

Spinal Fusions in Pennsylvania

2014 Data



Pennsylvania Health Care Cost Containment Council

June 2016

Spinal Fusions in Pennsylvania

This report on spinal fusion procedures presents hospital-specific results for the 21,393 adult patients who underwent this procedure in a Pennsylvania hospital in 2014. Produced by the Pennsylvania Health Care Cost Containment Council (PHC4), the report includes

- Hospital-specific, risk-adjusted outcome measures: in-hospital complication, readmission for a complication, and any unplanned readmission.
- Average charges and average Medicare payments for hospitals.
- Surgeon volume.
- County-level utilization rates.
- Key findings, including regional and statewide trends.

Taken together, this information can be helpful to patients, families, and purchasers in making more informed health care decisions and can serve as an aid to providers in highlighting additional opportunities for quality improvement and cost containment.

Table of Contents

About the Report.....	2
Statewide Statistics and Key Findings	9
Hospital Results	12
Surgeon Volume	17
Medicare Payment	26
County-Level Rates.....	30

About PHC4

Created by the PA General Assembly in 1986, 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. More than 840,000 public reports on patient treatment results are downloaded from the PHC4 website each year, and nearly 100 organizations and individuals annually utilize PHC4's special requests process to access and use data. PHC4 is governed by a 25-member board of directors, representing business, labor, consumers, health care providers, insurers, and state government.

Joe Martin, Executive Director
225 Market Street, Suite 400, Harrisburg, PA 17101
717-232-6787 • www.phc4.org



About the Report

About spinal fusion

Back and neck pain are two of the most common reasons patients seek medical care and are leading causes of lost work and difficulty managing the daily activities of life. About 80% of people will experience back pain at least once during their lifetime.¹ In a single year, nearly 66 million adults reported low back pain and 33 million reported neck pain.² The causes of back and neck pain are often muscle strain, osteoarthritis, or degenerative disc disease, which can lead to herniated discs, sciatica (a compressed nerve that causes pain down the leg), and spinal stenosis (a narrowing of the spinal canal). Trauma, tumors, and in a small percentage of cases, congenital spinal deformities might also be the source of pain.

In the large majority of cases, people recover from back and neck pain over a period of several weeks or months without surgery. Usually, the treatment begins with physical therapy, massage therapy, or anti-inflammatory medication. Surgical options exist for those who fail to gain relief from other treatments, and in recent years there has been a trend toward increased use of spinal operations, especially spinal fusion surgeries.

An aging population with increased quality of life expectations, along with advances in technology leading to new diagnostic techniques and devices used to stabilize vertebrae (bones of the spine), have led to a rapid increase in the number of fusions performed in the United States. During the 1990's spinal fusions tripled³ and increased again by more than two-fold over the last decade.²

Spinal Fusion

A spinal fusion is the joining of two or more vertebrae (bones of the spine) to relieve pain by limiting movement in the diseased part of the spine. Metal screws, rods, and plates may be used to fixate (stabilize) the spine while allowing time for the bone grafts inserted during surgery to heal, resulting in a fusion of the vertebrae. The bone grafts can be made of synthetic material (ceramic or bone-forming proteins) or from actual bone taken from the patient or a donor.

Additional Resources

American Academy of Orthopedic Surgeons: www.orthoinfo.org

National Institute of Arthritis and Musculoskeletal and Skin Diseases: www.niams.nih.gov

¹ Borenstein D. Back Pain. American College of Rheumatology. Available at <http://www.rheumatology.org>. Reviewed May 2015. Accessed May 6, 2016.

² United States Bone and Joint Initiative: The Burden of Musculoskeletal Diseases in the United States, Third Edition, 2014. Rosemont, IL. Available at <http://www.boneandjointburden.org>. Accessed on Apr 27, 2016.

³ Deyo RA, Mirza SK. Trends and variations in the use of spine surgery. *Clin Orthop Relat Res.* 2006; 443:139-46.

About the Report

The goal of spinal fusion surgery is to decrease the pain associated with movement of the vertebrae within the diseased segment of the spine by fusing the vertebrae together. Fusion eliminates movement and prevents stretching of the nerves and surrounding ligaments and muscles. Spinal fusion is typically followed by several days in the hospital. During the recovery period, which may take several months, the spine must be kept in alignment. Patients are shown how to move properly, reposition, sit, stand, and walk. Light activity, like walking, is usually recommended immediately after surgery followed by a gradual increase in activity.

In this report

- This report includes hospital-specific outcomes and surgeon-specific volume for spinal fusion procedures, as defined by ICD-9-CM (International Classification of Diseases, Ninth Revision, Clinical Modification) codes (81.00-81.08 spinal fusion). The total number of cases includes elective and non-elective procedures. Hospital-specific outcomes are reported for spinal fusion procedures that are likely to be considered elective. Technical Notes relevant to this report provide additional detail. They are posted to PHC4's website at www.phc4.org.
- This report covers adult (18 years and older) inpatient hospital discharges for spinal fusion, regardless of payer, during calendar year 2014.
- The 111 Pennsylvania general acute care hospitals and 332 surgeons that performed spinal fusion procedures during calendar year 2014 are included.
- The hospital names have been shortened in many cases for formatting purposes. Hospital names may be different today than during the time period covered in the report due to mergers and name changes.

Also on PHC4's Website for Spinal Fusions

Statewide Statistics and Key Findings

Hospital Results

Medicare Payment

Surgeon Volume

County-Level Rates

Technical Notes

Hospital and Surgeon Comments

Downloadable Data

About the Report

About the data

The hospital inpatient discharge data used in this analysis was submitted to PHC4 by the general acute care hospitals in Pennsylvania that performed spinal fusion procedures in 2014. As part of PHC4's standard validation processes, hospitals were given an opportunity to verify and correct the discharge data. Hospitals were also given an opportunity to confirm the operating physician volume and Medicare payment data. The ultimate responsibility for data accuracy and completeness lies with each individual hospital. PHC4 wishes to acknowledge and thank the Pennsylvania hospitals that participated in the data submission and verification processes used for this report.

Medicare fee-for-service payment data was obtained from the Centers for Medicare and Medicaid Services. The Medicaid payment data (fee-for-service and managed care) was provided by the Pennsylvania Department of Human Services. The most recent Medicare and Medicaid payment data available to PHC4 for use in this report was for 2013. Medicaid data is reported at the statewide level only.

Accounting for high-risk patients

Some patients who undergo spinal fusion have more complex conditions than others—conditions that may be associated with the need for the procedure and/or other chronic diseases such as arthritis, asthma, and coronary artery disease. 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 with the same illness, there may be differences in the seriousness of their conditions. In order to report fair comparisons among hospitals, PHC4 uses a complex mathematical formula to risk adjust the complication and readmission measures 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 develop complications or be readmitted.

In order to report fair comparisons among hospitals, PHC4 uses a complex mathematical formula to risk adjust the complication and readmission measures. Risk adjusting the data is important because sicker patients may be more likely to develop complications or be readmitted.

About the Report

PHC4 uses results from laboratory blood tests, patient characteristics such as age and gender, and billing codes that describe the patient's medical conditions such as the presence of arthritis, coronary artery disease, 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.

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

PHC4's mission is to provide the public with information that will help to improve the quality of health care services while also providing opportunities to restrain costs. The measurement of quality in health care is not an exact science. As such, there may be a number of ways to define quality. Measures for this report were chosen because they are important components in examining quality of care and resource use for patients undergoing spinal fusion procedures.

- **Total Number of Cases (reported for hospitals and surgeons).** This is the number of spinal fusion procedures (both elective and non-elective procedures) performed by the hospitals and surgeons included in this report. This information provides an idea of the experience each facility or surgeon has in performing these procedures. Studies have suggested that, in at least some areas, the volume of cases treated by a hospital or physician can be a factor in the success of the treatment. The number of cases represents separate hospital admissions, not individual patients. A patient admitted several times for spinal fusion would be included each time in the number of cases. Not included in this measure are procedures performed on patients younger than 18 years old, those performed in children's hospitals, veterans' hospitals, or those performed in other states by surgeons who also practice outside Pennsylvania.

The following measures are reported for hospitals. While the total number of cases includes all spinal fusion procedures for adult patients (elective and non-elective procedures), these measures only include patients whose procedures were likely to be considered elective. That is, more clinically complex cases were excluded. Additional exclusions specific to these measures are outlined in the Technical Notes on PHC4's website at www.phc4.org.

- **In-Hospital Complication (risk adjusted).** This measure is reported as a statistical rating that represents the number of patients who developed a surgical complication during the hospital stay in which the spinal fusion was performed. For this report, an in-hospital complication was counted if the patient died or developed one of the following conditions during the hospital stay: mechanical complication of device, implant, or graft; infection of

About the Report

device, implant, or graft; surgical site bleeding; or wound complication. To determine the risk-adjusted rating for in-hospital complications, PHC4 compares the number of patients one could reasonably expect to develop a complication, after accounting for patient risk, with the actual number of complications. Ratings were reported for hospitals with five or more spinal fusion cases. (See “Understanding the Symbols” box.)

