Demystifying Spinal Products, Procedures and Contracting Strategy

Cindy Jones, Vice President
MedAssets, Advisory Solutions

Agenda

- The Spine Industry: Current State and Trends
- Plan Your Strategy: Tidbits from the Trenches
- Speak the Language: Spinal Implants and Procedures
  - Cervical
  - Lumbar
  - Newer Technology
  - Osteobiologics

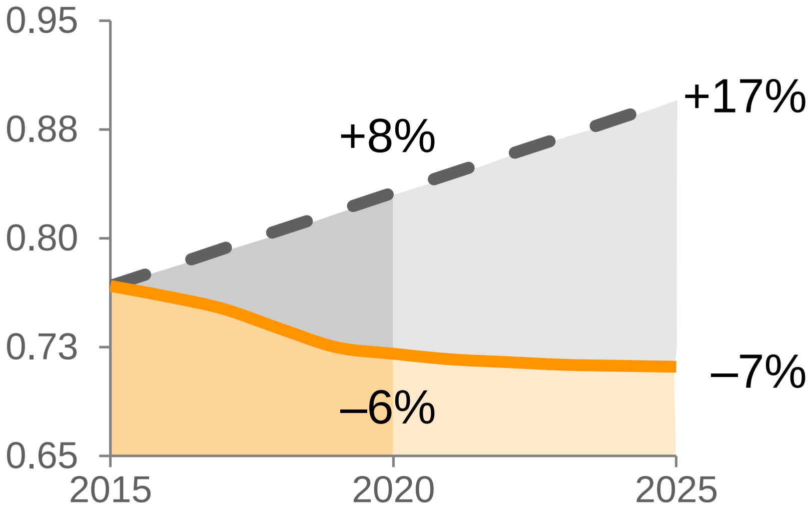
The Spine Industry

Current State and Trends

Inpatient Spine Volumes are Threatened

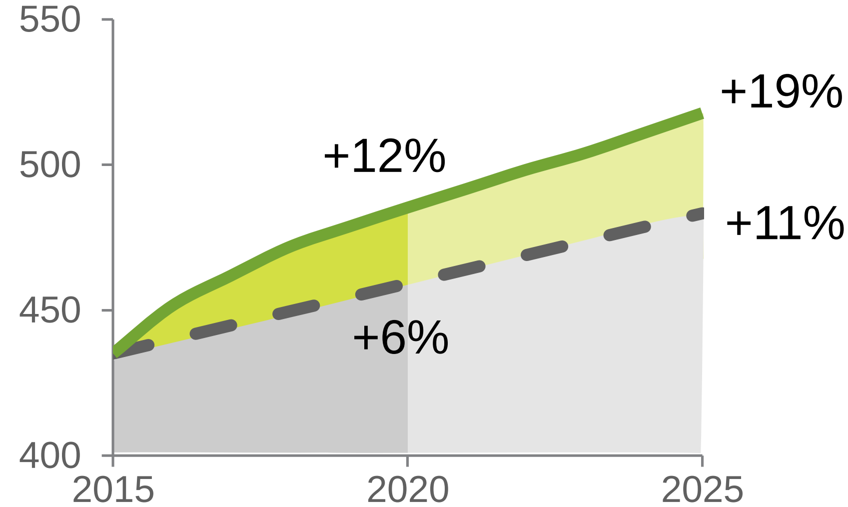
Inpatient Spine Discharges
US Market, 2015–2025

Discharges
Millions 5-Year 10-Year



Outpatient Spine Volumes
US Market, 2015–2025

Volumes
Millions 5-Year 10-Year

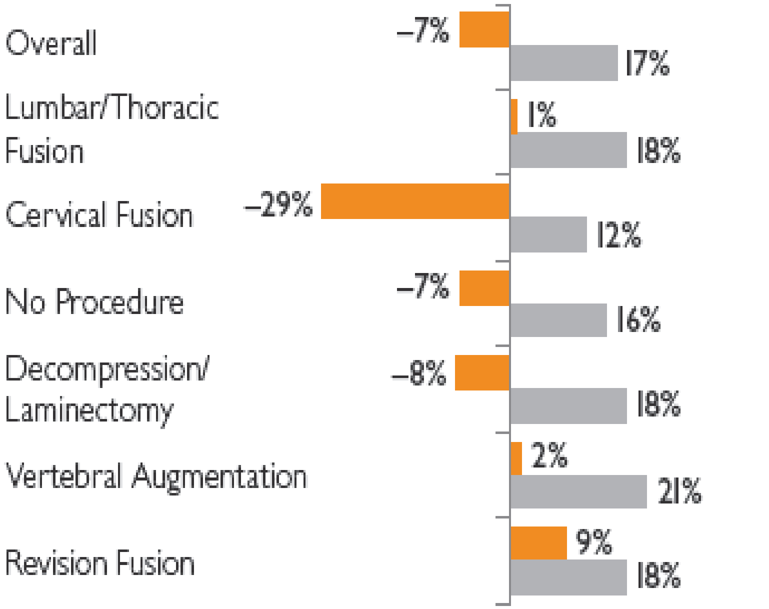


Sg2 IP Forecast Population-Based Forecast Sg2 OP Forecast

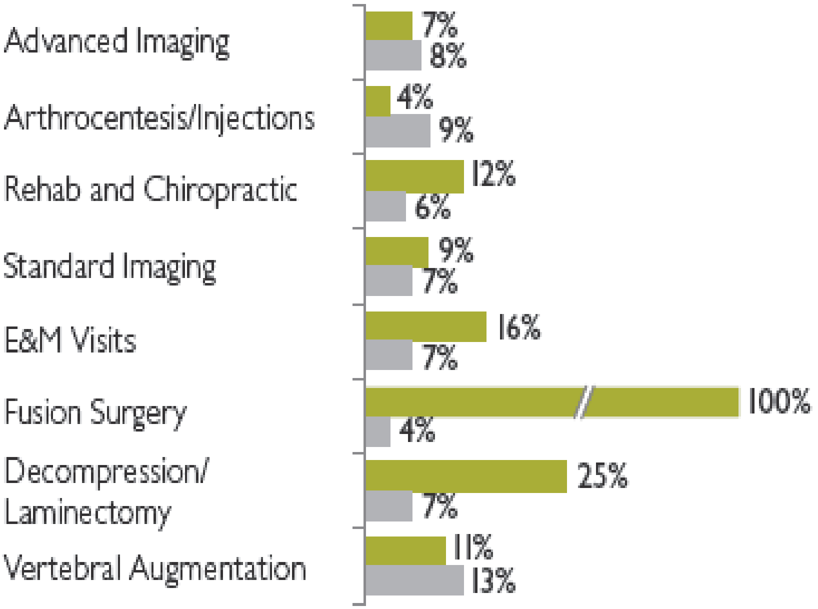
Note: Analysis excludes ages 0–17 and includes Spine service line only. Inpatient includes discharges; outpatient includes volumes.
Sources: Impact of Change® v15.0; NIS; PharMetrics; CMS; Sg2 Analysis, 2015.

Inpatient Spine Volumes are Threatened

10-Year Inpatient Spine Discharges by Procedure*
2015–2025



5-Year Outpatient Spine Volumes by Procedure or Visit Type
2015–2020



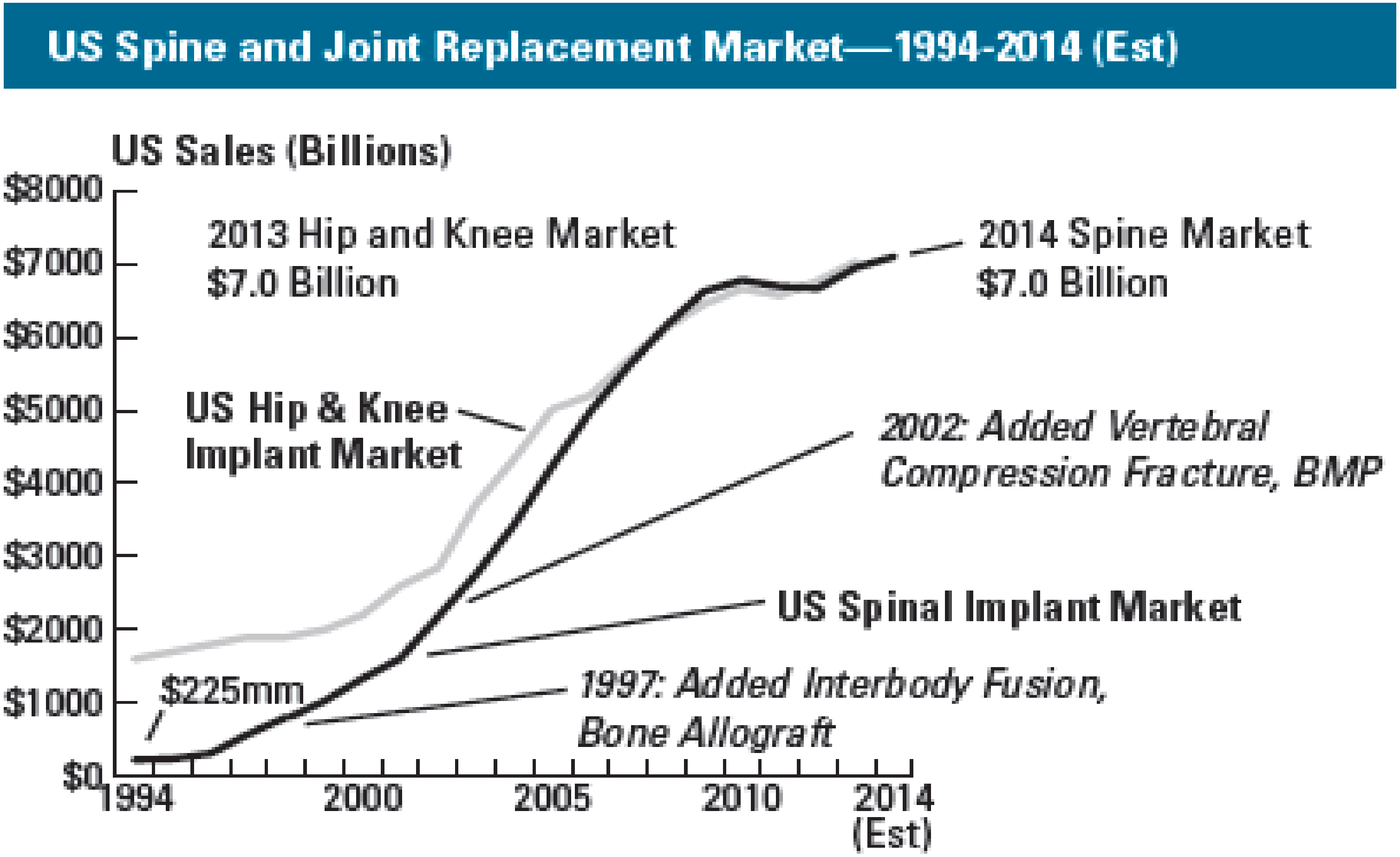
Sg2 Inpatient Forecast   Population-Based Forecast   Sg2 Outpatient Forecast

