demonstration year 4?

- ◯ 0%
- ◯ 1-20%
- ◯ 21-40%
- ◯ 41-60%
- ◯ 61-80%
- ◯ 81-100%

Appendix B: Advance Letter from the State, Advance Email, and Email with Survey Link

Advance Letter from the State

State of New Jersey
DEPARTMENT OF HEALTH
PO BOX 360
TRENTON, N.J. 08625-0360
www.nj.gov/health

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

CHRISTOPHER R. RINN
Acting Commissioner

January 10, 2018

Dear DSRIP Participant:

Thank you for your participation in the New Jersey Delivery System Reform Incentive Payment (NJ DSRIP) program, a program of New Jersey Comprehensive Waiver (NJCW). As you may know, and referenced in section XX of Centers for Medicare & Medicaid Services (CMS) Special Terms and Conditions (STCs) and in section X.c of the NJ DSRIP program Planning Protocol, one requirement of the waiver is submission of an evaluation of the NJ DSRIP program to the Centers for Medicare & Medicaid Services (CMS).

In the coming weeks, the Rutgers Center for State Health Policy (CSHP) will proceed with the second evaluation of the DSRIP program (the first was conducted in 2015), reaching out to you for a short web survey. The Rutgers Institutional Review Board requires any comment or information you provide to the CSHP evaluators remain confidential. No specific comment or data will be attributed to an individual hospital or interviewee.

Please find additional information about the evaluation in the NJ DSRIP program Planning Protocol. The protocol is available under the Resources tab of the NJ DSRIP website, http://dsrip.nj.gov.

If you have any questions about the evaluation, please contact me at 609-292-7874 or by email at michael.conca@doh.state.nj.us. Thank you again for your participation in transforming the health care delivery system through the NJ DSRIP program.

Sincerely,

Michael D. Conca
Hospital Consultant

Advance Email Accompanying Advance Letter from the State

Dear Hospital Official,

Over the next few weeks, the Rutgers Center for State Health Policy will be conducting a hospital web survey as a part of the second evaluation of the NJ DSRIP program. We would request your participation in this survey that examines hospital perceptions and experiences related to the DSRIP program. Also attached is a letter from Michael Conca at the NJ Department of Health with information on this survey. Your feedback on the survey can help us improve the program for the future.

If there is someone else at your hospital who should complete the survey, please forward this to them and cc me so that I can email them the survey.

Thanks in advance,
Susan Brownlee, PhD
Senior Research Manager
Rutgers Center for State Health Policy

Email with Survey Link and Consent Information

Dear Hospital Official,

You recently received an email from the Center of State Health Policy at Rutgers University with an attached letter from Michael Conca at the New Jersey Department of Health inviting you to participate in an online survey relating to the evaluation of the New Jersey Delivery System Reform Incentive Payment (NJ DSRIP) program that is part of the NJ Comprehensive Waiver (NJCW). This evaluation is being conducted by the Center for State Health Policy at Rutgers University and the purpose of this web survey is to understand your hospital's experiences with implementation of the DSRIP program.

This research is confidential. Confidential means that the research records will include some information about you and your hospital and this information will be stored in such a manner that some linkage between your identity and the response in the research exists. Some of the information collected about you includes the name and address of your hospital and your title. Please note that we will keep this information confidential by limiting access to the research team and keeping it in a secure location. The data gathered in this study are confidential with respect to your personal identity unless you specify otherwise. The survey should take about 15 minutes to complete and is being sent to all 49 DSRIP-participating New Jersey hospitals.

The research team and the Institutional Review Board at Rutgers University are the only parties that will be allowed to see the data, except as may be required by law. If a report of this evaluation is published, or the results are presented at a professional conference, only group results will be stated. All study data will be kept for a minimum of three years.

There are no foreseeable risks to participation in this evaluation. In addition, you may receive no direct benefit from taking part in this evaluation. Participation in this evaluation is voluntary. You may choose not to participate, and you may withdraw at any time during the survey without any penalty to you. In addition, you may choose not to answer any questions with which you are not comfortable.

If you have any questions about the evaluation or survey, you may contact Susan Brownlee at Rutgers Center for State Health Policy, 112 Paterson St, New Brunswick, NJ 08901, 848-932-4666, sbrownlee@ifh.rutgers.edu.

If you have any questions about your rights as a research subject, please contact an IRB Administrator at the Rutgers University, Arts and Sciences IRB:

Institutional Review Board, Rutgers University, the State University of New Jersey
Liberty Plaza / Suite 3200, 335 George Street, 3rd Floor, New Brunswick, NJ 08901
Phone: 732-235-2866, Email: humansubjects@orsp.rutgers.edu

Please retain a copy of this form for your records. By participating in the above stated procedures, then you agree to participation in this evaluation.

**Click on this link to access the survey: [insert survey hyperlink]

Thank you in advance for your assistance,
Susan Brownlee, PhD
Senior Research Manager
Rutgers Center for State Health Policy

Chapter 3: Analysis of Medicaid Claims Data and Hospital Cost Reports to Examine DSRIP Program Impact on Patient Care, Health, Costs, and Hospital Finances

Introduction

This chapter examines four DSRIP program-related research questions detailed below. The analysis for the first three questions is based on Medicaid fee-for-service claims and managed care encounter data over the period January 2011–June 2017. The fourth question, related to the program effect on hospital finances, is examined using hospital cost report data.

1. To what extent does the DSRIP program achieve better care?
2. To what extent does the DSRIP program achieve better health?
3. To what extent does the DSRIP program lower costs?
4. To what extent did the DSRIP program affect hospital finances?

These research questions are addressed through four specific testable hypotheses related to DSRIP hospital programs, patient access and quality of care, cost of care, patient health, and hospital finances. Each hypothesis may shed light on multiple research questions. These four hypotheses are:

Hypothesis 1: The adoption of hospital projects in a specific focus area will result in greater improvements in related care and outcomes for patients from hospitals adopting these interventions compared to hospitals which do not adopt these interventions e.g., rates of 30-day heart failure/acute myocardial infarction readmissions will decrease in hospitals adopting cardiac care projects during the DSRIP program compared to hospitals not adopting cardiac care projects.
Hypothesis 2: The DSRIP program improves the quality of ambulatory care, both recommended and preventive, with positive effects on access to care, quality and efficiency of care, and population health. These improvements would be reflected in a decrease in rates of avoidable inpatient hospitalizations and avoidable/preventable treat-and-release emergency department (ED) visits.
Hypothesis 3: The DSRIP program will reduce racial/ethnic and gender disparities in avoidable hospital admissions, treat-and-release ED visits, and hospital readmissions.

Hypothesis 4: Hospitals receiving incentive payments do not experience adverse financial impacts.

Table A below is excerpted from our evaluation plan and presents the quality metrics examined in this report cross-walked to the one or more hypotheses that they serve to evaluate. The metrics are grouped to indicate those independently calculated by our study team and metrics calculated for hospitals by the state or by the hospitals themselves. In this chapter we present our analysis of evaluator-calculated metrics. Metrics provided to us by the state that were calculated by hospitals (for chart-based metrics) or a third-party contractor (for claims-based metrics) are presented in Chapter 4.[2]

Table A: Metrics for the Quantitative Evaluation of the NJ DSRIP Program

	Program Focus of Evaluation	Metric	Chronic Disease Outcomes	Health Outcomes	Care	Disparities	Hospital Finances
			Hypothesis				
			1	2		3	4
Evaluator-Calculated Metrics							
1	Behavioral Health	Follow-up after Hospitalization for Mental Illness 7 Days Post Discharge	X				
2	Behavioral Health	Follow-up after Hospitalization for Mental Illness 30 Days Post Discharge	X				
3	Chemical Addiction/ Substance Abuse	Initiation of Alcohol and Other Drug Treatment	X				
4	Chemical Addiction/ Substance Abuse	Engagement of Alcohol and Other Drug Treatment	X				

PQI=Prevention Quality Indicator relating to ambulatory care sensitive hospitalizations.

[2] The analysis in Chapter 4 is distinct since it is based on data aggregated at the hospital level, on metrics that are not independently calculated by the evaluator, on hospitals' attributed Medicaid and charity care patients, and relates to a different time period: calendar years 2013-2016. While these reported metrics shed light on hypothesis 2, specifically the overall impact of the DSRIP program on access to care and outcomes, one of these state-provided metrics, Children and Adolescents' Access to Primary Care Practitioners, is also used to evaluate hypothesis 1 related to the obesity project. That analysis is presented in this chapter.

Table A: Metrics for the Quantitative Evaluation of the NJ DSRIP Program (continued)

	Program Focus of Evaluation	Metric	Chronic Disease Outcomes	Health Outcomes	Care	Disparities	Hospital Finances
			Hypothesis				
			1	2		3	4
5	DSRIP Overall & Cardiac Care	30-Day All-Cause Readmission Rate Following Heart Failure (HF) Hospitalization	X	X		X	
6	DSRIP Overall & Cardiac Care	30-Day All-Cause Readmission Rate Following Acute Myocardial Infarction (AMI) Hospitalization	X	X		X	
7	DSRIP Overall & Pneumonia	30-Day All-Cause Readmission Rate Following Pneumonia (PN) Hospitalization	X	X		X	
8	DSRIP Overall	30-Day All-Cause Readmission Rate Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization		X		X	
9	Asthma	Emergency Department (ED) Visits for Asthma	X				
10	DSRIP Overall	Mental Health Utilization - Inpatient			X		
11	Asthma	Young Adult Asthma Admission Rate (PQI-15)	X				
12	Diabetes	Diabetes Short-Term Complications Admission Rate (PQI-01)	X				
13	DSRIP Overall	Preventable Hospitalizations (PQI-90)		X	X	X	
14	DSRIP Overall	Preventable/Avoidable Treat-and-Release ED Visits		X	X	X	
15	DSRIP Overall	Hospital Costs Related to Avoidable Inpatient Stays and Treat-and-Release ED Visits			X		
16	DSRIP Overall	Hospital Total and Operating Margins					X

PQI=Prevention Quality Indicator relating to ambulatory care sensitive hospitalizations.

Table A: Metrics for the Quantitative Evaluation of the NJ DSRIP Program (continued)

	Program Focus of Evaluation	Metric	Chronic Disease Outcomes	Health Outcomes	Care	Disparities	Hospital Finances
			Hypothesis				
			1	2		3	4
Hospital and State-Reported Metrics							
17	DSRIP Overall & Obesity	Children and Adolescents' Access to Primary Care Practitioners	X		X		
18	DSRIP Overall	COPD Admission Rate		X	X		
19	DSRIP Overall	Heart Failure Admission Rate		X	X		
20	DSRIP Overall	CD4 T-Cell Count			X		
21	DSRIP Overall	Hospital Acquired Potentially-Preventable Venous Thromboembolism (VTE)		X	X		
22	DSRIP Overall	Cervical Cancer Screening			X		
23	DSRIP Overall	Chlamydia Screening in Women Ages 21-24			X		
24	DSRIP Overall	Percentage of Live Births Weighing Less than 2,500 Grams		X	X		
25	DSRIP Overall	Tobacco Use: Screening & Cessation Intervention			X		
26	DSRIP Overall	Childhood Immunization Status			X		
27	DSRIP Overall	Well-Child Visits in the First 15 Months of Life			X		

PQI=Prevention Quality Indicator relating to ambulatory care sensitive hospitalizations.

Methods

Data Sources

We use Medicaid fee-for-service claims and managed care encounter data for calendar years 2011–2016 and the first two quarters of calendar year 2017 for all evaluator-calculated metrics along with one hospital performance metric that was reported by the state (Children and adolescents' access to primary care practitioners – 7–11 years). We also used 2011–2016 CMS hospital-level cost reports for data on hospital finances.

Study Period

The baseline years for the summative evaluation of the DSRIP program are 2011–2013. Year 2013, which spans Demonstration Years 1 and 2, is the first DSRIP program year, however, no hospital projects had formally launched in 2013 and this was still considered part of the "Transition Period" of DSRIP. The summative evaluation compares outcomes in 2014–2017 as hospitals prepared and implemented chronic disease management projects to the baseline period spanning 2011–2013.

Selection and Calculation of Outcome Variables

Table B below presents the 17 quality metrics examined in this chapter of the report. We selected validated metrics such as those developed by the National Committee on Quality Assurance (NCQA) and National Quality Forum (NQF)-endorsed metrics that could be calculated from available data. We chose metrics that would reflect the effect of DSRIP program on the overall delivery system, both inpatient and ambulatory care, instead of narrower inpatient process-based measures. We focused on metrics that are being used to assess similar delivery system-related pay-for-performance efforts e.g., all-cause readmissions from initial hospitalizations of heart failure, acute myocardial infarction, and pneumonia. Appendix A provides additional information on these metrics and their relevance in assessing delivery system changes.

We followed the specifications of the measure steward for each metric as closely as possible to create estimates that could be trended over time. The set of metrics from the Healthcare Effectiveness Data and Information Set (HEDIS) were calculated using the 2014 and 2016 HEDIS specifications. For calculating hospital readmissions we adapted the 2014 and 2017 Centers for Medicare & Medicaid Services' 30-day readmission measures criteria for the Medicaid claims data. We used the August 2014 version 4.5A, the March 2015 version 5.0, and the July 2016 version 6.0 of the Agency for Healthcare Research and Quality's (AHRQ) Prevention Quality Indicators (PQI) program for analyzing avoidable/preventable inpatient hospitalizations and algorithms by Professor John Billings of New York University to calculate primary care preventable ED visits.

If not already part of the metric specification, an additional inclusion criteria imposed on all metrics was the requirement that a claim was only counted if the beneficiary had been continuously enrolled in Medicaid for at least 30 days preceding the claim date. As stated in our evaluation plan, this criterion eliminates events which might precipitate Medicaid enrollment and confound the effect of the DSRIP program.

Table B organizes the metrics used in our evaluation of chronic disease outcomes, access and quality of care, and racial/ethnic and gender disparities into three categories: index-event-based, population-based, and hospital-level metrics.

Index Event and Population-Based Metrics: The first category of *Index Event-Based Metrics* comprises outcomes related to an initial *index* event (an initial hospital stay or provider visit) experienced by the patient. Examples include whether the patient had a readmission within 30 days of an initial index hospitalization; had a follow up visit within 7 days of an index hospitalization for mental illness, or initiated and engaged in alcohol treatment shortly after an index diagnosis of alcohol or other drug dependence. The second category of *Population-Based Metrics* relates to outcome events where the relevant denominator is a population of Medicaid beneficiaries. This metric type could be assessed at an individual level (e.g., ED visit for asthma by any person) or aggregated at a geographic level (rate of avoidable hospitalizations per unit population in a zip code). When calculating quarterly zip code-level rates, we used the sum of enrollment periods for all Medicaid beneficiaries in that zip code for a particular quarter as the denominator. This accounts for differing lengths of enrollment time across zip codes that would influence the likelihood of the outcome event in Medicaid data. When calculating costs associated with avoidable inpatient and ED use, we put estimates for all years in 2012 dollars using consumer price indices (CPI) for medical care to adjust for medical care inflation over the study period (Crawford and Church 2014, 165; Crawford, Church, and Akin 2015a, 165; 2015b, 145; 2016, 146; 2017, 108; Crawford, Church, and Rippy 2013, 164).

Table B shows that the outcome variables may be binary (e.g., readmissions) or continuous (e.g., number of avoidable hospitalizations per unit population). It also includes provider or Medicaid beneficiary-related inclusion criteria that are adopted for calculating each of these metrics.

Hospital-Level Metrics: We utilized two sets of hospital-level metrics. The first relates to hospital financial performance and includes hospital total and operating margin. This assesses the financial impact of the DSRIP program on hospitals.

The second set of metrics relate to children and adolescents' access to primary care practitioners stratified by specific age groups. This metric belongs to both Stage 3 category (they are reported for hospitals in the obesity program) and Stage 4 category (reported for all hospitals). This outcome is used to assess the effect of the obesity program on improvement in access to primary care.

Table B: Metric Descriptions

	Program Focus of Evaluation	Metric Abbreviation	Metric	Inclusion Criteria	Outcome	DSRIP Exposure Assignment
Index Event-Based Metrics						
1	Behavioral Health	FUH-7	Follow-up after Hospitalization for Mental Illness 7 Days Post Discharge	Ages 6+ at any NJ DSRIP-participating hospital	0/1	by hospital
2	Behavioral Health	FUH-30	Follow-up after Hospitalization for Mental Illness 30 Days Post Discharge	Ages 6+ at any NJ DSRIP-participating hospital	0/1	by hospital
3	Chemical Addiction/ Substance Abuse	IT-AOD	Initiation of Alcohol and Other Drug Treatment	NJ residents[2] ages 13+ at any NJ provider	0/1	by zip
4	Chemical Addiction/ Substance Abuse	ET-AOD	Engagement of Alcohol and Other Drug Treatment	NJ residents[2] ages 13+ at any NJ provider	0/1	by zip
5	DSRIP Overall & Cardiac Care	RSRR-HF	30-Day All-Cause Readmission Rate Following Heart Failure (HF) Hospitalization	Ages 18+ at any NJ hospital[1]	0/1	by hospital

[1] For analysis of readmission metrics assessing DSRIP programs related to chronic conditions, only DSRIP participating hospitals are included.

[2] For population-based metrics assessing DSRIP programs related to chronic conditions, only NJ residents in zips with non-zero DSRIP exposure are included in analyses.

Notes: With the exception of the hospital financial metrics (#16) and Children and Adolescents' Access to Primary Care Practitioners metric (#17), all metrics are calculated using Medicaid claims and encounter data.

Table B: Metric Descriptions (continued)

	Program Focus of Evaluation	Metric Abbreviation	Metric	Inclusion Criteria	Outcome	DSRIP Exposure Assignment
6	DSRIP Overall & Cardiac Care	RSRR-AMI	30-Day All-Cause Readmission Rate Following Acute Myocardial Infarction (AMI) Hospitalization	Ages 18+ at any NJ hospital[1]	0/1	by hospital
7	DSRIP Overall & Pneumonia	RSRR-PN	30-Day All-Cause Readmission Rate Following Pneumonia (PN) Hospitalization	Ages 18+ at any NJ hospital[1]	0/1	by hospital
8	DSRIP Overall	RSRR-COPD	30-Day All-Cause Readmission Rate Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization	Ages 18+ at any NJ hospital	0/1	by hospital
Population-Based Metrics						
Person-Level						
9	Asthma	HDC-AC	Emergency Department (ED) Visits for Asthma	NJ residents[2]	0/1	by zip
10	DSRIP Overall	MPT	Mental Health Utilization – Inpatient	NJ residents	0/1	by zip
Zip-Level						
11	Asthma	PQI-15	Younger Adult Asthma Admission Rate (PQI-15)	NJ residents[2] ages 18+	count per 10K beneficiary years	by zip

[1] For analysis of readmission metrics assessing DSRIP programs related to chronic conditions, only DSRIP participating hospitals are included.

[2] For population-based metrics assessing DSRIP programs related to chronic conditions, only NJ residents in zips with non-zero DSRIP exposure are included in analyses.

Notes: With the exception of the hospital financial metrics (#16) and Children and Adolescents' Access to Primary Care Practitioners metric (#17), all metrics are calculated using Medicaid claims and encounter data.

Table B: Metric Descriptions (continued)

	Program Focus of Evaluation	Metric Abbreviation	Metric	Inclusion Criteria	Outcome	DSRIP Exposure Assignment
12	Diabetes	PQI-01	Diabetes Short-Term Complications Admission Rate (PQI-01)	NJ residents[2] ages 18+	count per 10K beneficiary years	by zip
13	DSRIP Overall	PQI-90	Preventable Inpatient Hospitalizations (PQI 90)	NJ residents ages 18+	count per 10K beneficiary years	by zip
14	DSRIP Overall	AVED	Preventable/Avoidable Treat-and-Release ED Visits	NJ residents ages 18+	count per 10K beneficiary years	by zip
15	DSRIP Overall	AV$	Hospital Costs Related to Avoidable Inpatient Stays and Treat-and-Release ED Visits	NJ residents ages 18+	costs per 10K beneficiary years	by zip
Hospital-Level Metrics						
16	DSRIP Overall	MGN	Hospital Total and Operating Margin	All NJ hospitals	percentage	by hospital
17	DSRIP Overall & Obesity	CAP	Children and Adolescents' Access to Primary Care Practitioners	NJ DSRIP-participating hospitals	percentage	by hospital

[1] For analysis of readmission metrics assessing DSRIP programs related to chronic conditions, only DSRIP participating hospitals are included.
[2] For population-based metrics assessing DSRIP programs related to chronic conditions, only NJ residents in zips with non-zero DSRIP exposure are included in analyses.
Notes: With the exception of the hospital financial metrics (#16) and Children and Adolescents' Access to Primary Care Practitioners metric (#17), all metrics are calculated using Medicaid claims and encounter data.

Defining Exposure to DSRIP Program

For all index event-based metrics, except initiation/engagement of AOD, the index event occurs in an inpatient hospital setting, and the patient was considered exposed to the DSRIP program overall (or a particular chronic disease management program) if the hospital where the index admission occurred was participating in the DSRIP program in 2014 (or participating in a chronic disease management program). Over the course of the DSRIP program, some hospitals discontinued participation and we conducted sensitivity analyses which accounted for such changes.

Assignment of DSRIP exposure for all population-based metrics and for initiation/engagement of AOD, (where the qualifying index event could occur at an outpatient provider setting) is based on the extent to which zip codes where the patients resided had DSRIP-participating hospitals. This was operationalized using a "choice set" methodology previously developed at CSHP (DeLia et al. 2009). Using 2011–2012 UB hospital discharge data for both inpatient stays and emergency department treat-and-release visits from 750 NJ zip codes (see Appendix F for details relating to zip code identification and selection), we created a "choice set" (or relevant set) of hospitals for each NJ zip code based on the volume of Medicaid discharges from area hospitals. The hospital choice set for a particular zip code is the smallest number of hospitals that accounts for at least 75% of all hospital discharges relating to Medicaid beneficiaries in that zip code. The purpose of the choice set thus, is to focus on those hospitals that individually account for the highest number of Medicaid-paid discharges relating to patients residing in a zip code, and also as a group account for the majority of Medicaid discharges relating to that zip code.

Based on the choice set hospitals, we considered three alternative measures of the zip code population's (or a patient's, in case of AOD metrics) exposure to DSRIP.

Exposure Measure 1: Equals 1 if any hospital in the choice set took part in the program, 0 otherwise

Exposure Measure 2: Percent of discharges relating to all hospitals in the choice set that belong to hospitals taking part in the program

Exposure Measure 2 was our primary indicator of DSRIP exposure at the zip code level. We conducted robustness checks where appropriate, alternatively defining the hospital choice set based on 90% of Medicaid discharges to a zip code. We also created an additional measure based on this to classify zip codes as having high or low exposure to DSRIP. Specifically, if for any zip code the DSRIP-participating hospitals in the choice set accounted for more than 50% of Medicaid discharges from all choice set hospitals, that zip code was considered a high DSRIP exposure zip code. If the percentage was less than or equal to 50%, that zip code was considered low exposure.

The approach for assigning and assessing exposure to DSRIP described here leads to conservative estimates of DSRIP impact. Treating hospitals as if they participated in DSRIP for the entirety of the study period as long as they participated in the beginning is an intent-to-treat design. This method avoids biases in impact estimates that would result if withdrawal from the program was related to actual or potential performance on outcomes. Similarly, a static choice set for defining the hospital utilization patterns used to create zip-level DSRIP exposure variables prevents endogeneity in exposure assignment if any changes in utilization patterns over the study period are related to performance in the DSRIP program. We note where alternative specifications described above yield meaningfully different results.

Analytic Strategy

The effect of the DSRIP program is assessed by identifying its impact on individual patient outcomes as well as population-based outcomes that are aggregated across zip codes. The effect on patient outcomes that are related to hospital events (index event based metrics) is measured by the change in outcomes over time for hospitals that participated in the DSRIP program relative to comparison hospitals that did not participate in the program. Similarly the effect of specific disease management programs is examined by comparing hospitals that took part in the program to other DSRIP-participating hospitals that did not take part in the program. For instance, the effectiveness of the cardiac care program is examined by comparing relevant patient outcomes in DSRIP-participating hospitals adopting that program to those that did not adopt that program at two periods of time-before and after the start of the DSRIP program.

For metrics that are population-based, we examine how patient outcomes vary across NJ zip codes and over time, as the DSRIP program is implemented. The zip codes are distinguished by their differing exposure to the DSRIP program based on the exposure measures defined above.

The statistical method utilized to identify the program effect is a difference-in-differences (DD) estimation technique that examines changes in selected outcomes in the study group, from pre- to post-program implementation, relative to a comparison group. Such an estimation strategy is able to identify changes in outcomes that are due to program impact, and distinct from secular trends. It further accounts for the effect of unobserved factors, as long as their impact on one of the groups relative to the other do not change over time.

$$Y_{it} = \beta_0 + \beta_1(program)_i + \beta_2(post)_t + \beta_3(program_i * post_t) + \gamma X_{\ it} + \varepsilon_{it} \qquad (1)$$

Equation (1) illustrates the general DD specification. The variable Y_{it} represents the outcome for the i[th] patient or zip code,[3] depending on the metric, at year t. *Post*= 0 for years 2011–2013 and =1 for years 2014-2016 and the first two quarters of 2017.[4] *Program* equals 0 or 1 (depending on hospital participation) when the outcome is a hospital-based metric, or equals the DSRIP exposure variable when the program effect operates based on the zip code where the patient resides. In this model, β_3 measures the program impact. X_{it} is a vector of other control variables relating to the patient, and ε_{it} represents the random error term.

Depending on the specific metric, Y_{it} can be modeled as a rate or a binary variable. Details relating to the unit of analysis which may be a patient, a hospital discharge, or zip code, and statistical modeling are detailed in Table C. The basic model in equation (1) is augmented with year, quarter, and zip code or hospital fixed effects as applicable. For analysis of outcomes that have zip code Medicaid population-based denominators (adjusted by differing enrollment periods), regressions were weighted by total beneficiary-years in each zip code in each quarter. This ensured that each zip code contributed to the estimation of DSRIP effects in proportion to the volume and enrollment duration of its Medicaid beneficiaries who met the inclusion criteria for the metric.

The model was also augmented to examine the effect of the DSRIP program on racial/ethnic and gender disparities. For readmission metrics, we introduced additional terms that included the interaction between the indicators for program, post period and race/ethnicity along with other related main and interaction effects.

For assessing disparities based on avoidable hospitalizations and ED visits, we examined the effect of the program on the difference in the rate of these events between each racial/ethnic minority group and whites, and also between females and males. When assessing disparities based on these zip-code based metrics, the total beneficiary-years of the specific minority group, or females, were used as analytic weights to account for variability in these populations across zip codes.

The final two metrics that we analyze relate to hospital financial performance and assessment of the obesity program where the unit of analysis is the hospital. The outcome variables are hospital operating margin, hospital total margin, and percentage of hospital attributed population that had access to a primary care physician. Within the previously described DD framework, the

[3] For the obesity-related metric and hospital financial margins the unit of analysis is the hospital.

[4] 30-day readmissions metrics require a full year of retrospective data for risk adjustment and are therefore calculated only for years 2012 and later. Therefore, *post*=0 for year 2012-2013 and =1 for 2014 through quarter 2 of 2017 in models using readmissions outcomes.

estimated coefficient of the interaction term between program and post measures the effect of the DSRIP program on the relevant outcome.

Results relating to event-based metrics are not reported when estimates are based on denominators less than 30. Our estimation procedures were conducted using STATA MP 15 or SAS Enterprise Guide 7.13 software.

Explanatory Variables

Table C lists details on explanatory variables used in the multivariate regression analysis relating to the 15 metrics. For modeling outcomes related to the index-event based metrics, we used individual-level control variables such as beneficiary age and sex, and a diagnosis-based Chronic Illness and Disability Payment System (CDPS) risk score that measures disease diagnoses and burden of illness with higher values indicating greater disease burden. For the FUH and AOD metrics, we used the individual's CDPS risk score category (<=1, 1-2, 2-3, 3-5, and >5) during baseline and the post-implementation year to adjust for health status changes. For readmission metrics we used the full set of risk-adjustment variables that are defined by the CMS methodology related to Risk Standardized Readmission Rates (RSRR) (QualityNet 2017). Appendix E lists all the risk-adjustment variables for each of the readmission outcomes. For all of these metrics, except IT-AOD and ET-AOD, we utilize hospital fixed effects to adjust for the effect on outcomes of time-invariant differences across hospitals.

For population-based metrics and the IT-AOD and ET-AOD metrics where DSRIP exposure is assigned based on zip codes where patients reside, zip code fixed effects account for time-invariant differences across zip codes such as socio-demographic composition and disease prevalence. As before, we account for the change in disease diagnoses and burden of illness over time by adjusting for the CDPS risk score category for each individual for person-level metrics. For metrics that are averages based on zip-populations, such as avoidable hospitalizations or those relating to asthma or diabetes hospitalizations, we use the average CDPS score in the zip code for each quarter.

For all metrics, year fixed effects adjust for changes in outcomes over time that are common across all patients and quarter fixed effects adjust for any seasonality effects on outcomes.

Table C: Modeling Details

	Program Focus of Evaluation	Metric	Unit of Analysis	Outcome	Model Specification[1]	Control Variables
Index Event-Based Metrics						
1	Behavioral Health	Follow-up after Hospitalization for Mental Illness 7 Days Post Discharge	index hospitalization	0/1	Linear Probability Model	gender, age, CDPS risk category, quarter, hospital and year FE
2	Behavioral Health	Follow-up after Hospitalization for Mental Illness 30 Days Post Discharge	index hospitalization	0/1	Linear Probability Model	gender, age, CDPS risk category, quarter, hospital and year FE
3	Chemical Addiction/ Substance Abuse	Initiation of Alcohol and Other Drug Treatment	index event	0/1	Linear Probability Model[2]	gender, CDPS risk category, quarter, zip and year FE
4	Chemical Addiction/ Substance Abuse	Engagement of Alcohol and Other Drug Treatment	index event	0/1	Linear Probability Model[2]	gender, CDPS risk category, quarter, zip and year FE
5	DSRIP Overall & Cardiac Care	30-Day All-Cause Readmission Rate Following Heart Failure (HF) Hospitalization	index hospitalization	0/1	Linear Probability Model	age, gender, clinical risk factors, quarter, hospital and year FE
6	DSRIP Overall & Cardiac Care	30-Day All-Cause Readmission Rate Following Acute Myocardial Infarction (AMI) Hospitalization	index hospitalization	0/1	Linear Probability Model	age, gender, clinical risk factors, quarter, hospital and year FE
7	DSRIP Overall & Pneumonia	30-Day All-Cause Readmission Rate Following Pneumonia (PN) Hospitalization	Index hospitalization	0/1	Linear Probability Model	age, gender, clinical risk factors, quarter, hospital and year FE

CDPS=Chronic Illness and Disability Payment System; FE=Fixed Effects.