- Readmission for a Complication (risk adjusted).** This measure is reported as a statistical rating that represents the number of patients who were readmitted to a Pennsylvania general acute care hospital within 30 days or 90 days (depending on the complication) of being discharged from the hospital where the spinal fusion was performed *and* where the principal reason for the readmission was one of the following surgical complications: mechanical complication of device, implant, or graft; infection of device, implant, or graft; surgical site bleeding; or wound complication. To determine the risk-adjusted rating for this measure, PHC4 compares the number of patients one could reasonably expect to be readmitted for a complication, after accounting for patient risk, with the actual number of such readmissions. Ratings were reported for hospitals with five or more spinal fusion cases. (See “Understanding the Symbols” box.)
- Any Unplanned Readmission (risk adjusted).** This measure is reported as a statistical rating that represents the number of patients who were readmitted to a Pennsylvania general acute care hospital within 30 days of being discharged from the hospital where the spinal fusion was performed. This measure includes a broader array of readmissions than the “readmission for a complication” measure previously discussed. However, readmissions captured in this measure were counted only if they were considered “unplanned”; that is, the patient was readmitted for a

Understanding the Symbols

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

- **Hospital’s rate was significantly lower than expected.** Fewer patients developed a complication or 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 developed a complication or were readmitted was within the range anticipated based on patient risk and random variation.
- **Hospital’s rate was significantly higher than expected.** More patients developed a complication or were readmitted than could be attributed to patient risk and random variation.

About the Report

reason that was not defined as planned using an algorithm developed by the Centers for Medicare and Medicaid Services.⁴ To determine the risk-adjusted rating for this measure, PHC4 compares the number of patients one could reasonably expect to have an unplanned readmission, after accounting for patient risk, with the actual number of such readmissions. Ratings were reported for hospitals with five or more spinal fusion cases. (See “Understanding the Symbols” box.)

Readmission is an outcome influenced by the quality of inpatient and outpatient care, including coordination of care, discharge planning, and medication reconciliation. Identifying readmissions provides information that can inform quality improvement efforts that have the potential to improve patient experience and lower health care costs. While some re-hospitalizations can be expected, high quality care may lessen the need for subsequent, unplanned hospitalizations.

- **Average Hospital Charge (case-mix adjusted).** The amount a hospital bills for a patient’s care is known as the charge. The charge includes the facility fee but 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. In almost all cases, hospitals do not receive full charges from private insurance carriers or government payers. Hospitals typically receive actual payments that are considerably less than the listed charge. Hospital charges often vary by individual hospital and by regions of the state. The average charge included in this report was adjusted for the mix of cases specific to each hospital and reflects the entire length of stay. Additional exclusions specific to this measure are outlined in the Technical Notes on PHC4’s website at www.phc4.org. The average charge is reported for each hospital with 11 or more cases.
- **Average Medicare Fee-for-Service Payment.** This section of the report displays the average amount a hospital is paid for a Medicare patient in the fee-for-service system (Pennsylvania residents), along with the number of cases included in the average payment and average hospital charge (trimmed and case-mix adjusted) for these cases. Payments from Medicare Advantage plans (e.g., Medicare HMOs) are not included. The average Medicare payment was trimmed for outliers as appropriate and calculated using the dollar amount the Centers for Medicare and Medicaid Services provided for the Medicare Part A hospital insurance

⁴ Centers for Medicare and Medicaid Services. “2014 Procedure Specific Readmission Measures Updates and Specifications Report: Elective Primary Total Hip Arthroplasty (THA) and/or Total Knee Arthroplasty (TKA) – Version 3.0.” March 2014. Available at <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/Measure-Methodology.html>.

About the Report

fund payment. Patient liabilities (e.g., coinsurance and deductible dollar amounts) were not included. The average payment was calculated by summing the Medicare payment amounts for the cases and dividing the sum by the number of cases. Hospitals were given an opportunity to verify the average Medicare payments reported for their facilities prior to the public release of the information. The most recent Medicare payment data available to PHC4 was for calendar year 2013.

Medicare payments are based on formulas that take into account regional variation in the cost of delivering care, the increased costs from teaching doctors still in training, higher costs for hospitals that service large numbers of low-income patients, and for costs of new technologies. Medicare payments are based on the entire hospital stay, as are the average hospital charges for the Medicare fee-for-service patients. The average Medicare payment and average hospital charge for these cases are reported for each hospital with 11 or more cases.

Uses of this report

This report can be used as a tool to examine hospital performance. It is not intended to be a sole source of information for making health care decisions, 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. 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.

Statewide Statistics and Key Findings

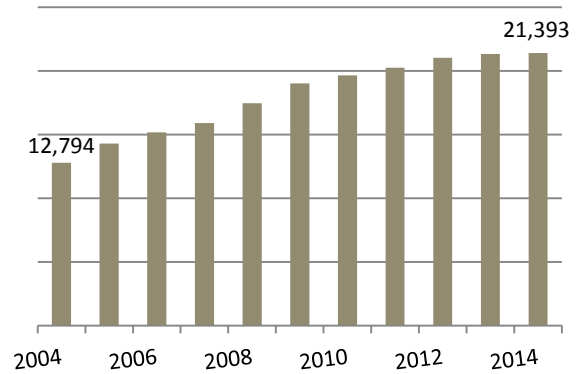
67.2% increase in number of spinal fusions

21,393 adults underwent spinal fusion in 2014, a 67.2% increase from 12,794 in 2004.

100.7% increase for PA residents age 65 & older

The population-based rate of spinal fusion doubled for Pennsylvania residents age 65 and older, increasing from 15.3 per 10,000 residents in 2004 to 30.7 in 2014. For those age 45 to 64, the rate increased 61.2% from 17.0 per 10,000 residents in 2004 to 27.4 in 2014.

Spinal Fusions, 2004 to 2014



3.3% experienced an in-hospital complication

3.3% of patients who underwent spinal fusion experienced a surgical complication during the hospitalization in which the fusion was performed.

2.3% readmitted for a complication

2.3% of patients who underwent spinal fusion were readmitted to an acute care hospital for a surgical complication within 30 or 90 days of discharge from the hospital in which their fusion was performed.

5.4% readmitted for any unplanned reason

5.4% of patients who underwent spinal fusion were readmitted to an acute care hospital for any unplanned reason within 30 days of discharge from the hospital in which their fusion was performed. Surgical complications were the most common reason for unplanned readmissions followed by heart-related reasons (e.g., heart attack and abnormal heartbeat), bloodstream infection, and blood clot in the lung.

Wound Complications

Wound complications such as post-operative infection, accumulation of fluid (seroma), and accidental punctures or tears of the membrane covering the spinal cord were the top reason for in-hospital complications and for readmissions for a complication, accounting for:

80.8% of all in-hospital complications.

66.0% of all readmissions for a complication.

Complications following surgery add to the overall cost of care through additional days spent in the hospital and increased payments. On average, patients who developed an in-hospital complication stayed in the hospital 6.1 days compared to 2.8 days for patients who did not develop a complication. For patients readmitted for a complication, the average length of stay of the readmission was 5.9 days. Overall, surgical complications following spinal fusion added an estimated 4,000 hospital days and an estimated \$8.5 million in additional payments when compared to patients who did not experience a complication.

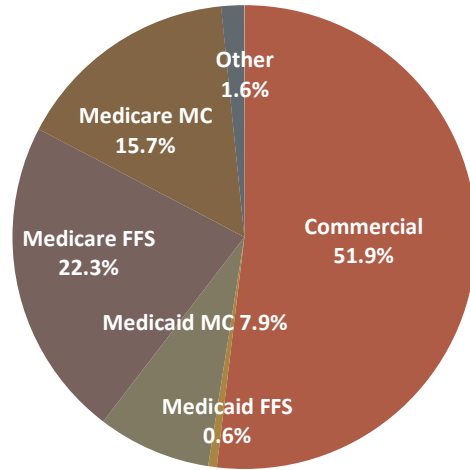
Statewide Statistics and Key Findings

Spinal fusion payment

In 2014, hospitals indicated that Medicare (FFS) and Medicaid (FFS and MC) were anticipated to be the primary payer for approximately 30% of hospitalizations for spinal fusion (Pennsylvania residents only). Together, total payments for these hospitalizations amounted to an estimated \$106.1 million (based on 2013* payment averages, the most recent available to PHC4 for this report).

While this figure includes Medicare (FFS) and Medicaid (FFS and MC) payments for spinal fusion, it does not include payments for spinal fusions covered by other insurance types or for uninsured patients. If payments for these additional hospitalizations were estimated based on the Medicare FFS average, an additional \$263.9 million would be added, bringing the total payments for spinal fusion hospitalizations to, conservatively, \$370 million.

Spinal Fusion by Payer, 2014



*Medicare and Medicaid Average Payment for Spinal Fusion, 2013		
Medicare FFS	Medicaid FFS	Medicaid MC
\$23,531	\$16,327	\$15,198

FFS: Fee-for-Service
MC: Managed Care

Rates vary across 3 PA regions**

Western PA had the highest spinal fusion hospitalization rate per 10,000 residents in 2014.