*Profound dampening will occur early in the decade. By 2025, those cases that are going to shift to the OP setting will have done so, and the majority of unnecessary procedures will have been eliminated. **Note:** Analysis excludes 0–17 age group. Fusion Surgery includes Lumbar/Thoracic Fusion and Cervical Fusion. Advanced Imaging includes CT, MRI and PET. Standard imaging includes nuclear medicine/single photon emission CT, ultrasound and x-ray. E&M = evaluation and management. **Sources:** Impact of Change® v15.0; NIS; PharMetrics; CMS; Sg2 Analysis, 2015.

health care intelligence

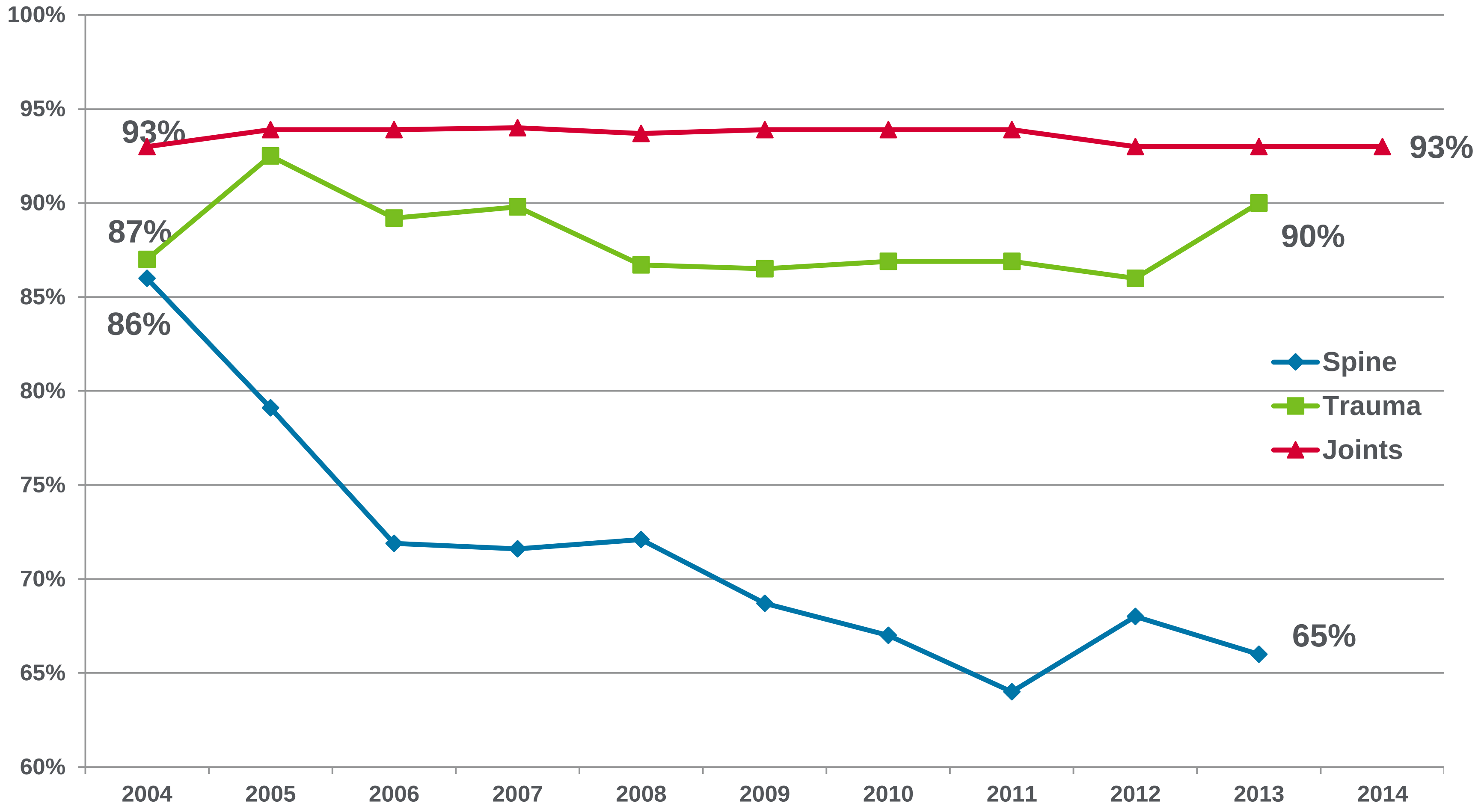
health care intelligence

Growth in US Spine Sales



Source: Orthopedic Network News 1994-2002, Millennium Research Group, Toronto, Ontario, 2002-2003 spine estimates and 2004-2008 hip and knee implant estimates;
Spinemarket, Minneapolis, 2004-2014 spine market estimates, Deaton Consulting, 2012-13 hip/knee.

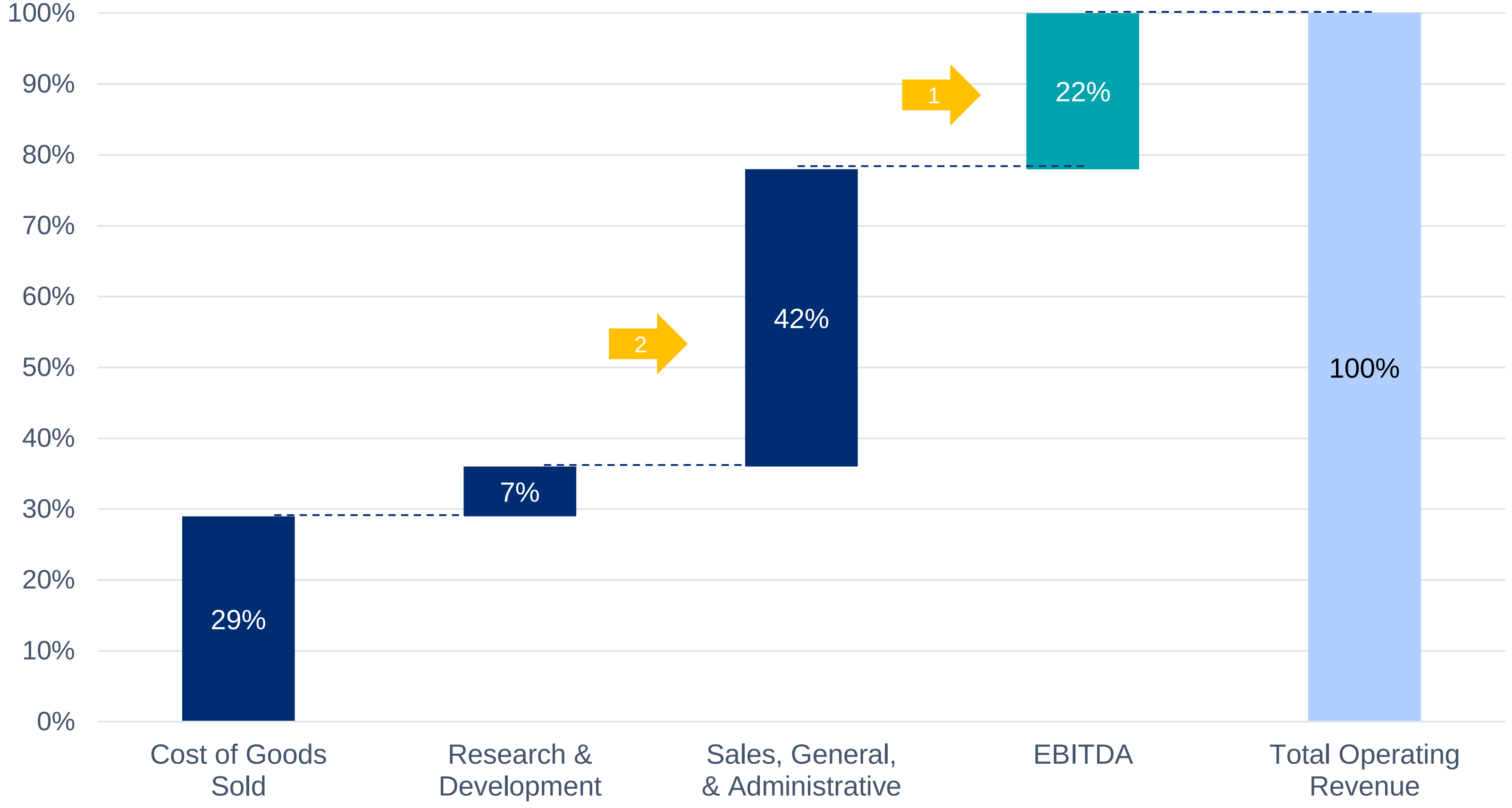
Market Share of Top 5 Manufacturers in Orthopedic Segments 2004-2014



Source: Orthopedic Network News , 2004-2013.