[1] All models use robust standard errors.

[2] Models are stratified by age (13-17, and 18+) as per HEDIS specifications for this metric.

[3] Models are stratified by age (0-17, and 18+).

Table C: Modeling Details (continued)

	Program Focus of Evaluation	Metric	Unit of Analysis	Outcome	Model Specification[1]	Control Variables
8	DSRIP Overall	30-Day All-Cause Readmission Rate Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization	Index hospitalization	0/1	Linear Probability Model	age, clinical risk factors, quarter, hospital and year FE
Population-Based Metrics						
Person-Level						
9	Asthma	Emergency Department (ED) Visits for Asthma	beneficiary	0/1	Linear Probability Model[3]	gender, CDPS risk category zip and year FE
10	DSRIP Overall	Mental Health Utilization - Inpatient	beneficiary	0/1	Linear Probability Model	age, gender, CDPS risk category zip and year FE
Zip-Level						
11	Asthma	Younger Adult Asthma Admission Rate (PQI-15)	zip code-quarter	count per 10K beneficiary years	Weighted linear regression	CDPS average, zip, quarter, and year FE
12	Diabetes	Diabetes Short-Term Complications Admission Rate (PQI-01)	zip code-quarter	count per 10K beneficiary years	Weighted linear regression	CDPS average, zip, quarter, and year FE
13	DSRIP Overall	Preventable Inpatient Hospitalizations (PQI-90)	zip code-quarter	count per 10K beneficiary years	Weighted linear regression	CDPS average, zip, quarter, and year FE
14	DSRIP Overall	Preventable/Avoidable Treat-and-Release ED Visits	zip code-quarter	count per 10K beneficiary years	Weighted linear regression	CDPS average, zip, quarter, and year FE

CDPS=Chronic Illness and Disability Payment System; FE=Fixed Effects.

[1] All models use robust standard errors.

[2] Models are stratified by age (13-17, and 18+) as per HEDIS specifications for this metric.

[3] Models are stratified by age (0-17, and 18+).

Table C: Modeling Details (continued)

	Program Focus of Evaluation	Metric	Unit of Analysis	Outcome	Model Specification[1]	Control Variables
15	DSRIP Overall	Hospital Costs Related to Avoidable Inpatient Stays and Treat-and-Release ED Visits	zip code-quarter	costs per 10K beneficiary years	Weighted, generalized linear model with gamma log link	CDPS average, quarter and year FE
Hospital-level Metrics						
16	DSRIP Overall	Hospital Total and Operating Margin	hospital	percentage	Linear regression	—
17	DSRIP Overall & Obesity	Children and Adolescents' Access to Primary Care Practitioners	hospital	percentage	Weighted linear regression	—

CDPS=Chronic Illness and Disability Payment System; FE=Fixed Effects.
[1] All models use robust standard errors.
[2] Models are stratified by age (13-17, and 18+) as per HEDIS specifications for this metric.
[3] Models are stratified by age (0-17, and 18+).

Results

In this section we report findings from quantitative analyses that capture the effects of the DSRIP program through the end of demonstration year 5 (June 2017). Unless otherwise noted, findings reported do not differ substantively when sensitivity analyses are done using an alternative specification of the hospital choice set used to define DSRIP exposure or when taking into account hospitals dropping out of the DSRIP program (as discussed in the Methods section).

Impact of DSRIP Programs by Focus Area

Behavioral Health Program: Figures 3.1 and 3.2 report 7-day and 30-day follow up rates after a hospitalization for mental illness. These rates are shown separately for the group of hospitals that are participating in the BH program and the comparison group of DSRIP hospitals that is not, for the baseline period spanning 2011–2013 and the DSRIP implementation period spanning January 2014 through June 2017.

Thirty-day follow up rates are expectedly higher than 7-day rates. The 7-day follow-up rates are higher among the hospitals not participating in the BH program, but the 30-day rates are very nearly the same from both sets of DSRIP hospitals.

Table 3.1 reports the findings based on a regression analysis examining the effect of the BH program on these outcomes by comparing hospitals that participated in the program to those DSRIP hospitals that did not, for the baseline and DSRIP implementation period. We find that the effect of the BH program is nearly zero, with a less than 1/2 percentage point decrease in both follow up rates, and these estimates are not statistically significant.

Chemical Addiction/Substance Abuse Program: Figures 3.3 reports rates of initiation in alcohol and other drug (AOD) treatment for two groups of patients classified based on whether at least one hospital in their zip codes was taking part in a chemical addiction/substance abuse program. These are reported for the baseline period spanning 2011–2013 and the DSRIP implementation period from January 2014–June 2017. Figure 3.4 reports the corresponding rates for engagement in AOD.

We see that both groups of patients experienced an increase in both initiation and engagement rates from baseline through the DSRIP implementation period. Rates for initiation for any group of patient during any year(s) were higher than the corresponding rates of engagement.

Table 3.2 reports the findings based on a regression analysis examining the effect of the chemical addiction and substance abuse program on these outcomes. The results are reported overall and separately for age stratifications 13–17 and 18+. The estimates reflect the average increase in the likelihood (ranging between 0 and 1) of initiation and engagement, due to a 1% increase in DSRIP exposure.

Compared to a zip code with zero exposure to the program (i.e. where none of the hospitals took part in the program), a patient in a zip code with 100% exposure to the program (where all hospitals took part in the program) had 1.4 percentage point higher likelihood of initiation in AOD, but this was not statistically significant. This impact differed by age group. Patients ages 13–17 experienced a 3.9 percentage point decrease in the likelihood of initiation of AOD and this was marginally significant.

All estimates of the corresponding effect on engagement in AOD due to a 1% increase in exposure to chemical addiction and substance abuse programs were negative. Among those aged 13–17, engagement decreased by 3.5 percentage points and was significant at $p<0.10$.

Asthma Program: Figure 3.5 reports rates of ED visits for asthma among patients classified by whether their zip code had at least one hospital participating in the asthma program. Rates of ED visits for asthma were lower over the implementation period compared to baseline for patients in zip codes where there was at least one hospital conducting a DSRIP asthma program.

Table 3.3 reports the results from a regression analysis stratifying patients by age. The effect of the program on the likelihood of ED visit for asthma was close to zero. Specifically, as a child's exposure to DSRIP asthma programs increased from 0% to 100%, the probability of an ED visit for asthma decreased by 1 percentage point. This is equivalent to 10 less ED visits for every 1000 individuals. For adults it decreased by 7/10 of a percentage point. These changes were significant at the 1% and 5% level, respectively.

Figures 3.6 and 3.7 report rates of population-based, younger adult hospital admission rates for asthma in zip codes distinguished by hospitals' participation in an asthma intervention project. Figure 3.6 classifies zip codes based on whether they had participation by at least one hospital and Figure 3.7 classifies zip codes on the extent of area hospital participation. We see that asthma admission rates were higher in the baseline period in zip codes that had greater hospital participation. Additionally, admission rates decreased from baseline for all zip code categorizations.

Table 3.4 reports the results from a regression analysis examining the effect of the asthma program. We see a small but statistically significant decrease in preventable asthma admissions due to the asthma program. The estimate indicates that compared to a zip code that had no exposure to the program, a zip code where all hospitals participated in the asthma program had on an average, 12 fewer preventable asthma hospitalizations per 10,000 Medicaid beneficiaries over a year (for ages 18–39).

Diabetes Program: Figures 3.8 and 3.9 report rates of population-based, diabetes short-term complications admission rates in zip codes distinguished by hospitals' participation in a diabetes intervention project. Figure 3.8 classifies zip codes based on whether they had participation by at least one hospital and Figure 3.9 classifies zip codes on the extent of area hospital participation. We see that diabetes short-term complications admission rates were higher for both periods in zip codes that had greater hospital participation. There were small decreases in this preventable admission rate over the DSRIP implementation period compared to baseline in zips with greater hospital participation in DSRIP diabetes programs as well as in zips with no or low area hospital participation.

Table 3.5 reports the results from a regression analysis examining the effect of the diabetes program. We see a very small decrease in preventable diabetes admissions for short-term complications due to the diabetes DSRIP program. The estimate indicates that compared to a zip code that had no exposure to the program, a zip code where all hospitals participated in the diabetes program had on an average, 1.5 fewer of these preventable diabetes hospitalizations over a year per 10,000 Medicaid beneficiaries (for ages 18 and above).

Cardiac Care Program: Figures 3.10 and 3.11 report HF and AMI readmission rates in 2012–2013 and through June 2017 for patients in hospitals classified by participation in the cardiac care program. Average HF readmission rates improved (decreased in magnitude) for patients during the DSRIP implementation period for both categories of hospitals; AMI readmission rates also improved, more so for DSRIP hospitals not implementing a cardiac program, but these hospitals had higher readmission rates to begin with (13.6% over 2012–2013).

Table 3.6 reports results from regression analyses examining the effect of the cardiac care program. The program effect is reflected in a 0.9 percentage point increase in HF readmissions and a 1.9 percentage point increase in AMI readmissions. None of these changes were statistically significant.

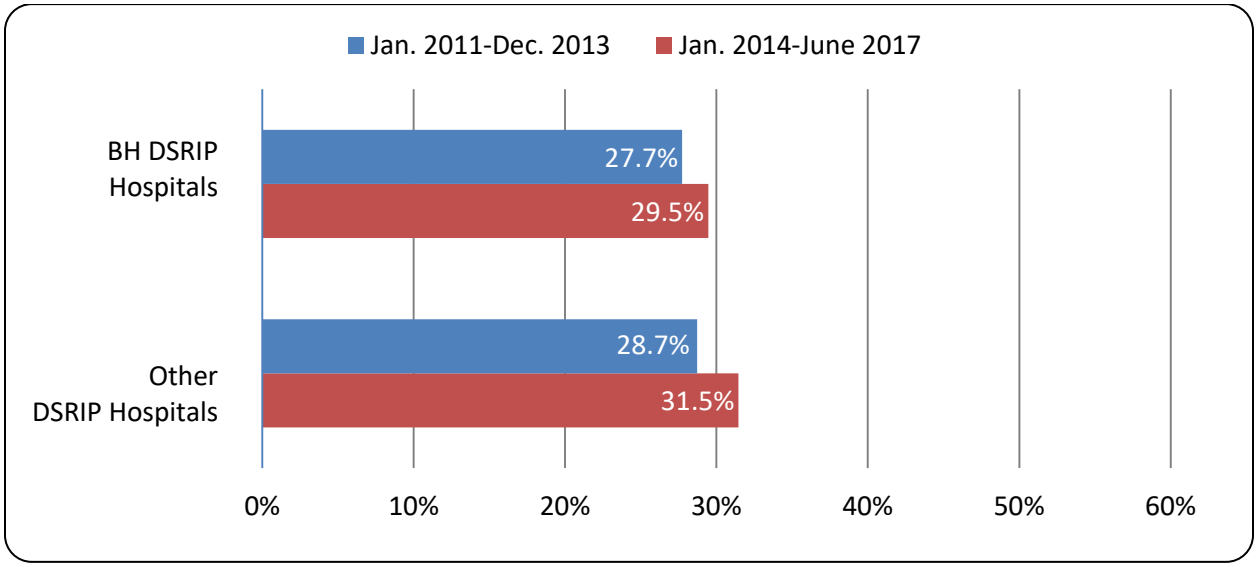
Pneumonia Program: Figures 3.12 reports pneumonia readmission rates in 2012 through June 2017 for patients in hospitals classified by participation in the pneumonia program. Average pneumonia readmission rates improved (decreased in magnitude) subsequent to DSRIP implementation for both categories of hospitals, and the improvement was of the same magnitude for DSRIP hospitals regardless of whether they took part in the pneumonia program.

Table 3.7 reports results from regression analyses examining the effect of the pneumonia program. The program's effect is reflected in a 2.4 percentage point increase in pneumonia readmissions, and this change was statistically significant.

Obesity Program: Figure 3.13 is an analysis of the hospital-level metric calculated and reported by the state on behalf of DSRIP-participating hospitals. It assesses the percentage of children ages 7-11 years old (attributed to DSRIP hospitals) who had access to primary care physicians.

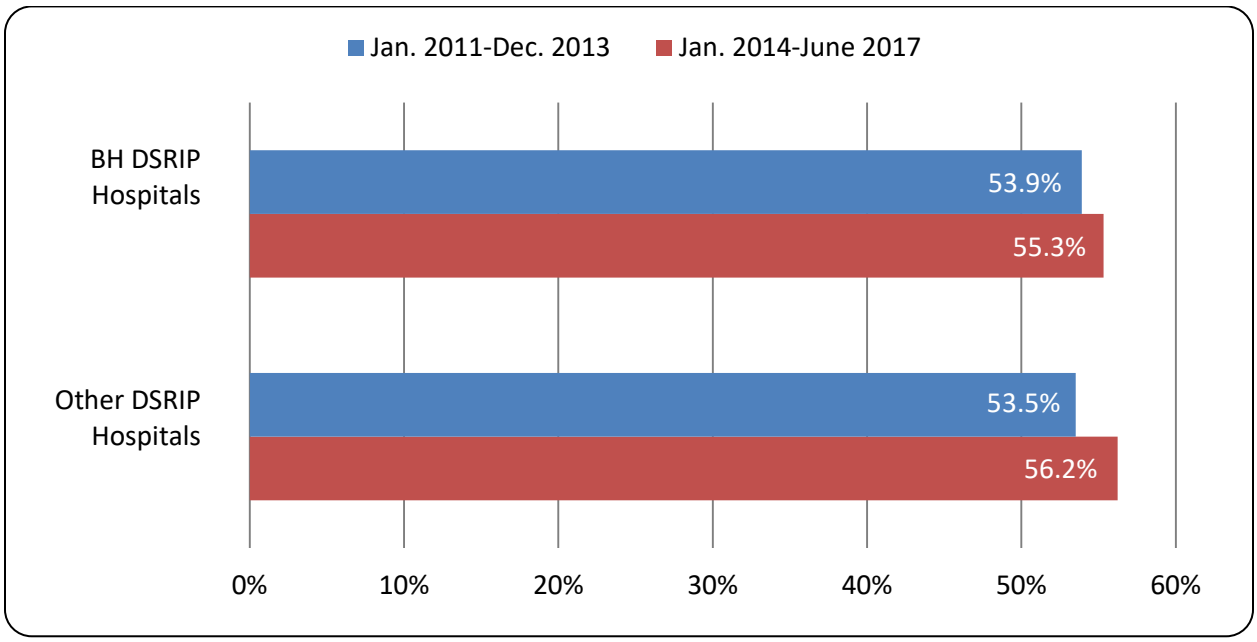
The hospital participating in the obesity program had slightly higher rates in both 2013 and 2014–2016 than hospitals in DSRIP but participating in interventions for other chronic conditions. While both groups of hospitals had decreases in this metric from 2013 to the 2014–2016 period, the decrease for the hospital with the obesity project was greater by 0.7 percentage points, though this was not statistically significant.

Figure 3.1: Rates of 7-Day Follow-up after Hospitalization for Mental Illness by DSRIP Hospital Participation in the Behavioral Health Program



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: BH=Behavioral Health.
Discharge-level analysis.

Figure 3.2: Rates of 30-Day Follow-up after Hospitalization for Mental Illness by DSRIP Hospital Participation in the Behavioral Health Program



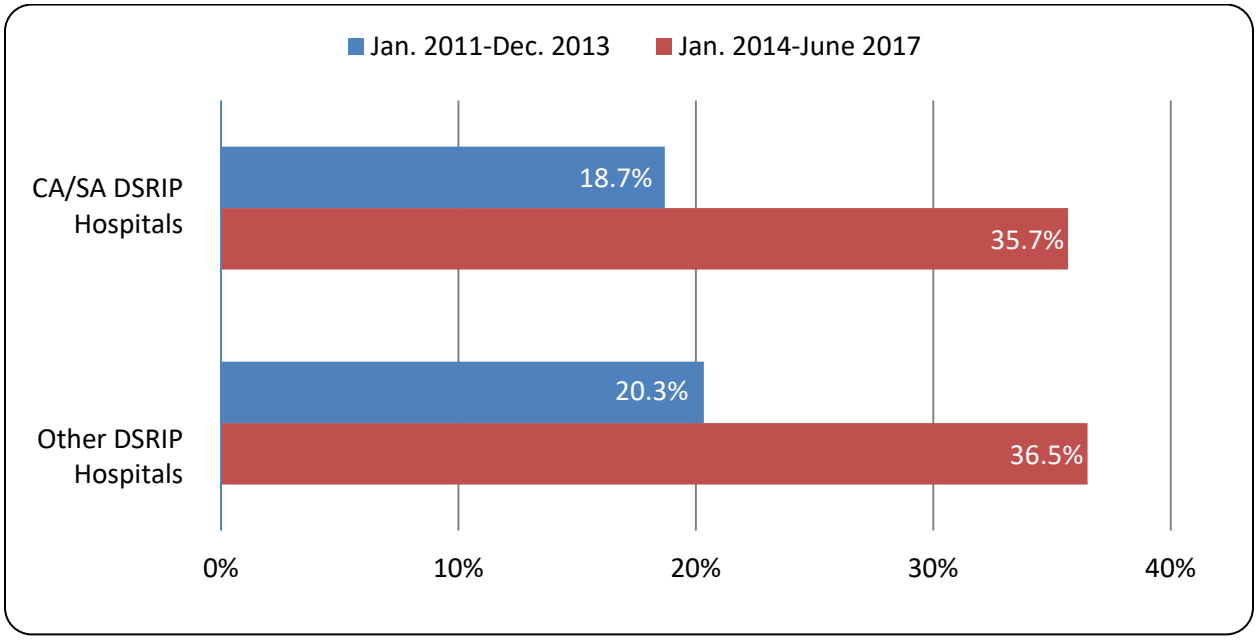
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: BH=Behavioral Health.
Discharge-level analysis.

Table 3.1: DSRIP Behavioral Health Program's Impact on Follow-up after Hospitalization for Mental Illness

n=57,916	DSRIP BH Program Impact Estimate
7-Day Follow-up	-0.001
	(0.016)
30-Day Follow-up	-0.005
	(0.023)

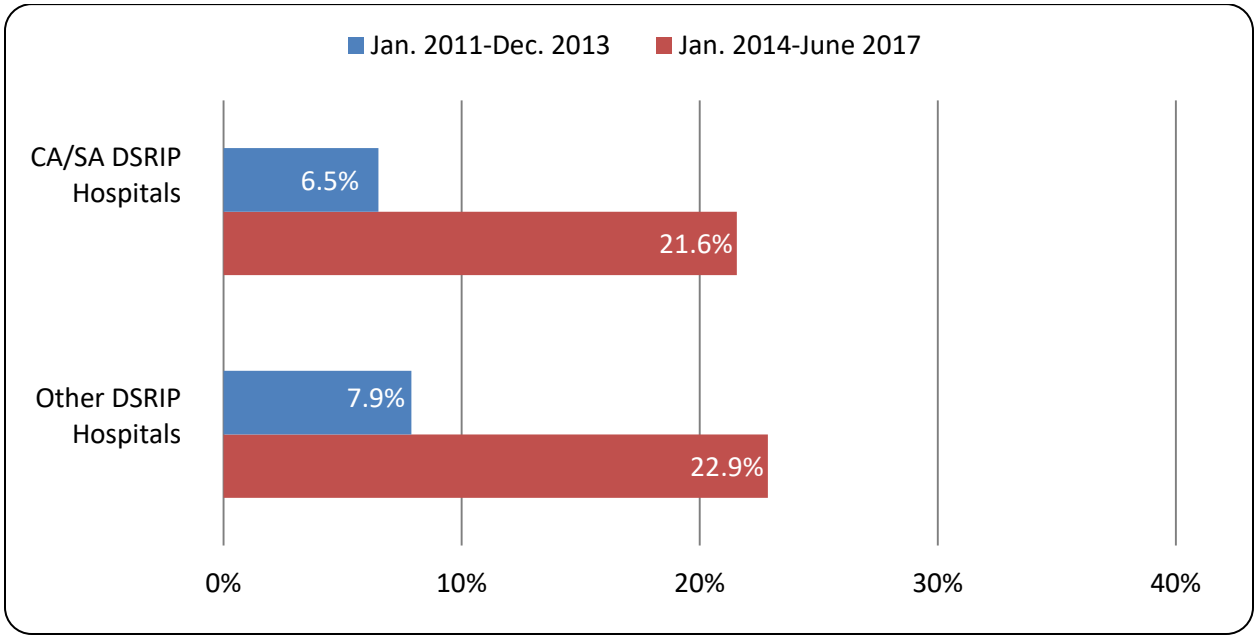
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: BH=Behavioral Health.
Discharge-level regression analysis with hospital fixed effects.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.3: Rates of Initiation in Alcohol or Other Drug Treatment by DSRIP Hospital Participation in the Chemical Addiction/Substance Abuse Program



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: CA/SA=Chemical Addiction/Substance Abuse.
Rates are reported for patients in zip codes with DSRIP hospitals participating in the CA/SA program, and also zip codes where hospitals did not take part in the program.

Figure 3.4: Rate of Engagement in Alcohol or Other Drug Treatment by DSRIP Hospital Participation in the Chemical Addiction/Substance Abuse Program



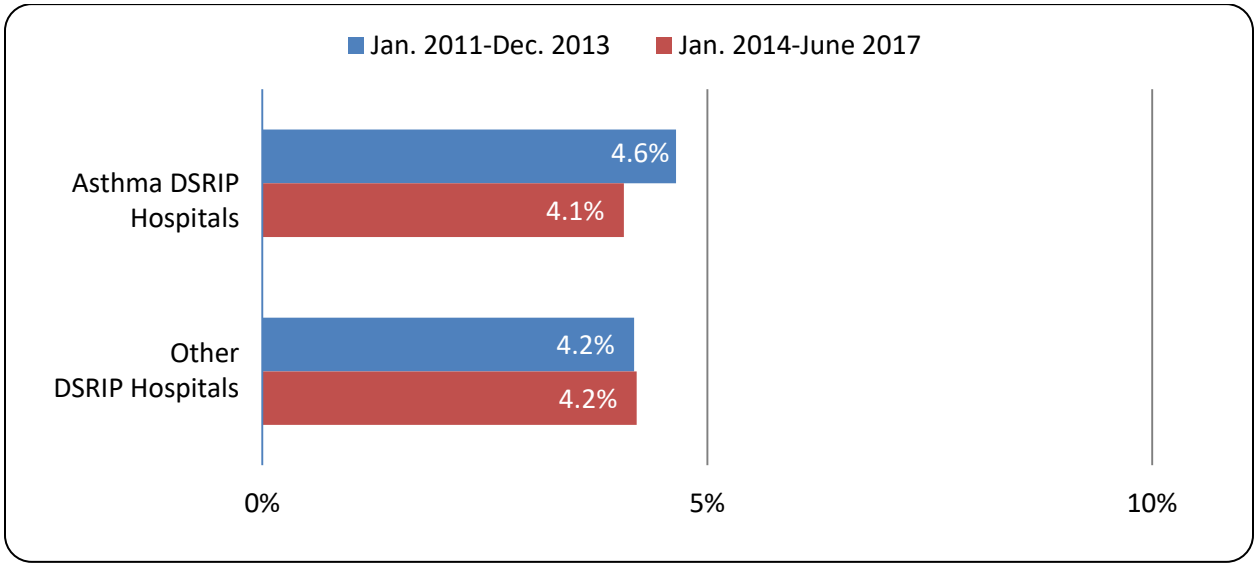
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: CA/SA=Chemical Addiction/Substance Abuse.
Rates are reported for patients in zip codes with DSRIP hospitals participating in the CA/SA program, and also zip codes where hospitals did not take part in the program.

Table 3.2: DSRIP Chemical Addiction/Substance Abuse Program's Impact on Initiation and Engagement in Alcohol and Other Drug Treatment

	DSRIP CA/SA Program Impact Estimate		
	Overall *(n=291,302)*	**Ages 13-17** *(n=14,835)*	**Ages 18+** *(n=276,467)*
Initiation of AOD Treatment	0.00014	-0.00039*	0.00008
	(0.00010)	(0.00023)	(0.00010)
Engagement in AOD Treatment	-0.00003	-0.00035*	-0.00008
	(0.00008)	(0.00020)	(0.00008)

Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: CA/SA=Chemical Addiction/Substance Abuse.
Patient-level regression analysis with zip code fixed effects.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.5: Emergency Department Visit for Asthma by DSRIP Hospital Participation in the Asthma Program



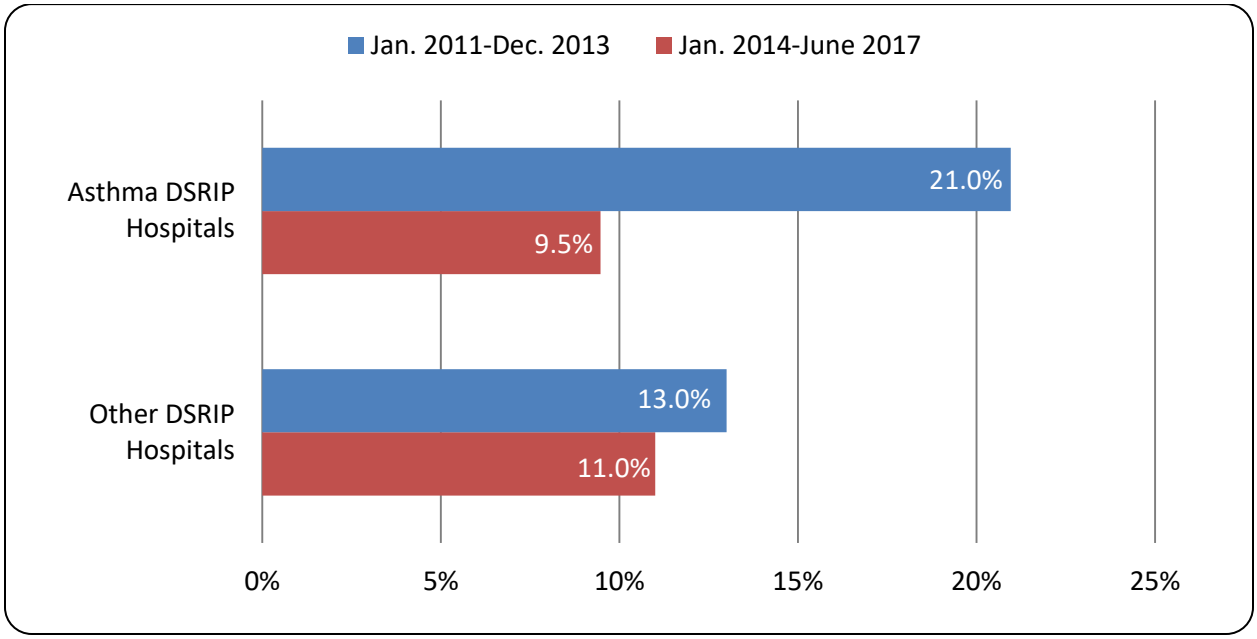
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Note: Bars reflect percentage of Medicaid beneficiaries with one or more ED visits for asthma during the year.
Percentages in the 'Asthma DSRIP Hospitals' category represent patients in zip code areas where hospitals took part in a DSRIP asthma program. The 'Other DSRIP Hospital' category represents patients in zip codes that have at least one hospital participating in DSRIP, but none participating in the DSRIP asthma program.

Table 3.3: DSRIP Asthma Program's Impact on Emergency Department Visits for Asthma

	DSRIP Asthma Project Impact Estimate	
	Ages 0-17 *(n=5,763,248)*	**Ages 18+** *(n=7,207,138)*
ED Visit for Asthma	-0.00010***	-0.00007**
	(0.00002)	(0.00003)

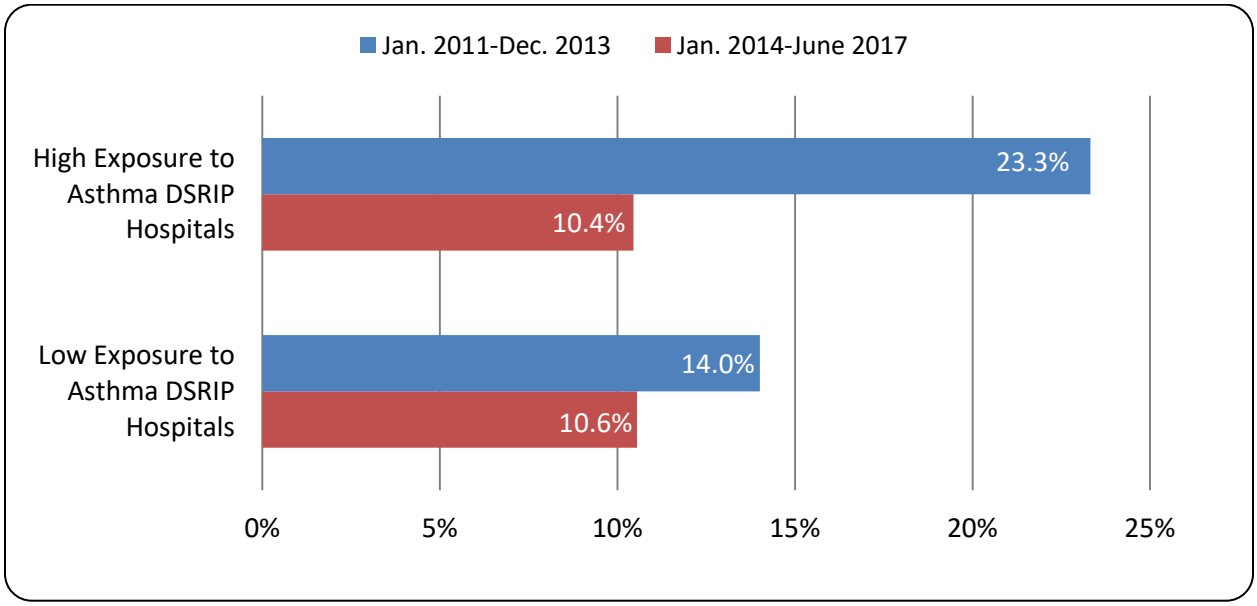
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: ED=Emergency Department.
Person-level regression analysis with zip code fixed effects.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.6: Younger Adult Asthma Admission Rates by DSRIP Hospital Participation in the Asthma Program



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Each bar represents a weighted average of zip code-level rates of avoidable hospitalizations per 10,000 Medicaid beneficiary-years relating to beneficiaries of age 18-39. The 'Asthma DSRIP Hospital' category represents those zip codes that have at least one hospital participating in the DSRIP asthma program. The 'Other DSRIP Hospital' category represents those zip codes that have at least one hospital participating in DSRIP, but none participating in the DSRIP asthma program.

