Cardiac Procedures Report
for Pennsylvania

What is the purpose of this report?

The Pennsylvania Health Care Cost Containment Council's (PHC4) *Cardiac Procedures Report* displays volume and outcome information for cardiac procedures performed in the Pennsylvania acute care hospitals that typically perform these procedures on adults. The *Cardiac Procedures Report* can assist consumers and purchasers in making more informed health care decisions. The report can also serve as an aid to providers in highlighting additional opportunities for quality improvement and cost containment.

About this report

- This report includes hospital-specific outcomes for five cardiac procedure groups, as defined by ICD-10-PCS (International Classification of Diseases, Tenth Revision, Procedure Coding System) codes and Medicare Severity Diagnosis-Related Groups (MS-DRGs). Technical Notes relevant to this report provide additional detail. They are posted to PHC4's website at www.phc4.org. Procedures included in this report:
    - Coronary Artery Bypass Graft (CABG)
    - Percutaneous Coronary Intervention (PCI) for a Heart Attack
    - Percutaneous Coronary Intervention (PCI) without a Heart Attack
    - Surgical Aortic Valve Replacement (SAVR)
    - Transcatheter Aortic Valve Replacement (TAVR)
- This report covers adult (18 years and older) inpatient hospital discharges from January 2020 through December 2021.
- Cases with a diagnosis of COVID-19 were not included in this report.
- All Pennsylvania acute care hospitals that performed a cardiac procedure of interest during the reported time period are included. Hospitals that closed or merged with other facilities are not reported, nor are hospitals that recently opened since the data available does not represent the full reporting time period.
- Hospital names have been shortened in many cases for formatting purposes. Hospital names may be different today than they were during the period covered in this report.

About the Report

About the data

Hospital discharge data compiled for this report was submitted to PHC4 by Pennsylvania hospitals. The data was subject to standard validation processes by PHC4 and verified for accuracy by the hospitals at the individual case level. The ultimate responsibility for data accuracy and completeness lies with each individual hospital.

Medicare fee-for-service payment data was obtained from the Centers for Medicare and Medicaid Services (CMS).

Accounting for high-risk patients

Included in the data PHC4 receives from Pennsylvania hospitals is information indicating, in simple terms, "how sick the patient was" on admission to the hospital—information that is used to account for high-risk patients. Even though two patients may be admitted to the hospital for the same procedure, there may be differences in the seriousness of their conditions. To account for differences in patient risk, PHC4 uses a complex mathematical formula to risk adjust the mortality, readmission and extended postoperative length of stay data included in this report, meaning that hospitals receive "extra credit" for treating patients who are more seriously ill or at a greater risk than others. Risk adjusting the data is important because sicker patients may be more likely to die, experience a readmission, or have a longer postoperative length of stay.

PHC4 uses clinical laboratory data, patient characteristics such as age, gender, race/ethnicity, and socioeconomic status, and billing codes that describe the patient's medical conditions such as chronic lung disease, diabetes, heart failure, etc., to calculate risk for the patients in this report. A comprehensive description of the risk-adjustment techniques used for this report can be found in the Technical Notes on PHC4's website at www.phc4.org.

About the Report

What is measured in this report and why is it important?

Displayed in the Hospital Results section of the report:

In the Hospital Results section of the report outcomes are displayed for the risk-adjusted measures below, when appropriate for the procedure. The total number of cases and the average hospital charge are reported for all procedures.

To determine the risk-adjusted rating, PHC4 compares the number of patients one could reasonably expect to experience an outcome (e.g., unplanned readmission), after accounting for patient risk, with the actual number that occurred. Please refer to "Understanding the Symbols" box and the Technical Notes for further details at www.phc4.org.

Outcome data are not reported for hospitals that have fewer than five cases evaluated for a measure; such low volume cannot be considered meaningful and, as such, the outcome data are not displayed. Not Reported (NR) appears in the table when this occurs.

- ***Total Number of Cases.*** The number of hospitalizations, after exclusions, during which the procedure was performed. The number of cases represents separate hospital admissions, not individual patients. A patient admitted more than once for the same procedure would be included in the total number of cases each time.
- ***Risk-Adjusted Mortality.*** This measure is reported as a statistical rating that represents the number of patients who died during the hospital stay in which the procedure was performed.