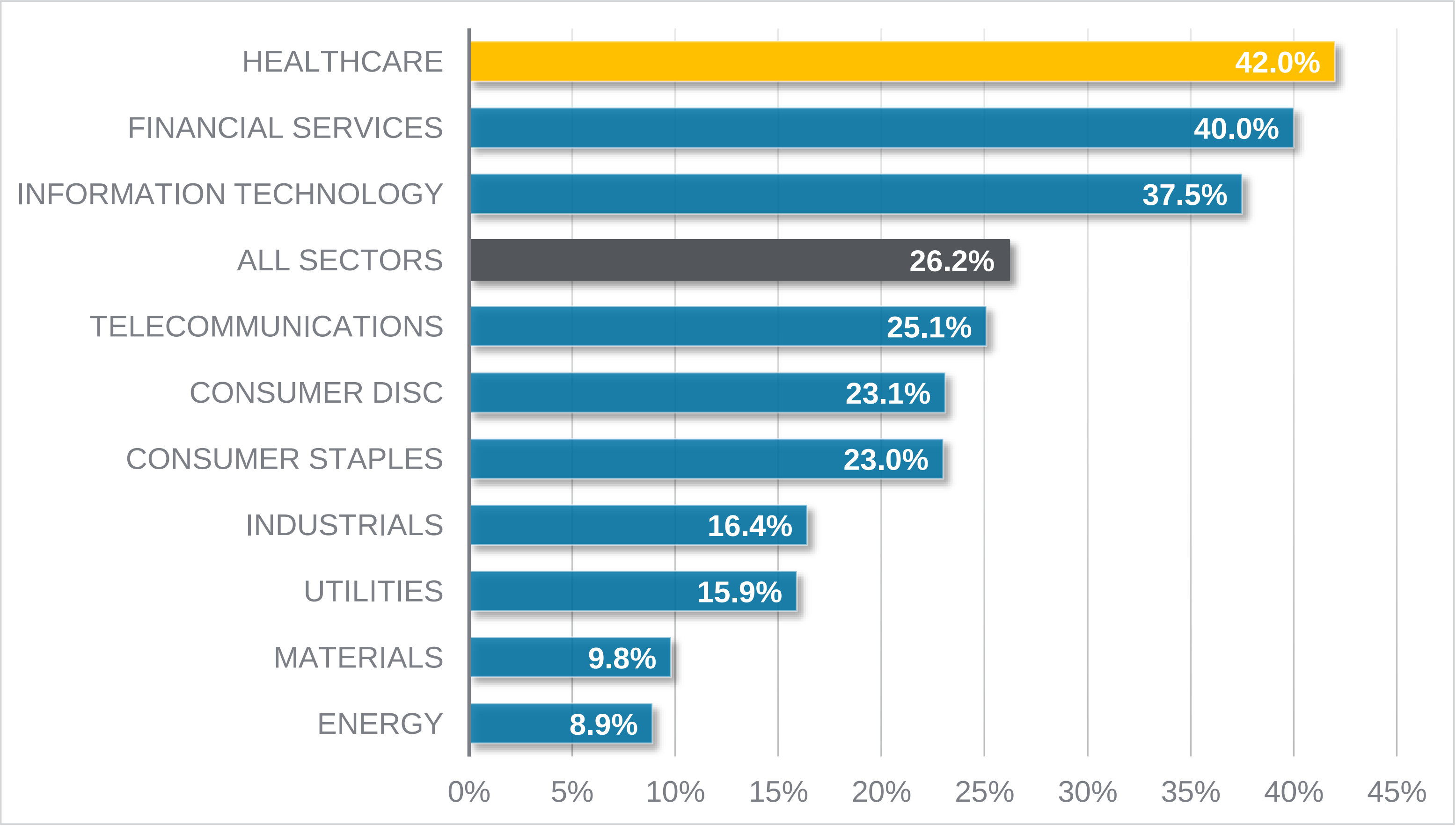
Source: Orthopedic Network News, October 2014

Analysis of the 5 Largest Spine Companies' Operating Revenue



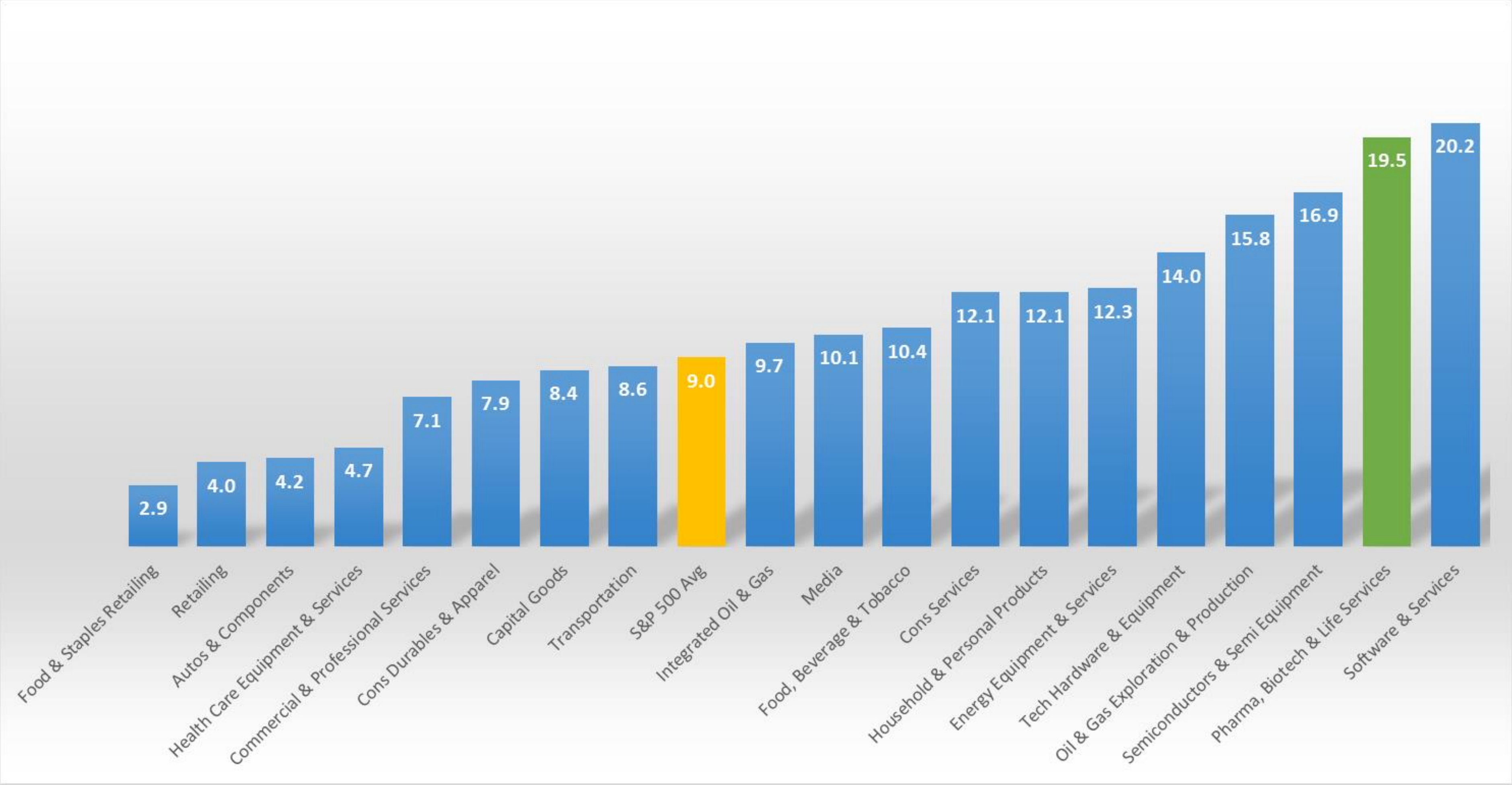
Source: FY 2013 figures are from www.medtronic.com, www.stryker.com, www.jnj.com, www.nuvasive.com, and www.zimmer.com.