Figure 3.7: Younger Adult Asthma Admission Rates by DSRIP Hospital High/Low Participation in the Asthma Program



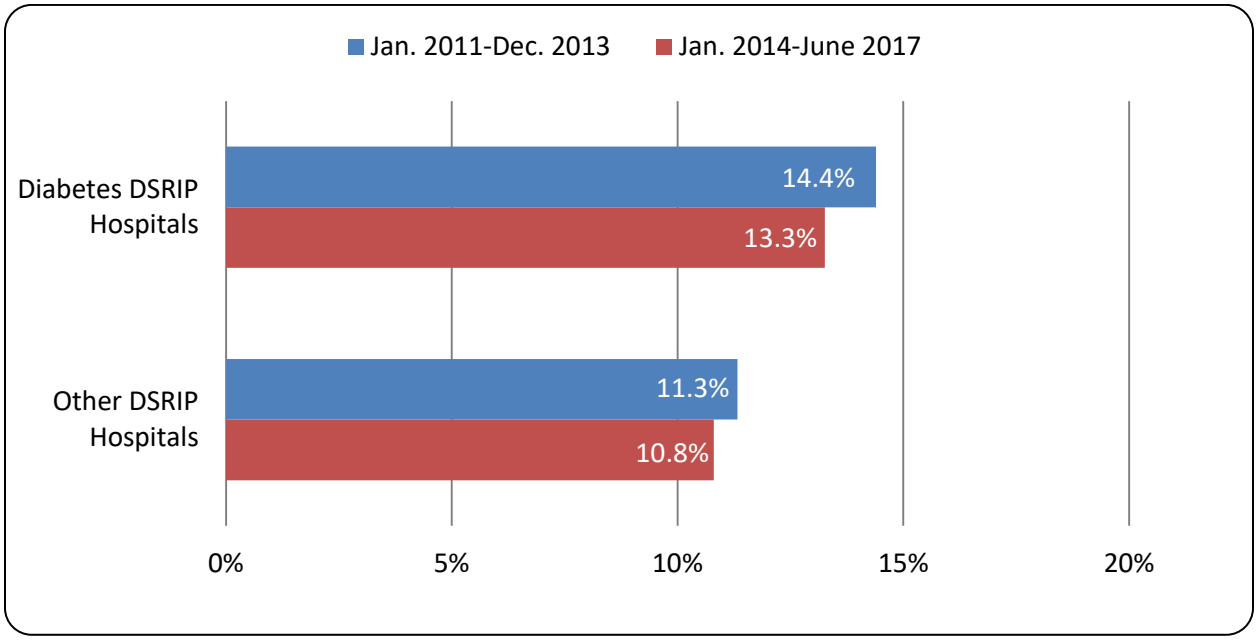
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Each bar represents a weighted average of zip code-level rates of avoidable hospitalizations per 10,000 Medicaid beneficiary-years relating to beneficiaries of age 18-39. Rates are reported separately for zip code areas with high and low exposure to the DSRIP asthma program (see Methods).

Table 3.4: DSRIP Asthma Program's Impact on Asthma in Younger Adults Admission Rate

(n=17,005)	DSRIP Asthma Project Impact Estimate
Younger Adults Asthma Admission Rate	-0.11974**
	(0.049)

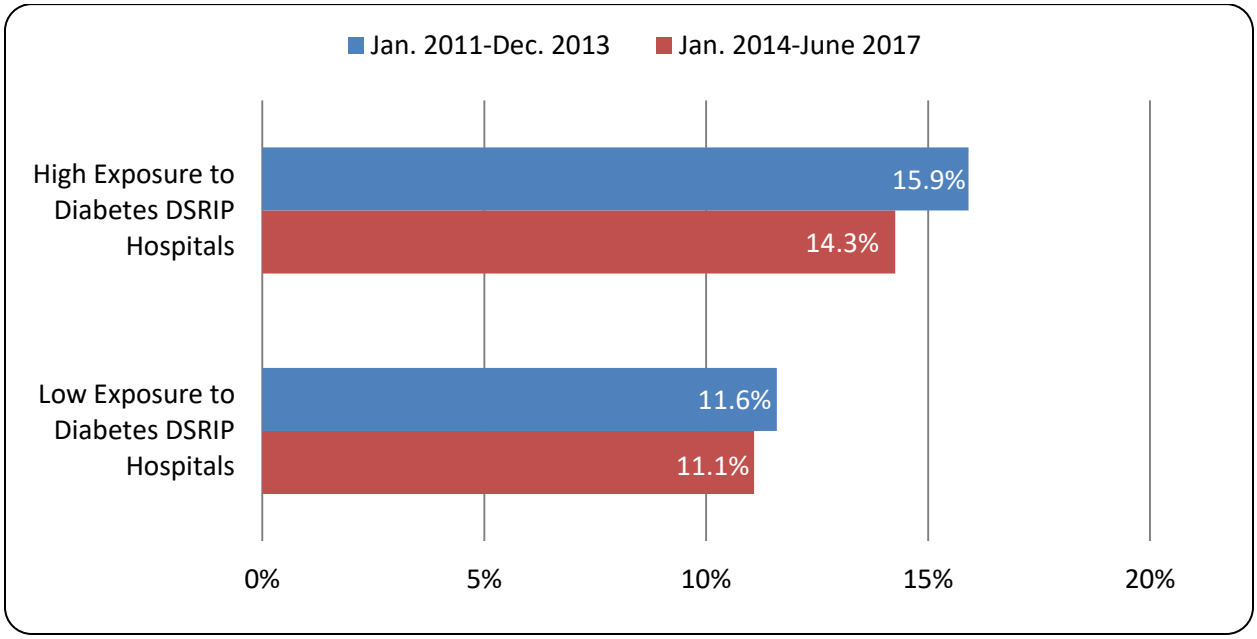
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Zip-level regression analysis with zip code fixed effects.
Rates are per 10,000 Medicaid beneficiary-years for beneficiaries ages 18-39.
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.8: Diabetes Short-Term Complications Admission Rates by DSRIP Hospital Participation in the Diabetes Program



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Each bar represents a weighted average of zip code-level rates of avoidable hospitalizations per 10,000 Medicaid beneficiary-years relating to beneficiaries of ages 18 and above. The 'Diabetes DSRIP Hospital' category represents those zip codes that have at least one hospital participating in the DSRIP diabetes program. The 'Other DSRIP Hospital' category represents those zip codes that have at least one hospital participating in DSRIP, but none participating in the DSRIP diabetes program.

Figure 3.9: Diabetes Short-Term Complications Admission Rates by DSRIP Hospital High/Low Participation in the Diabetes Program



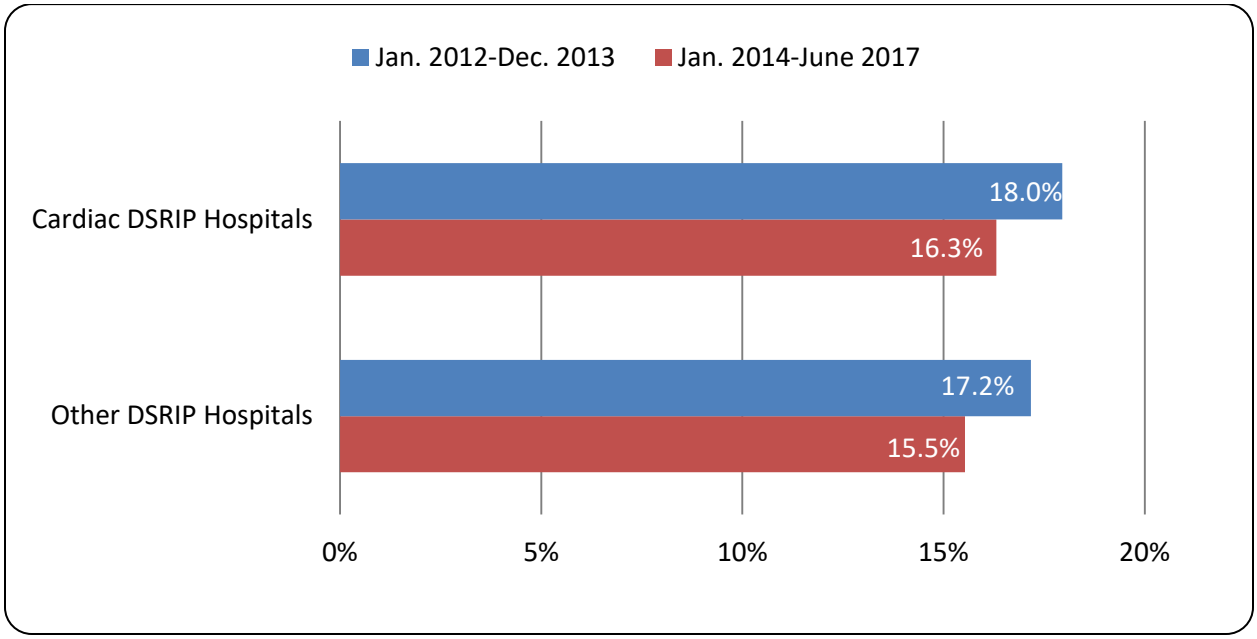
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Each bar represents a weighted average of zip code-level rates of avoidable hospitalizations per 10,000 Medicaid beneficiary-years relating to beneficiaries of ages 18 and above. Rates are reported separately for zip code areas with high and low exposure to the DSRIP diabetes program (see Methods).

Table 3.5: DSRIP Diabetes Program's Impact on Diabetes Short-Term Complications Admission Rate

(n=17,390)	**DSRIP Diabetes Project Impact Estimate**
Diabetes Short-term Complications Admission Rate	-0.01461
	(0.020)

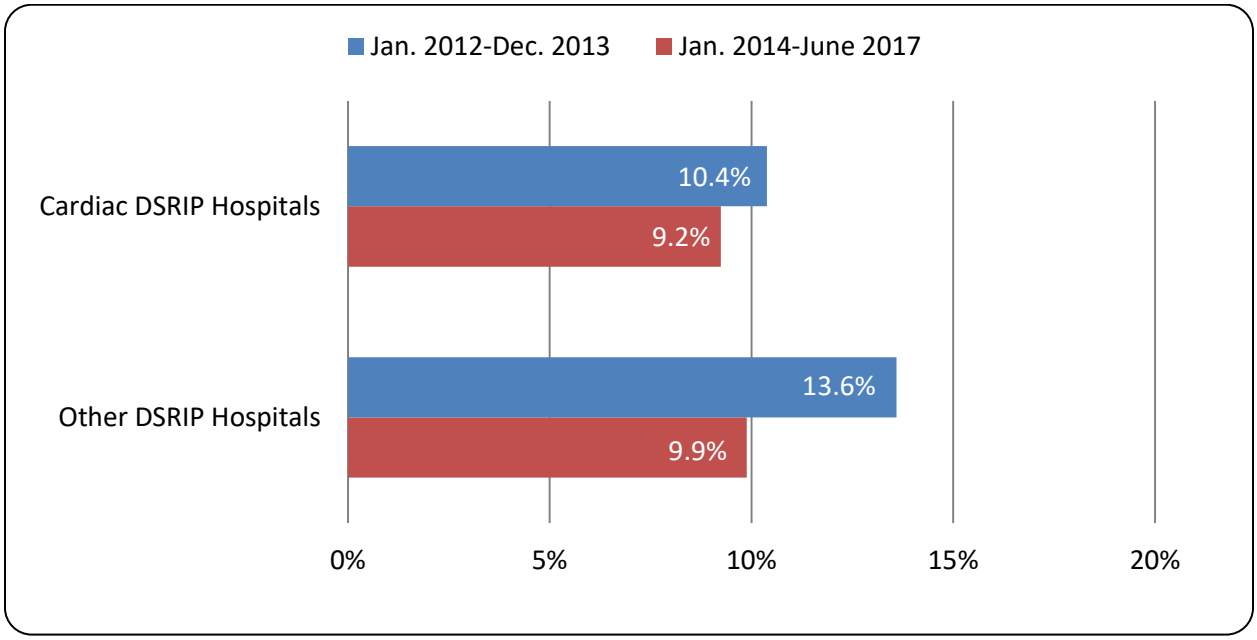
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Zip-level regression analysis with zip code fixed effects.
Rates are per 10,000 Medicaid beneficiary-years for beneficiaries ages 18+.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.10: Heart Failure Readmission Rates by DSRIP Hospital Participation in the Cardiac Care Program



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Discharge-level analysis.

Figure 3.11: Acute Myocardial Infarction (AMI) Readmission Rates by DSRIP Hospital Participation in the Cardiac Care Program



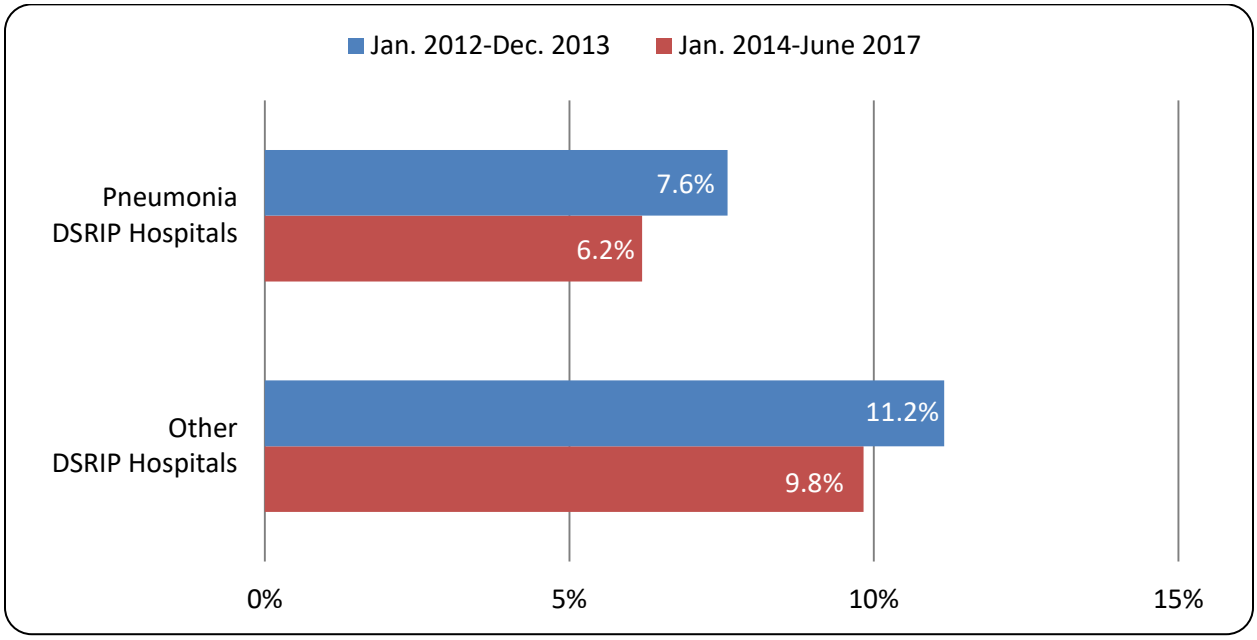
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Discharge-level analysis.

Table 3.6: DSRIP Cardiac Program's Impact on 30-Day Readmissions for Heart Failure and Acute Myocardial Infarction

	DSRIP Cardiac Project Impact Estimate
HF Readmissions *(n=12,552)*	0.009
	(0.015)
AMI Readmissions *(n=5,216)*	0.019
	(0.022)

Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Discharge-level regression analysis with hospital fixed effects.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
See Appendix G for full model results.

Figure 3.12: Pneumonia Readmission Rates by DSRIP Hospital Participation in the Pneumonia Program



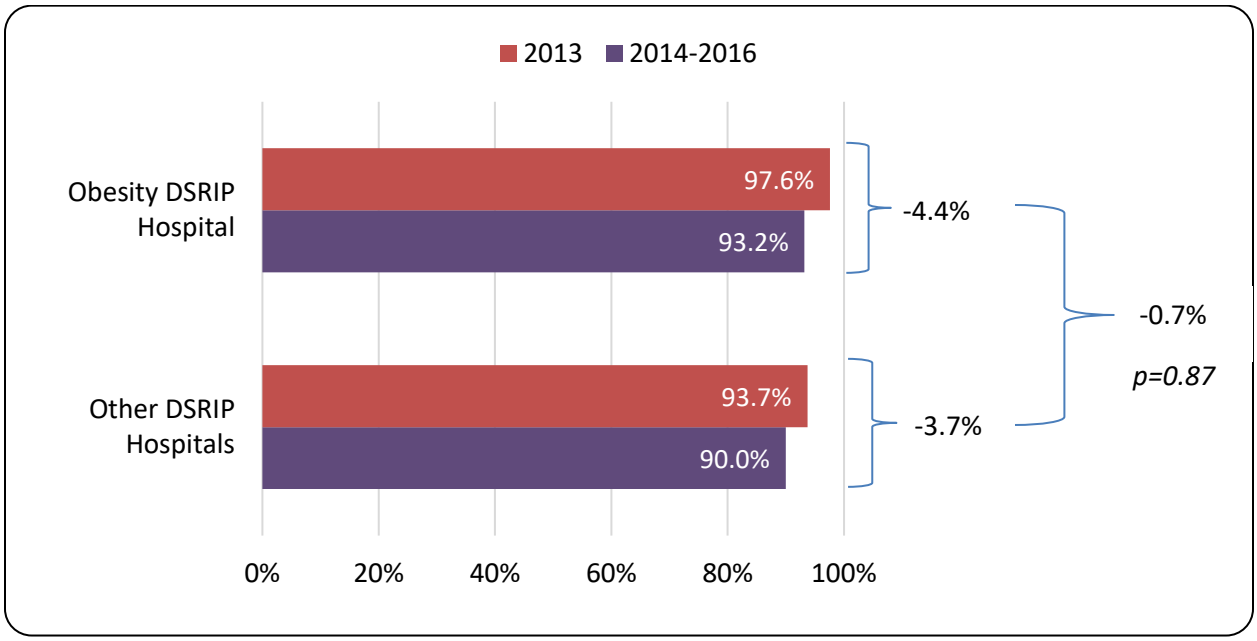
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Discharge-level analysis.

Table 3.7: DSRIP Pneumonia Program's Impact on 30-Day Readmissions for Pneumonia

(n=15,562)	DSRIP Pneumonia Project Impact Estimate
Pneumonia Readmissions	0.024***
	(0.006)

Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Discharge-level regression analysis with hospital fixed effects. Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.13: Children and Adolescents' Access to Primary Care Physicians (Ages 7–11) by DSRIP Hospital Participation in the Obesity Program



Source: 2018 New Jersey DSRIP Metrics Analysis 2013-2016, Rutgers Center for State Health Policy.
Notes: Hospital-level analysis weighted by hospitals' attributed population ages 7-11 years.

Impact of DSRIP Program Overall

30-Day Readmissions: Figures 3.14–3.17 and Table 3.8 are based on 30-day readmission rates that are used to assess the overall effect of the DSRIP program. Figures 3.14–3.17 report average readmission rates for patients in hospitals distinguished by participation in the DSRIP program, for the baseline years 2012–2013 and for the entire implementation period, 2014 through mid-2017. Readmission rates for heart failure and pneumonia improved (decreased in magnitude) for both groups of hospitals from baseline (see Figures 3.14 and 3.16) and stayed nearly the same for COPD (see Figure 3.17). For AMI, readmission rates decreased in magnitude for participating hospitals and worsened (increased in magnitude) for hospitals not participating in the DSRIP program (see Figure 3.15).

Regression analyses reveal that the overall effect of the DSRIP program measured in terms of changes in any of the four readmission rates was not statistically significant. In terms of magnitude the effect ranges from a 3.0 percentage point decrease in readmissions following AMI to a 1.7 percentage point increase in readmissions following hospitalization for heart failure.

Inpatient Mental Health Utilization: Figure 3.18 reports mental health utilization rates for beneficiaries in zip codes distinguished by whether the area hospitals participated in the DSRIP program. The utilization rates were less than 1% and very similar between zip codes with DSRIP-participating hospitals and zip codes without DSRIP-participating hospitals. The regression analysis shows an increase of 1/10 of a percentage point in the likelihood of inpatient mental health utilization (see Table 3.9) as zip code DSRIP exposure increases from 0 to 100%. This was statistically significant.

Avoidable Hospital (Inpatient and ED) Utilization: Figures 3.19 and 3.20 report rates of avoidable hospitalizations aggregated across zip codes distinguished by their exposure to the DSRIP program. Rate of avoidable hospitalizations decreased over time in the zip codes where at least one hospital participated (see Figure 3.19) and zips where the hospitals accounting for the majority of discharges participated in DSRIP (See Figure 3.20). This same trend is observed in zip codes where area hospitals did not take part in the program.

Figure 3.21 reveals that the rate of avoidable ED visits remained virtually unchanged in the group of zip codes which had at least one hospital participating in the DSRIP program. It decreased in the remaining zip codes. The ED visit rate also remained virtually unchanged in the zip codes that had high DSRIP exposure and decreased in those with low DSRIP exposure (see Figure 3.22).

Table 3.10 reports regression analyses examining the effect of the DSRIP program on avoidable inpatient hospitalizations and ED visits. The effect of the DSRIP program is reflected in a

statistically significant increase in avoidable ED visits. On average, as a zip code goes from 0% to 100% exposure to DSRIP, rates of avoidable ED visits over a year, increased on an average by 219.3 per 10,000 Medicaid beneficiaries. ($p<0.05$). The corresponding avoidable hospitalization rate increased by 7.5, but this was not statistically significant.[5]

Avoidable Hospital Costs: Figures 3.23-3.26 report rates of costs associated with avoidable hospital use, both inpatient and ED, aggregated across zip codes distinguished by their exposure to the DSRIP program. The costs are reported per 10,000 Medicaid beneficiary-years.

These costs are higher in both the baseline and DSRIP implementation periods for zip codes with some (compared to none) or high (compared to low) exposure to the DSRIP program.

Avoidable inpatient costs decrease from the baseline period for all categories of zip codes. For avoidable ED costs, we see an increasing trend except for zip codes with no exposure to DSRIP. Table 3.11 reports regression analyses examining the effect of the DSRIP program on avoidable inpatient hospitalization and ED visit costs. This table reports the ratio of ratios (ROR) of these costs where a magnitude greater than one reflects a positive association between the DSRIP program and avoidable costs. We see the effect of the DSRIP program on costs (measured as the effect of a zip code going from zero to full DSRIP exposure results in virtually no change ($ROR\approx1$) in avoidable costs. The result for avoidable inpatient hospitalization costs is not statistically significant, but for avoidable ED costs it is significant ($p<0.01$).

Table 3.12 shows avoidable hospital costs per 10,000 Medicaid beneficiary-year for DSRIP exposed and non-exposed zip codes stratified by race/ethnicity and gender. Costs associated with preventable inpatient hospitalizations decreased across all racial/ethnic and gender groups from the baseline to the post-implementation period in DSRIP zips. In contrast, those same zips over the same time period and within each of these population subgroups experienced an increase in the costs associated with avoidable ED visits.

The highest costs for both avoidable inpatient hospitalizations and ED visits are for blacks, and trends for blacks and Hispanics are different from other population subgroups when examining preventable inpatient hospitalization costs in non-DSRIP zips across the study period. Specifically, costs per beneficiary-year for avoidable hospitalizations decrease from the baseline to the DSRIP implementation period for whites and those of other race/ethnicity, but for the black population in zips with no participating DSRIP, the costs increase.

[5] The impact estimate gets larger (14 avoidable hospitalizations per 10,000 Medicaid beneficiary-years) when basing DSRIP exposure on a choice set with a 90% threshold, but is still not statistically significant.

Racial/Ethnic Disparities in Hospital Readmissions: Figures 3.27–3.30 report changes in readmission rates following hospitalization for HF, AMI, pneumonia and COPD from the baseline to the implementation period of the DSRIP program separately for whites, blacks, Hispanics and all other race/ethnicities combined. Rates are compared between hospitals participating in the DSRIP program and those that did not. Some of these estimates were not reported due to insufficient sample sizes that raise reliability as well as identifiability concerns.

We find that HF readmission rates decreased for blacks, and this decrease was greater in the comparison group of non-participating hospitals than in DSRIP-participating hospitals.

AMI and pneumonia readmission rates in DSRIP-participating hospitals decreased over time for all race/ethnicity categories. Sample sizes are insufficient to determine the changes in AMI readmission rates for non-white patients in comparison hospitals, but for pneumonia hospitalizations, readmission rates in comparison hospitals also decreased for patients who were black, Hispanic, or belonged to the other race/ethnicity category. Readmissions following COPD hospitalizations changed by less than one percentage point from baseline in DSRIP hospitals for all racial/ethnic categories, except for black patients.

Table 3.13 reports regression-based findings from analysis of racial disparities in readmission rates with separate estimates for patients belonging to each of the racial/ethnic categories (when sample size is adequate). The analysis compares changes in readmission rates over time for DSRIP participating hospitals relative to a comparison group of hospitals.

Disparities between patients of other race/ethnicity and whites in readmission rates following heart failure decreased among DSRIP-participating hospitals by 14.8 percentage points, and this was statistically significant ($p<0.05$). The other statistically significant findings, a 10 pp disparity decrease in HF readmissions for Hispanics and increases in disparities for AMI readmissions of 12 to 28 pp for all minority populations in DSRIP–participating hospitals, were based on insufficient sample sizes and cannot be deemed reliable. All other changes were not statistically significant.

Gender Disparities in Hospital Readmissions: The decrease in readmission rates for females in DSRIP participating hospitals was greater than the decrease for males when it came to HF (Figure 3.31) and pneumonia (Figure 3.33). For AMI readmissions, decreases in readmission rates for females and males were very similar in DSRIP-participating hospitals (2.4 and 2.6 percentage points, respectively), but for hospitals that did not participate in the program, there was a 2.6 pp increase in readmissions for males and nearly no change (+0.2 pp) for females (see Figure 3.32). Table 3.14 reports findings from the regression analysis. Gender-based disparities decreased when measured in pneumonia readmissions, and increased based on AMI and COPD

readmissions. The 8.3 percentage point increase in gender disparities for readmissions following COPD hospitalizations was marginally statistically significant (p=0.1).

Racial/Ethnic and Gender Disparities in Avoidable Inpatient Hospitalizations: Figure 3.35 reveals that when we considered all zip codes with at least one hospital participating in the DSRIP program, the difference in avoidable inpatient hospitalizations per 10,000 Medicaid beneficiary-years between blacks and whites increased by 5 from baseline to the DSRIP implementation period. The difference in this rate between Hispanics and whites also increased by 14 over the same period.

The difference in rates of avoidable hospitalizations between females and males for zip codes with DSRIP participating hospitals decreased by 6 hospitalizations per 10,000 beneficiary-years (See Figure 3.36).

Table 3.15 reports the extent to which racial/ethnic and gender disparities in avoidable hospitalizations were impacted by the DSRIP program. The coefficient estimates reported here represent the average effect of a 1% increase in DSRIP exposure on the difference in rates of avoidable hospitalizations between any minority group and whites, or correspondingly, the difference in rates of avoidable hospitalizations between females and males. We see that compared to a zip code with zero exposure to DSRIP, a zip code with 100% exposure to DSRIP (100% exposure means that all hospitals, and zero exposure means none of the hospitals serving a zip code, took part in the DSRIP program) had 36 fewer hospitalizations over a year, by black patients relative to hospitalizations by white patients, per 10,000 Medicaid beneficiaries. Similarly the difference in hospitalization rates between other race/ethnicities and whites decreased by 76.8. This latter estimate was statistically significant.

We also found that females had lower rates of hospitalizations compared to males (difference in rates decreased by 13.9 hospitalizations per 10,000 beneficiaries), but the magnitude of this change was not statistically significant.

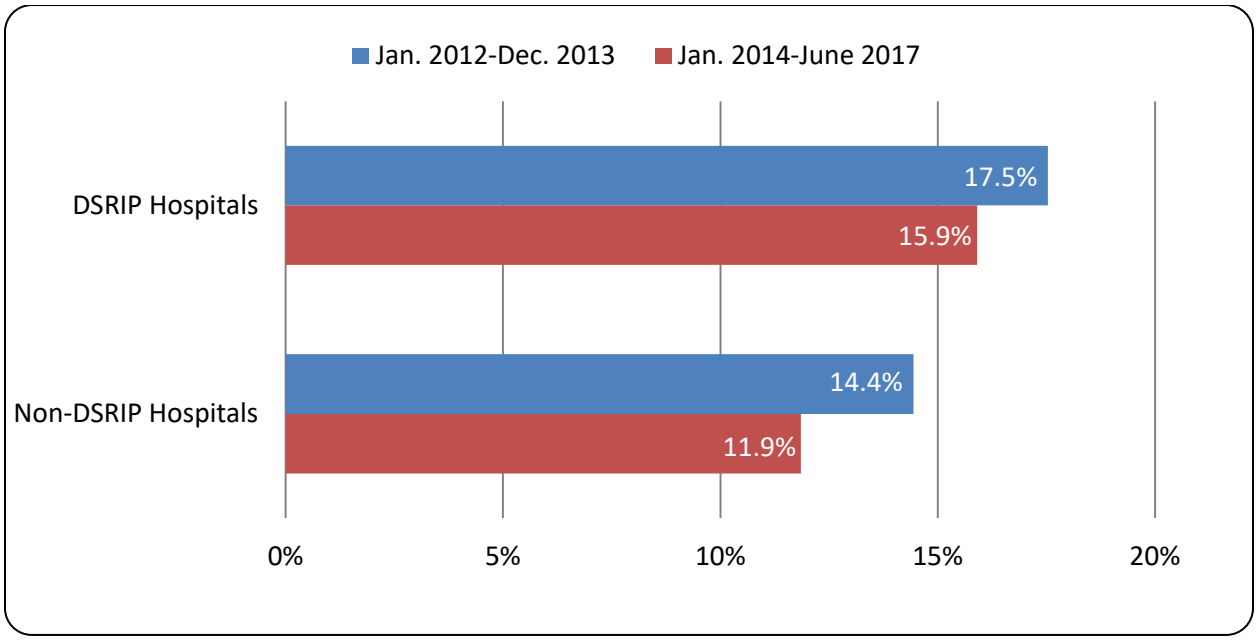
Racial/Ethnic and Gender Disparities in Avoidable ED Visits: The difference in the rate of avoidable ED visits between blacks and Hispanics compared with whites increased in zip codes where there was at least one DSRIP participating hospital from baseline to the DSRIP implementation period (see Figure 3.37). By contrast, in zips with no exposure to DSRIP, the difference in rates between Hispanics and white decreased by 423 visits per 10,000 beneficiary-years. The corresponding difference in rates between females and males was a decrease of 51 over the same period (see Figure 3.38).