- 23.6 Western PA
- 21.2 Central and Northeastern PA
- 14.7 Southeastern PA

Southeastern PA had the largest rate increase (77.1%), from 8.3 per 10,000 in 2004 to 14.7 in 2014. Rates for residents of Western PA and Central and Northeastern PA increased 53.2% (from 15.4 to 23.6) and 52.5% (from 13.9 to 21.2), respectively.

Rates by gender and race/ethnicity

Hospitalization Rates for Spinal Fusion, 2014 (per 10,000 residents)		
	2004	2014
Female	12.3	19.3
Male	12.0	19.4
Black (non-Hispanic)	7.9	15.3
Hispanic	8.9	5.9
White (non-Hispanic)	12.4	20.3

Internal PHC4 analysis suggests that Hispanic ethnicity may be underreported. Not shown are data for other low-volume categories of race/ethnicity such as Asian, American Indian, Alaskan Native, Native Hawaiian, etc.

**Western Pennsylvania – Allegheny, Armstrong, Beaver, Bedford, Blair, Butler, Cambria, Cameron, Clarion, Clearfield, Crawford, Elk, Erie, Fayette, Forest, Greene, Indiana, Jefferson, Lawrence, McKean, Mercer, Potter, Somerset, Venango, Warren, Washington, Westmoreland. Central and Northeastern Pennsylvania – Adams, Bradford, Centre, Clinton, Columbia, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lackawanna, Lancaster, Lebanon, Luzerne, Lycoming, Mifflin, Monroe, Montour, Northumberland, Perry, Pike, Snyder, Sullivan, Susquehanna, Tioga, Union, Wayne, Wyoming, York. Southeastern Pennsylvania – Berks, Bucks, Carbon, Chester, Delaware, Lehigh, Montgomery, Northampton, Philadelphia, Schuylkill.

Statewide Statistics and Key Findings

111 hospitals

In 2014, 111 Pennsylvania hospitals performed spinal fusions.

- 192 was the average number of spinal fusions performed per hospital.
- 24.3% of hospitals performed fewer than 30 spinal fusions.

332 surgeons

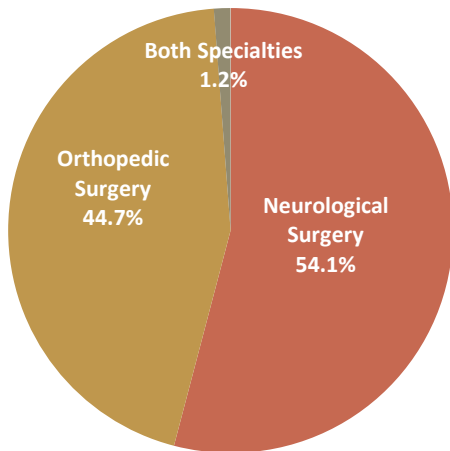
In 2014, 332 surgeons performed spinal fusions in Pennsylvania hospitals.

- 64 was the average number of spinal fusions performed per surgeon.
- 40.1% of surgeons performed fewer than 30 spinal fusions.

Spinal fusion by surgeon specialty

Neurosurgeons performed 54.1% and orthopedic surgeons performed 44.7% of the 21,393 spinal fusions performed in 2014; 1.2% were performed by surgeons with both specialties.

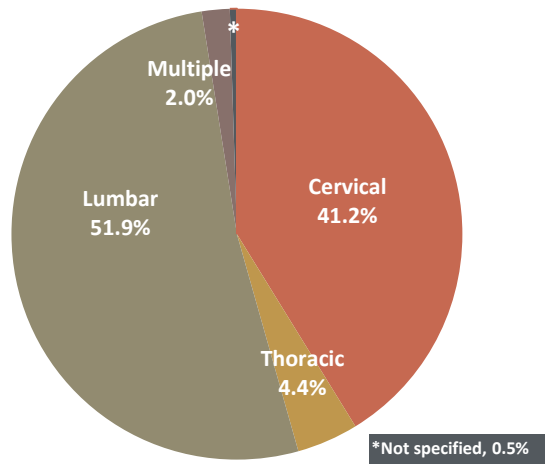
Spinal Fusion by Surgeon Specialty, 2014



Spinal fusion by region of spine

Of the 21,393 spinal fusions performed in 2014, lumbar fusions at 51.9% and cervical fusions at 41.2% were the most common.

Spinal Fusion by Region of Spine, 2014



Hospital Results

Table Notes

Total Number of Cases includes all adult spinal fusion procedures.

In-Hospital Complication includes death and surgical complications that developed during the hospital stay in which the spinal fusion was performed.

Readmission for a Complication includes complications that resulted in a readmission to the hospital following spinal fusion (within 30 or 90 days depending on the complication).

Any Unplanned Readmission includes any unplanned readmission within 30 days.

Average Hospital Charge is for the entire length of stay and is trimmed and case-mix adjusted. In almost all cases, hospitals typically receive actual payments from private insurers or government payers that are considerably less than the listed charge.

See "About this Report" for description of surgical complications and Technical Notes for additional details about these measures.

The symbols displayed in this report represent a comparison of a hospital's actual rate of complication or readmission to its expected rate, which takes into account varying illness levels among patients.

- Rate was significantly lower than expected.
- ◉ Rate was not significantly different than expected.
- Rate was significantly higher than expected.
- NR Not reported. Too few cases after exclusions.

Hospital	Total Number of Cases	In-Hospital Complication	Readmission for a Complication	Any Unplanned Readmission	Average Hospital Charge
Statewide	21,393	3.3%	2.3%	5.4%	\$100,431
ACMH	71	◉	◉	◉	\$52,119
Abington Memorial	277	◉	◉	○	\$67,760
Advanced Surgical	23	◉	◉	◉	\$81,768
Albert Einstein	182	◉	●	●	\$155,646
Allegheny General	561	◉	●	●	\$65,486
Allegheny Valley	48	◉	◉	◉	\$44,542
Aria Health	56	◉	◉	◉	\$57,431
Barix Clinics/PA	16	◉	◉	◉	\$102,078
Berwick	13	◉	◉	◉	\$178,837
Brandywine	154	◉	◉	◉	\$237,533
Butler Memorial	118	◉	◉	◉	\$54,017
Canonsburg	19	◉	●	●	\$37,282
Carlisle Regional	36	◉	◉	◉	\$115,519
Chambersburg	73	◉	◉	◉	\$56,190
Charles Cole Memorial	2	NR	NR	NR	NR

- Rate was significantly lower than expected.
- ◉ Rate was not significantly different than expected.
- Rate was significantly higher than expected.
- NR Not reported. Too few cases after exclusions.

Hospital Results

Hospital	Total Number of Cases	In-Hospital Complication	Readmission for a Complication	Any Unplanned Readmission	Average Hospital Charge
Chester County	39	●	⊙	⊙	\$69,334
Conemaugh Memorial	200	⊙	⊙	⊙	\$56,480
Crozer Chester	94	⊙	⊙	⊙	\$162,702
Delaware County Memorial	2	NR	NR	NR	NR
Doylestown	78	⊙	⊙	⊙	\$61,345
Eastern Regional	1	NR	NR	NR	NR
Easton	30	⊙	⊙	⊙	\$286,412
Einstein Montgomery	27	⊙	⊙	⊙	\$150,204
Ephrata Community	105	⊙	⊙	⊙	\$62,857
Evangelical Community	108	⊙	⊙	⊙	\$53,006
Excelsa Hlth Westmoreland	7	⊙	⊙	⊙	NR
Forbes	164	⊙	⊙	⊙	\$48,937
Geisinger Wyoming Valley	339	●	⊙	⊙	\$174,273
Geisinger-Bloomsburg	1	NR	NR	NR	NR
Geisinger-Community	184	⊙	⊙	⊙	\$115,895
Geisinger-Lewistown	15	⊙	⊙	⊙	\$42,925
Geisinger/Danville	696	●	⊙	⊙	\$138,373
Gettysburg	7	⊙	⊙	⊙	NR
Gnaden Huetten Memorial	1	NR	NR	NR	NR
Grand View	16	⊙	⊙	⊙	\$38,390
Hahnemann University	88	●	⊙	⊙	\$234,821
Hanover	35	⊙	⊙	⊙	\$59,091
Heart of Lancaster	4	NR	NR	NR	NR
Heritage Valley Beaver	142	⊙	⊙	⊙	\$30,103
Heritage Valley Sewickley	433	⊙	⊙	⊙	\$26,839
Holy Redeemer	131	⊙	⊙	⊙	\$65,185
Holy Spirit	235	⊙	⊙	⊙	\$69,453

- Rate was significantly lower than expected.
- ⊙ Rate was not significantly different than expected.
- Rate was significantly higher than expected.
- NR Not reported. Too few cases after exclusions.