Healthcare Sector has the Highest SG&A Ratio of any Industry Sector in S&P 500



Schonfeld & Associates Analysis 2014

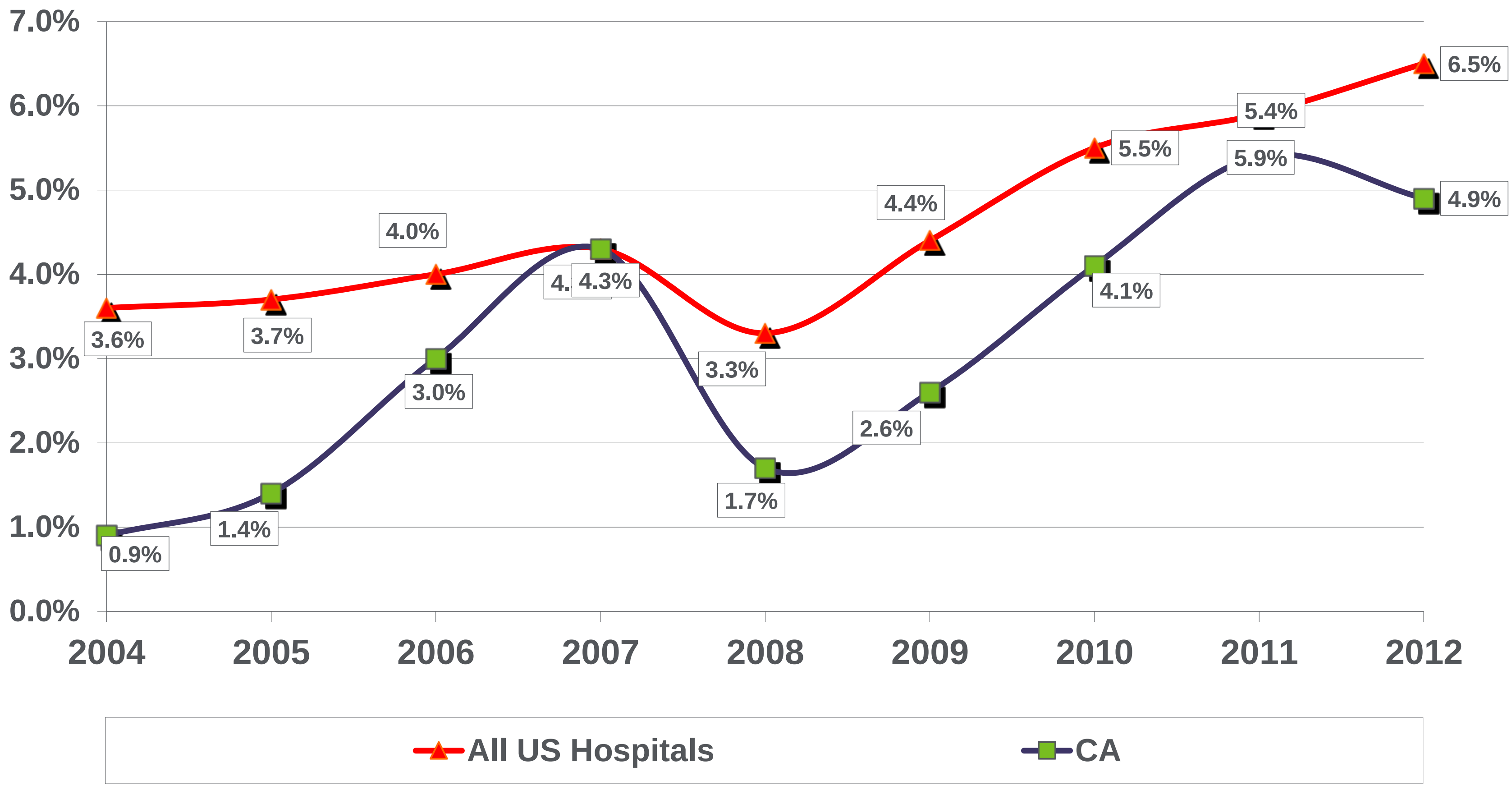
Medical Devices and Pharmaceuticals are one of the Most Profitable Industry Sectors in the S&P 500



RBC Capital Markets Research Analysis

Hospital Operating Margin Trends

CA vs. US



2014 American Hospital Association Hospital Statistics. 349 Hospitals in reporting.

Plan Your Strategy

Tidbits from the Trenches

What Are the Drivers of PPI Contracting Success?
Indicators that have been proven to achieve full savings

DRIVERS
1. Executives engaged in entire process
2. Physicians engaged in the process
3. Physicians incented to participate (not necessarily financial)
4. Full set of clinical, financial and cost data shared with stakeholders
5. Hospital willingness to remove non compliant vendors / make tough decisions
Other contributing factors: Adhering to an aggressive timeline, communication with physicians throughout process, history of project implementation and culture

# of Drivers Implemented	Savings Potential Achieved
5	121%
4	91%
3	85%
< 3	59%

Study from 19 facilities

Physician Engagement is Vital

79% of physician do not know what things cost
80% of physicians **want** to know what things cost*

- Establish credibility by sharing accurate data relevant to physicians
- Use physician input to develop strategies
- Foster a collaborative environment, making physicians part of the process

- Various physician alignment strategies can be deployed
  - Physician employment
  - Co-management
  - Bundled payments
  - Gainsharing
  - Joint ventures
  - Professional service agreements

*Source: Healthcare Advisory Board

Implant Strategy Continuum

Traditional cost negotiation → Vendor consolidation → Technology selection → “Repless” model

Increased physician engagement required →

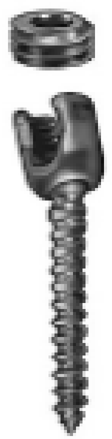
Increased implant savings potential →

Like Products Can Vary in Price

Be Wary of List Prices

3 Xia 3 (SYK)

Screw 2008



1 level				**$12,093**
Rod	48238040	2	$758	$1517
Screw	482316545	4	$2266	$9065
Blocker	48230000	4	$378	$1511
	H1/2014 ASP			*$4,439*

2-level construct	**$19,572**
H1/2014 ASP	*$7,339*

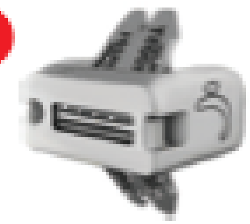
4 CD Horizon® Legacy™ (MSD)

Screw 2005

1-level				**$8,922**
Rod	8690040	2	$491	$982
Set Screw	7540020	4	$223	$892
Screw	75446545	4	$1,762	$7,048
	H1/2014 ASP			*$3,447*

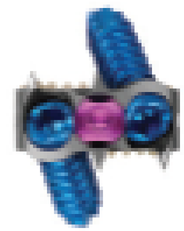
2-level construct	**$14,116**
H1/2014 ASP	*$6,009*

1



ROI-C (LDR)				**$6,430**
Spacer	MC1442P	1	$3,215	$3,215
Plate	MC1005T	1	$3,215	$3,215
	H1/2014 ASP			*$3,049*

2

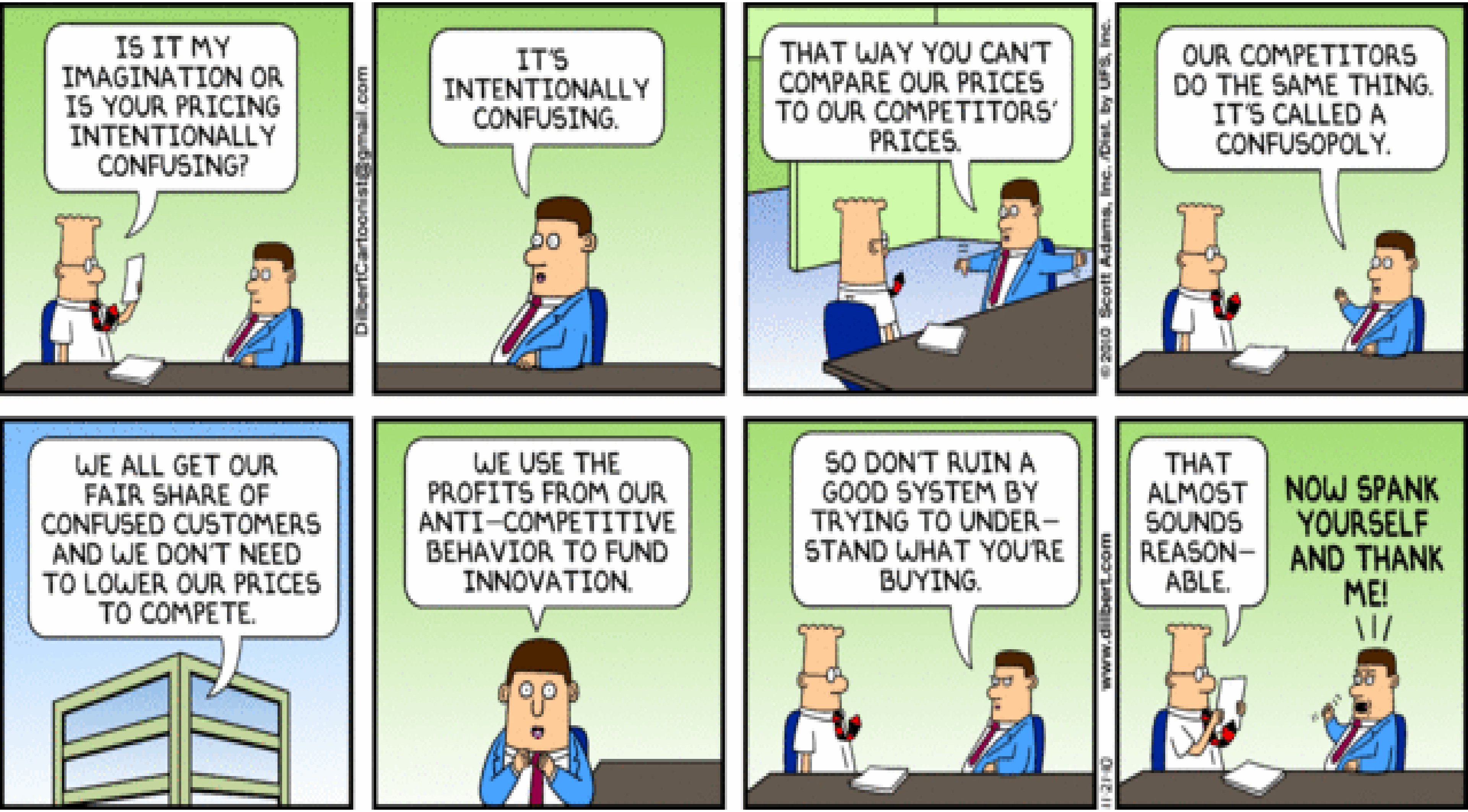


Coalition (GLO)				**$9,785**
Spacer	384.108	1	$8,035	$8035
Screws	184.154	2	$875	$1750
	H1/2014 ASP			*$3,246*

3

Zero-P VA (SYN)				**$4,497**
Spacer	04.647.128S	1	$3,613	$3,613
Screws	04.647.836	2	$442	$884
	H1/2014 ASP			*$3,186*