Table 3.16 reports the effect of the program on racial/ethnic and gender disparities in avoidable ED visits based on a regression analysis. Estimates show increases in the difference in rates of ED visits between whites and both Blacks and Hispanics and females and males, but these differences were not statistically significant. Compared to a zip code with no DSRIP exposure, in a zip code with full DSRIP exposure, the difference in rates of avoidable ED visits (per 10,000 Medicaid beneficiary-years) between the population of Medicaid beneficiaries belonging to other race/ethnicity groups and whites decreased by 206 visits per 10,000 beneficiary years.[6]

Hospital Finances: Figures 3.39 and 3.40 examine the effects of the DSRIP program on hospital financial performance measured by total margin and operating margin. The effect of the program on total margins was positive, resulting in a 2.4 percentage point increase from baseline. This change was not statistically significant. In contrast, operating margins that reflect hospital financial performance that is directly related to patient care worsened for DSRIP participating hospitals over 2014–2016 compared to 2011–2013. The program effect was a decline of 18.6 percentage points in operating margins but again, this is not statistically significant.

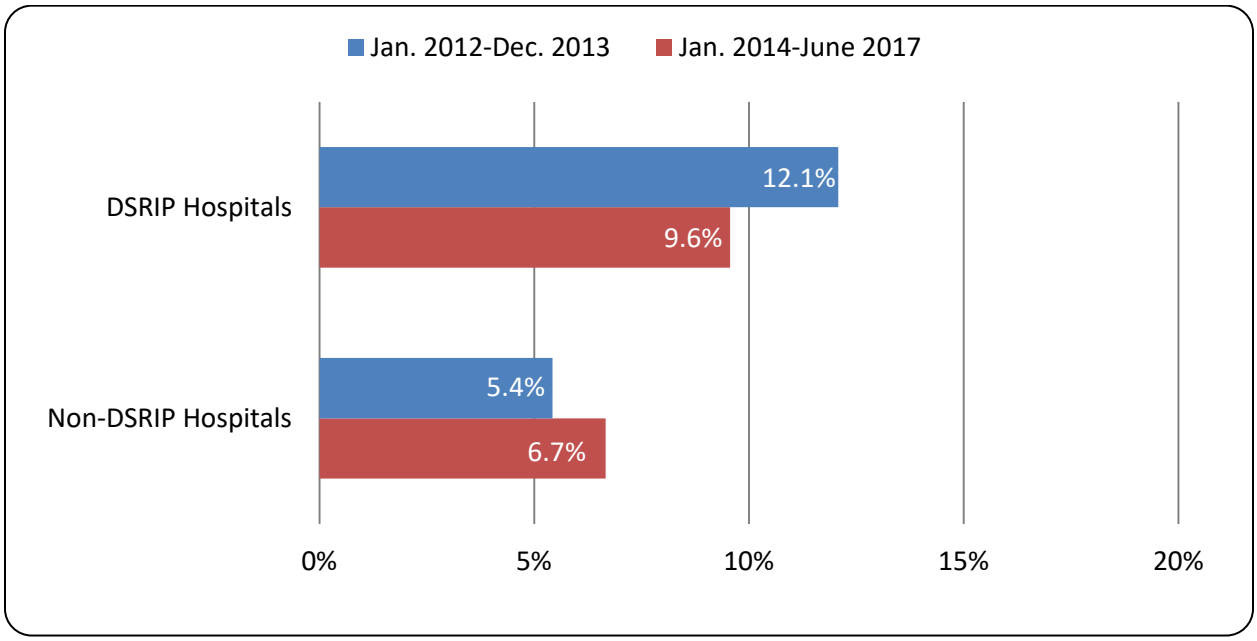
[6] The magnitude of the rate difference gets larger (247.6 avoidable ED visits per 10,000 Medicaid beneficiary-years) and this decrease in disparities becomes marginally significant ($p<0.10$) when basing DSRIP exposure on a choice set with a 90% threshold.

Figure 3.14: Heart Failure Readmission Rates by Hospital Participation in the DSRIP Program



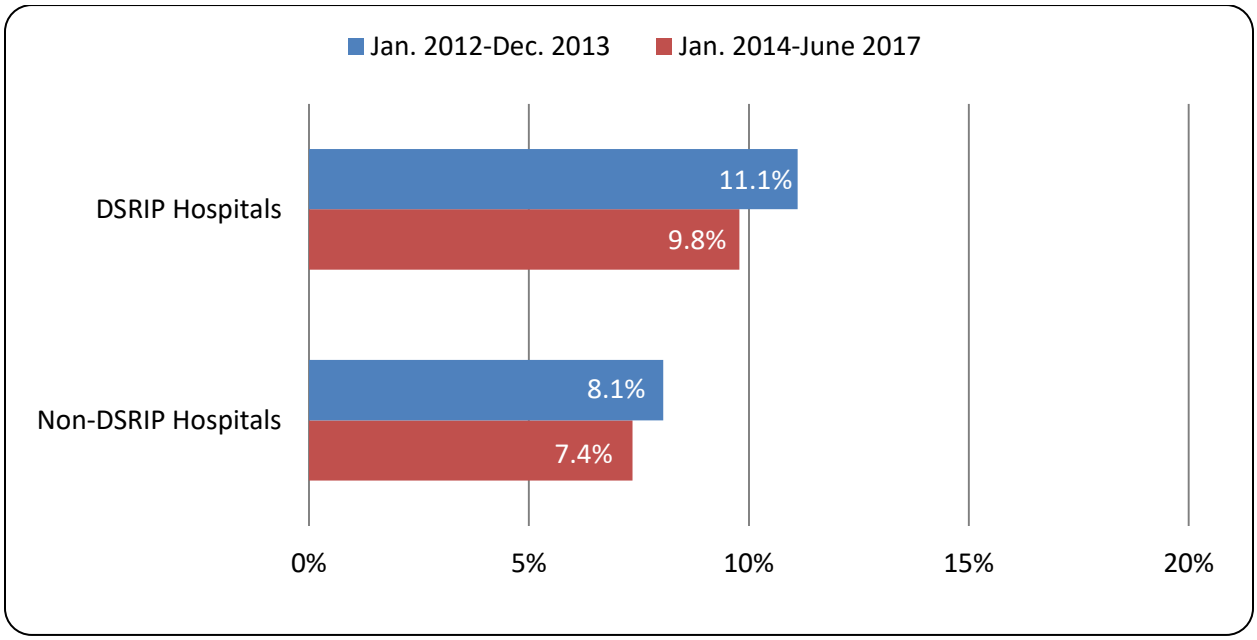
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Discharge-level analysis.

Figure 3.15: Acute Myocardial Infarction (AMI) Readmission Rates by Hospital Participation in the DSRIP Program



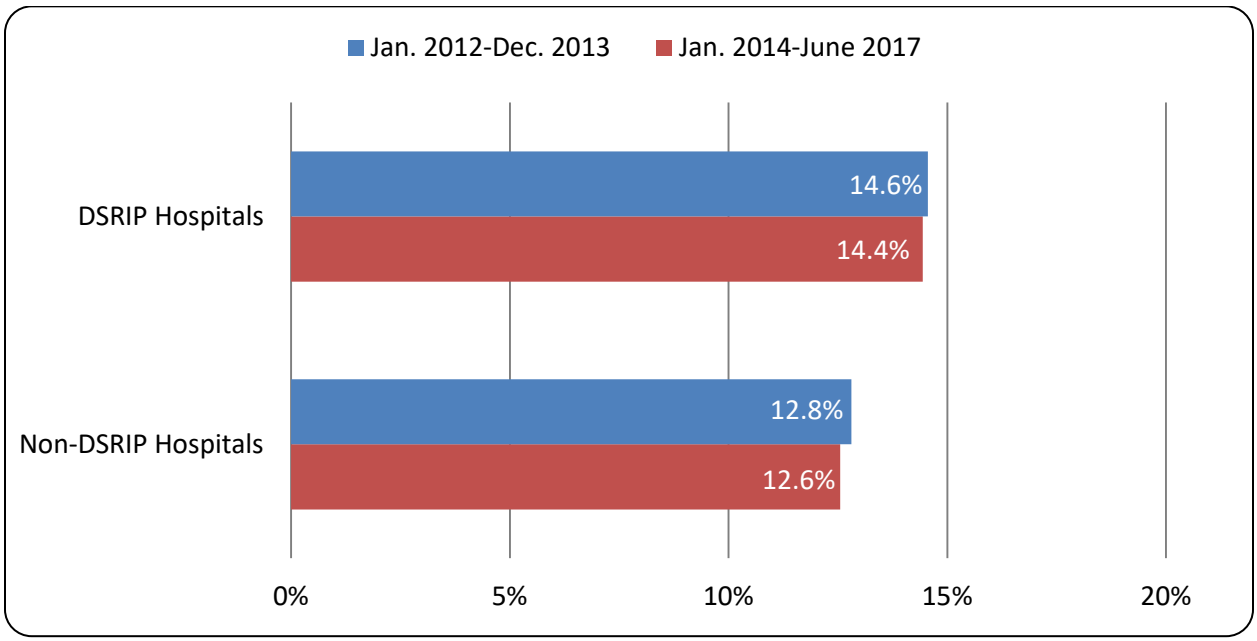
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Discharge-level analysis.

Figure 3.16: Pneumonia Readmission Rates by Hospital Participation in the DSRIP Program



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Discharge-level analysis.

Figure 3.17: Chronic Obstructive Pulmonary Disease (COPD) Readmission Rates by Hospital Participation in the DSRIP Program



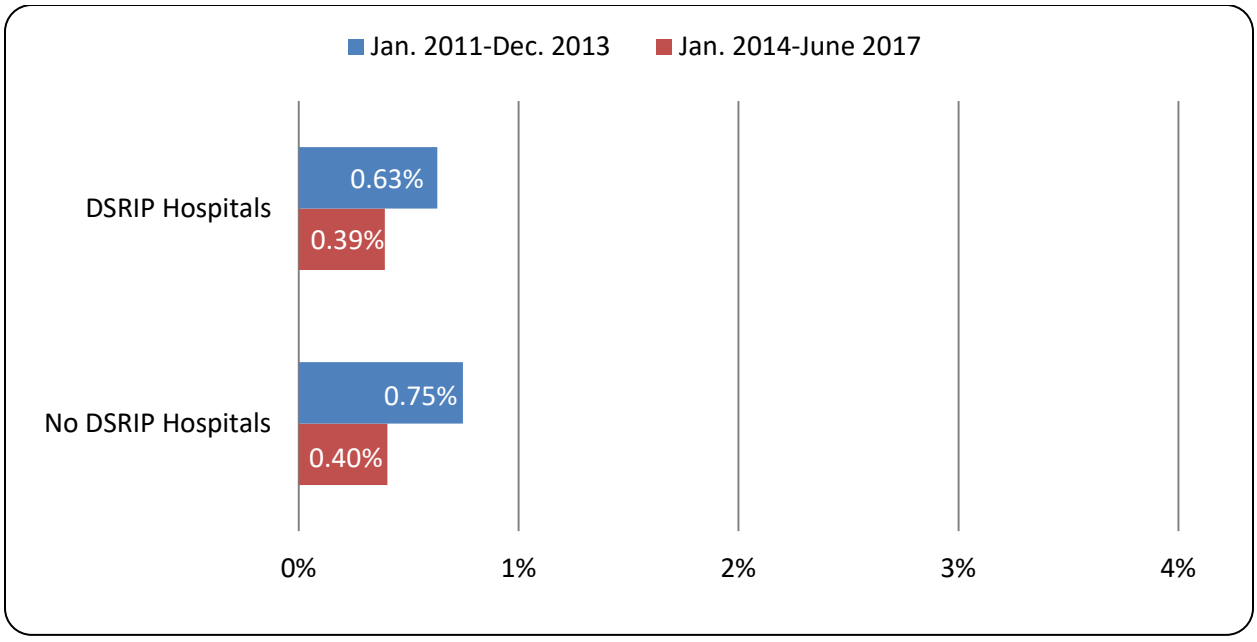
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Discharge-level analysis.

Table 3.8: Overall DSRIP Program Impact on 30-Day Readmissions for Heart Failure, Acute Myocardial Infarction, Pneumonia, and Chronic Obstructive Pulmonary Disease

	Overall DSRIP Impact Estimate
Heart Failure *(n=13,594)*	0.017
	(0.033)
Acute Myocardial Infarction *(n=5,570)*	-0.032
	(0.033)
Pneumonia *(n=17,253)*	0.001
	(0.020)
COPD *(n=17,153)*	0.009
	(0.020)

Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: COPD=Chronic Obstructive Pulmonary Disease.
Discharge-level regression analysis with hospital fixed effects.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.18: Inpatient Mental Health Utilization by Hospital Participation in the DSRIP Program



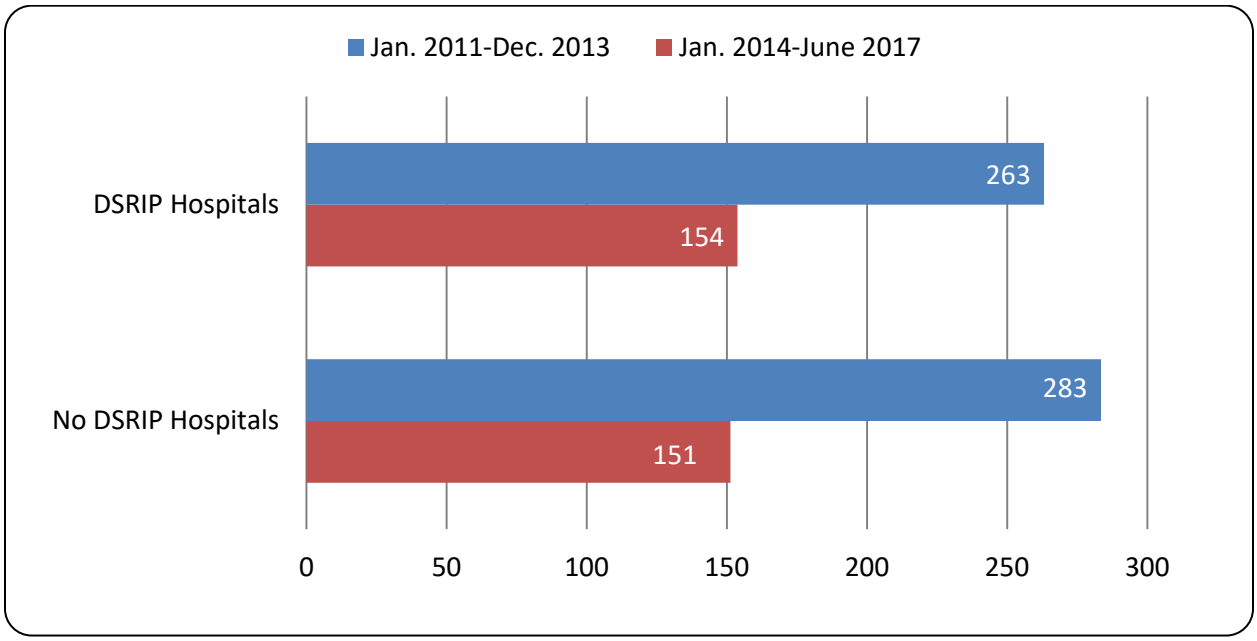
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Note: Bars reflect percentage of Medicaid beneficiaries with one or more inpatient mental health stays during the year. Percentages in the 'DSRIP Hospitals' category represent patients in zip code areas where at least one hospital took part in the DSRIP program.

Table 3.9: Overall DSRIP Program Impact on Inpatient Mental Health Utilization

(n=12,855,115)	**Overall DSRIP Impact Estimate**
Mental Health Utilization - Inpatient	0.00001***
	(0.00000)

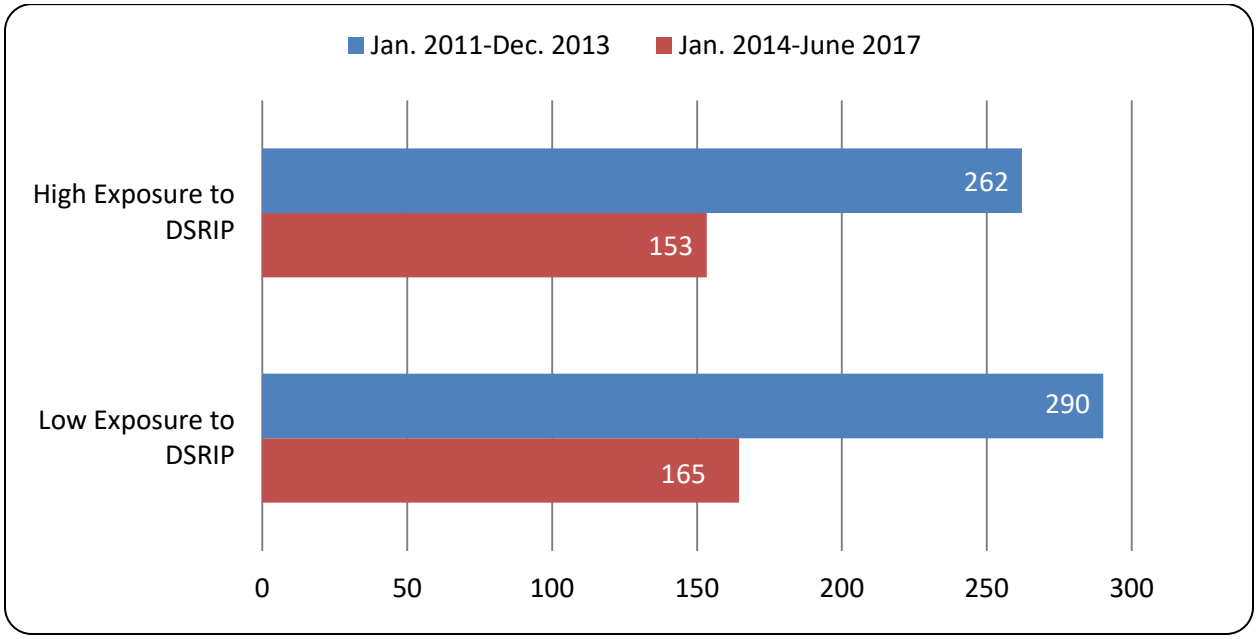
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data, Analysis by Rutgers Center for State Health Policy.
Notes: Person-level regression analysis with zip code fixed effects.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.19: Rates of Avoidable Inpatient Hospitalizations by Hospital Participation in the DSRIP Program



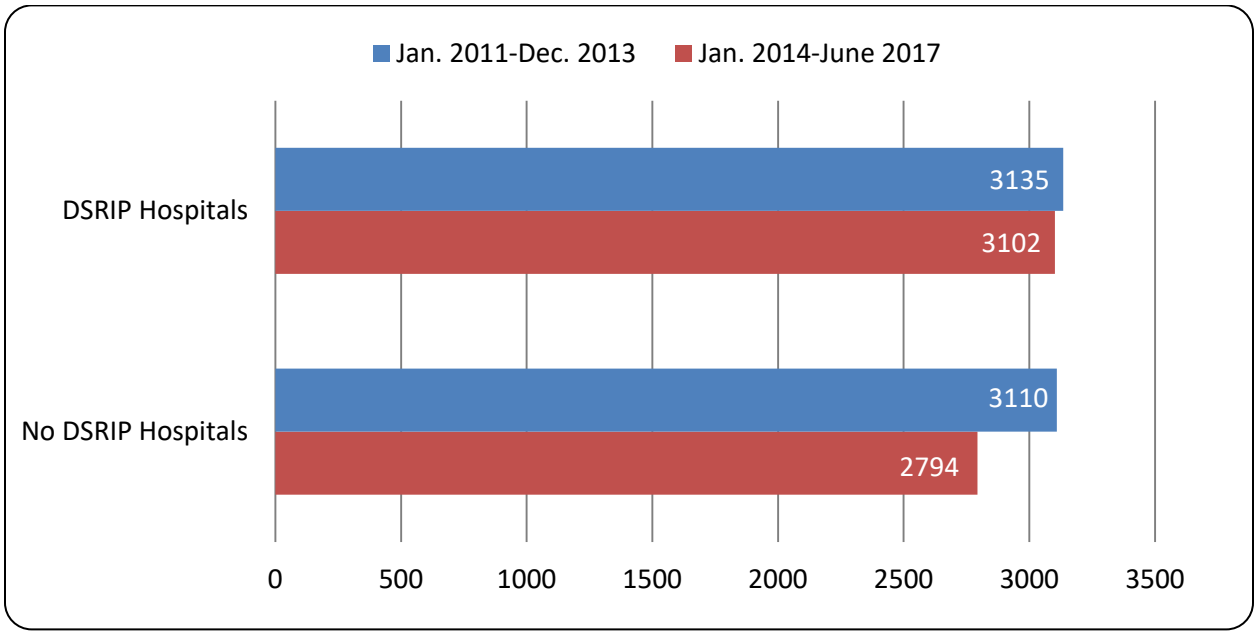
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Each bar represents a weighted average of zip code-level rates of avoidable hospitalizations per 10,000 Medicaid beneficiary-years relating to beneficiaries of age 18 and above. The 'DSRIP Hospitals' category represents those zip codes that have at least one hospital participating in the DSRIP program.

Figure 3.20: Rates of Avoidable Inpatient Hospitalizations by Hospital High/Low Participation in the DSRIP Program



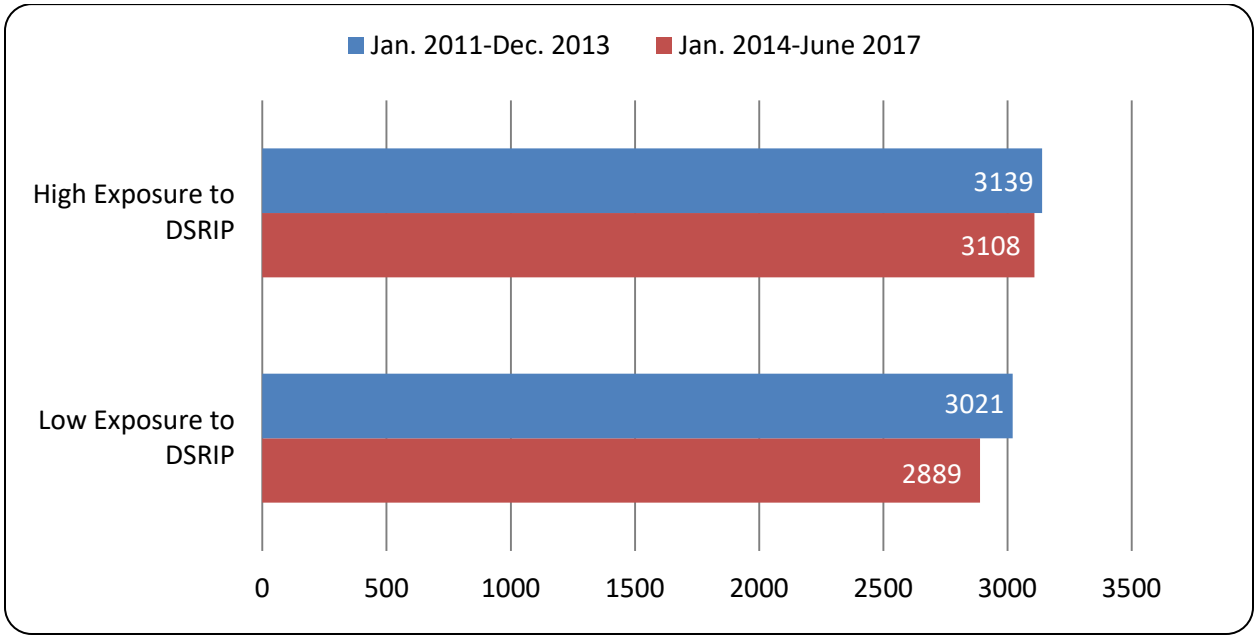
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Each bar represents a weighted average of zip code-level rates of avoidable hospitalizations per 10,000 Medicaid beneficiary-years relating to beneficiaries of age 18 and above. Rates are reported separately for zip code areas with high and low exposure to the DSRIP program (see Methods).

Figure 3.21: Rates of Avoidable Emergency Department Visits by Hospital Participation in the DSRIP Program



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Each bar represents a weighted average of zip code-level rates of avoidable ED visits per 10,000 Medicaid beneficiary-years relating to beneficiaries of all ages. The 'DSRIP Hospitals category represents those zip codes that have at least one hospital participating in the DSRIP program.

Figure 3.22: Rates of Avoidable Emergency Department Visits by Hospital High/Low Participation in the DSRIP Program



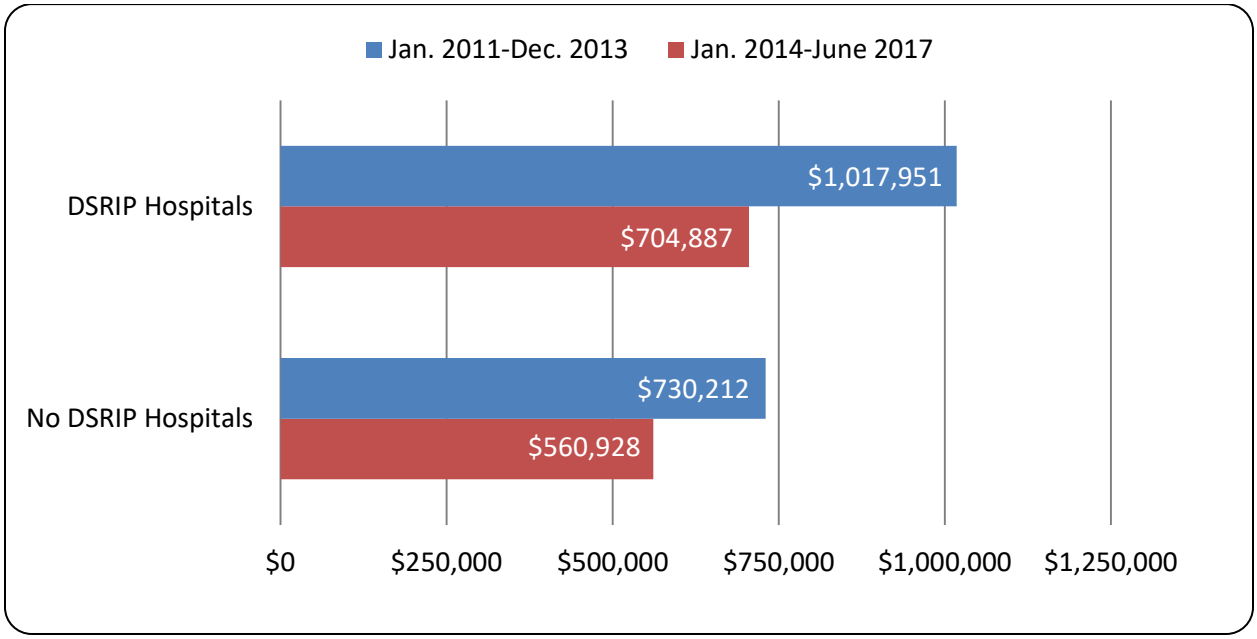
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Each bar represents a weighted average of zip code-level rates of avoidable ED visits per 10,000 Medicaid beneficiary-years relating to beneficiaries of all ages. Rates are reported separately for zip code areas with high and low exposure to the DSRIP program (see Methods).

Table 3.10: Overall DSRIP Program Impact on Rates of Avoidable Inpatient Hospitalizations and Emergency Department Visits

	DSRIP Overall Program Impact Estimate
Preventable IP Hospitalizations *(n=17,875)*	0.075
	(0.149)
Avoidable ED Visits *(n=17,962)*	2.193**
	(0.937)

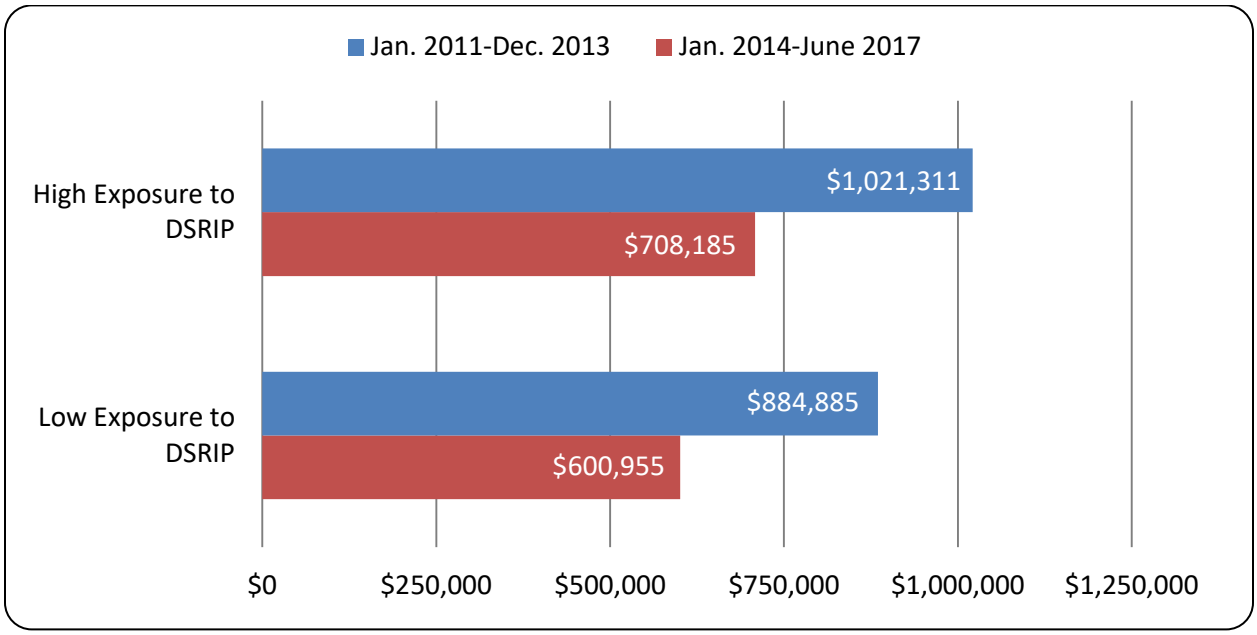
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: IP=Inpatient; ED=Emergency Department.
Zip-level regression analysis with zip code fixed effects.
Rates are per 10,000 Medicaid beneficiary-years.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.23: Avoidable Inpatient Hospitalization Costs by Hospital Participation in the DSRIP Program



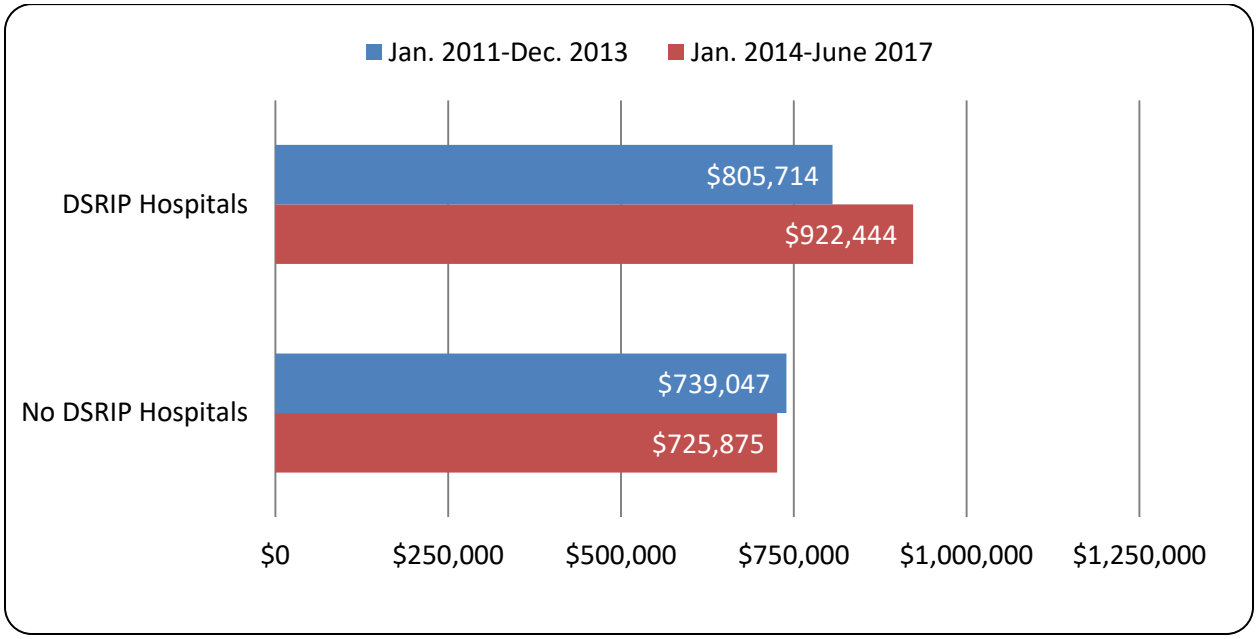
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Each bar represents a weighted average of zip code-level rates of avoidable hospitalization costs per 10,000 Medicaid beneficiary-years relating to beneficiaries of age 18 and above. The 'DSRIP Hospitals' category represents those zip codes that have at least one hospital participating in the DSRIP program.