Understanding the Symbols

The symbols displayed in this report represent a comparison of a hospital's actual outcome rate to what is expected after accounting for patient risk.

Using readmission as an example:

- ○ **Hospital's rate was significantly lower than expected.** Fewer patients were readmitted than could be attributed to patient risk and random variation.
- ⊙ **Hospital's rate was not significantly different than expected.** The number of patients who were readmitted was within the range anticipated based on patient risk and random variation.
- ● **Hospital's rate was significantly higher than expected.** More patients were readmitted than could be attributed to patient risk and random variation.

About the Report

- ***Risk-Adjusted 7, 30 and 90-Day Unplanned Readmission.*** These measures are reported as statistical ratings that represent the number of patients with an unplanned readmission following their initial hospital stay. A readmission is defined as a subsequent hospitalization to a Pennsylvania acute care hospital, where the admit date is within 7, 30 and 90 days of the discharge date of the original hospitalization. While some re-hospitalizations can be expected, high quality care may lessen the need for subsequent acute care hospitalizations.

  For all procedures in this report, planned readmissions were excluded from the analysis. Identifying readmissions that were planned was based on methods developed by the CMS for identifying planned readmissions (please refer to the Technical Notes at www.phc4.org). In addition, readmissions with a diagnosis of COVID-19 were not counted. Outcome data are not reported for hospitals that did not provide sufficient patient identification data to accurately identify readmissions. Not Available (NA) appears in the table when this occurs. Out-of-state residents were excluded because readmission data was not available for patients readmitted to a non-Pennsylvania hospital.

- ***Extended Postoperative Length of Stay*.** This measure is reported as a statistical rating that represents patients whose length of stay following the procedure was significantly longer than expected, after accounting for patient risk.

- ***Case-Mix Adjusted Average Hospital Charge.*** This represents the average hospital charge for each procedure reported. The average hospital charge represents the entire length of the hospital stay. It does not include professional fees (e.g., physician fees) or other additional post-discharge costs, such as rehabilitation treatment, long-term care and/or home health care. The average charge is adjusted for the mix of cases that are specific to each hospital (for more details, see the Technical Notes at www.phc4.org). While charges are what the hospital reports on the billing form, hospitals typically receive actual payments from private insurers and government payers that are considerably less than the listed charge.

Displayed in the Medicare Payments section of the report:

- ***Medicare Payments.*** This section of the report displays the average payments made by Medicare fee-for service for each procedure included in this report and by the Medicare Severity Diagnosis-Related Groups (MS-DRGs) associated with each procedure.

About the Report

Uses of this report

This report can be used as a tool to examine hospital performance in specific procedure categories. It is not intended to be a sole source of information for making decisions about health care, nor should it be used to generalize about the overall quality of care provided by a hospital. Readers of this report should use it in discussions with their physicians who can answer specific questions and concerns about their care.

- ***Patients/Consumers*** can use this report as an aid in making decisions about where to seek treatment for the procedures detailed in this report. This report should be used in conjunction with a physician or other health care provider when making health care decisions.
- ***Group Benefits Purchasers/Insurers*** can use this report as part of a process in determining where employees, subscribers, members, or participants should go for their health care.
- ***Health Care Providers*** can use this report as an aid in identifying opportunities for quality improvement and cost containment.
- ***Policymakers/Public Officials*** can use this report to enhance their understanding of health care issues, to ask provocative questions, to raise public awareness of important issues, and to help constituents identify health care options.
- ***Everyone*** can use this information to raise important questions about why differences exist in the quality and efficiency of care.

About PHC4

Created by the PA General Assembly in 1986, the PA Health Care Cost Containment Council (PHC4) is an independent state agency charged with collecting, analyzing and reporting information that can be used to improve the quality and restrain the cost of health care in the state. Today, PHC4 is a recognized national leader in public health care reporting. PHC4 is governed by a board of directors representing business, labor, consumers, health care providers, insurers, health economists and state government.

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