Source: Orthopedic Network News Oct 2014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IT'S INTENTIONALLY CONFUSING.
THAT WAY YOU CAN'T COMPARE OUR PRICES TO OUR COMPETITORS' PRICES.
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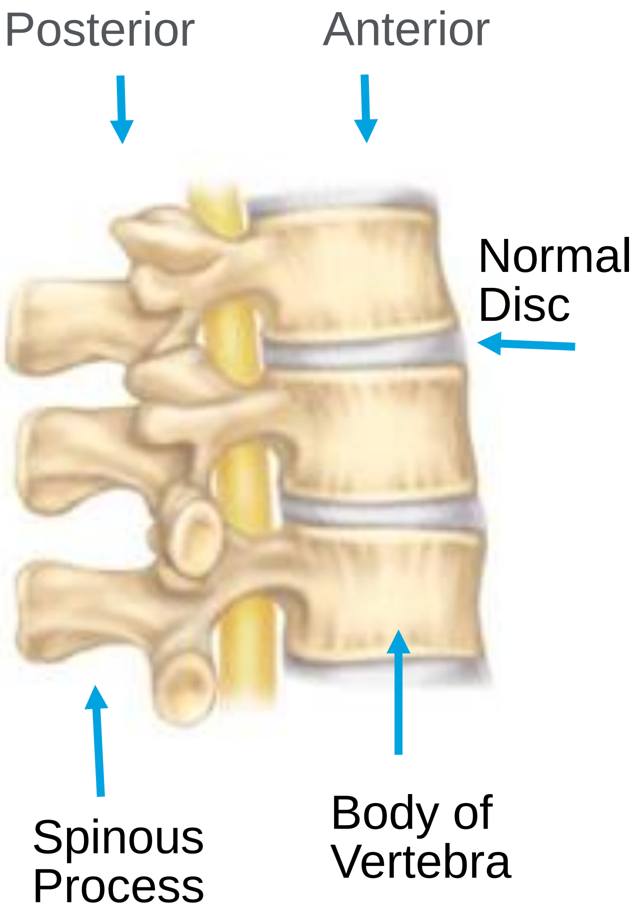
OUR COMPETITORS DO THE SAME THING. IT'S CALLED A CONFUSOPOLY.
WE ALL GET OUR FAIR SHARE OF CONFUSED CUSTOMERS AND WE DON'T NEED TO LOWER OUR PRICES TO COMPETE.
WE USE THE PROFITS FROM OUR ANTI-COMPETITIVE BEHAVIOR TO FUND INNOVATION.
SO DON'T RUIN A GOOD SYSTEM BY TRYING TO UNDER-STAND WHAT YOU'RE BUYING.
www.dilbert.com
11-21-10
THAT ALMOST SOUNDS REASON-ABLE.
NOW SPANK YOURSELF AND THANK ME!

Speak the Language

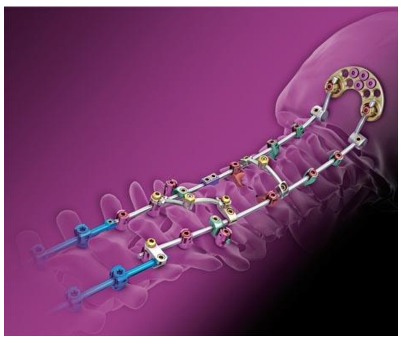
Spinal Implants, Anatomy and Procedures

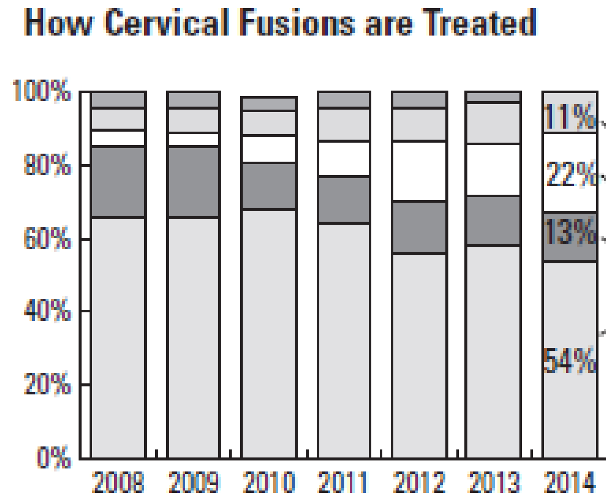
Spine Anatomy



Cervical Fusion

- Common procedures
  - Anterior cervical discectomy and fusion (ACDF)
  - Posterior cervical pedicle screws





	2013	2014	% Chg
PS	$9,256	$8,732	-6%
IBF	$4,422	$3,935	-11%
Plate	$2,508	$2,456	-2%
Plate+IBF	$4,272	$4,386	+3%

PS: Pedicle screw system
IBF: Interbody fusion device;
Plate+IBF: Cervical plate plus interbody fusion device
Plate: Cervical plate

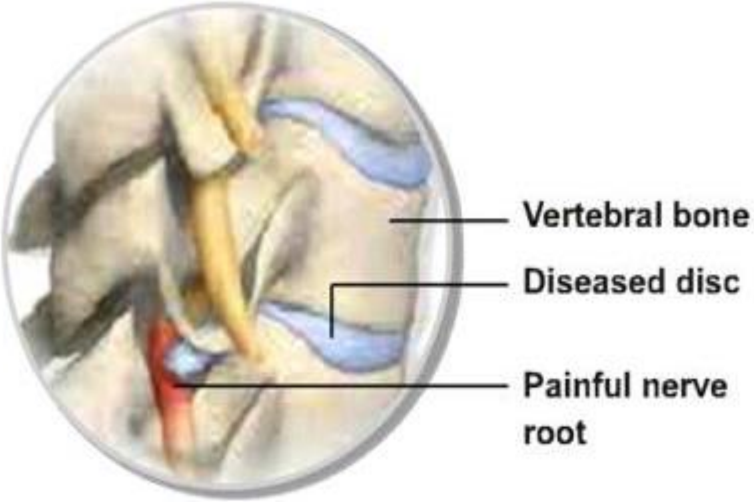
Source: www.orthopedicnetworknews.com

Source: Orthopedic Network News, October 2014

Anterior Cervical Discectomy & Fusion (ACDF)

- Done in conjunction with a discectomy
- Fuses two vertebral segments together to prevent a collapsing deformity
- Autologous or allograft bone may be used.

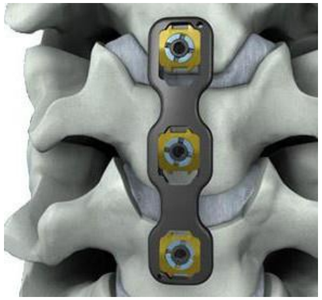
Anterior Cervical Discectomy and Fusion



Cervical Implants

Atlantis by Medtronic

Skyline by DePuy Synthes



SlimFuse by Pioneer

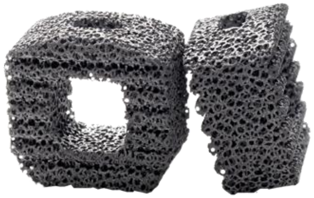
Assure by Globus

Vectra-T Translational Plate by DePuy Synthes

Cornerstone PEEK by Medtronic

Cornerstone (bone) by Medtronic

Endoskeleton TC by Titan Spine



TM-S by Zimmer made from Trabecular metal

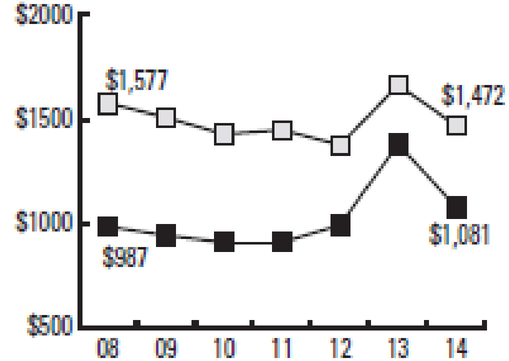
Colonial by Globus

Interbody Material
Bone or Non-bone?

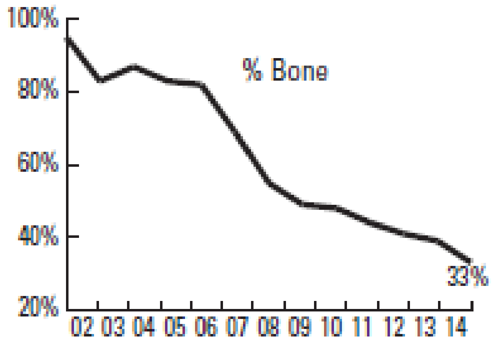
- The use of interbody made from bone continues to decline.
- Interbody made from bone is less expensive than non-bone

Cervical

Average Selling Prices of Interbody Fusion Devices: Bone v. Non-Bone

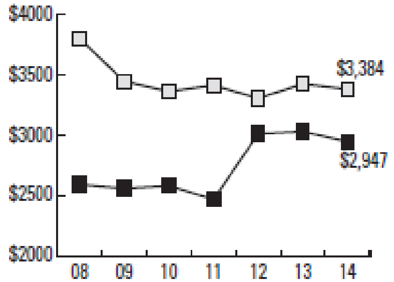


% of Interbody Fusion Devices That Are Bone

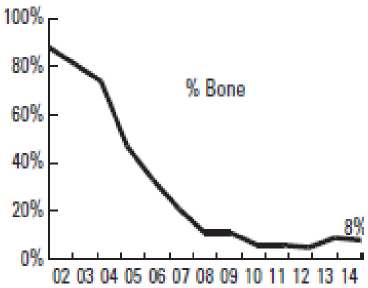


Lumbar

Average Selling Prices of Interbody Fusion Devices: Bone v. Non-Bone



% of Interbody Fusion Devices That Are Bone



The ASPs of non-bone interbody fusion devices reflect the mix of the one-piece IBFs, multiple piece, and corpectomy devices.