Figure 3.24: Avoidable Inpatient Hospitalization Costs by Hospital High/Low Participation in the DSRIP Program



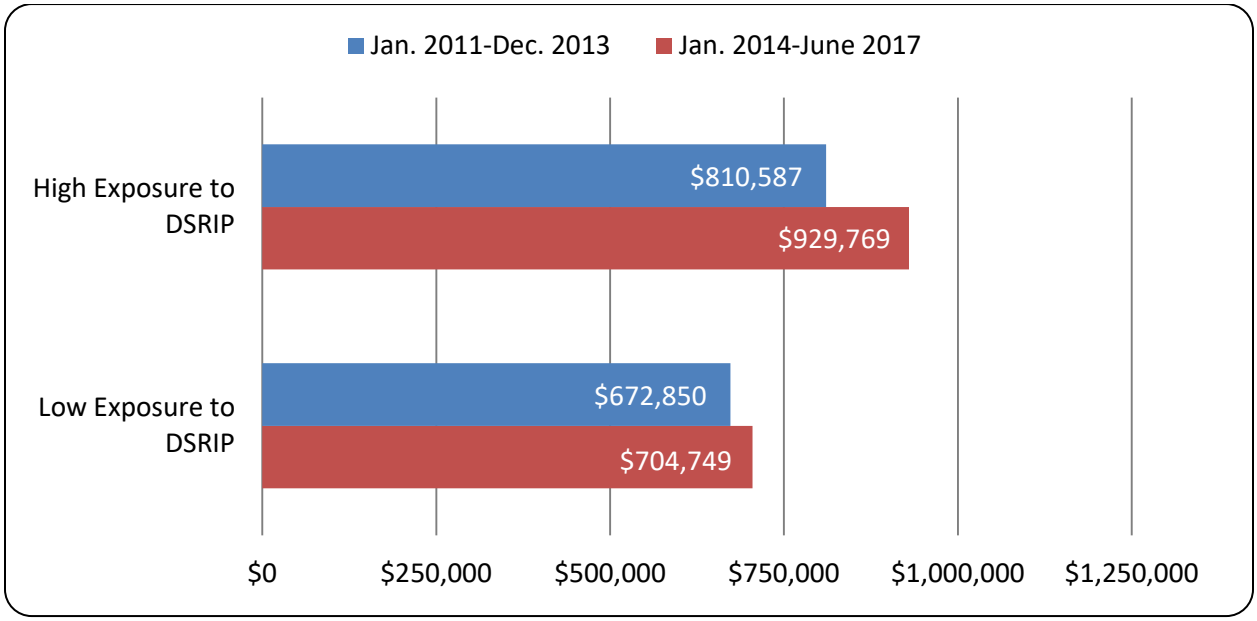
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Each bar represents a weighted average of zip code-level rates of avoidable hospitalization costs per 10,000 Medicaid beneficiary-years relating to beneficiaries of age 18 and above. Rates are reported separately for zip code areas with high and low exposure to the DSRIP program (see Methods).

Figure 3.25: Avoidable Emergency Department Visit Costs by Hospital Participation in the DSRIP Program



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Each bar represents a weighted average of zip code-level rates of avoidable ED costs per 10,000 Medicaid beneficiary-years relating to beneficiaries of all ages. The 'DSRIP Hospitals' category represents those zip codes that have at least one hospital participating in the DSRIP program.

Figure 3.26: Avoidable Emergency Department Visit Costs by Hospital High/Low Participation in the DSRIP Program



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Each bar represents a weighted average of zip code-level rates of avoidable ED costs per 10,000 Medicaid beneficiary-years relating to beneficiaries of all ages. Rates are reported separately for zip code areas with high and low exposure to the DSRIP program (see Methods).

Table 3.11: Overall DSRIP Impact on Avoidable Inpatient Hospitalization and Emergency Department Visit Costs

	DSRIP Overall Program Impact Estimate
Preventable IP Hospitalization Costs *(n=17,875)*	1.001
	(0.001)
Avoidable ED Visit Costs *(n=17,962)*	1.002***
	(0.000)

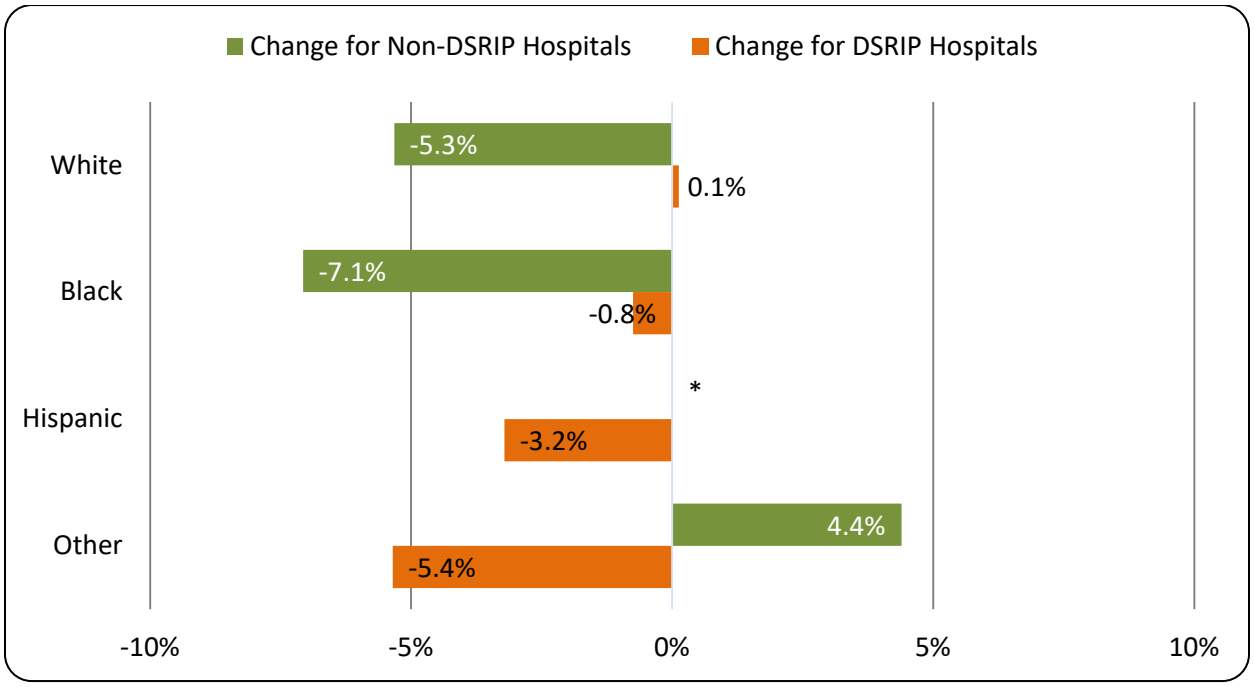
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: IP=Inpatient; ED=Emergency Department.
Estimates based on a zip-level generalized linear model with gamma log link.
Costs are per 10,000 Medicaid beneficiary-years.
Standard errors in parentheses adjusted for clustering.
*** p<0.01, ** p<0.05, * p<0.1

Table 3.12: Avoidable Inpatient Hospitalization and Emergency Department Visit Costs by Race/Ethnicity, Gender, and Hospital Participation in the DSRIP Program

		White	Black	Hispanic	Other	Male	Female
Preventable IP Hospitalizations							
DSRIP	**Baseline**	$819,832	$1,472,717	$674,652	$1,107,217	$1,104,697	$971,160
	Implementation	$651,582	$1,127,172	$527,207	$469,174	$808,195	$635,811
No DSRIP	**Baseline**	$713,593	$1,012,613	$335,531	$789,034	$778,706	$699,042
	Implementation	$496,083	$1,712,424	$378,471	$324,908	$520,500	$602,307
Avoidable ED Visits							
DSRIP	**Baseline**	$733,335	$1,077,210	$809,971	$458,832	$648,943	$926,969
	Implementation	$856,898	$1,296,954	$968,434	$488,579	$749,078	$1,062,632
No DSRIP	**Baseline**	$702,194	$1,273,748	$791,164	$345,131	$593,385	$855,073
	Implementation	$736,481	$1,293,403	$787,115	$360,858	$586,714	$845,287

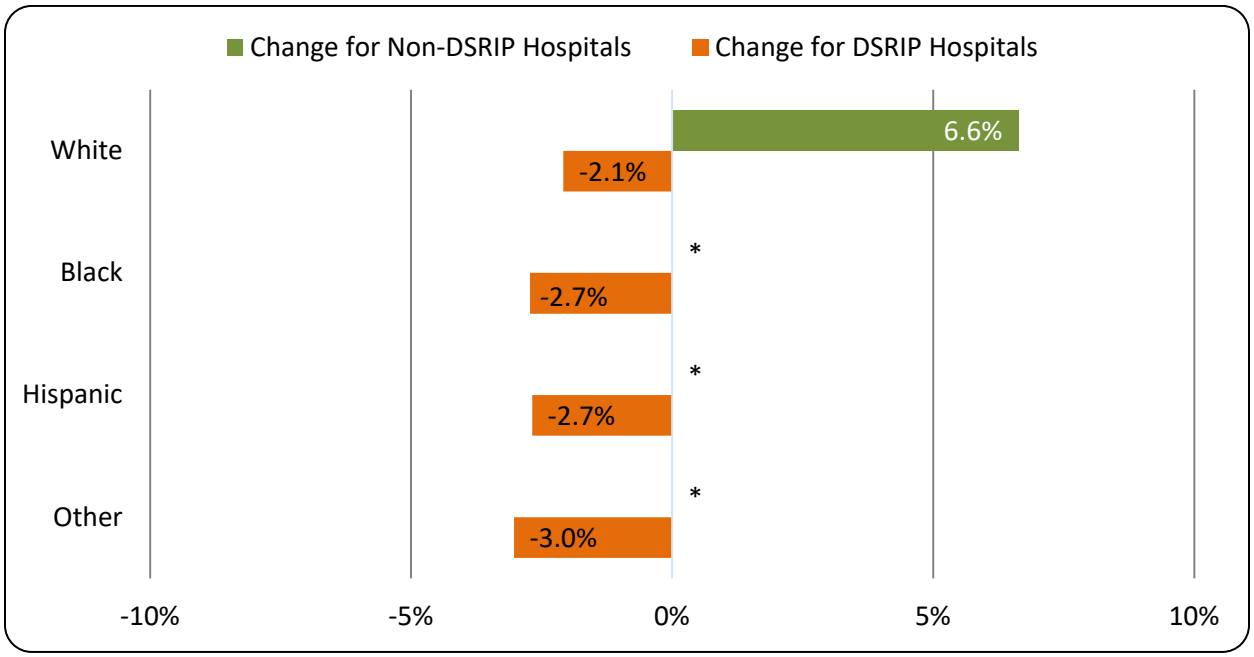
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: IP=Inpatient; ED=Emergency Department.
Each estimate represents a weighted average of zip code-level rates of avoidable IP costs per 10,000 Medicaid beneficiary-years for the population ages 18+ or avoidable ED Costs per 10,000 Medicaid beneficiary years for the population of all ages. The DSRIP category represents zip codes with at least one hospital participating in the DSRIP program.

Figure 3.27: Change in Heart Failure Readmission Rates by Race/Ethnicity over 2012–2017



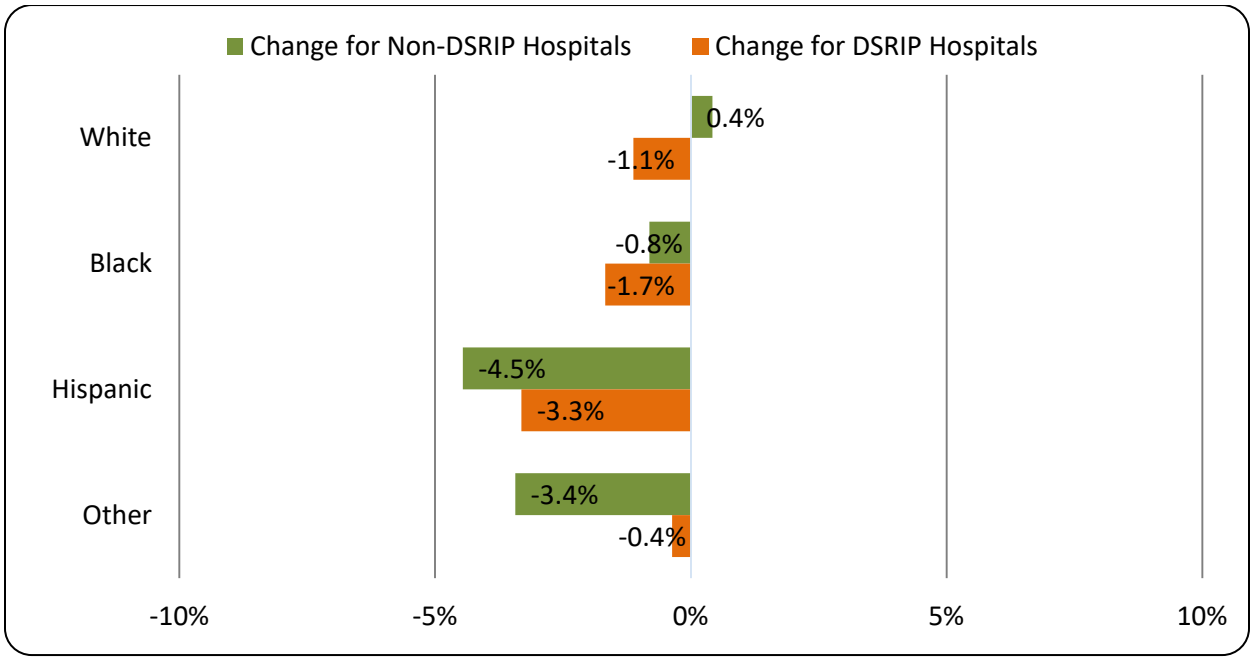
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Units of change are percentage points.
Discharge-level analysis.
*Estimate suppressed due to insufficient sample size.

Figure 3.28: Change in AMI Readmission Rates by Race/Ethnicity over 2012–2017



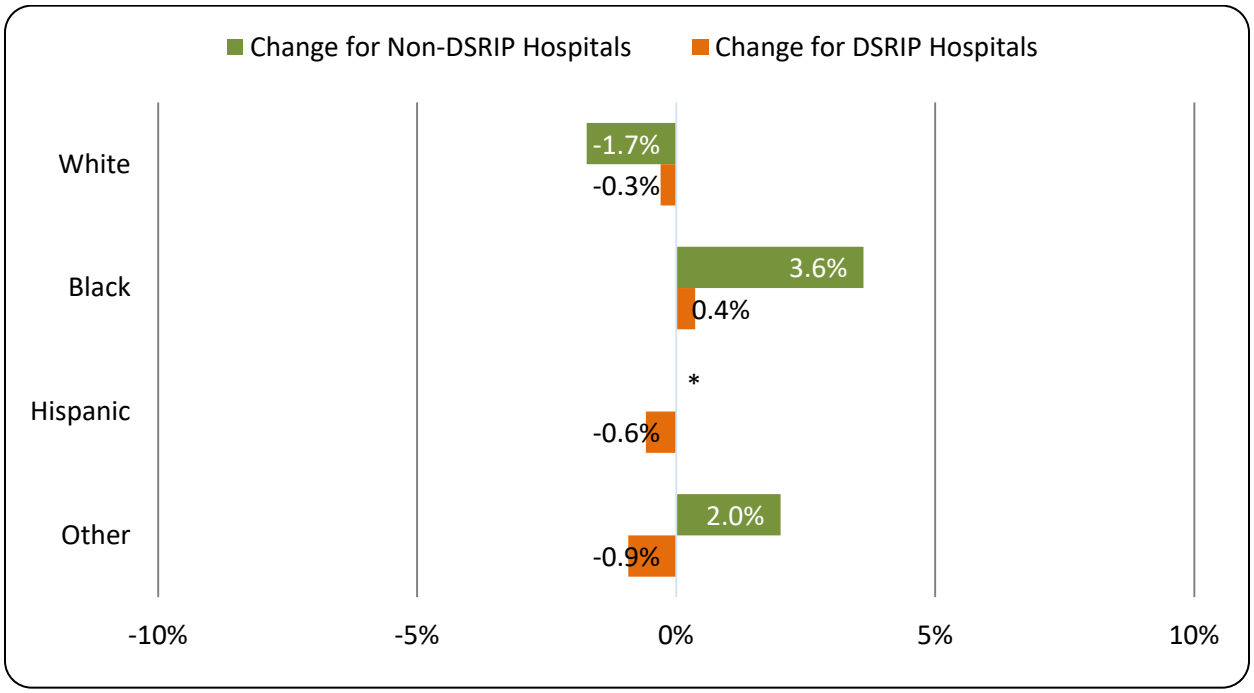
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Units of change are percentage points.
Discharge-level analysis.
*Estimate suppressed due to insufficient sample size.

Figure 3.29: Change in Pneumonia Readmission Rates by Race/Ethnicity over 2012–2017



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: Units of change are percentage points.
Discharge-level analysis.

Figure 3.30: Change in COPD Readmission Rates by Race/Ethnicity over 2012–2017



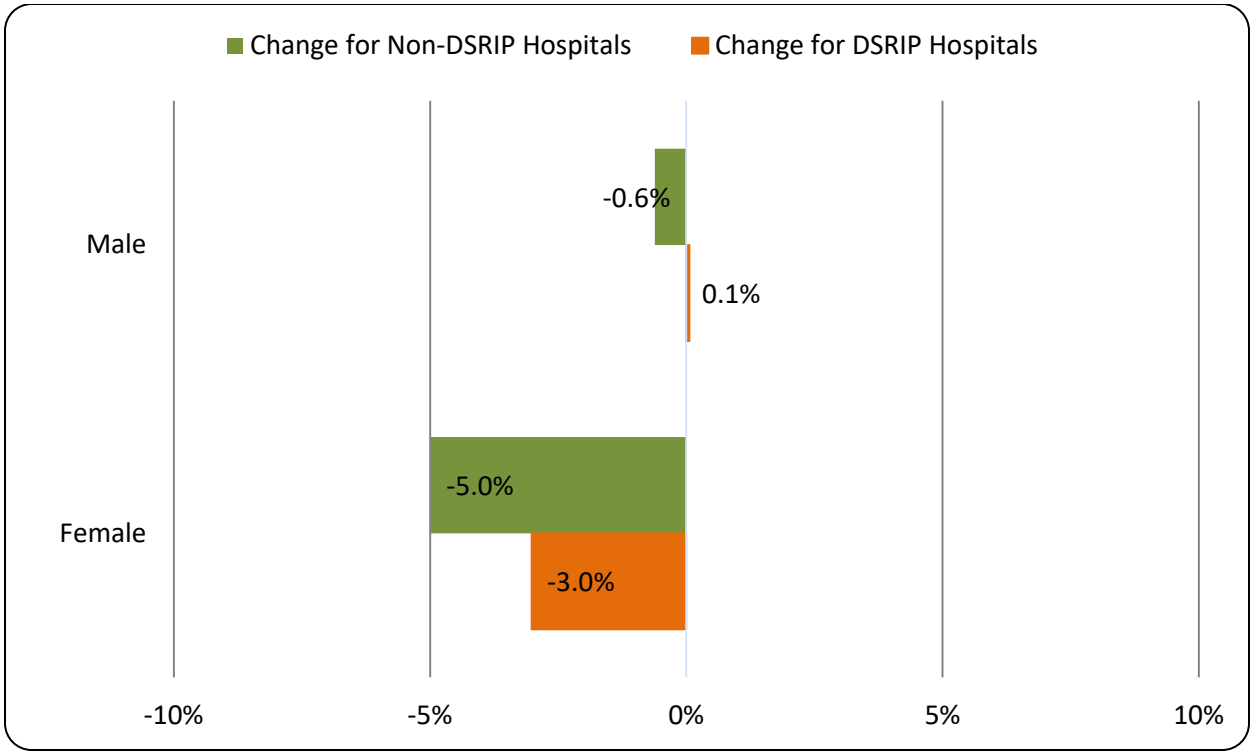
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Note: Units of change are percentage points.
Discharge-level analysis.
*Estimate suppressed due to insufficient sample size.

Table 3.13: Overall DSRIP Impact on Racial/Ethnic Disparities in 30-Day Readmission Rates for Heart Failure, Acute Myocardial Infarction, Pneumonia, and Chronic Obstructive Pulmonary Disease

	Black Disparities	Hispanic Disparities	Other Disparities
Heart Failure *(n=13,579)*	0.017	-0.100**	-0.148**
	(0.063)	(0.048)	(0.073)
AMI *(n=5,567)*	0.116***	0.276*	0.122***
	(0.041)	(0.141)	(0.038)
Pneumonia *(n=17,234)*	-0.013	0.007	0.036
	(0.025)	(0.043)	(0.030)
COPD *(n=17,116)*	-0.045	-0.063	-0.018
	(0.048)	(0.063)	(0.046)

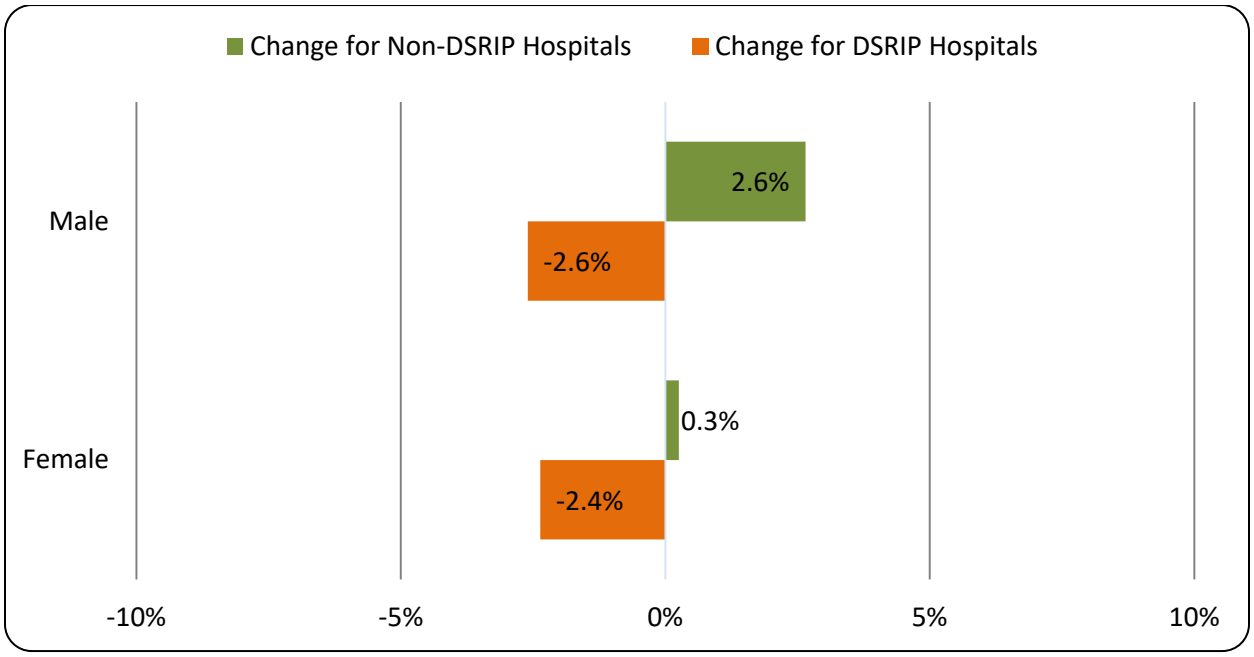
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: AMI=Acute Myocardial Infarction; COPD=Chronic Obstructive Pulmonary Disease.
Discharge-level regression analysis with hospital fixed effects.
Shaded estimates are based on small sample sizes that may affect the reliability of these estimates.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.31: Change in Heart Failure Readmission Rates by Gender over 2012–2017



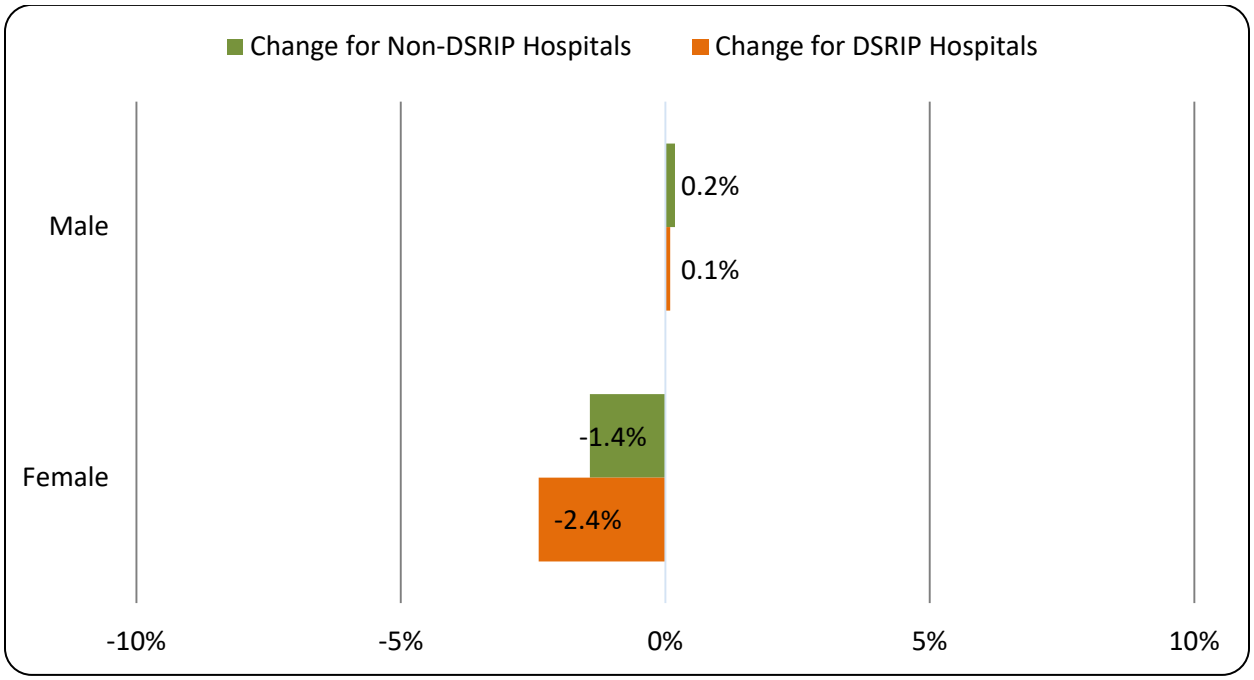
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Note: Units of change are percentage points.
Discharge-level analysis.

Figure 3.32: Change in AMI Readmission Rates by Gender over 2012–2017



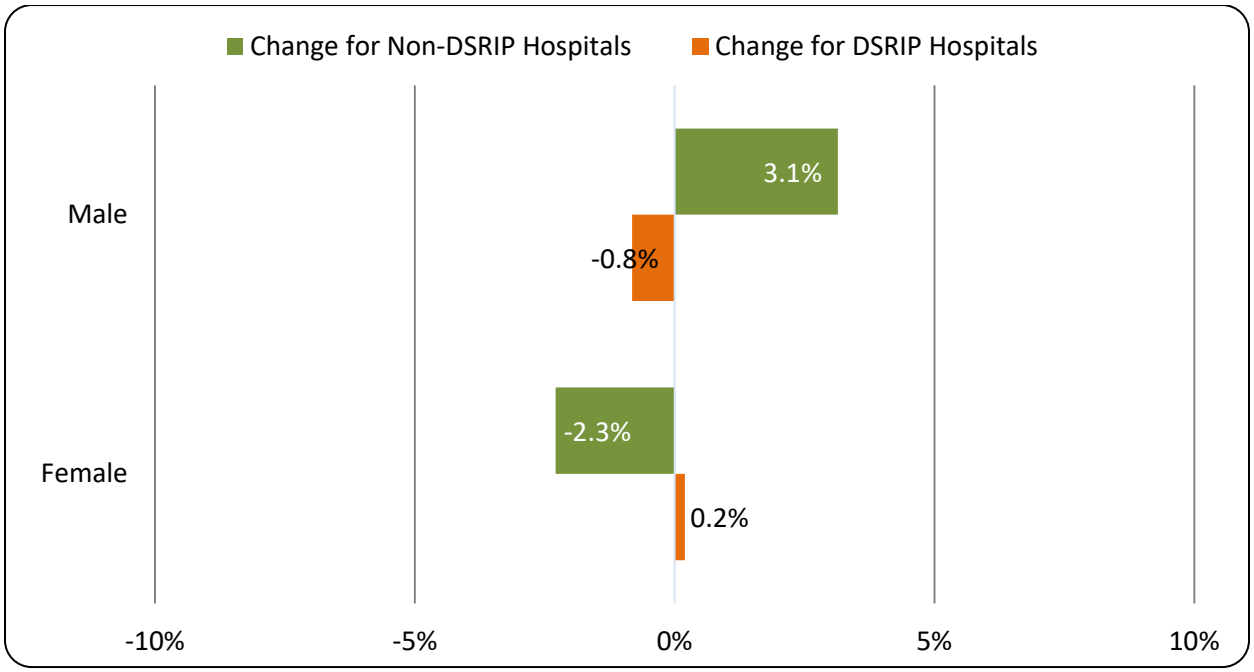
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Note: Units of change are percentage points.
Discharge-level analysis.

