Statewide Statistics and Key Findings

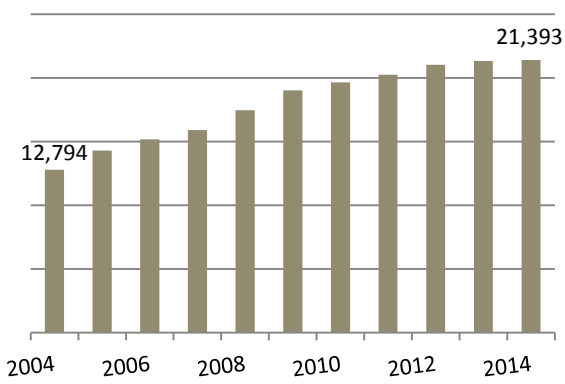
67.2% increase in number of spinal fusions

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.

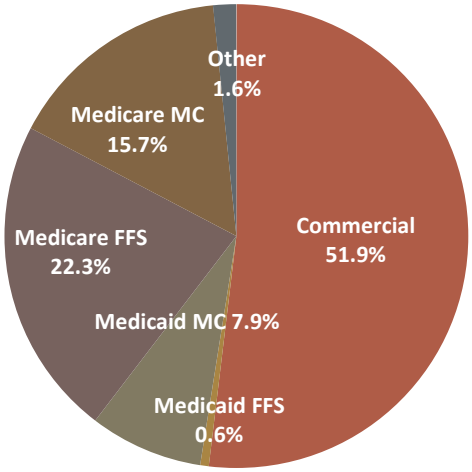
Statewide Statistics and Key Findings

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

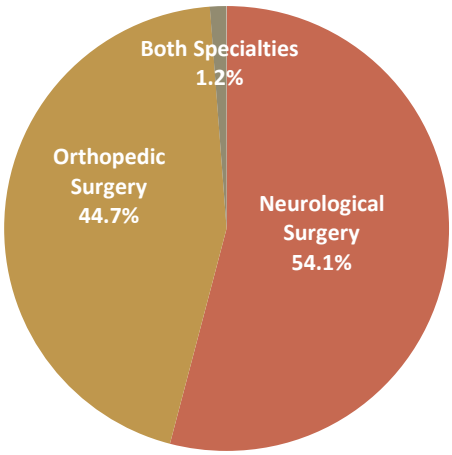
In 2014, 332 surgeons performed spinal fusions in Pennsylvania hospitals.

- 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