Source: Orthopedic Network News, October 2014

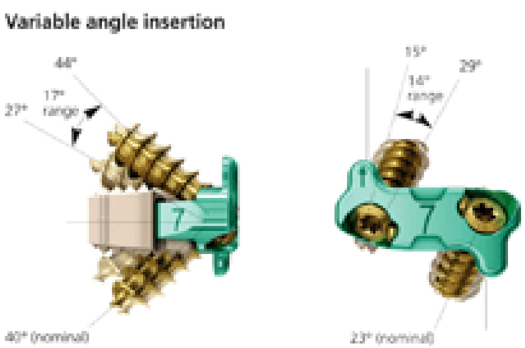
Cervical Stand Alone Devices

ROI-C by
LDR Spine

Stalif-C by
Centinel Spine

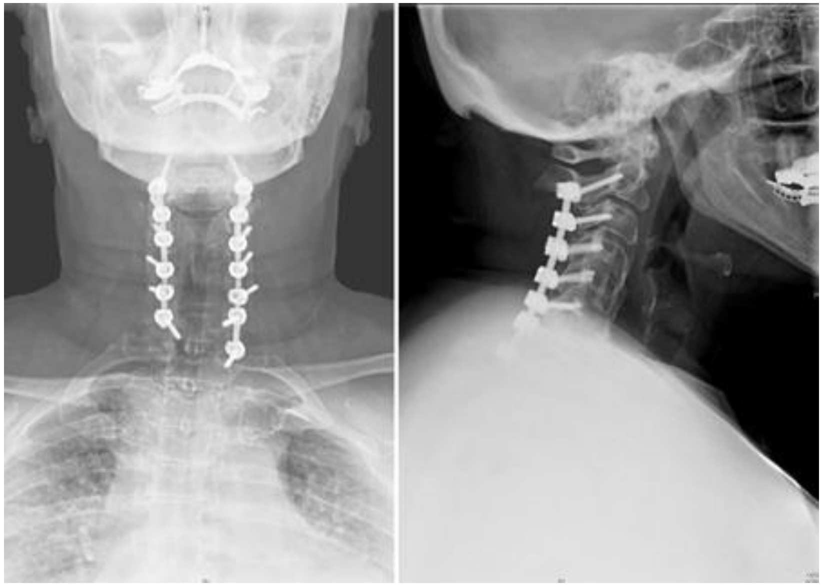
Coalition by
Globus

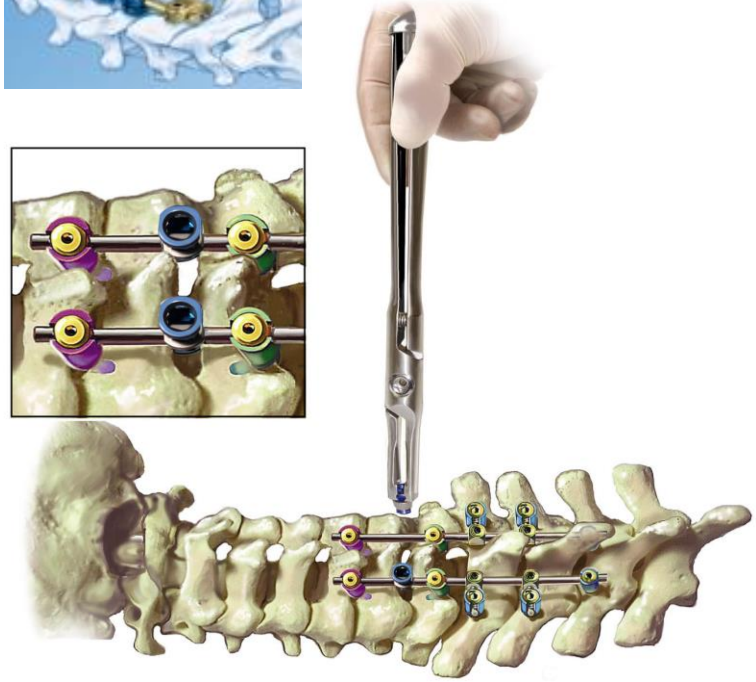
Prevail by
Medtronic



Zero-P VA by
DePuy Synthes

Posterior Cervical Fusion





- Common brands
    - Vertex by Medtronic
    - Mountaineer by DePuy Synthes
    - Synapse by DePuy Synthes
    - Oasys by Stryker

Artificial Cervical Discs

Secure-C by Globus

Mobi-C by LDR

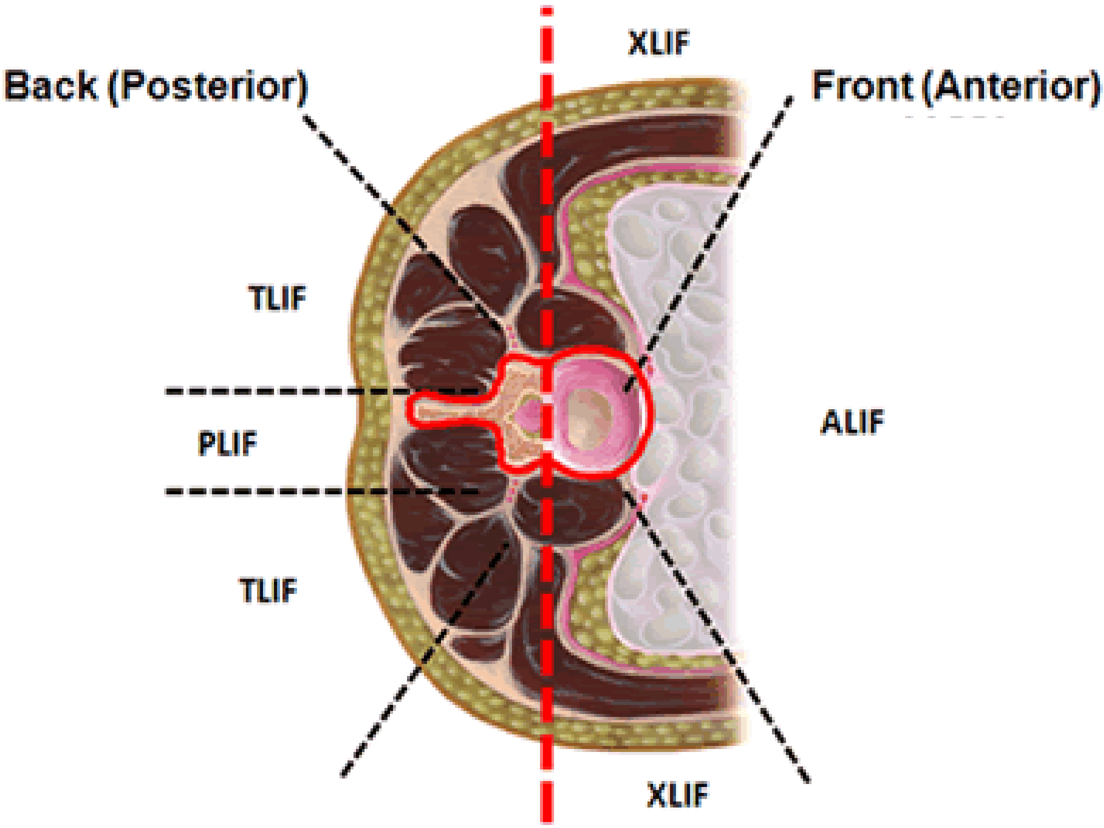
Prestige by Medtronic

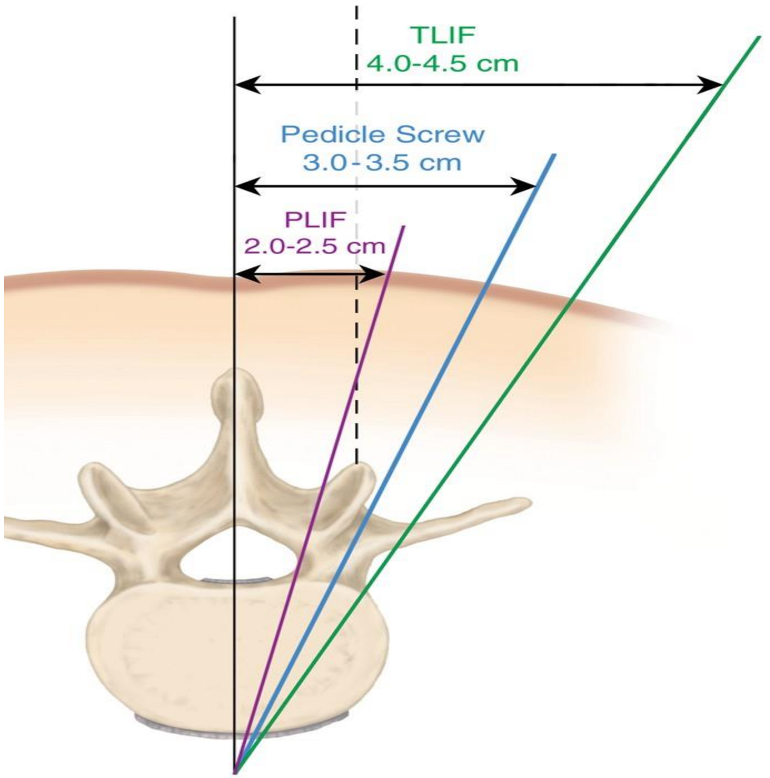
Bryan by Medtronic

Prodisc-C by DePuy

Lumbar Fusion Procedures

Posterior Lumbar, Transforaminal Lumbar, Anterior Lumbar and Direct Lateral Interbody Fusion Approaches