Figure 3.33: Change in Pneumonia Readmission Rates by Gender over 2012–2017



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Note: Units of change are percentage points.
Discharge-level analysis.

Figure 3.34: Change in COPD Readmission Rates by Gender over 2012–2017



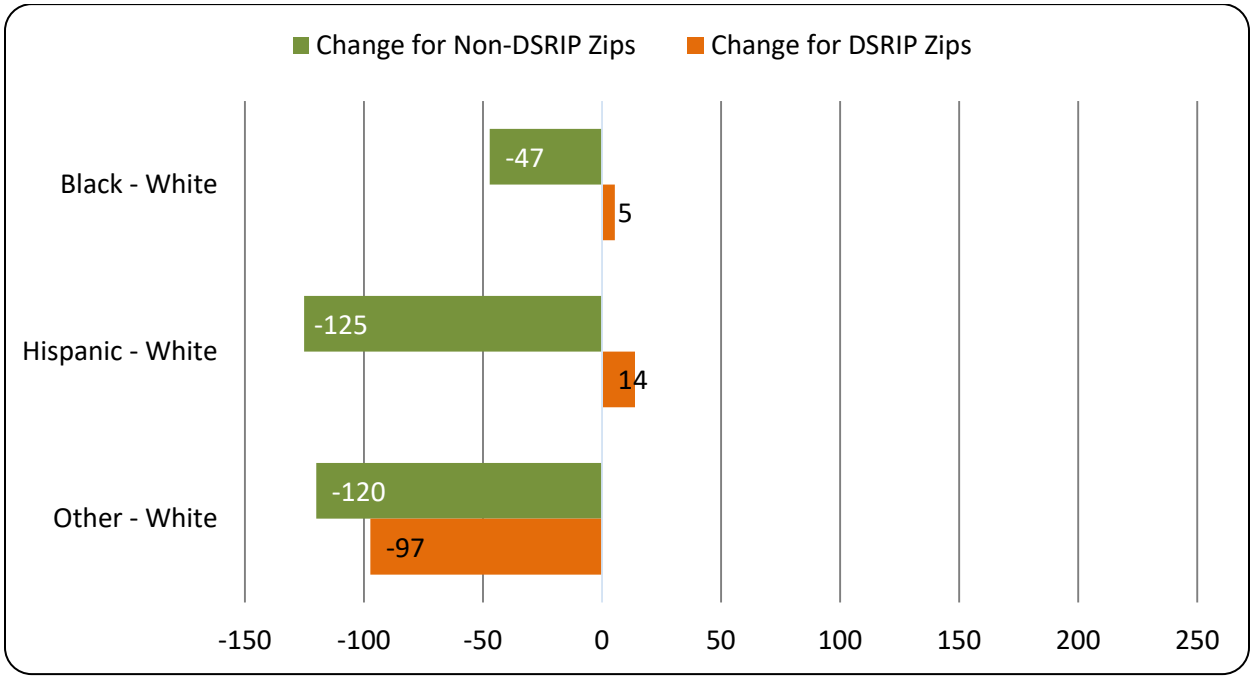
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Note: Units of change are percentage points.
Discharge-level analysis.

Table 3.14: Overall DSRIP Impact on Gender Disparities in 30-Day Readmission Rates for Heart Failure, Acute Myocardial Infarction, Pneumonia, and Chronic Obstructive Pulmonary Disease

	Gender Disparities Impact Estimate
Heart Failure *(n=13,594)*	0.009
	(0.029)
AMI *(n=5,570)*	0.044
	(0.041)
Pneumonia *(n=17,253)*	-0.018
	(0.037)
COPD *(n=17,153)*	0.083*
	(0.045)

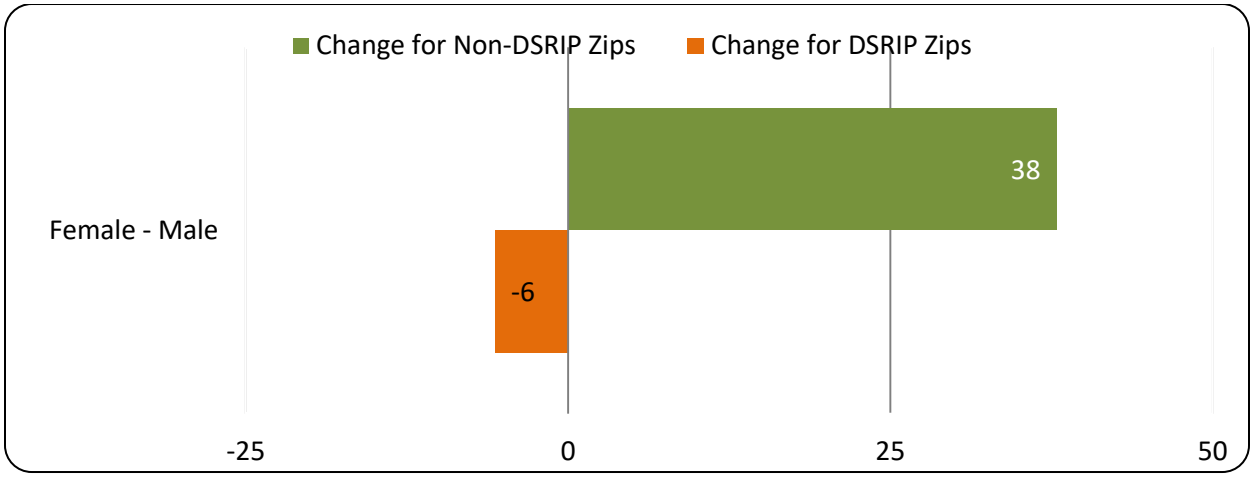
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Notes: AMI=Acute Myocardial Infarction; COPD=Chronic Obstructive Pulmonary Disease.
Discharge-level regression analysis with hospital fixed effects.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.35: Change in Avoidable Inpatient Hospitalization Rate Differences between Minority Populations and Whites over 2011–2013/2014–2017



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Note: Units of change are avoidable hospitalizations per 10,000 Medicaid beneficiary-years for the population age 18+. Zip-level analysis.

Figure 3.36: Change in Avoidable Inpatient Hospitalization Rate Differences between Females and Males over 2011–2013/2014–2017



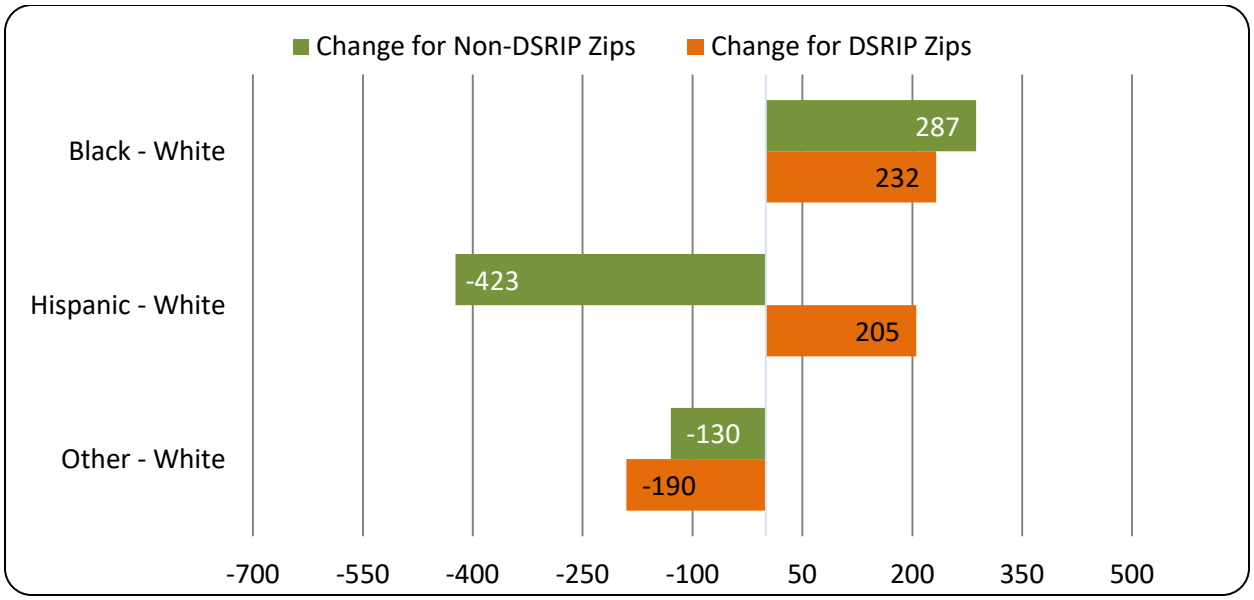
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Note: Units of change are avoidable hospitalizations per 10,000 Medicaid beneficiary-years for the population age 18+. Zip-level analysis.

Table 3.15: Overall DSRIP Impact on Racial/Ethnic and Gender Disparities in Preventable Inpatient Hospitalization Rates

	DSRIP Overall Impact Estimate
Black - White *(n=14,976)*	-0.361
	(0.441)
Hispanic - White *(n=14,144)*	0.200
	(0.440)
Other - White *(n=15,860)*	-0.768**
	(0.356)
Female - Male *(n=17,160)*	-0.139
	(0.220)

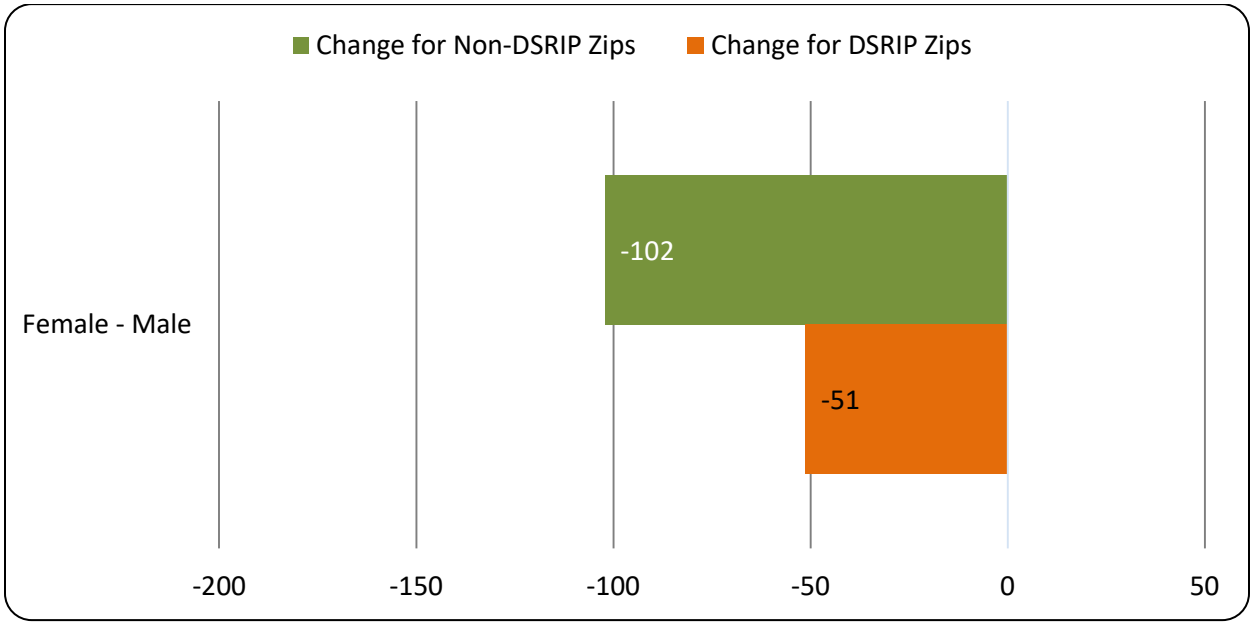
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data, Analysis by Rutgers Center for State Health Policy.
Notes: Zip-level regression analysis with zip fixed effects.
Rates are per 10,000 Medicaid beneficiary-years for beneficiaries age 18 and up.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.37: Change in Avoidable Emergency Department Visit Rate Differences between Minority Populations and Whites over 2011–2013/2014–2017



Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Note: Units of change are avoidable ED visits per 10,000 Medicaid beneficiary-years.
Zip-level analysis.

Figure 3.38: Change in Emergency Department Visit Rate Differences between Females and Males over 2011–2013/2014–2017



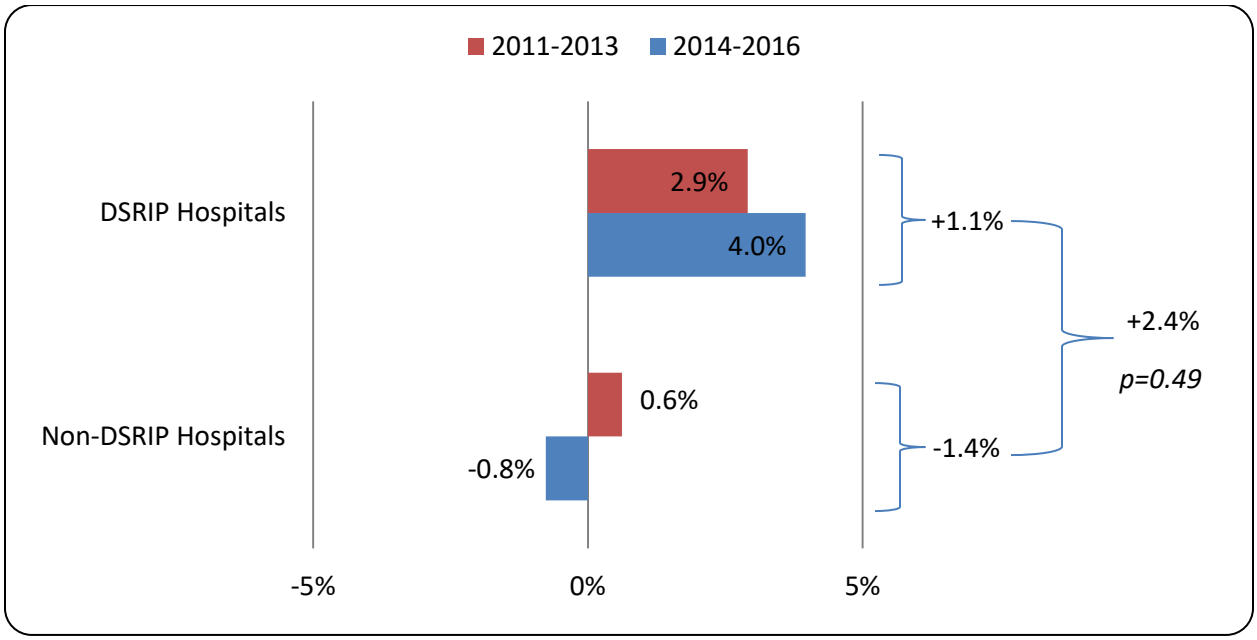
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data; Analysis by Rutgers Center for State Health Policy.
Note: Units of change are avoidable ED visits per 10,000 Medicaid beneficiary-years.
Zip-level analysis.

Table 3.16: Overall DSRIP Impact on Racial/Ethnic and Gender Disparities in Avoidable Emergency Department Visit Rates

	DSRIP Overall Impact Estimate
Black - White *(n=15,782)*	0.682
	(1.769)
Hispanic - White *(n=15,418)*	0.377
	(1.500)
Other - White *(n=16,328)*	-2.059
	(1.287)
Female - Male *(n=17,524)*	0.620
	(0.769)

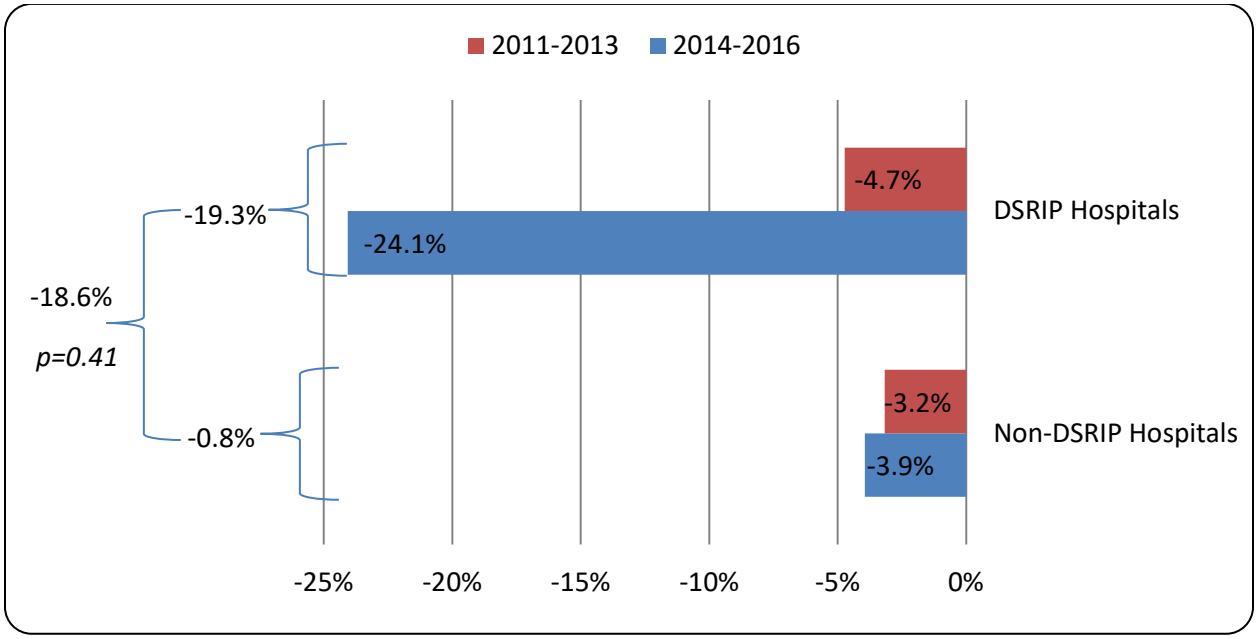
Source: Medicaid Fee-for-Service Claims & Managed Care Encounter Data, Analysis by Rutgers Center for State Health Policy.
Notes: Zip-level regression analysis with zip fixed effects.
Rates are per 10,000 Medicaid beneficiary-years.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.39: Hospitals' Total Margin by DSRIP Participation



Source: CMS Hospital Cost Reports; Analysis by Rutgers Center for State Health Policy.
Notes: Units of change are percentage points.
Hospital-level analysis.

Figure 3.40: Hospitals' Operating Margin by DSRIP Participation



Source: CMS Hospital Cost Reports; Analysis by Rutgers Center for State Health Policy.
Notes: Units of change are percentage points.
Hospital-level analysis.

Table D summarizes the direction and statistical significance of computed DSRIP effects based on all of the metrics analyzed in this chapter. This representation of results organized by each hypothesis, helps determine the presence or absence of evidence in support of each hypothesis over the DSRIP implementation period.

Hypothesis 1: DSRIP hospital projects improve care and outcomes related to the project focus area.

- There were statistically significant improvements reflected in decreasing rates of avoidable asthma hospitalizations and ED visits for asthma attributable to the asthma disease management programs. For adults ages 18 and older, there were no statistically significant changes in initiation and engagement in alcohol or other drug treatment in regions served by hospitals adopting chemical addiction/substance abuse programs, but the direction of effect estimates indicate possible improvements in initiation but decreases in engagement. Among children ages 13-17, there was a marginally significant negative effect of CA/SA DSRIP projects on initiation and engagement for AOD treatment. Pneumonia readmission rates worsened at the hospital conducting a pneumonia DSRIP project compared to hospitals with DSRIP projects in other focus areas. Quality indicators for other chronic diseases showed no significant changes attributable to DSRIP activities.

Hypothesis 2: The DSRIP program improves the quality of ambulatory care, both recommended and preventive, with positive effects on population health.

- There were no positive impacts of the DSRIP program detected on quality of ambulatory care. As a geographic area's exposure to DSRIP-participating hospitals increased, rates of avoidable emergency department visits worsened (increased in magnitude) from baseline to the end of the fifth demonstration year, and this change was statistically significant. Costs associated with these avoidable visits increased accordingly and this negative impact was also statistically significant. The likelihood that a Medicaid beneficiary utilized inpatient care for mental health conditions also increased over the DSRIP implementation period, but though this was a statistically significant finding, the magnitude was too small to be meaningful. Results for readmission rates were mixed and none were statistically significant.

Hypothesis 3: The DSRIP program will reduce racial/ethnic and gender disparities in avoidable hospital admissions, treat-and-release ED visits, and hospital readmissions.

- Changes in racial/ethnic disparities in 30-day readmissions or avoidable hospital use that could be attributed to DSRIP showed an even mix of positive and negative results, and most effects were either not statistically significant or based on small sample sizes which limit their reliability. The two statistically significant results indicate improvements in disparities. There was a statistically significant reduction in disparities for heart failure readmissions among minorities of other racial/ethnic groups compared to whites that

could be attributable to DSRIP activities. For this same population group, there was also a statistically significant reduction in disparities in avoidable inpatient admissions in regions served by DSRIP-participating hospitals. DSRIP impacts on gender disparities were also mixed with the only marginally significant results indicating an increase (worsening) of disparities between females and males in readmissions following COPD hospitalizations.

Hypothesis 4: Hospitals receiving incentive payments do not experience adverse financial impacts.

- There was no statistically significant evidence of an adverse impact of DSRIP activities on hospitals' total or operating margins through the end of the fifth demonstration year.

Table D: Summary of Results by Hypothesis

Hypothesis 1: Focus Area Impact		
	Metric	**+/-**
	FU Hospitalization for MI – 7 days	-
	FU Hospitalization for MI – 30 days	-
	Initiation AOD	+
	Age 13–17	-
	Age 18+	+
	Engagement AOD	-
	Age 13–17	-
	Age 18+	-
	ED Asthma (0–17)	+
	ED Asthma (18+)	+
	Avoid. Asthma Hospitalizations	+
	Avoid. Diabetes Hospitalizations	+
	HF Readmissions	-
	AMI Readmissions	-
	PN Readmissions	-
	Child Access to PCP	-

Hypothesis 2:[1] Overall Impact	
Metric	**+/-**
HF Readmissions	-
AMI Readmissions	+
PN Readmissions	-
COPD Readmissions	-
MH IP Utilization	-
Avoidable IP	-
Avoidable ED	-
Avoidable IP $	-
Avoidable ED $	-

Hypothesis 3: Disparities Impact				
Metric	**Black**	**Hispanic**	**Other**	**Female**
	+/-	**+/-**	**+/-**	**+/-**
HF Readmissions	-	+[2]	+	-
AMI Readmissions[3]	-	-	-	-
PN Readmissions	+	-	-	+
COPD Readmissions	+	+	+	-
Avoidable IP	+	-	+	+
Avoidable ED	-	-	+	-

Hypothesis 4: Financial Impact	
Metric	**+/-**
Total Margin	+
Operating Margin	-

Notes: "+" means direction of the estimated impact indicates either no effect or an improvement; "-" means direction of the estimated impact indicates a worsening; $p<0.1$; $p<0.05$

[1] Metrics pertaining to preventive care are reported in Chapter 4.

[2] Small sample affects the reliability of the Hispanic-White disparities estimate.

[3] Small sample prevented reporting of AMI readmissions disparities estimate for Hispanic patients (in Table 3.13) and affects the reliability of the disparities estimates for Black and Other patients.

Conclusions

Our analysis of quality metrics related to patient care, health outcomes, costs, and hospital finances neither fully supports nor refutes any hypotheses regarding the success of the DSRIP program in achieving its stated goals. Instead, our estimates of program impact show differing success by chronic condition focus area, and indications of declines in the quality of ambulatory care alongside some progress towards reduction of disparities as a result of DSRIP-participating hospitals' activities. Results in this chapter show that over the DSRIP implementation years, DSRIP hospitals' asthma management projects have positively impacted asthma outcomes in the area Medicaid population. Other disease focus areas have not had clinically meaningful (very small magnitude) or robust effects on the population-level. Overall, rates of avoidable emergency department visits and associated costs have shown a DSRIP-attributable increase. The most reliable effects of DSRIP on racial/ethnic disparities have been positive, reducing heart failure readmissions and avoidable inpatient visits for patients of other racial/ethnic groups compared to Whites. Through 2016, there were no significant negative impacts of DSRIP on hospital finances. Since the resolution of DY4 and DY5 pay-for-performance appeals did not occur until after 2016, the available data could provide only a preliminary picture of implications of the DSRIP program for hospitals' financial margins.

It is important to remember the program effects reported in this chapter are computed for the overall Medicaid population, of which the DSRIP attributed population used for calculating pay-for-performance metrics is only a subset, and of which the population actually enrolled in hospitals' DSRIP projects is a smaller subset still. Charity care patients are part of the DSRIP attributed population but are not included in our analysis. To illustrate, the total NJ Medicaid population in 2015 was 2.1 million. The total DSRIP attributed population at baseline was just over 761,000, comprised of 536,000 Medicaid/CHIP patients and 225,000 charity care patients (NJDOH 2015). The total population enrolled in hospitals' DSRIP projects as reported on learning collaborative surveys was 13,000 in December 2015 growing to 31,000 a year later (NJDOH 2017). Thus, the evaluation examines for program impacts that are discernible in the entire Medicaid population due to disease management efforts directed towards particular subsets of the population. However, this is consistent with assessing the overall objective of the program which is to improve health of the entire low income population.

Limitations

The estimates presented in this chapter were derived using a conservative analytic methodology where we examined the impact of hospital participation in the program at any point of time. However, sensitivity tests conducted, as described in the Methods, did not yield results that differed in direction or significance (except where noted), but the magnitude of effects reported

would be different for these alternative specifications. Moreover, if there are positive spillover effects of DSRIP on the comparison group, then difference-in-difference estimates will not accurately capture the effect of the program.

The Medicaid claims and encounter data available to us for this assessment also present specific limitations related to the dual eligible population. Duals in managed care plans may not always have all of their utilization captured in the Medicaid claims data. Sometimes a claim related to specific utilization may not be generated depending on individual MCO policies and operations. This may underestimate utilization and also inaccurately measure health status and co-morbidities when these measures are derived from claims (e.g., as is done for the CDPS and hospital readmission risk factors). We believe that the effect of these factors on our findings should be minimal since we use a comparison group which would also be subject to such effects, and the last expansion in the managed care dual population occurred in NJ in 2011 and 2012 (relating to acute care services), prior to the implementation period of our evaluation. As a result our pre-post analysis should mitigate these effects to a large extent.

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Appendix A: Description of Measures

Ambulatory Care Sensitive (ACS) Inpatient Hospitalizations and Avoidable/Preventable Emergency Department Visits: We calculate rates of ACS inpatient (IP) hospitalizations and avoidable treat-and-release ED visits that may occur due to inadequate ambulatory/primary care within communities. Avoidable hospitalizations have been widely used in previous research to measure access to primary care, and disparities in health outcomes (Basu, Friedman, and Burstin 2004; Billings et al. 1993; Bindman et al. 1995; Howard et al. 2007). The federal Agency for Healthcare Research and Quality (AHRQ) provides validated programming algorithms to calculate rates of avoidable ACS hospitalizations which are used in this analysis. These are known as the Prevention Quality Indicators (PQI) for adults (ages 18 and above) and Pediatric Quality Indicators for children (ages 6-17). Appendix B gives a list of ACS conditions that constitute a composite index that measures the overall rate of avoidable IP hospitalizations per unit of population. We also report two of the individual PQI rates that are specific to two of the chronic disease focus areas of the DSRIP program: PQI #01 Diabetes short-term complications admission rate and PQI #15 Adult asthma admissions rate. These two PQI component metrics are also part of the Medicaid Adult Core Set of Health Care Quality Measures.

We calculate avoidable treat-and-release ED visits based on the methodology provided by the New York University, Center for Health and Public Service Research (Billings, Parikh, and Mijanovich 2000), which are part of AHRQ's Safety Net Monitoring Toolkit. These comprise three categories of avoidable ED visits that could have been treated in an outpatient primary care setting or could have been prevented with timely access to primary care. Detailed definitions of these classifications are provided with examples in Appendix C.

Readmissions: Because hospital readmissions can result from poor quality of care or inadequate transitional care, 30-day readmissions metrics are used to broadly measure the quality of care delivered by hospitals (Benbassat and Taragin 2000; Jencks, Williams, and Coleman 2009). Such 'potentially preventable' readmissions are defined as readmission for any cause within 30 days of the discharge date for the index hospitalization, excluding a specified set of planned readmissions. While readmissions rates have been most heavily utilized to assess quality for the Medicare population, calculating these measures among the Medicaid population has received growing attention (Trudnak et al. 2014). The readmissions metrics we calculate (heart failure, pneumonia, acute myocardial infarction, and chronic obstructive pulmonary disease) are endorsed by the National Quality Forum (NQF) and are adapted from the federal Centers for Medicare and Medicaid Services methodology available at QualityNet (2017).

ED Visits for Asthma: Visits to the ED for asthma can result from inefficient or improper symptom management. This metric assesses the percent of patients who had a visit to an Emergency Department for asthma. It is based off a quality metric developed by the Health Resources and Services Administration's Asthma Collaborative which was designed to help providers improve the care they provide to people with asthma and is part of an effort to reduce disparities in the treatment of chronic diseases. In our calculation of this metric we look at whether individuals had any visit in the year (the HRSA metric looks at 6 months) and we do not include visits to urgent care offices. We use the National Committee of Quality Assurance's 2014 value sets to define ED visits and 2014 and 2016 value sets to define asthma diagnoses (in ICD-9 and ICD-10 coding, respectively) as done for the ED discharge component of the NCQA metric "Relative Resource Use for People with Asthma" (NCQA 2014, 2016).