Hospital Results

Hospital	Total Number of Cases	In-Hospital Complication	Readmission for a Complication	Any Unplanned Readmission	Average Hospital Charge
Hospital University PA	533	●	⊙	⊙	\$134,865
Jeanes	18	⊙	⊙	⊙	\$125,077
Jefferson	141	⊙	⊙	⊙	\$46,021
Lancaster General	747	⊙	⊙	⊙	\$54,797
Lancaster Regional	190	⊙	⊙	⊙	\$114,341
Lansdale	61	⊙	⊙	⊙	\$50,309
Latrobe Area	161	⊙	⊙	⊙	\$37,430
Lehigh Valley	813	⊙	⊙	⊙	\$172,625
Lehigh Valley/Muhlenberg	73	⊙	⊙	⊙	\$163,092
Magee Womens/UPMC	78	⊙	●	⊙	\$67,555
Main Line Bryn Mawr	117	⊙	⊙	⊙	\$96,893
Main Line Lankenau	223	⊙	⊙	⊙	\$79,002
Main Line Paoli	215	⊙	●	⊙	\$74,984
Meadville	112	⊙	⊙	⊙	\$59,651
Memorial York	1	NR	NR	NR	NR
Mercy Fitzgerald	12	⊙	⊙	⊙	\$148,220
Mercy Suburban	4	NR	NR	NR	NR
Milton S Hershey	435	●	⊙	⊙	\$89,922
Monongahela Valley	37	⊙	⊙	⊙	\$62,564
Moses Taylor	97	●	⊙	⊙	\$181,850
Mount Nittany	817	○	⊙	⊙	\$87,617
Nazareth	59	⊙	⊙	⊙	\$77,490
OSS Orthopaedic	303	⊙	⊙	⊙	\$33,408
Ohio Valley General	11	⊙	⊙	⊙	\$55,416
Palmerton	2	NR	NR	NR	NR
Penn Highlands/DuBois	51	⊙	⊙	⊙	\$50,337
Penn Presbyterian	40	⊙	⊙	⊙	\$126,180

- Rate was significantly lower than expected.
- ⊙ Rate was not significantly different than expected.
- Rate was significantly higher than expected.
- NR Not reported. Too few cases after exclusions.

Hospital Results

Hospital	Total Number of Cases	In-Hospital Complication	Readmission for a Complication	Any Unplanned Readmission	Average Hospital Charge
Pennsylvania	573	⊙	⊙	⊙	\$97,786
Phoenixville	56	⊙	⊙	⊙	\$164,195
Physicians Care	42	⊙	⊙	⊙	\$79,475
Pinnacle Health	780	⊙	○	⊙	\$38,646
Pocono	104	⊙	⊙	⊙	\$53,229
Pottstown Memorial	138	⊙	⊙	⊙	\$213,514
Reading	184	●	⊙	⊙	\$85,024
Regional Scranton	7	⊙	⊙	⊙	NR
Riddle Memorial	277	○	⊙	⊙	\$99,503
Robert Packer	113	⊙	⊙	⊙	\$55,572
Rothman Ortho Specialty	57	⊙	⊙	⊙	\$140,585
Roxborough Memorial	1	NR	NR	NR	NR
Sacred Heart/Allentown	89	⊙	⊙	⊙	\$197,508
Saint Vincent	424	⊙	⊙	⊙	\$81,722
Schuylkill-South Jackson	35	●	⊙	⊙	\$74,627
Sharon Regional	65	⊙	⊙	⊙	\$48,608
St Clair Memorial	137	⊙	⊙	⊙	\$76,608
St Joseph/Reading	21	⊙	⊙	●	\$49,047
St Luke's/Anderson	30	⊙	⊙	⊙	\$219,631
St Luke's/Bethlehem	415	⊙	⊙	⊙	\$215,634
St Mary	183	⊙	⊙	⊙	\$106,636
Surg Institute of Reading	38	⊙	⊙	⊙	\$106,942
Surg Spec/Coordinated	124	⊙	⊙	⊙	\$69,131
Temple University	183	⊙	○	⊙	\$203,551
Thomas Jefferson Univ	1,624	○	⊙	⊙	\$124,338
UPMC Altoona	188	⊙	⊙	⊙	\$61,188
UPMC East	17	⊙	⊙	⊙	\$70,060

- Rate was significantly lower than expected.
- ⊙ Rate was not significantly different than expected.
- Rate was significantly higher than expected.
- NR Not reported. Too few cases after exclusions.

Hospital Results

Hospital	Total Number of Cases	In-Hospital Complication	Readmission for a Complication	Any Unplanned Readmission	Average Hospital Charge
UPMC Hamot	437	⊙	⊙	⊙	\$86,017
UPMC McKeesport	16	⊙	⊙	⊙	\$71,271
UPMC Mercy	263	⊙	⊙	⊙	\$89,111
UPMC Northwest	42	⊙	⊙	⊙	\$25,918
UPMC Passavant	618	●	⊙	⊙	\$91,606
UPMC Presby Shadyside	2,350	●	⊙	⊙	\$137,706
UPMC St Margaret	421	○	⊙	⊙	\$134,222
Uniontown	30	⊙	⊙	⊙	\$23,350
Washington	118	⊙	⊙	⊙	\$59,183
Wellspring Surgery & Rehab	189	⊙	⊙	⊙	\$48,854
West Penn	138	⊙	⊙	⊙	\$54,578
Wilkes-Barre General	53	⊙	⊙	⊙	\$149,204
Williamsport Regional	267	○	⊙	⊙	\$75,510
Windber	1	NR	NR	NR	NR
York	363	⊙	⊙	●	\$56,510

- Rate was significantly lower than expected.
- ⊙ Rate was not significantly different than expected.
- Rate was significantly higher than expected.
- NR Not reported. Too few cases after exclusions.

Surgeon Volume

Table Notes

Surgeon volume includes all adult spinal fusion procedures, elective and non-elective.

Not included in this measure are procedures performed on patients less than 18 years old, those performed in children's hospitals, veterans' hospitals, or those performed in other states by surgeons who also practice outside Pennsylvania.

If two spinal fusions were performed during the same hospitalization, the case was only counted once. Note that if two spinal fusions were performed during the same hospitalization and two different surgeons performed the fusions, an exception was made when counting surgeon volume. Each fusion was counted once for each surgeon.

Surgeon specialty was provided to PHC4 by the hospitals.

Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases
Abla, Adnan Adib (N)	161	Altman, Daniel T (O)	58	Arlet, Vincent (O)	173
UPMC Passavant	36	Allegheny General	58	Pennsylvania	173
UPMC Presby Shadyside	125	Altman, Gregory Theodore (O)	2	Armstrong, Douglas Gordon (O)	4
Abraham, David James (O)	43	Allegheny General	2	Milton S Hershey	4
Reading	41	Altschuler, Eric Matthew (N)	21	Austin, Matthew Stuart (O)	1
Surg Institute of Reading	2	Jefferson	1	Thomas Jefferson Univ	1
Abraham, John A (O)	2	Monongahela Valley	1	Baghai, Parviz (N)	49
Thomas Jefferson Univ	2	UPMC Mercy	19	Allegheny General	41
Adolph, Carl Michael (O)	3	Amankulor, Nduka M (N)	14	Heritage Valley Sewickley	8
Lancaster General	3	UPMC Presby Shadyside	14	Bailey, Gregory Macconnell (O)	451
Agarwal, Akash D (N)	7	Amundson, Russell Henry (O)	22	Mount Nittany	451
Regional Scranton	7	Albert Einstein	1	Balderston, Richard Atwater (O)	17
Aguilar, Pedro Jose (N)	19	Einstein Montgomery	21	Aria Health	17
Canonsburg	19	Anderson, David Greg (O)	242	Baltuch, Gordon Hirsh (N)	17
Aksu, Kenan (O)	94	Nazareth	54	Pennsylvania	17
Brandywine	45	Rothman Ortho Specialty	43	Banco, Stephen Patrick (O)	48
Chester County	1	Thomas Jefferson Univ	145	Reading	12
Main Line Paoli	48	Andreychik, David A (O)	173	Surg Institute of Reading	36
Albert, Todd James (O)	91	Geisinger/Danville	173	Barrer, Steven Jon (N)	23
Rothman Ortho Specialty	2	Argires, Perry James (N)	227	Abington Memorial	21
Thomas Jefferson Univ	89	Ephrata Community	15	Lansdale	2
Alemo, Saeid (N)	4	Lancaster General	105	Baum, Jeffrey Alan (O)	56
Nazareth	4	Lancaster Regional	107	UPMC St Margaret	56