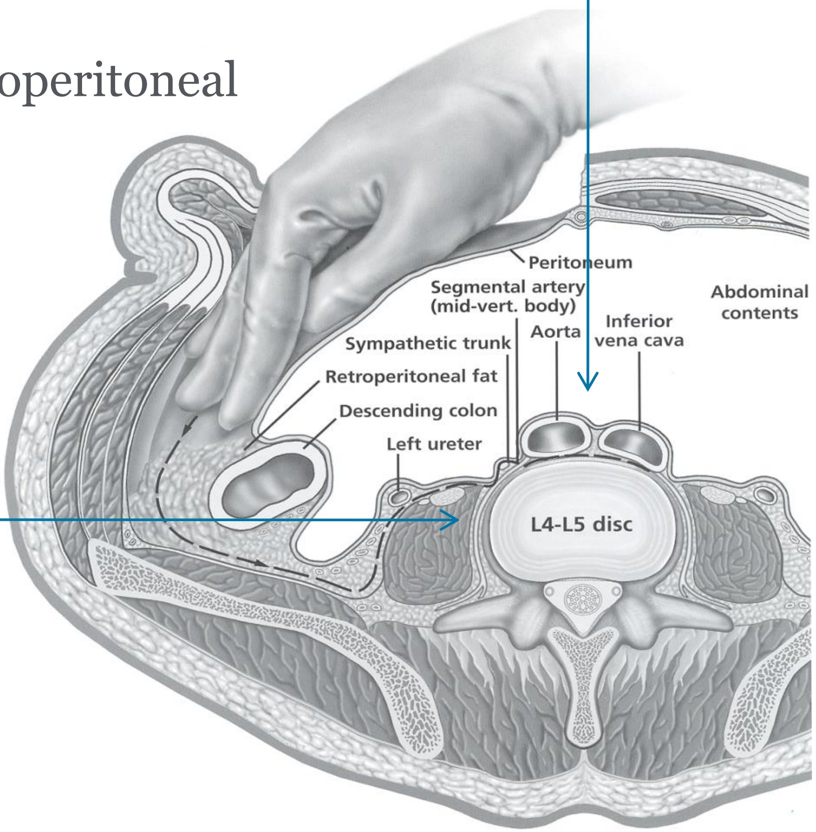


Anterior Lumbar Interbody Fusion (ALIF) Approaches

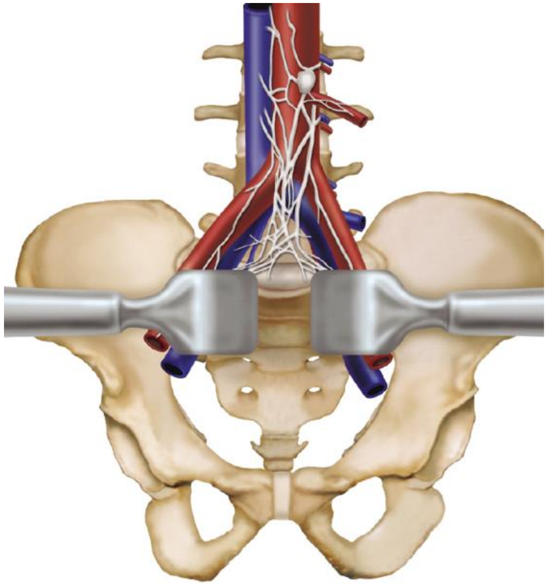
Transperitoneal

Retroperitoneal

Lateral



Anterior exposure of L5 – S1



ALIF Instrumentation and Implants

ATB (Anterior Tension Band)
by Synthes

Trinica by Zimmer

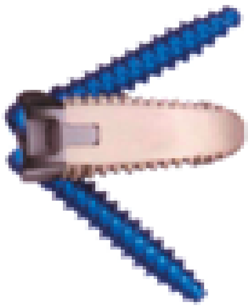
Pyramid by Medtronic

Aegis by DePuy

Lumbar Stand Alone Devices

LDR ROI-A

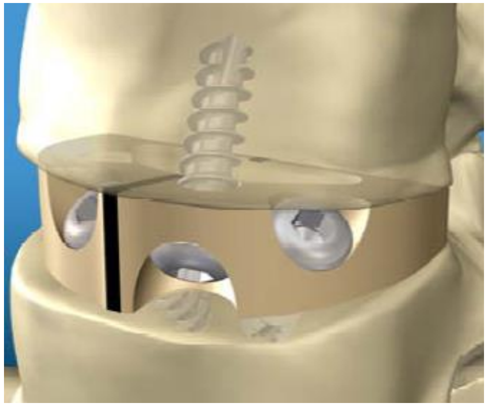
Biomet Solitaire



Globus Independence

Synthes Synfix-
LR

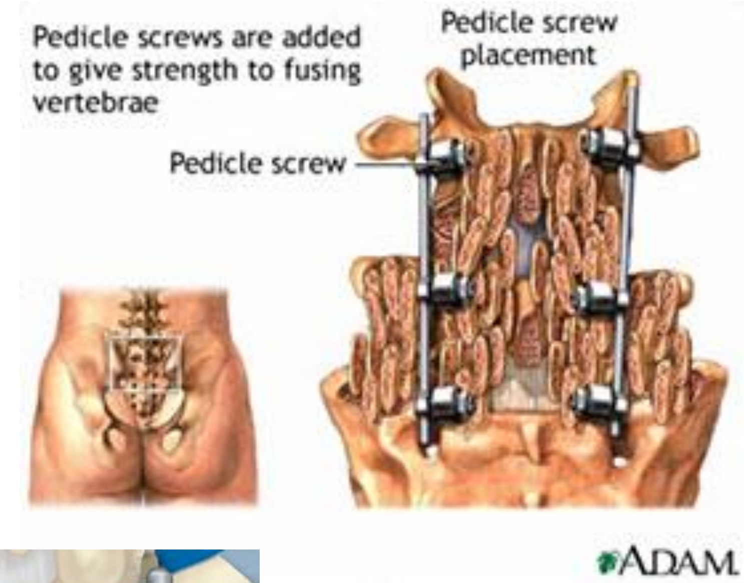
Spinal Elements Magnum +

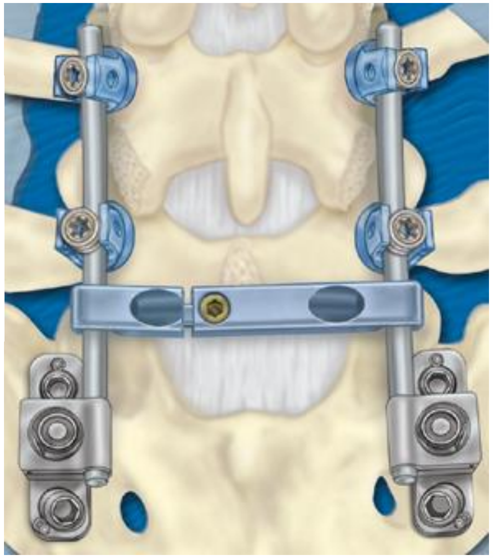


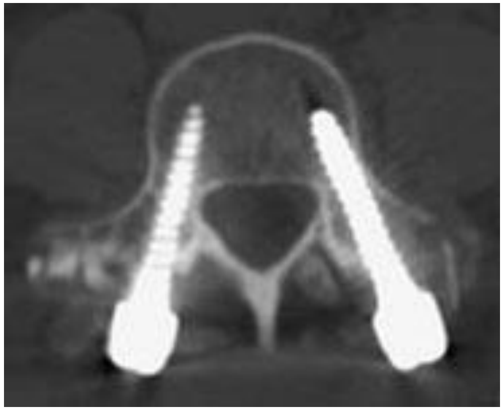
Centinel Spine STALIF-TT

PLIF/ TLIF – Posterior/ Transforaminal Lumbar Interbody Fusion

- Utilize a posterior (back area incision) approach
- Commonly utilizes pedicle screws, rods and an interbody device/ cage as well as some type of bone graft







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XLIF - Extreme Lateral Interbody Fusion (NuVasive) Also Called Direct Lateral Approach

- Anterior portion of lumbar spine is fused from the side.
- Incision in the side between the lower ribs and the pelvis
- Instruments pass through muscles and to the disc
  - –Lateral muscles are separated, less muscle tearing or cutting

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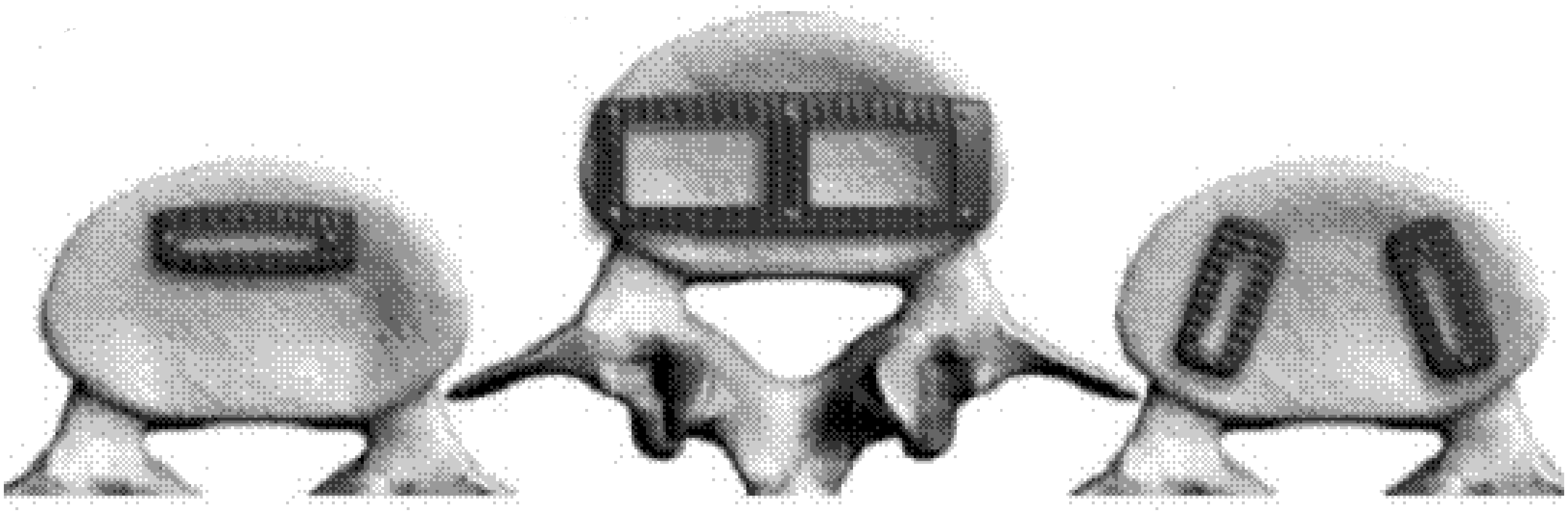
Cage Comparison