Mental Health Utilization - Inpatient: This measure of inpatient utilization assess the extent to which individuals receive inpatient hospital treatment for a mental health condition. Like general measures of hospital utilization, this measure of service use gathers information about the provision of care to individuals and how organizations managing that care use and allocate resources. Use of inpatient services is affected by many member characteristics such as age, sex, health, and socioeconomic status. We followed the National Committee of Quality Assurance's specifications for the calculation of this metric (NCQA 2014, 2016).

Follow-up after Hospitalization for Mental Illness: Following a hospitalization for mental illness, it is recommended that patients have an outpatient visit with a mental health practitioner to ensure appropriate and regular follow-up therapy and medication monitoring (AHRQ 2015b). This measure is used to assess the percentage of discharges for members hospitalized for the treatment of selected mental health disorders that were followed by a qualifying visit with a mental health practitioner within 7 and 30 days. This measure is endorsed by the NQF and is part of the Medicaid Adult Core and Child Core Sets of Health Care Quality Measures. We followed the National Committee of Quality Assurance's specifications for the calculation of this metric (NCQA 2014, 2016).

Initiation and Engagement in Alcohol and Other Drug Treatment: After identification of alcohol or drug (AOD) dependence, initiation and engagement in treatment for the condition is important for reducing illness and disability from substance abuse (AHRQ 2015a). The AOD initiation metric assesses the percentage of individuals ages 13 and older with a new episode of alcohol or other drug dependence who have an inpatient AOD admission, outpatient visit, intensive outpatient encounter, or partial hospitalization within 14 days of their diagnosis. The engagement AOD metric taps an intermediate point in care after initiation, but prior to completion of a full course of treatment. It measures the percentage of individuals with an AOD diagnosis who initiated

treatment and also had two or more inpatient admissions, outpatient visits, intensive outpatient encounters, or partial hospitalizations with any AOD diagnosis within 30 days after the date of the initiation encounter. Both of these measures are endorsed by the NQF and are part of the Medicaid Adult Core Set of Health Care Quality Measures. We followed the National Committee of Quality Assurance's specifications for the calculation of this metric (NCQA 2014, 2016).

Table E enumerates the measure stewards, measure collections, and National Quality Forum numbers for all evaluator-calculated metrics used in this report.

Table E: Reference Information for Evaluator-Calculated Metrics

	Evaluation	Metric	Measure Steward;[1] Measure Collection(s)	NQF#[2] (if available)
1	Behavioral Health	Follow-up after Hospitalization for Mental Illness 7 Days Post Discharge	NCQA; HEDIS; Medicaid Adult Core; Medicaid Child Core	0576
2	Behavioral Health	Follow-up after Hospitalization for Mental Illness 30 Days Post Discharge		
3	Chemical Addiction/ Substance Abuse	Initiation of Alcohol and Other Drug Abuse or Dependence Treatment	NCQA; HEDIS; Medicaid Adult Core	0004
4	Chemical Addiction/ Substance Abuse	Engagement of Alcohol and Other Drug Abuse or Dependence Treatment		
5	DSRIP Overall & Cardiac Care	30-Day All-Cause Readmission Rate Following Heart Failure (HF) Hospitalization	CMS; Joint Commission National Hospital Inpatient Quality Measures	0330
6	DSRIP Overall & Cardiac Care	30-Day All-Cause Readmission Rate Following Acute Myocardial Infarction (AMI) Hospitalization		0505

[1] CMS = Center for Medicare & Medicaid Services; AHRQ = Agency for Healthcare Research and Quality; NCQA = National Committee for Quality Assurance; HEDIS=Healthcare Effectiveness Data and Information Set; NYU = New York University; HRSA = Health Resources and Services Administration.

[2] NQF=National Quality Forum (http://www.qualityforum.org/Home.aspx).

[3] HRSA metric includes visits to urgent care offices which cannot be identified in MC data.

Table D: Reference Information for Evaluator-Calculated Metrics (continued)

	Evaluation	Metric	Measure Steward;[1] Measure Collection(s)	NQF#[2] (if available)
7	DSRIP Overall & Pneumonia	30-Day All-Cause Readmission Rate Following Pneumonia (PN) Hospitalization	CMS; Joint Commission National Hospital Inpatient Quality Measures	0506
8	DSRIP Overall	30-Day All-Cause Readmission Rate Following Chronic Obstructive Pulmonary Disease (COPD) Hospitalization		1891
9	Asthma	Emergency Department (ED) Visits for Asthma	HRSA[3]	—
10	DSRIP Overall	Mental Health Utilization - Inpatient	NCQA; HEDIS	—
11	Asthma	Younger Adult Asthma Admission Rate (PQI-15)	AHRQ; Prevention Quality Indicators; PQI #15 and #1 also part of Medicaid Adult Core	0283
12	Diabetes	Diabetes Short-Term Complications Admission Rate (PQI-01)		0272
13	DSRIP Overall	Preventable Inpatient Hospitalizations (PQI-90)		
14	DSRIP Overall	Preventable/Avoidable Treat-and-Release ED Visits	NYU	—
15	DSRIP Overall	Hospital Costs Related to Avoidable Inpatient Stays and Treat-and-Release ED Visits	—	—
16	DSRIP Overall	Hospital Total and Operating Margin	—	—

[1] CMS = Center for Medicare & Medicaid Services; AHRQ = Agency for Healthcare Research and Quality; NCQA = National Committee for Quality Assurance; HEDIS=Healthcare Effectiveness Data and Information Set; NYU = New York University; HRSA = Health Resources and Services Administration.

[2] NQF=National Quality Forum (http://www.qualityforum.org/Home.aspx).

[3] HRSA metric includes visits to urgent care offices which cannot be identified in Medicaid claims data.

Appendix B: AHRQ Prevention Quality Indicators – Composites and Constituents

Overall Composite (PQI #90)	
PQI #01 Diabetes Short-Term Complications Admission Rate	PQI #11 Bacterial Pneumonia Admission Rate
PQI #03 Diabetes Long-Term Complications Admission Rate	PQI #12 Urinary Tract Infection Admission Rate
PQI #05 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	PQI #13 Angina without Procedure Admission Rate[7]
PQI #07 Hypertension Admission Rate	PQI #14 Uncontrolled Diabetes Admission Rate
PQI #08 Congestive Heart Failure (CHF) Admission Rate	PQI #15 Asthma in Younger Adults Admission Rate
PQI #10 Dehydration Admission Rate	PQI #16 Rate of Lower-Extremity Amputation Among Patients With Diabetes
Acute Composite (PQI #91)	
PQI #10 Dehydration Admission Rate	PQI #12 Urinary Tract Infection Admission Rate
PQI #11 Bacterial Pneumonia Admission Rate	
Chronic Composite (PQI #92)	
PQI #01 Diabetes Short-Term Complications Admission Rate	PQI #13 Angina without Procedure Admission Rate[6]
PQI #03 Diabetes Long-Term Complications Admission Rate	PQI #14 Uncontrolled Diabetes Admission Rate
PQI #05 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	PQI #15 Asthma in Younger Adults Admission Rate
PQI #07 Hypertension Admission Rate	PQI #16 Rate of Lower-Extremity Amputation Among Patients With Diabetes
PQI #08 Congestive Heart Failure (CHF) Admission Rate	

Source: Prevention Quality Indicators Technical Specifications - Version 5.0, March 2015; http://www.qualityindicators.ahrq.gov/Modules/PQI_TechSpec.aspx.

[7] This component was retired in Version 6.0 of the PQI software which accommodated ICD-10 coding and which was used for generating PQI indicators from October 2015–June 2017.

Appendix C: Classification of Emergency Department Visits

Type Description	Diagnoses
Non-Emergent: The patient's initial complaint, presenting symptoms, vital signs, medical history, and age indicated that immediate medical care was not required within 12 hours.	Headache, Dental disorder, Types of migraine
Emergent, Primary Care Treatable: Conditions for which treatment was required within 12 hours, but care could have been provided effectively and safely in a primary care setting. The complaint did not require continuous observation, and no procedures were performed or resources used that are not available in a primary care setting (e.g., CAT scan or certain lab tests)	Acute bronchitis, Painful respiration, etc.
Emergent, ED Care Needed, Preventable/Avoidable: Emergency department care was required based on the complaint or procedures performed/resources used, but the emergent nature of the condition was potentially preventable/avoidable if timely and effective ambulatory care had been received during the episode of illness	Flare-ups of asthma, diabetes, congestive heart failure, etc.
Emergent, ED Care Needed, Not Preventable/Avoidable: Emergency department care was required and ambulatory care treatment could not have prevented the condition	Trauma, appendicitis, myocardial infarction

The first three categories are considered to be avoidable/preventable.
Type descriptions taken from http://wagner.nyu.edu/faculty/billings/nyued-background.php.

Appendix D: Cost Report Data Elements and Calculations

Medicare-certified institutional providers are required to submit an annual cost report. The cost report information includes facility level utilization statistics, costs, charges, Medicare payments, and financial information. CMS maintains the cost report data in the Healthcare Provider Cost Reporting Information System (HCRIS). HCRIS includes subsystems for the Hospital Cost Report (CMS-2552-96 and CMS-2552-10), Skilled Nursing Facility Cost Report (CMS-2540-96), Home Health Agency Cost Report (CMS-1728-94), Renal Facility Cost Report (CMS-265-94), Health Clinic Cost Report (CMS-222-92) and Hospice Cost Report (CMS-1984-99). Detailed information on CMS cost reports and links to download the data by provider type and year are available at: http://www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/CostReports/index.html.

Hospitals' total margins and operating margins were extracted from CMS Hospital Cost Reports in order to evaluate whether participation in DSRIP has negatively affected hospital finances. Elements from Worksheet G-3: Statement of Revenues and Expenses were used to calculate total margin and operating margin for each general acute care hospital in NJ for years 2011–2016. The following are the CMS Cost Report items we used to produce estimates for hospitals' total and operating margins:

Total Margin			
Form	**Worksheet**	**Item Description(s)**	**Formula**
2552-10	**G-3** Statement of Revenues and Expenses	Line 3: Net patient revenues Line 25: Total other income Line 29: Net income (or loss) for the period	$\frac{\text{Net income (line 29)}}{\text{Total revenue (line 3 + line 25)}}$
Operating Margin			
2552-10	**G-3** Statement of Revenues and Expenses	Line 3: Net patient revenues Line 4: Total operating expenses	$\frac{\text{Total operating revenue (line 3) – operating expenses (line 4)}}{\text{Total operating revenue (line 3)}}$

Appendix E: Risk-Adjustment Variables for Readmissions Metrics

For the 30-day readmission metrics, control variables for health status come from a full year of data prior to the index admission date and encompass clinically relevant comorbidities (not complications) that have strong relationships with readmission for the specific condition being analyzed.

Heart Failure Readmissions

• Age • Sex • History of Coronary Artery Bypass Graft • History of Percutaneous Transluminal Coronary Angioplasty • Diabetes Mellitus (DM) or DM Complications • Disorders of Fluid/Electrolyte/Acid-Base • Iron Deficiency or Other Unspecified Anemias and Blood Disease • Cardio-Respiratory Failure or Shock • Congestive Heart Failure • Vascular or Circulatory Disease • Chronic Obstructive Pulmonary Disease • Pneumonia • Renal Failure • Other Urinary Tract Disorders • Decubitus Ulcer or Chronic Skin Ulcer • Other Gastrointestinal Disorders • Acute Coronary Syndrome • Valvular or Rheumatic Heart Disease	• Specified Arrhythmias • Asthma • Peptic Ulcer, Hemorrhage, Other Specified Gastrointestinal Disorders • Cancer • Drug/Alcohol Abuse/Dependence/Psychosis • Major Psychiatric Disorders • End-Stage Renal Disease or Dialysis • Severe Hematological Disorders • Nephritis • Liver or Biliary Disease • Metastatic Cancer or Acute Leukemia • Stroke • Dementia or Other Specified Brain Disorders • Coronary Atherosclerosis or Angina • Other or Unspecified Heart Disease • Other Psychiatric Disorders • Fibrosis of Lung or Other Chronic Lung Disorders • Hemiplegia, Paraplegia, Paralysis, Functional Disability • Depression

Acute Myocardial Infarction (AMI) Readmissions

• Age • Sex • History of Coronary Artery Bypass Graft • History of Percutaneous Transluminal Coronary Angioplasty	• Vascular or Circulatory Disease • Disorders of Fluid/Electrolyte/Acid-Base Coronary Atherosclerosis • History of infection • Cerebrovascular Disease

Acute Myocardial Infarction (AMI) Readmissions (continued)

• Diabetes Mellitus (DM) or DM Complications • Iron Deficiency or Other Unspecified Anemias and Blood Disease • Congestive Heart Failure • Valvular or Rheumatic Heart Disease • Chronic Obstructive Pulmonary Disease • End-Stage Renal Disease or Dialysis • Other Urinary Tract Disorders • Specified Arrhythmias • Pneumonia • Renal Failure	• Metastatic Cancer or Acute Leukemia • Cancer • Decubitus Ulcer or Chronic Skin Ulcer • Dementia or Other Specified Brain Disorders • Angina Pectoris/Old Myocardial Infarction • Stroke • Asthma • Acute Coronary Syndrome • Hemiplegia, Paraplegia, Paralysis, Functional Disability • 'Protein-Calorie Malnutrition; • Anterior Myocardial Infarction • Other Location of Myocardial Infarction

Pneumonia Readmissions

• Age • Sex • History of Coronary Artery Bypass Graft • History of infection • Septicemia/Shock • Metastatic Cancer or Acute Leukemia • Lung, Upper Digestive Tract, and Other Severe Cancers • Other Major Cancers • Diabetes Mellitus (DM) or DM Complications • Protein-Calorie Malnutrition • Disorders of Fluid/Electrolyte/Acid-Base • Other Gastrointestinal Disorders • Severe Hematological Disorders • Iron Deficiency or Other Unspecified Anemias and Blood Disease • Dementia or Other Specified Brain Disorders • Drug/Alcohol Abuse/Dependence/Psychosis • Major Psychiatric Disorders • Other Psychiatric Disorders • Hemiplegia, Paraplegia, Paralysis, Functional Disability	• Cardio-Respiratory Failure or Shock • Congestive Heart Failure • Acute Coronary Syndrome • Chronic Atherosclerosis or Angina • Valvular or Rheumatic Heart Disease • Specified Arrhythmias • Stroke • Vascular or Circulatory Disease • Chronic Obstructive Pulmonary Disease • Fibrosis of Lung or Chronic Lung Disorders • Asthma • Pneumonia • Pleural Effusion/Pneumothorax • Other Lung Disorders • Dialysis Status • Renal Failure • Urinary Tract Infection • Other Urinary Tract Disorders • Decubitus Ulcer or Chronic Skin Ulcer • Vertebral Fractures • Other Injuries • Respirator Dependence/Tracheostomy Status

Chronic Obstructive Pulmonary Disease (COPD) Readmissions

• Age • Fibrosis of Lung or Other Chronic Lung Disorder • Other Digestive and Urinary Neoplasms • Renal Failure • Decubitus Ulcer or Chronic Skin Ulcer • Cellulitis, Local Skin Infection • Vertebral Fractures • Protein-Calorie Malnutrition • Other Endocrine/Metabolic/Nutritional Disorders • Pancreatic Disease • Peptic Ulcer, Hemorrhage, Other Specified Gastrointestinal Disorders • Other Gastrointestinal Disorders • Severe Hematological Disorders • Iron Deficiency or Other Unspecified Anemia and Blood Disease • Depression • Anxiety Disorders • Other Psychiatric Disorders • Metastatic Cancer or Acute Leukemia • Cardio-Respiratory Failure or Shock • Lung, Upper Digestive Tract, and Other Severe Cancers	• Polyneuropathy • Congestive Heart Failure • Hypertensive Heart and Renal Disease or Encephalopathy[8] • Specified Arrhythmias • Other or Unspecified Heart Disease • History of Infection • Vascular or Circulatory Disease • Pneumonia • Diabetes Mellitus (DM) or DM Complications • Disorders of Fluid/Electrolyte/Acid-Base • Dementia or Other Specified Brain Disorders • Drug/Alcohol Abuse/Dependence/Psychosis • Major Psychiatric Disorders • Quadripelgia, Paraplegia, Functional Disability • Respirator Dependence/Respiratory Failure • Acute Coronary Syndrome • Chronic Atherosclerosis or Angina • Lymphatic, Head and Neck, Brain, and Other Major Cancers Breast, Colorectal and Other Cancers and Tumors; Other Respiratory and Heart Neoplasms • Stroke • Sleep Apnea • History of Mechanical Ventilation

[8] This risk factor was removed when specifications were updated to be ICD-10 compatible. Results presented in this report come from models excluding this variable, but sensitivity models using claims through 2015 included this variable and did not show meaningfully different results.

Appendix F: Zip Code Identification Methods

All analyses by zip code are based on a 750 NJ zip universe. These 750 zips are an intersection of the zip codes present in our two data sources. They occur as zips of residence for Medicaid beneficiaries in the recipient file accompanying the claims data, and they are also zips of residence on Medicaid discharge records in the UB data, which was our source for creating the hospital choice sets and DSRIP exposure variables. Using this intersection of zips helps us discard erroneous zips present in either UB or Medicaid data and was necessary for assuring non-missing exposure variables in zip-level analyses.

Chapter 4: Analysis of Stage 4 Hospital-Level Reported Metrics to Examine Trends in Preventive Care

Introduction

In this chapter, we examine the results from an analysis of the 2013, 2014, 2015, and 2016 Stage 4 Metrics for all DSRIP participating hospitals in New Jersey. These Stage 4 Metrics were calculated by the State for all DSRIP-participating hospitals using Medicaid Management Information System (MMIS) administrative claims data or by individual hospitals using information from chart reviews and/or their electronic health records. They include measures such as child and adolescent access to primary care practitioners, hospital admission rates for COPD and heart failure, CD4 T-cell counts for HIV, preventive screenings for cervical cancer and chlamydia, a number of childhood vaccination combinations, and well-child visits for infants. Two additional measures (hospital acquired potentially preventable venous thromboembolism and "Preventive Care & Screening: Tobacco Use: Screening & Cessation Intervention") are derived from each hospital's medical chart or electronic health record (EHR) and were available only for the years 2014-2016 and 2015-2016, respectively. A general description of each metric is provided in the Findings section below; a detailed description of each metric including exclusions can be found in the DSRIP Performance Measurement Databook at https://dsrip.nj.gov/Home/Resources.

Methods

In this analysis, within-subjects' analyses of variance (ANOVAs) were conducted to assess change over time from 2013 to 2016 for each of the metrics across all 50 New Jersey hospitals participating in the DSRIP program (one of these dropped out of the program after 2014). Some measures are reported as percentages and others as rates per 1,000. Averages for each metric for 2013, 2014, 2015, and 2016 are shown in Table 4.1 at the end of this chapter. Significant changes over time are indicated at the $p<.05$ level and the level of significance is also reported for each metric. The measure for any particular year is reported in bold format when it reflects a significant change from the average of the previous years. We calculate time trends in the average value of metrics over 2013-2016 and designate 'yes' or 'no' to indicate whether the time trend reflected an improvement in the metric. The time trend estimate reflecting the average annual change is reported along with a plot of the mean values over four years. We further

present charts indicating what percentage of hospitals improved for each metric based on performance in the first and last years (see Figures 4.1-4.6).

Findings

Children and Adolescents' Access to Primary Care Practitioners

These metrics indicate what percentage of each hospital's eligible attributed children or adolescents visited a primary care practitioner (PCP) during each measurement year (or prior year for the two older age groups) and are reported at four age levels:

- 12 to 24 months, percentage with 1+ visits during measurement year
- 25 months to 6 years, percentage with 1+ visits during measurement year
- 7 to 11 years, percentage with 1+ visits during measurement year or year prior
- 12 to 19 years, percentage with 1+ visits during measurement year or year prior

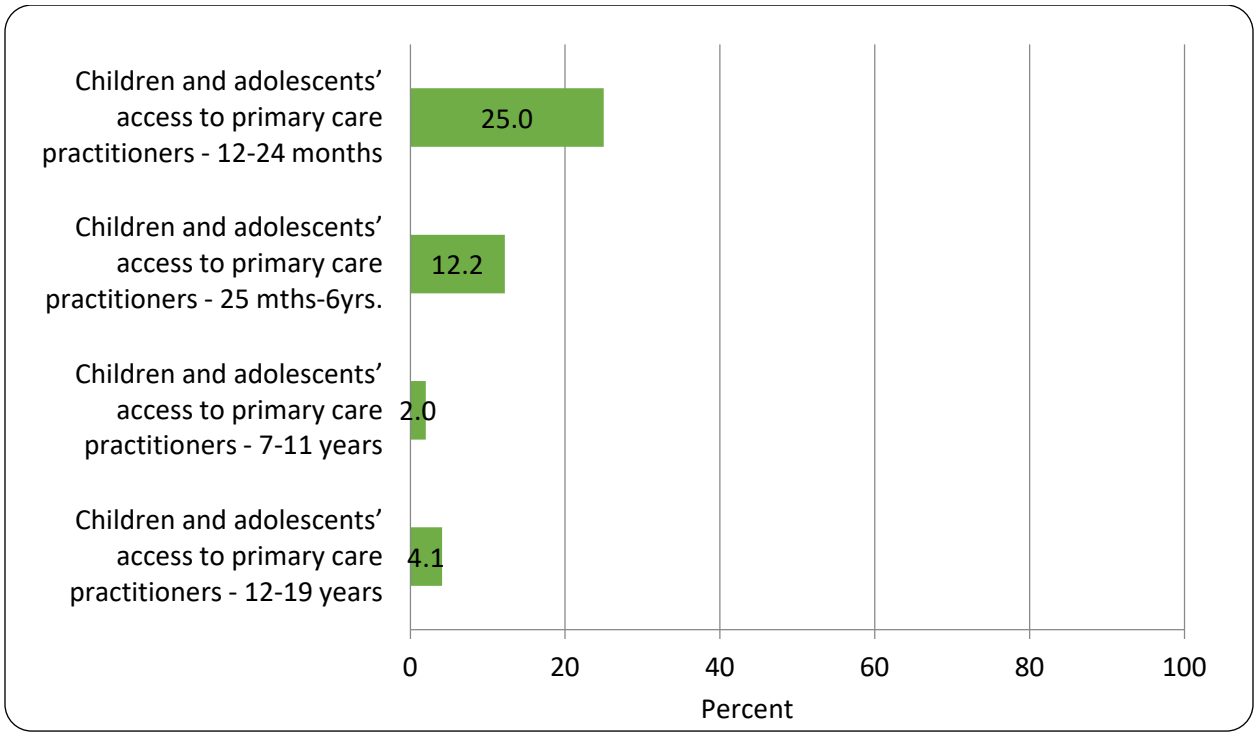
A PCP is defined to include physicians, nurse practitioners, or physician assistants in the following specialties:

- Family practice
- NP Family
- Internal Medicine
- Pediatrics
- NP Pediatric
- NP Community Health
- NP Adult Health

Significant improvements over the initial years were reported for children ages 7 years to 11 years (2013 mean percentage: 93.3%, 2014 mean percentage: 94.4%, p=.010) and for adolescents ages 12 years to 19 years (2013 mean percentage: 89.6%, 2014 mean percentage: 91.1%, p<0.001). However, in years 2015 and 2016, declines were reported for all four child and adolescent PCP access measures, and these declines were much sharper for two of the four measures in 2016. The percentage of adolescents ages 12-19 years visiting a PCP showed the steepest decline in 2016, falling from 89.6% in 2013 to 76.3% in 2016.

These declines are reflected in the percent of hospitals that showed improvement over time for each measure: 25.0% of hospitals improved from 2013 to 2016 for PCP access for children ages 12-24 months; 12.2% improved for children ages 25 months to 6 years, 2.0% improved for children ages 7-11 years, and 4.1% improved for adolescents ages 12-19 years (see Figure 4.1).

Figure 4.1: DSRIP Metrics, Percent of Hospitals That Improved from 2013 to 2016, Part 1



Source: 2018 New Jersey DSRIP Metrics Analysis 2013–2016, Rutgers Center for State Health Policy.

Hospital Admission Rates

The Stage 4 Metrics included hospital admission rates for the following two conditions in each hospital's attributed patients ages 18 years and older:

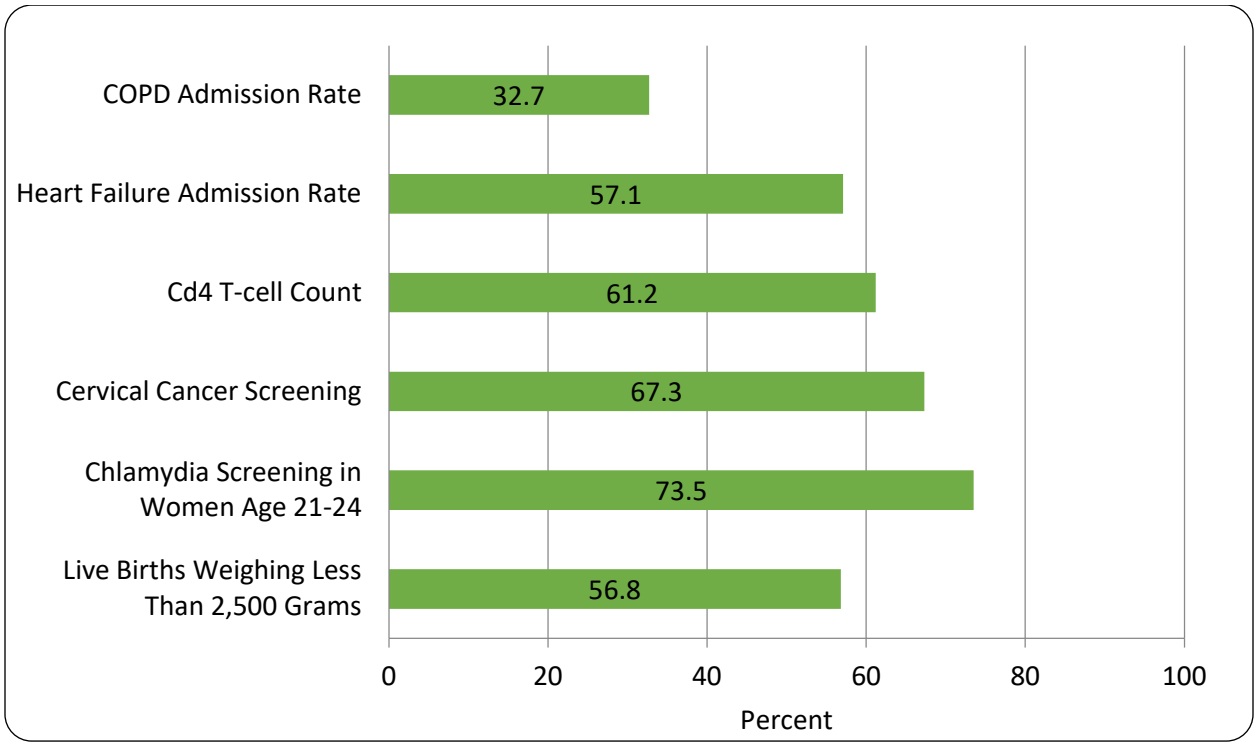
- Chronic obstructive pulmonary disease (COPD)
- Heart failure

Both rates are expressed as number of admissions per 1,000 attributable population for each hospital. Certain exclusions such as transfers from other facilities apply.

Hospital admission rates for both conditions significantly improved (decreased in magnitude) from 2013 to 2014, but then showed increases for 2015 (and also in 2016 for COPD). For COPD, the average admission rate across hospitals decreased from 3.1 in 2013 to 2.4 in 2014, but increased to 3.3 in 2015 and 4.1 in 2016 ($p<.001$) . For heart failure, the admission rate decreased from 3.9 in 2013 to 3.2 in 2014, but increased to 3.8 in 2015 and then decreased again in 2016 to 3.5 ($p<.001$). Overall we designated the heart failure admission rate as showing improvement and the COPD rate as worsening over the study period.

About 1/3 of the hospitals showed improved hospital admission rates for COPD from 2013 to 2016, while over half (57.1%) showed improved admission rates for heart failure (see Figure 4.2, top 2 bars).

Figure 4.2: DSRIP Metrics, Percent of Hospitals That Improved from 2013 to 2016, Part 2



Source: 2018 New Jersey DSRIP Metrics Analysis 2013–2016, Rutgers Center for State Health Policy.

CD4 T-cell Count for HIV-Infected Patients

This metric assesses the percentage of each hospital's attributed patients infected with HIV who had two or more CD4 T-cell counts taken during each measurement year, and is calculated for all HIV-infected attributed patients who had at least one primary care visit with a physician or nurse practitioner during the year.

This metric significantly improved from 2013 to 2014 and, although slightly lower than the rate in 2014, the rates for 2015 and 2016 were still higher than the 2013 rate. In 2013, 38.1% of HIV-infected patients had 2+ CD4 T-cell counts taken; that percentage improved to 46.9% in 2014, then down slightly to 43.7% in 2015 and 42.0% in 2016 ($p<.013$). We designated an overall improvement in this metric based on the trend estimate (See Table 1).

About six in 10 hospitals (61.2%) showed an improvement in this metric from 2013 to 2016 (see Figure 4.2, 3rd bar).

Preventive Screening

Preventive screening metrics were assessed for the following two conditions in women:

- Cervical cancer
- Chlamydia

For cervical cancer screening, the metric represents the percentage of women ages 24-64 years who received one or more PAP tests in the measurement year or the year prior, and is assessed as a percentage of all women ages 24-64 in each hospital's attributable population. The chlamydia screening metric represents the percentage of sexually active women ages 16-24 who had one or more chlamydia tests during the measurement year.

Both metrics changed little from 2013 to 2014, but significantly improved in 2015 and/or 2016. The cervical cancer screening percentage for 2013 was 41.8% and 41.9% for 2014, and then improved to 42.3% in 2015 and 44.6% in 2016 ($p<.001$). The chlamydia screening percentage was 42.6% for both 2013 and 2014, and improved to 45.2% in 2015 and 47.7% in 2016 ($p<.001$). The trend estimate signified an improvement in both metrics over our study period.

About 2/3 (67.3%) of the hospitals showed an improvement in cervical cancer screening from 2013 to 2016, while nearly ¾ (73.5%) of hospitals showed an improvement in chlamydia screening (see Figure 4.2, 4th and 5th bars).

Low Birth Weight Infants

This metric represents the percentage of newborn infants attributed to each hospital who weigh less than 2,500 grams. Low birth weight changed little from 2013 to 2014, worsened in 2015, and then improved in 2016 to less than the 2013-2014 percentages. In 2013 and 2014, 6.7% and 6.9%, respectively, of newborns weighed less than 2,500 grams; in 2015, the percentage of newborns weighing less than 2,500 grams increased (worsened) to 8.5%, but then improved to 6.2% in 2016.