Surgeon Volume

Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases
Behrend, Caleb Joshua (O)	10	Burgess, James Edward (N)	23	Chen, Han-Chiao Isaac (N)	3
Thomas Jefferson Univ	10	Allegheny General	22	Hospital University PA	3
Bejjani, Ghassan Khalil (N)	289	Forbes	1	Chowdhry, Zafar Iqbal (N)	103
UPMC East	17	Burke, James Paul (N)	85	Conemaugh Memorial	103
UPMC Presby Shadyside	272	Bursick, Daniel Myron (N)	55	Close, Richard Alan (N)	9
Bellotte, Jonathan Bradley (N)	148	Monongahela Valley	12	Reading	9
UPMC Hamot	148	UPMC Mercy	43	Cole Jr, Charles L (O)	1
Benardete, Ethan Alexander (N)	1	Bykov, Yury Leonid (O)	1	Evangelical Community	1
Thomas Jefferson Univ	1	Lehigh Valley	1	Colpan, Efan Mustafa (N)	99
Beutler, William Joseph (N)	77	Cairone, Stephen (O)	30	UPMC Hamot	99
Pinnacle Health	77	St Mary	30	Connolly, Patrick Joseph (N)	36
Binning, Mandy Jo (N)	1	Camici, Stefano (N)	128	Aria Health	36
Hahnemann University	1	Lehigh Valley	128	Conry, Curt Patrick (N)	71
Bolinger, Bryan David (N)	20	Campbell, Peter Gravel (N)	7	ACMH	71
Geisinger-Lewistown	14	Chambersburg	7	Cope III, Ernest E (O)	16
Geisinger/Danville	6	Campbell, Stephen Scott (N)	33	Grand View	16
Bonaroti, Eugene Anthony (N)	97	Lehigh Valley	26	Copeland, Carol E (O)	3
Forbes	89	Lehigh Valley/Muhlenberg	7	Milton S Hershey	3
UPMC Presby Shadyside	8	Campos-Benitez, Mauricio (N)	86	Cross, Alisa Michelle (O)	1
Bookwalter III, John William (N)	39	Geisinger Wyoming Valley	85	Allegheny General	1
Magee Womens/UPMC	29	Geisinger-Community	1	D'Andrea, Linda Park (O)	75
UPMC Passavant	9	Cantando, John D (N)	40	Phoenixville	1
UPMC Presby Shadyside	1	Geisinger Wyoming Valley	40	Pottstown Memorial	74
Bowles Jr, Alfred Perry (N)	4	Caron, Troy Henry (O)	6	Dahl, Raymond E (O)	71
Conemaugh Memorial	4	Wellspan Surgery & Rehab	1	Holy Spirit	2
Brogie, Patrick Joseph (O)	1	York	5	Pinnacle Health	69
St Luke's/Bethlehem	1	Caruso, John Robert (N)	18	Dalton, Brian Edward (N)	121
Bruno, Leonard A (N)	6	Chambersburg	18	Saint Vincent	121
Holy Redeemer	6	Casey, Michael Patrick (O)	50	Dante, Stephen Joseph (N)	129
Budway, Matthew James (N)	78	Allegheny Valley	26	Pennsylvania	129
Main Line Paoli	78	UPMC Presby Shadyside	16	Dayoub, Hayan (N)	45
Buerk, Adam Matthew (O)	4	UPMC St Margaret	8	Robert Packer	45
Pinnacle Health	4	Chamberlin, Eric Christopher (O)	121	De Luna, Carlo Marte (N)	29
Buonocore, Richard Vincent (N)	23	Jefferson	116	Wilkes-Barre General	29
Crozer Chester	23	UPMC McKeesport	5	DeLong, William George (O)	1
				St Luke's/Bethlehem	1

Surgeon Volume

Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases
DeLuca, Steven Michael (O)	66	Falatyn, Stephen Paul (N+O)	94	Frick Jr, Edward James (O)	1
Holy Spirit	28	Easton	2	St Mary	1
Pinnacle Health	38	Lehigh Valley	72	Fultz, Craig Warren (O)	13
DeMuth Sr, William Warren (O)	55	Lehigh Valley/Muhlenberg	20	Holy Spirit	3
Pinnacle Health	55	Falowski, Steven Michael (N)	43	Pinnacle Health	10
DiPasquale, Thomas Gerald (O)	1	St Luke's/Bethlehem	43	Fye, Mark Alan (O)	36
York	1	Farrell, Christopher Paul (N)	1	UPMC Passavant	36
DiSimone, Ronald Enrico (O)	95	Mercy Fitzgerald	1	Garrido, Eddy (N)	4
Williamsport Regional	95	Fayyazi, Amir Hossain (O)	65	Lancaster General	4
Diefenbach, William Paul (N)	73	Lehigh Valley	31	Gerszten, Peter Carlos (N)	229
UPMC Hamot	73	St Luke's/Bethlehem	34	UPMC Presby Shadyside	229
Dominique, Devanand Anthony (N)	37	Fernandez, Michael Louis (O)	135	Gillick, Alan P (O)	112
Carlisle Regional	36	Holy Spirit	4	Geisinger-Community	111
Holy Spirit	1	Pinnacle Health	131	Moses Taylor	1
Donaldson III, William Fielding (O)	158	Ferraro, Francis Thomas (N)	53	Gilman, Steven Adam (N)	165
UPMC Presby Shadyside	158	Allegheny General	11	Saint Vincent	163
Dziurzynski, Kristine (N)	11	Allegheny Valley	4	UPMC Hamot	2
Lancaster General	11	Butler Memorial	22	Goltz, Curtis (O)	54
Eager, Matthew Robert (O)	84	UPMC Presby Shadyside	8	Holy Spirit	5
Evangelical Community	84	West Penn	8	Pinnacle Health	49
El-Kadi, Hikmat Abbas (N)	324	Fick, James Richard (N)	10	Goodman, Mark A (O)	1
UPMC Passavant	316	Mount Nittany	10	UPMC Presby Shadyside	1
UPMC Presby Shadyside	8	Flannagan, Patrick Philip (N)	28	Gopez, Jonas Joaquin (N)	44
Elliott, Robert Edward (N)	62	Allegheny General	8	Abington Memorial	44
Main Line Bryn Mawr	48	Allegheny Valley	6	Gould, Grahame C (N)	3
Main Line Paoli	14	Forbes	14	Main Line Bryn Mawr	3
Emrich, Joseph Friedrich (N)	15	Foti, Gerard Joseph (O)	33	Grabias Jr, Stanley L (O)	43
Geisinger Wyoming Valley	15	Crozer Chester	7	Reading	43
Engh, Johnathan Anderson (N)	7	Main Line Bryn Mawr	26	Grady, Michael Sean (N)	9
UPMC Presby Shadyside	7	Foust, Terrance Lee (O)	2	Hospital University PA	9
Engle, David John (N)	17	Charles Cole Memorial	2	Grandrimo, John (O)	57
UPMC Mercy	17	Fras, Christian Ivan (O)	30	Pinnacle Health	57
Espenshade, Matthew John (O)	20	Main Line Bryn Mawr	28	Gratch, Michael James (O)	90
Pinnacle Health	20	Main Line Paoli	2	Abington Memorial	33
		Freese, Andrew (N)	109	Doylestown	33
		Brandywine	109	Lansdale	24

Surgeon Volume

Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases
Gregorie, Erik Martin (N)	23	Himmelwright, Brett A (O)	64	Kager, Christopher Dion (N)	106
Robert Packer	23	Holy Spirit	62	Lancaster General	105
Grisafi, Frank Nicholas (O)	74	Pinnacle Health	2	Lancaster Regional	1
Heritage Valley Beaver	74	Hlavac, Philip Joseph (N)	24	Kandabarow, Alexander (O)	88
Guille, James T (O)	28	Wilkes-Barre General	24	Jefferson	21
Phoenixville	11	Holla, Shripathi P (N)	3	Monongahela Valley	17
Pottstown Memorial	17	Geisinger-Community	3	St Clair Memorial	20
Haak, Michael Helmut (O)	151	Holmes, Brian (N)	24	Uniontown	30
Geisinger/Danville	151	Chambersburg	24	Kang, James D (O)	407
Hakma, Zakaria (N)	4	Horowitz, Michael Bruce (N)	6	UPMC Presby Shadyside	407
Aria Health	1	Butler Memorial	6	Kanter, Adam Scott (N)	236
Hahnemann University	2	Hsu, Victor Wei-Teh (O)	93	UPMC Presby Shadyside	236
Nazareth	1	Abington Memorial	60	Karian, John Moses (N)	42
Hamilton, David Kojo (N)	43	Doylestown	18	UPMC Northwest	42
UPMC Mercy	27	Lansdale	15	Kaufmann, David Louis (N)	103
UPMC Presby Shadyside	16	Jacobs, Darren Lee (N)	98	Monongahela Valley	7
Handal, J A (O)	69	Geisinger Wyoming Valley	17	UPMC Mercy	96
Albert Einstein	69	Geisinger/Danville	81	Kaye, Andrew Stuart (O)	2
Harrop, James Shields (N)	181	Jain, Gaurav (N)	60	Heritage Valley Beaver	2
Thomas Jefferson Univ	181	Main Line Bryn Mawr	7	Keeney, Scott Allen (N)	1
Harvey, Charles Joseph (O)	33	Main Line Lankenau	41	St Luke's/Bethlehem	1
UPMC Altoona	33	Main Line Paoli	7	Kelleher, John Paul (N)	35
Heller, Joshua E (N)	101	Thomas Jefferson Univ	5	Conemaugh Memorial	2
Main Line Bryn Mawr	4	Jalaluddin, Muhammad (N)	45	Milton S Hershey	33
Mercy Fitzgerald	4	Robert Packer	45	Kepler, Christopher Keppel (O)	206
Thomas Jefferson Univ	93	Jallo, Jack I (N)	172	Riddle Memorial	22
Henderson, Christopher Patrick (O)	110	Mercy Fitzgerald	1	Thomas Jefferson Univ	184
Geisinger-Community	14	Thomas Jefferson Univ	171	Kershenovich-Rabinovitz, Amir (N)	7
Moses Taylor	96	Jankowitz, Brian Thomas (N)	6	Geisinger/Danville	7
Hess, William Fred (O)	75	UPMC Mercy	6	Kesler, Henry N (N)	1
Geisinger/Danville	75	Jho, David Hyunsuk (N)	15	Mercy Fitzgerald	1
Hilibrand, Alan Sander (O)	194	Allegheny General	15	Khoja, Isam (N)	114
Rothman Ortho Specialty	12	Judy, Kevin David (N)	6	UPMC Hamot	114
Thomas Jefferson Univ	182	Mercy Fitzgerald	5	Kilkelly, Francis Xavier (O)	35
		Thomas Jefferson Univ	1	Hanover	35

Surgeon Volume

Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases
Kim, Bong-Soo (N)	93	Lawson, Herman Christopher (N)	3	Loesch, Daniel Vincent (N)	104
Temple University	93	Reading	3	Saint Vincent	104
Knaub, Mark Andrew (O)	125	Le Roux, Peter D (N)	58	Loguidice, Vito Anthony (N+O)	33
Milton S Hershey	125	Main Line Lankenau	57	Easton	28
Kralick, Francis Albert (N)	63	Main Line Paoli	1	Lehigh Valley/Muhlenberg	5
Hahnemann University	63	Lee, Guy Alan (O)	87	Lucas, Timothy Harris (N)	43
Kramer, Thomas D (O)	47	Abington Memorial	48	Hospital University PA	43
UPMC Mercy	41	Doylestown	25	Lycette, Chris Allyn (N)	201
UPMC Passavant	3	Lansdale	14	Lehigh Valley	167
West Penn	3	Lee, John Young (N)	4	Lehigh Valley/Muhlenberg	34
Krieg, James Christopher (O)	1	Pennsylvania	4	Lyness, Leslie Ann (N)	27
Thomas Jefferson Univ	1	Lee, Joon Yung (O)	213	Geisinger Wyoming Valley	1
Krzeminski, Joseph Philip (N)	65	UPMC Presby Shadyside	213	Geisinger-Community	26
Gettysburg	3	Levenberg, Richard Jay (O)	11	Macielak, James Rudolph (O)	112
Wellspan Surgery & Rehab	20	Delaware County Memorial	2	Meadville	112
York	42	Riddle Memorial	8	Malhotra, Neil Rainer (N)	85
Kuhlengel, Keith Ralph (N)	178	Roxborough Memorial	1	Hospital University PA	85
Lancaster General	178	Levy, Jon Alexander (O)	211	Marcotte, Paul John (N)	239
Kung, David K (N)	2	Heritage Valley Sewickley	69	Hospital University PA	213
Hospital University PA	2	Magee Womens/UPMC	49	Pennsylvania	26
Kurd, Mark Faisal (O)	18	UPMC Presby Shadyside	87	Marko, Nicholas Frank (N)	8
Main Line Bryn Mawr	1	West Penn	6	Geisinger/Danville	8
Physicians Care	1	Li, Peter Mark (N)	133	Maroon, Joseph Charles (N)	104
Thomas Jefferson Univ	16	Lehigh Valley	133	UPMC Passavant	30
Kutz, Eric Martin (O)	3	Liebman, Kenneth Michael (N)	1	UPMC Presby Shadyside	74
Pinnacle Health	3	Hahnemann University	1	Marotti, Louis Alfred (N)	113
Kuznits, Sagi Moshe (N)	120	Lin, Paul Stephen (O)	23	Lancaster General	49
Chester County	1	Evangelical Community	23	Lancaster Regional	64
Main Line Paoli	28	Lingenfelter, Kenneth John (O)	9	Martinez, Zeferino (O)	6
Phoenixville	44	OSS Orthopaedic	8	Berwick	6
Pottstown Memorial	47	York	1	Maserati, Matthew Benjamin (N)	70
Lacroix, Michel (N)	65	Lippe, Ronald Watson (O)	128	UPMC Altoona	70
Geisinger Wyoming Valley	65	Pinnacle Health	128	McConnell, Jeffrey Ross (O)	56
Laske, Douglas Walter (N)	33	Liss, Robert Gary (N+O)	33	Lehigh Valley	50
Abington Memorial	33	Forbes	30	St Luke's/Bethlehem	6
		UPMC Presby Shadyside	3		

Surgeon Volume

Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases
McDonnell, Matthew (O)	2	O'Rourke, Daniel Kevin (N)	55	Park, Haejoe (N)	4
Thomas Jefferson Univ	2	St Luke's/Bethlehem	55	Milton S Hershey	4
McInerney, James (N)	4	O'Rourke, Donald Marcellus (N)	27	Patel, Amit Rasikbhai (O)	92
Milton S Hershey	4	Hospital University PA	27	OSS Orthopaedic	81
Miele, Vincent John (N)	154	Ochalski, Pawel Grzegorz (N)	141	York	11
UPMC Passavant	153	Wellspring Surgery & Rehab	43	Peppelman Jr, Walter Charles (O)	110
UPMC Presby Shadyside	1	York	98	Pinnacle Health	110
Monacci, William Thomas (N)	98	Oh, Michael Yanghoon (N)	114	Petraglia, Carmen A (O)	20
Lancaster General	97	Allegheny General	40	St Clair Memorial	20
Lancaster Regional	1	St Clair Memorial	69	Porter, Ira Stanley (O)	61
Monaco III, Edward Arthur (N)	14	Washington	5	Ephrata Community	19
UPMC Presby Shadyside	14	Okonkwo, David Okwudi (N)	231	Lancaster General	36
Moore, Barry Brooks (N)	1	UPMC Mercy	3	Lancaster Regional	6
Pinnacle Health	1	UPMC Presby Shadyside	228	Powers, Stephen Kent (N)	15
Moosy, John Jefferson (N)	45	Okpaku, Aubrey Samuel (N)	45	Pinnacle Health	15
UPMC Presby Shadyside	45	Crozer Chester	45	Prasad, Srinivas K (N)	123
Morrow, Robert Allen (N)	7	Oliver-Smith, David R (N)	80	St Mary	18
Lehigh Valley/Muhlenberg	7	Allegheny General	33	Thomas Jefferson Univ	105
Moulding, Hugh David (N)	38	Heritage Valley Sewickley	47	Prostko, Edward Richard (N)	99
St Luke's/Bethlehem	38	Oliveri, Marcelino P (O)	144	Allegheny General	29
Mounts, Troy Isaac (O)	2	Ephrata Community	71	Washington	70
Thomas Jefferson Univ	2	Heart of Lancaster	4	Psarros, Stamatios George (N)	36
Muccio, Daniel Joseph (N)	36	Lancaster General	58	Reading	36
Saint Vincent	36	Lancaster Regional	11	Puccio, Steven Thomas (N+O)	91
Munyon, Charles Nelson (N)	8	Osenbach, Richard Kenneth (N)	2	St Luke's/Bethlehem	91
Jeanes	1	Pinnacle Health	2	Pugsley, Stanley George (N)	29
Temple University	7	Oshea, Joan Frances (N)	4	Geisinger-Community	29
Nabors, Eric D (O)	52	Barix Clinics/PA	4	Queenan, Joseph Vincent (N)	11
Advanced Surgical	23	Ozturk, Ali Kemal (N)	16	Hahnemann University	1
St Clair Memorial	22	Pennsylvania	16	Temple University	10
Washington	7	Pahys, Joshua M (O)	1	Quigley, Matthew Richard (N)	1
Nwachuku, Chinenye Okezie (O)	2	Albert Einstein	1	Allegheny General	1
St Luke's/Bethlehem	2	Pandelidis, Kirk Nicholas (O)	81	Rabin, Doron (N)	52
O'Malley, Neil Patrick (N)	24	OSS Orthopaedic	79	St Luke's/Bethlehem	52
Chambersburg	24	York	2		