More than five in 10 (56.8%) hospitals showed an improvement in this metric from 2013 to 2016 (see Figure 4.2, last bar).

Childhood Immunization Status

These metrics represent the percentage of two-year-old attributable children for each hospital who received each of the following vaccines:

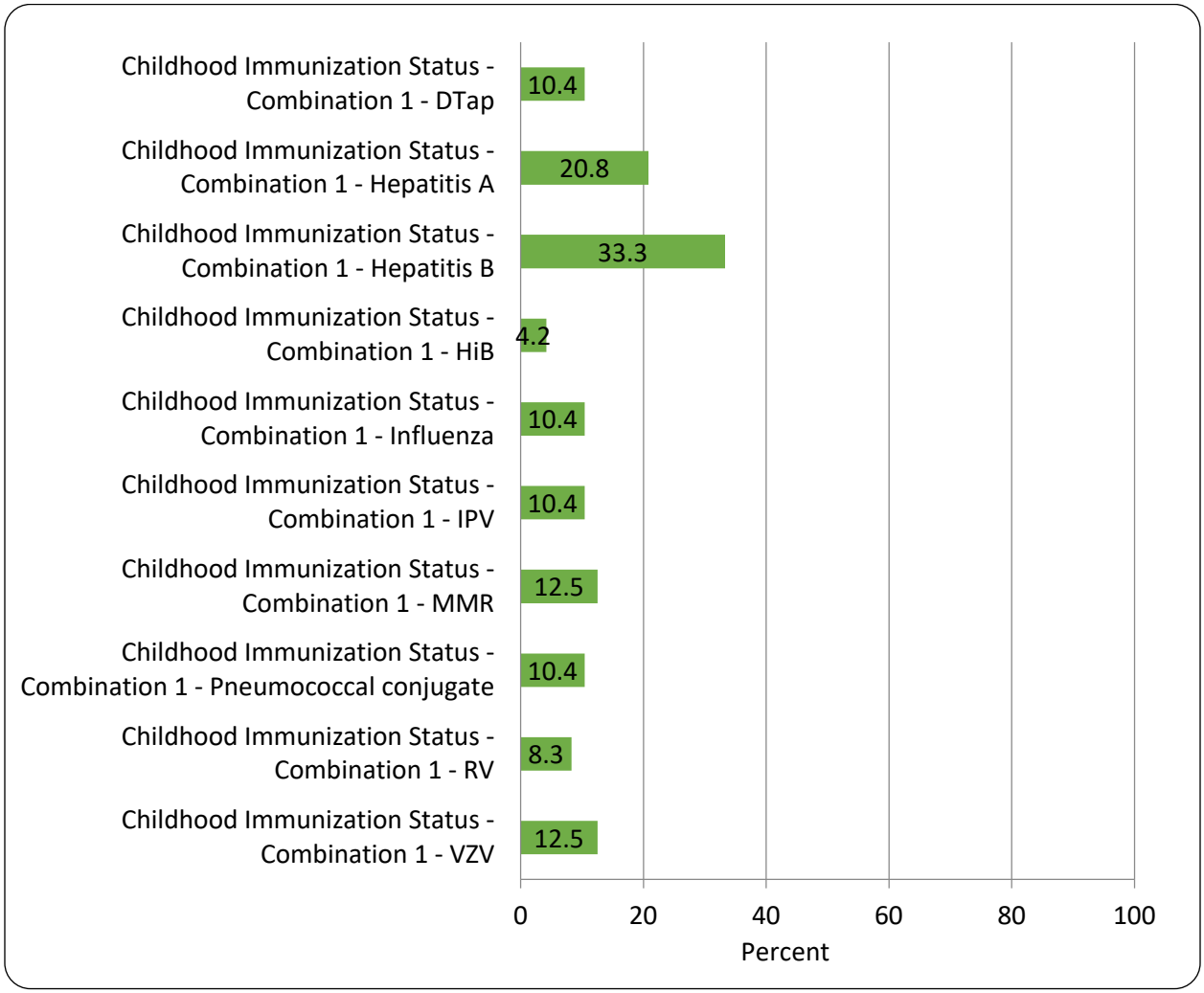
- four diphtheria, tetanus and acellular pertussis (Dtap)
- three polio (IPV)
- one measles, mumps and rubella (MMR)
- three H influenza type B (HiB)
- three hepatitis B (HepB)
- one chicken pox (VZV)
- four pneumococcal conjugate (PCV)
- one hepatitis A (HepA)

- two or three rotavirus (RV)
- two influenza (flu)

Rates for most of the vaccines significantly decreased from 2013 to 2016. These decreases were particularly large for the HiB (2013 average rate: 27.0; 2016 average rate: 10.7, p<.001), MMR (2013 average rate: 35.1; 2016 average rate: 18.4, p<.001), and VZV (2013 average rate: 35.0, 2016 average rate: 18.6, p<.001).

About nine in 10 hospitals showed declining rates for most of the vaccines from 2013 to 2016; the exceptions were the HepA and HepB vaccines which had a few less hospitals showing declining rates (eight in 10 and seven in 10, respectively) (see Figure 4.3).

Figure 4.3: DSRIP Metrics, Percent of Hospitals That Improved from 2013 to 2016, Part 3

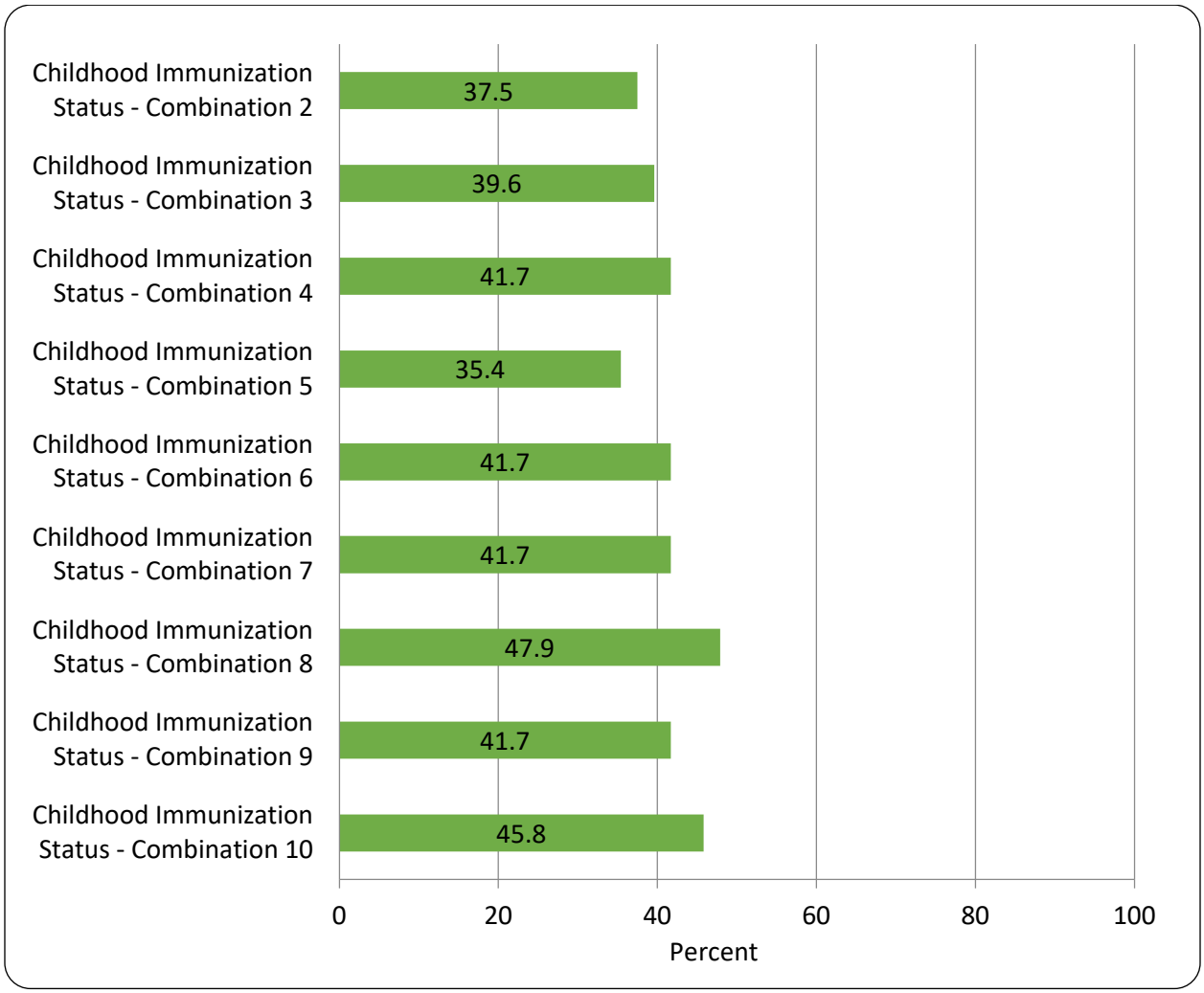


Source: 2018 New Jersey DSRIP Metrics Analysis 2013–2016, Rutgers Center for State Health Policy.

The remaining vaccine metrics were different combinations of the above vaccines. For example, "Childhood Immunization Status – Combination 2" represents the rate for receiving all of the first six vaccines listed above, and "Childhood Immunization Status – Combination 10" represents the rate for receiving all 10 of the vaccines listed above. Combinations 3-9 represent the rate for receiving different combinations of seven to nine of the vaccines listed above. All nine of these combination vaccines declined from 2013 to 2016, although five of the declines were not statistically significant.

For all the combination vaccine metrics, roughly four in 10 hospitals showed improved rates from 2013 to 2014 (see Figure 4.4).

Figure 4.4: DSRIP Metrics, Percent of Hospitals That Improved from 2013 to 2016, Part 4



Source: 2018 New Jersey DSRIP Metrics Analysis 2013–2016, Rutgers Center for State Health Policy.

Well-Child Visits in the First 15 Months of Life

These metrics represent the percentage of children out of all of the hospital's attributable children who had a well-child visit with a primary care provider during their first 15 months of life during the measurement year. Three different metrics were calculated:

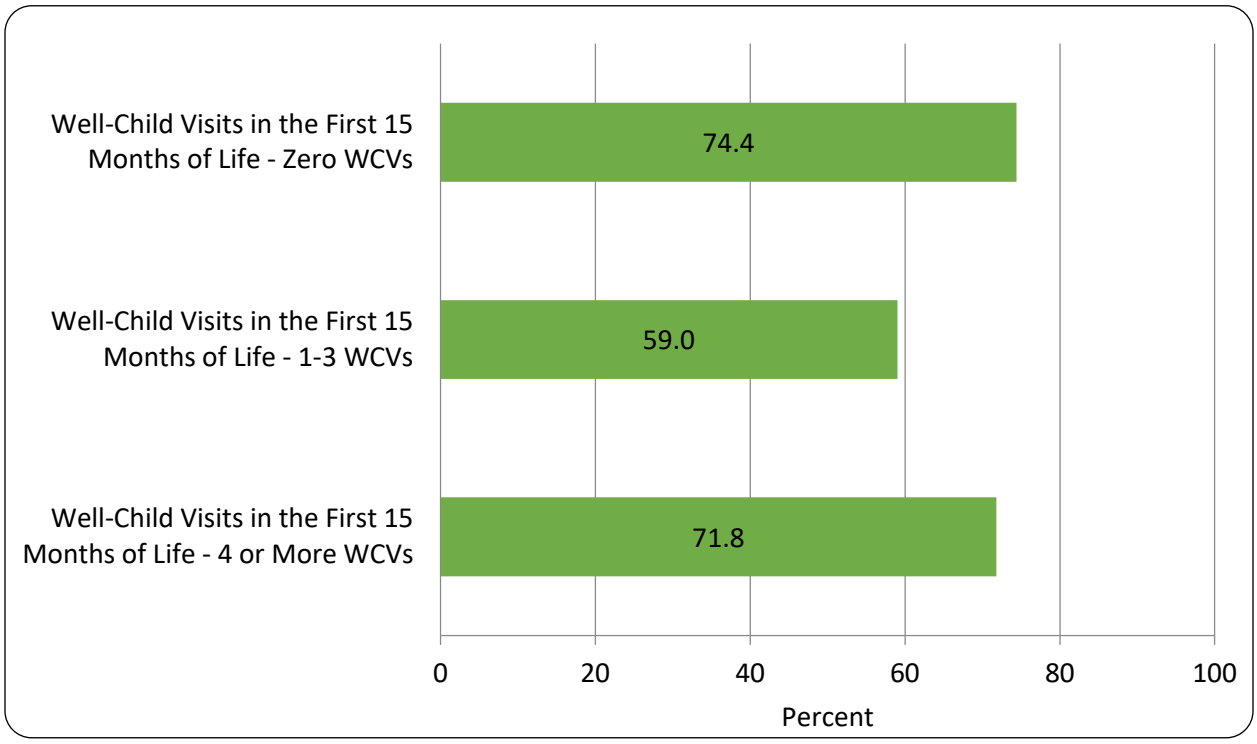
- Percentage of children with zero well-child visits
- Percentage of children with one to three well-child visits
- Percentage of children with four or more well-child visits

A primary care provider could be a physician, nurse practitioner, or physician assistant with a primary care specialty.

All three metrics improved from 2013 to 2016 (i.e., during the first 15 months of life, the percentage of children with zero well-child visits decreased from 2013 to 2016, while the percentage of children with one to three or four or more well-child visits increased from 2013 to 2016 (all p<.001). The trend estimates reflected these improvements as well.

The majority (74.4%, 59.0%, and 71.8%, respectively) of hospitals showed improved rates from 2013 to 2016 for the three well-child visits metrics (see Figure 4.5).

Figure 4.5: DSRIP Metrics, Percent of Hospitals That Improved from 2013 to 2016, Part 5



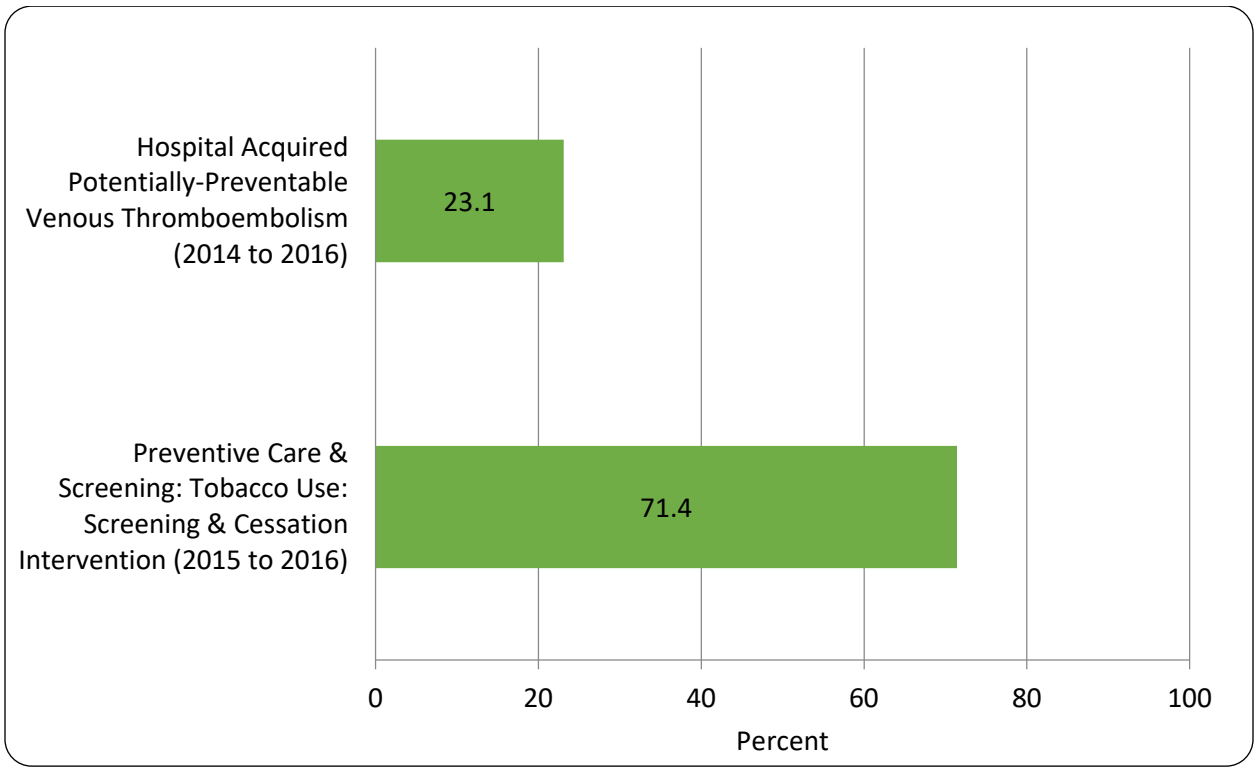
Source: 2018 New Jersey DSRIP Metrics Analysis 2013–2016, Rutgers Center for State Health Policy.

Hospital Acquired Potentially Preventable Venous Thromboembolism

This metric represents the percentage of each hospital's admitted patients who did not receive venous thromboembolism prophylaxis before being diagnosed with venous thromboembolism out of all of each hospital's attributable patients who developed venous thromboembolism following admission to the hospital. This is the only Stage 4 metric derived from the medical chart or EHR, and was collected by the hospitals for the years 2014-2016 only. The mean percentage for this metric across the 23 DSRIP participating hospitals who reported it was 11.8% in 2014, worsened to 19.0% in 2015, then improved in 2016 to 9.0%; however, these changes were not statistically significant.

About one in four (23.1%) hospitals improved from 2014 to 2016 (see Figure 4.6, 1st bar).

Figure 4.6: DSRIP Metrics, Percent of Hospitals That Improved Over Time, Part 6



Source: 2018 New Jersey DSRIP Metrics Analysis 2013–2016, Rutgers Center for State Health Policy.

Preventive Care & Screening: Tobacco Use: Screening & Cessation Intervention

This metric represents the percentage of patients aged 18 years and older with a diagnosis of coronary artery disease seen within a 12 month period who were screened for tobacco use (any type of tobacco) and, for those identified as tobacco users, received tobacco cessation counseling intervention (brief counseling - 3 minutes or less - and/or pharmacotherapy). The mean

percentage for this metric improved from 74.5% in 2015 to 82.3% in 2016, although the change was not statistically significant.

About seven in 10 (71.4%) hospitals improved from 2015 to 2016 (see Figure 4.6, 2nd bar).

Conclusions

The hospitals showed improvement from 2013 to 2016 in 10 out of 34 Stage 4 Metrics, including heart failure admission rate, Cd4 t-cell count, cervical cancer and chlamydia screening, low birth weight, well-child visits, hospital acquired venous thromboembolism, and tobacco screening/cessation intervention in coronary artery disease patients. All of the child/adolescent PCP access measures and all of the vaccination measures worsened from 2013 to 2016 (a few of the vaccination rate declines were not statistically significant).

References

Myers and Stauffer LC. 2017. *DSRIP Performance Measurement Databook, v3.1*. Trenton: New Jersey Department of Health. https://dsrip.nj.gov/Home/Resources.

Table 4.1: 2013-2016 DSRIP Metrics – Means, p-values, Participating Hospitals (*=overall significance, bold=contrast significant at p<.05)

	N	2013	2014	2015	2016	p-value	Sig.	Improved	Trend	Trend Estimate
Children and Adolescents' Access to Primary Care Practitioners - 12-24 Months										
Percentage	48	93.55	93.73	**92.26**	**91.46**	<0.001	*	No		-0.774
Children and Adolescents' Access to Primary Care Practitioners - 25 Months-6 Years										
Percentage	49	88.86	88.55	**86.26**	**85.02**	<0.001	*	No		-1.381
Children and Adolescents' Access to Primary Care Practitioners - 7-11 Years										
Percentage	49	93.30	**94.41**	93.69	**81.57**	<0.001	*	No		-3.591
Children and Adolescents' Access to Primary Care Practitioners - 12-19 Years										
Percentage	49	89.60	**91.07**	90.37	**76.29**	<0.001	*	No		-4.063
COPD Admission Rate										
Rate per 1,000	49	3.11	**2.42**	**3.33**	**4.11**	<0.001	*	No		0.391
Heart Failure Admission Rate										
Rate per 1,000	49	3.94	**3.16**	3.77	3.47	<0.001	*	Yes		-0.080
Cd4 T-cell Count										
Percentage	49	38.10	**46.88**	43.71	42.01	.013	*	Yes		0.858
Cervical Cancer Screening										
Percentage	49	41.78	41.85	42.32	**44.62**	<0.001	*	Yes		0.899
Chlamydia Screening in Women Age 21-24										
Percentage	49	42.64	42.58	**45.21**	**47.70**	<0.001	*	Yes		1.781
Percentage of Live Births Weighing Less Than 2,500 Grams										
Percentage	36	6.74	6.89	**8.51**	**6.17**	.011	*	Yes		-0.009
Childhood Immunization Status - Combination 1 - DTap										
Rate per 1,000	48	14.03	**9.49**	**6.19**	**5.86**	<0.001	*	No		-2.781
Childhood Immunization Status - Combination 1 - Hepatitis A										
Rate per 1,000	48	32.14	**24.78**	**19.75**	**20.61**	<0.001	*	No		-3.962
Childhood Immunization Status - Combination 1 - Hepatitis B										
Rate per 1,000	48	5.67	**8.07**	**5.39**	**3.51**	<0.001	*	No		-0.916

Source: 2018 New Jersey DSRIP Metrics Analysis 2013-2016, Rutgers Center for State Health Policy.

Table 4.1: 2013-2016 DSRIP Metrics – Means, p-values, Participating Hospitals (continued) (*=overall significance, bold=contrast significant at p<.05)

	N	2013	2014	2015	2016	p-value	Sig.	Improved	Trend	Trend Estimate
Childhood Immunization Status - Combination 1 - HiB										
Rate per 1,000	48	27.01	**22.07**	**13.30**	**10.67**	<0.001	*	No		-5.779
Childhood Immunization Status - Combination 1 - Influenza										
Rate per 1,000	48	20.28	**14.68**	**10.18**	**8.96**	<0.001	*	No		-3.846
Childhood Immunization Status - Combination 1 - IPV										
Rate per 1,000	48	20.52	**18.49**	**10.13**	**8.55**	<0.001	*	No		-4.427
Childhood Immunization Status - Combination 1 - MMR										
Rate per 1,000	48	35.08	**25.36**	**20.15**	**18.37**	<0.001	*	No		-5.534
Childhood Immunization Status - Combination 1 - Pneumococcal Conjugate										
Rate per 1,000	48	14.40	**10.47**	**6.43**	**6.28**	<0.001	*	No		-2.840
Childhood Immunization Status - Combination 1 - RV										
Rate per 1,000	48	14.19	14.59	**7.57**	**6.32**	<0.001	*	No		-3.063
Childhood Immunization Status - Combination 1 - VZV										
Rate per 1,000	48	35.04	**25.96**	**20.21**	**18.62**	<0.001	*	No		-5.501
Childhood Immunization Status - Combination 2										
Rate per 1,000	48	3.07	3.08	2.54	**1.77**	.001	*	No		-0.444
Childhood Immunization Status - Combination 3										
Rate per 1,000	48	2.50	2.40	2.12	**1.56**	.022	*	No		-0.310
Childhood Immunization Status - Combination 4										
Rate per 1,000	48	2.20	2.11	1.97	**1.47**	.114		No		-0.233
Childhood Immunization Status - Combination 5										
Rate per 1,000	48	1.84	1.69	1.54	**1.12**	.045	*	No		-0.231
Childhood Immunization Status - Combination 6										
Rate per 1,000	48	1.58	1.43	1.43	**0.94**	.048	*	No		-0.192
Childhood Immunization Status - Combination 7										
Rate per 1,000	48	1.63	1.56	1.46	**1.07**	.147		No		-0.178
Childhood Immunization Status - Combination 8										
Rate per 1,000	48	1.40	1.27	1.35	**0.91**	.165		No		-0.139

Source: 2018 New Jersey DSRIP Metrics Analysis 2013-2016, Rutgers Center for State Health Policy.

Table 4.1: 2013-2016 DSRIP Metrics – Means, p-values, Participating Hospitals (continued) (*=overall significance, bold=contrast significant at p<.05)

	N	2013	2014	2015	2016	p-value	Sig.	Improved	Trend	Trend Estimate
Childhood Immunization Status - Combination 9										
Rate per 1,000	48	1.16	1.05	1.06	**0.71**	.109		No		-0.134
Childhood Immunization Status - Combination 10										
Rate per 1,000	48	1.02	1.00	1.03	**0.69**	.237		No		-0.096
Well-Child Visits in the First 15 Months of Life - Zero WCVs										
Percentage	39	6.63	5.25	6.84	**3.39**	<0.001	*	Yes		-0.813
Well-Child Visits in the First 15 Months of Life - 1-3 WCVs										
Percentage	39	5.47	6.62	**7.95**	**5.78**	<0.001	*	Yes		0.226
Well-Child Visits in the First 15 Months of Life - 4 or More WCVs										
Percentage	39	87.90	88.13	**85.21**	**90.83**	<0.001	*	Yes		0.587
Hospital Acquired Potentially-Preventable Venous Thromboembolism										
Percentage	23	n/a	11.78	19.04	8.99	.502		Yes		-1.395
Preventive Care & Screening: Tobacco Use: Screening & Cessation Intervention										
Percentage	42	n/a	n/a	74.53	82.31	.246		Yes		7.780

Source: 2018 New Jersey DSRIP Metrics Analysis 2013-2016, Rutgers Center for State Health Policy.

Chapter 5: Discussion

This report examines various sources of information to identify the effects of the NJ DSRIP program using a combination of qualitative and quantitative research techniques. The study periods differ across the different components, but collectively cover all of the DSRIP transition and implementation years, from October 2012 through June 2017. While all of the findings have been discussed in detail in the individual chapters, we summarize below findings and common themes across these different components to answer the six research questions (RQs) guiding the DSRIP evaluation.

1. To what extent does the DSRIP program achieve better care?
2. To what extent does the DSRIP program achieve better health?
3. To what extent does the DSRIP program lower costs?
4. To what extent did the DSRIP program affect hospital finances?
5. To what extent did stakeholders report improvement in consumer care and population health?
6. How do key stakeholders perceive the strengths and weaknesses of the DSRIP program?

RQ1. To what extent does the DSRIP program achieve better care?
RQ5. To what extent did stakeholders report improvement in consumer care?

Since the start of DSRIP, hospitals have been enthusiastic about the chronic disease management interventions incentivized by the program. They perceive there have been positive impacts of their DSRIP interventions on the care of patients actually enrolled in programs, particularly patient access to health care services. By the fifth demonstration year hospitals, on average, agreed that DSRIP improved chronic disease management processes in their hospital.

When looking at quality of care not specifically related to disease management for DSRIP enrolled patients, the impact is mixed. Metrics assessing the effect of DSRIP on the quality of care for the overall Medicaid population show rates of avoidable emergency department visits and associated costs have undergone increases, indicating declines in the quality and efficiency of ambulatory care. Stage 4 hospital-reported metrics for the attributed population of Medicaid and charity care patients also show declines in child/adolescent primary care physician access measures from 2013 to 2016. On the other hand, several Stage 4 hospital-reported metrics show improvements in access to both recommended and preventive care for the attributed population

during the DSRIP implementation years compared to the pre-implementation years. Across DSRIP hospitals, there were improvements in metrics like heart failure admission rate, cervical cancer and chlamydia screening, low birth weight, well-child visits, hospital acquired venous thromboembolism, and tobacco screening/cessation intervention in coronary artery disease patients.

In summary, hospitals perceive that DSRIP has achieved better care for patients enrolled in their chronic disease intervention programs. Stage 4 metrics which are indicators of care quality outside hospitals' disease management projects, suggest receipt of recommended and preventive care has increased for attributed patients. At the same time, broader improvements in access to care and the quality and efficiency of care, as captured by avoidable use metrics, have not been realized for the overall Medicaid population.

RQ2. To what extent does the DSRIP program achieve better health?

RQ5. To what extent did stakeholders report improvement in population health?

Stakeholders reported positive effects of DSRIP on health outcomes from the chronic disease interventions. Likewise, DSRIP-participating hospitals do perceive there have been positive impacts of DSRIP on population health. There is evidence from quantitative analyses of improvements in asthma outcomes in the Medicaid population as a result of DSRIP. But in most other disease focus areas, population-level impacts of DSRIP on health are not significantly evident. When examining the overall impact of DSRIP on health outcomes not specific to the individual disease focus areas, there are increases in avoidable ED visits and no statistically significant positive results.

In summary, DSRIP is perceived by stakeholders to have improved the health of patients directly enrolled in disease management programs. Our claims data analysis supports such improvements for one disease focus area only, namely the positive impact on asthma outcomes in the Medicaid population.

RQ3. To what extent does the DSRIP program lower costs?

Based on our claims data analysis, costs associated with both avoidable ED visits and avoidable inpatient visits increased in the Medicaid population served by DSRIP hospitals compared to non-DSRIP hospitals (only the increases for avoidable ED visits were statistically significant, and the impact estimate was small). Stakeholders did not have a clear sense of DSRIP's impact on costs.

RQ4. To what extent did the DSRIP program affect hospital finances?

There was no significant impact of DSRIP on hospital finances as measured by total margin and operating margin through 2016. Most hospitals in the survey felt that DSRIP was starting to have

a positive impact on hospital finances. At the same time, some stakeholders reported financial challenges as a result of the DSRIP program.

RQ6. How do key stakeholders perceive the strengths and weaknesses of the DSRIP program?

Stakeholders felt that the reporting requirements were a major weakness of the DSRIP program. These required a large investment of time and resources, for example, reconciling attribution rosters and addressing EHR problems related to interoperability with program partners, which were perceived as a distraction from patient care. Dissatisfaction was most pronounced with respect to the universal metrics whose value was questionable to most stakeholders, but also in some cases with the project-specific metrics if the metric did not fairly represent outcomes. On average, hospitals only weakly agreed that the DSRIP program uses payment methodologies that fairly incentivize hospitals' financial investments in chronic disease management processes.

Stakeholders' suggestions for future DSRIP or DSRIP-like programs clearly convey these perceived weaknesses of DSRIP: paring down required metrics, restricting participation exclusively to safety net hospitals, involving hospitals and outpatient partners in program design, and devoting more resources to outpatient partners and information technology.

The strengths of the DSRIP program according to stakeholders were in the opportunities it provided to redesign care of chronic conditions for patients. On average, hospitals agreed that the DSRIP program improved chronic disease management processes at their hospital for the better, and that the DSRIP program fostered community partnerships that have a positive impact on social determinants of health. Also, stakeholders have consistently praised the opportunity to share experiences with and learn from other hospitals in the DSRIP Learning Collaboratives.

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