Surgeon Volume

Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases
Ragoowansi, Ashvin T (N)	85	Saint Clair, Eric Gordon (N)	2	Sekula Jr, Raymond Francis (N)	39
Allegheny General	4	Eastern Regional	1	UPMC Hamot	1
Heritage Valley Beaver	65	Temple University	1	UPMC Passavant	18
UPMC Presby Shadyside	1	Salkind, Gene (N)	92	UPMC Presby Shadyside	20
West Penn	15	Holy Redeemer	76	Senter, Howard Jay (N)	143
Rainey, Scott Gregory (O)	48	Jeanes	16	Allegheny Valley	12
Butler Memorial	34	Salotto, Arnold G (N)	143	Forbes	30
UPMC Passavant	14	Gettysburg	1	UPMC Presby Shadyside	14
Rajjoub, Rodwan Khaled (N)	137	Wellspring Surgery & Rehab	37	West Penn	87
Williamsport Regional	137	York	105	Shah, Nirav K (N)	26
Ranasinghe, Moksha Gandhari (N)	8	Sangimino, Mark Joseph (O)	1	St Mary	26
Pinnacle Health	8	Allegheny General	1	Shakil, Mohammed Saleh (O)	38
Reid, John Spence (O)	4	Sarkar, Atom (N)	59	Gnaden Huetten Memorial	1
Milton S Hershey	4	Geisinger/Danville	59	Palmerton	2
Reiter, George Timothy (N)	73	Sather, Michael David (N)	57	Schuylkill-South Jackson	35
Milton S Hershey	73	Milton S Hershey	57	Shannon, Brian David (O)	65
Richman, Jory Donald (O)	11	Schirmer, Clemens Maria (N)	9	Sharon Regional	65
UPMC Mercy	11	Geisinger Wyoming Valley	8	Sharan, Ashwini Dayal (N)	75
Ridella, Peter James (O)	4	Geisinger/Danville	1	Thomas Jefferson Univ	75
Conemaugh Memorial	3	Schlegel Jr, Robert J (N)	56	Sharps, Lewis S (O)	5
Windber	1	Wellspring Surgery & Rehab	20	Main Line Paoli	5
Rihn, Jeffrey Allan (O)	363	York	36	Sheehan, Jonas M (N)	11
Physicians Care	41	Schlifka, Brett Alan (N)	108	Milton S Hershey	11
Riddle Memorial	247	Geisinger Wyoming Valley	108	Siddiq, Farhan (N)	6
Thomas Jefferson Univ	75	Schmidt, Gary Louis (O)	62	St Mary	5
Rizk, Elias Boulos (N)	18	Allegheny General	42	Thomas Jefferson Univ	1
Milton S Hershey	18	Ohio Valley General	1	Silvaggio, Vincent Joseph (O)	166
Ruggiero Jr, Robert Anthony (O)	32	West Penn	19	UPMC St Margaret	166
Main Line Paoli	32	Schuster, James Mark (N)	112	Simon, Scott Douglas (N)	12
Rushton, Scott Allen (O)	125	Hospital University PA	112	Milton S Hershey	12
Main Line Lankenau	125	Schwartz, Steven Barnet (N)	21	Siska, Peter Allen (O)	1
Rutigliano, Michael John (NA)	119	St Joseph/Reading	21	UPMC Presby Shadyside	1
Latrobe Area	119	Scogna, Joseph E (N)	60	Slotkin, Jonathan Reese (N)	87
Rutter, Chad M (O)	20	St Mary	60	Geisinger/Danville	87
Memorial York	1	Sefter Jr, John C (O)	79		
OSS Orthopaedic	19	Mount Nittany	79		

Surgeon Volume

Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases	Surgeon/Hospital	Total Cases
Smith, Harvey Edward (O)	55	Toms, Steven Alfred (N)	22	Weinberger, Monte Brian (N)	2
Hospital University PA	3	Geisinger/Danville	22	UPMC Presby Shadyside	2
Penn Presbyterian	40	Tomycz, Nestor Denys (N)	125	Weis, James Carl (O)	144
Pennsylvania	12	Allegheny General	120	Lehigh Valley	144
Smith, Michelle Janine (N)	2	Jefferson	1	Welch, William Charles (N)	196
Hospital University PA	2	St Clair Memorial	4	Pennsylvania	196
Smith, Patrick Neil (O)	159	Tormenti, Matthew Justin (N)	43	Werries, Gerard Joseph (O)	45
UPMC St Margaret	159	St Mary	43	Ohio Valley General	10
Sokunbi, Gbolabo Olabiyi (N)	31	Torretti, Joel Anthony (O)	329	UPMC Passavant	3
St Luke's/Anderson	30	Geisinger-Lewistown	1	UPMC St Margaret	32
St Luke's/Bethlehem	1	Mount Nittany	277	Westrick, Edward Ryan (O)	1
Spiro, Richard Marc (N)	56	Penn Highlands/DuBois	51	Allegheny General	1
Butler Memorial	56	Triantafyllou, Steven John (O)	121	Wetzel, Franklin T (O)	57
Stanley, Michael Ian (N)	19	OSS Orthopaedic	116	Temple University	57
Crozer Chester	19	York	5	Wetzel, Matthew Merle (NA)	49
Stawicki, Stanislaw P (N)	1	Truex, Raymond Carl (N)	40	Excelsa Hlth Westmoreland	7
St Luke's/Bethlehem	1	Reading	40	Latrobe Area	42
Sunday, James Michael (O)	1	Tuffaha, Hani Jawdat (N)	35	Whiting, Donald Mark (N)	90
Sacred Heart/Allentown	1	Williamsport Regional	35	Allegheny General	52
Sutton, Douglas Craig (O)	49	Vaccaro, Alexander Richard (O)	282	St Clair Memorial	2
Holy Redeemer	49	Thomas Jefferson Univ	282	Washington	36
Tantorski, Mark Ernst (O)	37	Valentino, Steven J (NA)	4	Wilberger Jr, James E (N)	7
Chester County	37	Mercy Suburban	4	Allegheny General	7
Thanki, Ashokkumar S (N)	14	Vresilovic, Edward Joseph (O)	67	Williams, Allister R (O)	104
Aria Health	2	Milton S Hershey	67	Pocono	104
Barix Clinics/PA	12	Wagener, Christopher Frank (O)	197	Williams, Eric A (O)	117
Thomas, Derek James (O)	309	Sacred Heart/Allentown	73	Albert Einstein	111
Heritage Valley Sewickley	309	Surg Spec/Coordinated	124	Einstein Montgomery	6
Thompson, Gregory Errol (N)	15	Ward, William Timothy (O)	38	Williams, Mark Stanley (O)	8
Sacred Heart/Allentown	15	UPMC Presby Shadyside	38	Berwick	7
Thurmond, James C (N)	101	Weaver, Michael William (N)	16	Geisinger-Bloomsburg	1
Lancaster General	101	Jeanes	1	Winer, Joel Warren (N)	128
Timmons, Shelly Diane (N)	26	Temple University	15	Gettysburg	3
Geisinger/Danville	26	Wecht, Daniel Alan (N)	63	Wellspring Surgery & Rehab	68
Toeys, Christine Carter (O)	1	UPMC McKeesport	11	York	57
Allegheny General	1	UPMC Presby Shadyside	52		

Surgeon Volume

Surgeon/Hospital	Total Cases
Wolf, Steven Brian (O)	131
Holy Spirit	130
Pinnacle Health	1
Wong, Mei Yim (N)	61
Lehigh Valley	61
Yakish, Samuel Dale (O)	1
Heritage Valley Beaver	1

Surgeon/Hospital	Total Cases
Yoon, Michael Sung-Shick (N)	44
Abington Memorial	38
Lansdale	6
Yu, Alexander Kwong-Tak (N)	73
Allegheny General	72
Jefferson	1
Zacko, Joseph Christopher (N)	20
Milton S Hershey	20
Zager, Eric Louis (N)	34
Hospital University PA	34

Surgeon/Hospital	Total Cases
Zampini, Jay Michael (O)	20
Hahnemann University	20
Zhang, Dang Hai (N)	89
St Luke's/Bethlehem	89
Zitnay, Kevin Michael (N)	88
Conemaugh Memorial	88
Zorub, David Shakir (N)	63
Jefferson	1
UPMC Presby Shadyside	62

Medicare Payment (2013 Data)

Table Notes

Number of Cases displays the number of cases included in the **Average Medicare Payment**.

Average Medicare Payment reported in this section includes payments made to hospitals for Medicare fee-for-service patients (PA residents) who underwent spinal fusion and were discharged between January 1, 2013 and December 31, 2013 – the most recent Medicare payment data available. This time period differs from that of the other report sections where a different set of data was available. The Medicare payment data was obtained from the Centers for Medicare and Medicaid Services (CMS). Payments from Medicare Advantage plans (e.g., Medicare HMOs) are not included, nor are patient liabilities (e.g., coinsurance and deductible dollar amounts).

Average Hospital Charge is reported for Medicare fee-for-service patients (PA residents). It reflects the entire length of the hospital stay and was trimmed and case-mix adjusted. Hospitals typically receive actual payments that are considerably less than the listed charge.

Hospital	Number of Cases	Average Medicare Payment	Average Hospital Charge
Statewide	3,002	\$23,531	\$103,852
ACMH	NR	NR	NR
Abington Memorial	70	\$23,785	\$71,287
Advanced Surgical	NR	NR	NR
Albert Einstein	14	\$35,943	\$150,087
Allegheny General	41	\$24,521	\$67,396
Allegheny Valley	NR	NR	NR
Aria Health	NR	NR	NR
Barix Clinics/PA	NR	NR	NR
Berwick	NR	NR	NR
Brandywine	31	\$26,286	\$250,756
Butler Memorial	16	\$16,219	\$86,041
Canonsburg	NR	NR	NR
Carlisle Regional	NR	NR	NR
Chambersburg	NR	NR	NR
Charles Cole Memorial	NR	NR	NR
Chester County	NR	NR	NR
Conemaugh Memorial	24	\$17,327	\$53,512
Crozer Chester	NR	NR	NR
Delaware County Memorial	NR	NR	NR
Doylestown	15	\$21,634	\$55,744

Medicare Payment (2013 Data)

Hospital	Number of Cases	Average Medicare Payment	Average Hospital Charge
Eastern Regional	NR	NR	NR
Easton	NR	NR	NR
Einstein Montgomery	NR	NR	NR
Ephrata Community	24	\$19,981	\$64,091
Evangelical Community	28	\$22,650	\$45,921
Excelsa Hlth Westmoreland	NR	NR	NR
Forbes	20	\$19,161	\$52,241
Geisinger Wyoming Valley	84	\$23,207	\$178,348
Geisinger-Bloomsburg	NR	NR	NR
Geisinger-Community	32	\$23,690	\$101,447
Geisinger-Lewistown	NR	NR	NR
Geisinger/Danville	78	\$29,579	\$127,030
Gettysburg	NR	NR	NR
Gnaden Huetten Memorial	NR	NR	NR
Grand View	NR	NR	NR
Hahnemann University	16	\$30,854	\$311,650
Hanover	11	\$19,509	\$49,782
Heart of Lancaster	NR	NR	NR
Heritage Valley Beaver	11	\$20,371	\$32,774
Heritage Valley Sewickley	46	\$17,877	\$35,514
Holy Redeemer	29	\$23,179	\$78,071
Holy Spirit	46	\$24,174	\$82,923
Hospital University PA	53	\$31,724	\$133,929
Jeanes	NR	NR	NR
Jefferson	15	\$15,388	\$45,312
Lancaster General	170	\$20,857	\$59,493
Lancaster Regional	31	\$20,149	\$107,369
Lansdale	19	\$19,309	\$60,017
Latrobe Area	16	\$18,301	\$34,348
Lehigh Valley	149	\$24,679	\$167,763
Lehigh Valley/Muhlenberg	12	\$15,290	\$142,424
Magee Womens/UPMC	NR	NR	NR
Main Line Bryn Mawr	23	\$24,221	\$132,369

Medicare Payment (2013 Data)

Hospital	Number of Cases	Average Medicare Payment	Average Hospital Charge
Main Line Lankenau	55	\$26,505	\$94,481
Main Line Paoli	42	\$20,580	\$75,912
Meadville	26	\$18,300	\$63,993
Memorial York	NR	NR	NR
Mercy Fitzgerald	NR	NR	NR
Mercy Suburban	NR	NR	NR
Milton S Hershey	52	\$29,870	\$91,334
Monongahela Valley	NR	NR	NR
Moses Taylor	27	\$21,182	\$78,269
Mount Nittany	150	\$20,933	\$94,780
Nazareth	14	\$20,432	\$84,449
OSS Orthopaedic	37	\$16,910	\$31,824
Ohio Valley General	NR	NR	NR
Palmerton	NR	NR	NR
Penn Highlands/DuBois	NR	NR	NR
Penn Presbyterian	NR	NR	NR
Pennsylvania	65	\$28,495	\$111,842
Phoenixville	12	\$24,907	\$198,446
Physicians Care	NR	NR	NR
Pinnacle Health	153	\$24,531	\$50,207
Pocono	24	\$23,757	\$57,681
Pottstown Memorial	32	\$25,147	\$303,991
Reading	45	\$23,215	\$91,446
Regional Scranton	NR	NR	NR
Riddle Memorial	68	\$21,105	\$111,806
Robert Packer	12	\$23,335	\$61,695
Rothman Ortho Specialty	NR	NR	NR
Roxborough Memorial	NR	NR	NR
Sacred Heart/Allentown	12	\$32,479	\$187,862
Saint Vincent	65	\$20,035	\$96,556
Schuylkill-South Jackson	12	\$16,430	\$66,364
Sharon Regional	25	\$20,460	\$60,636
St Clair Memorial	17	\$19,655	\$83,385

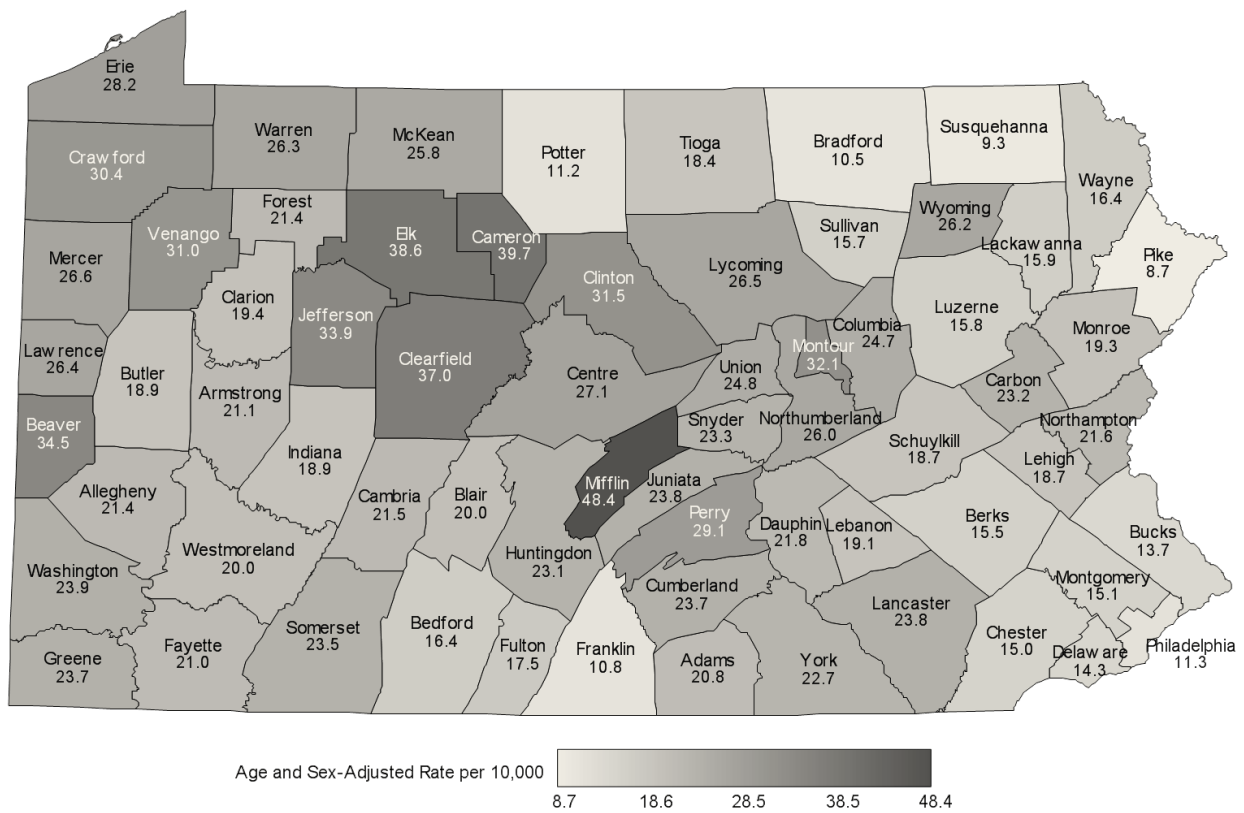
Medicare Payment (2013 Data)

Hospital	Number of Cases	Average Medicare Payment	Average Hospital Charge
St Joseph/Reading	NR	NR	NR
St Luke's/Anderson	NR	NR	NR
St Luke's/Bethlehem	70	\$21,349	\$195,976
St Mary	33	\$19,493	\$120,607
Surg Institute of Reading	NR	NR	NR
Surg Spec/Coordinated	17	\$17,917	\$53,938
Temple University	22	\$29,090	\$278,541
Thomas Jefferson Univ	162	\$34,548	\$120,637
UPMC Altoona	23	\$22,184	\$54,721
UPMC East	NR	NR	NR
UPMC Hamot	45	\$18,861	\$87,300
UPMC McKeesport	NR	NR	NR
UPMC Mercy	23	\$23,090	\$100,553
UPMC Northwest	NR	NR	NR
UPMC Passavant	56	\$16,331	\$85,314
UPMC Presby Shadyside	253	\$25,029	\$134,617
UPMC St Margaret	43	\$21,698	\$138,176
Uniontown	11	\$22,569	\$32,232
Washington	14	\$16,836	\$64,603
Wellspan Surgery & Rehab	20	\$12,973	\$49,554
West Penn	12	\$24,282	\$54,825
Wilkes-Barre General	14	\$16,706	\$155,390
Williamsport Regional	77	\$24,049	\$55,929
Windber	NR	NR	NR
York	38	\$21,712	\$71,251

County-Level Rates

The map below displays the spinal fusion procedure rates per 10,000 residents for each of Pennsylvania’s 67 counties. Rates were risk adjusted for age and sex differences among county populations. Rates include residents 18 years of age and older and were calculated using PHC4 discharge data and US Census Bureau data.

The 2014 hospitalization rate for spinal fusion procedures ranged from 8.7 to 48.4 per 10,000 county residents. The statewide hospitalization rate for spinal fusion procedures was 19.3 per 10,000 residents.



Note: Rates for counties with small populations are sensitive to small changes in the number of hospitalizations, so higher rates may be reflective of minor fluctuations in the number of hospitalizations.



Pennsylvania Health Care Cost Containment Council

Joe Martin, Executive Director
225 Market Street, Suite 400, Harrisburg, PA 17101
Phone: 717-232-6787 • Fax: 717-232-3821
www.phc4.org



For More Information

The information contained in this report and other PHC4 publications is available online at www.phc4.org. Additional financial, hospitalization and ambulatory procedure health care data is available for purchase. For more information, contact PHC4's Special Requests at specialrequests@phc4.org or 717-232-6787.