TLIF XLIF PLIF

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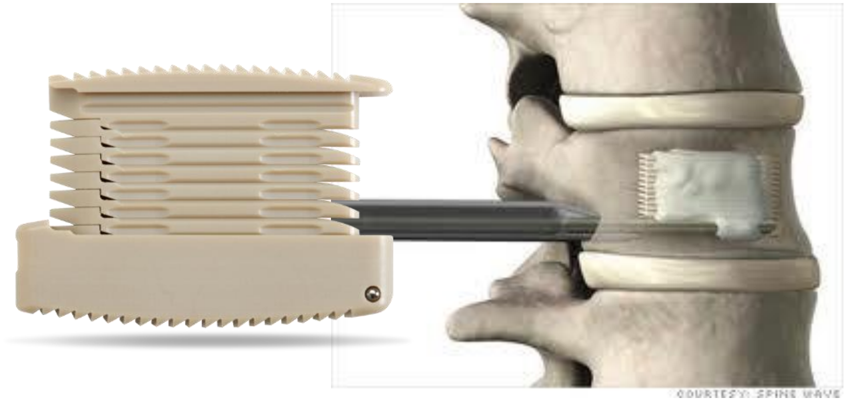
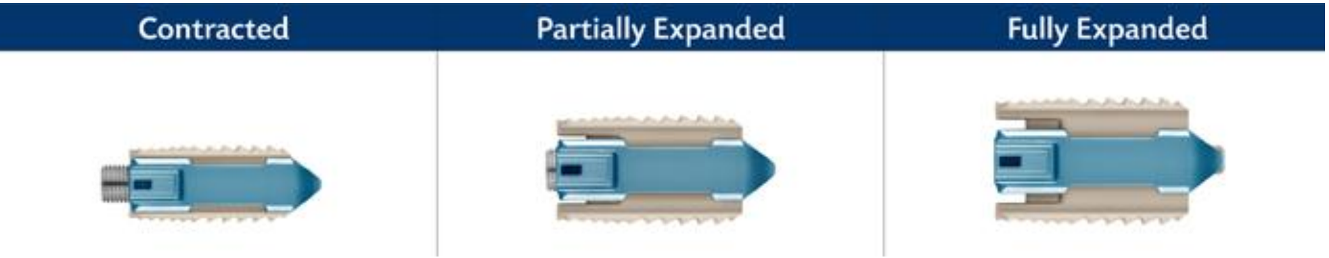
Expandable Interbody

- –Globus Caliber
- –Spine Wave StaXX
- –Spineology Optimesh



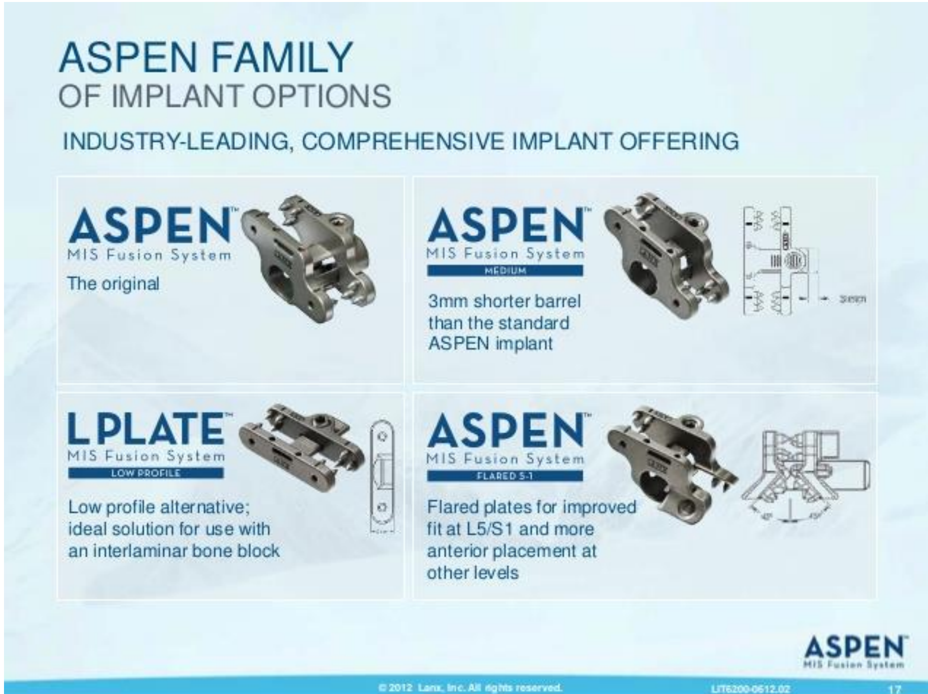
Spine Wave StaXx

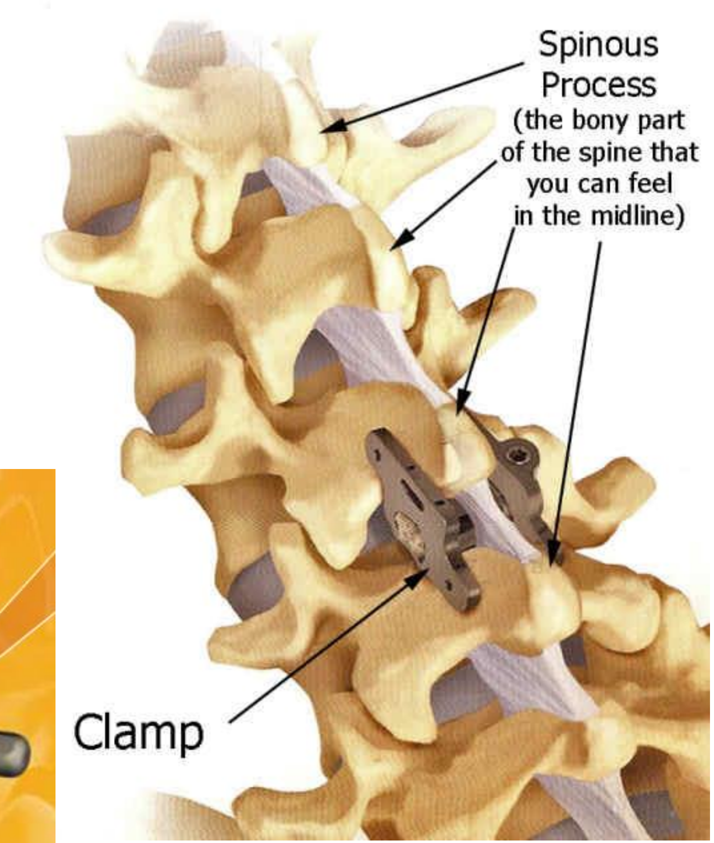


Globus Caliber

Spineology Optimesh

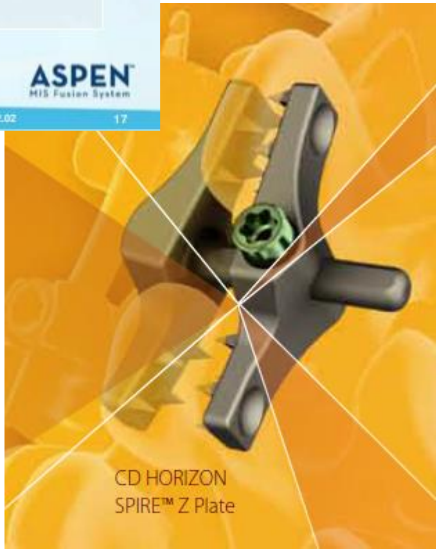
Interspinous Process Fixation/ Fusion Devices





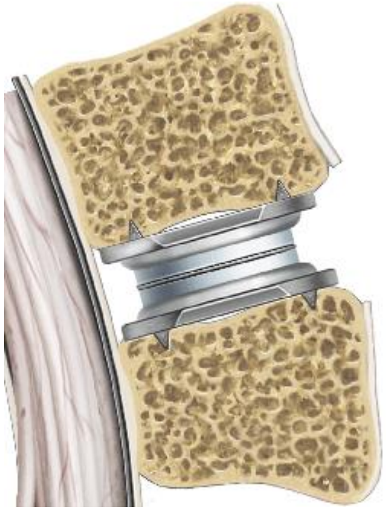
Biomet/ Lanx Aspen

LifeSpine Aileron

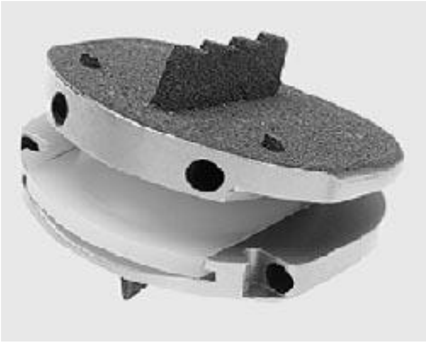


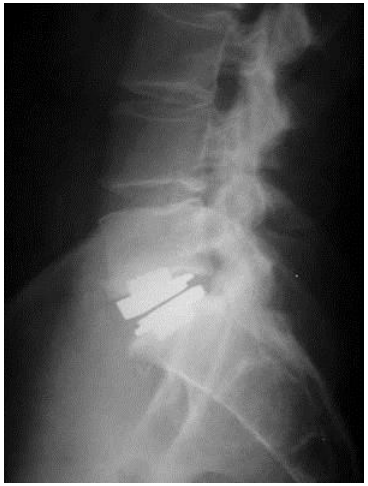
Total Annual Spend= $691,020

Artificial Lumbar Discs



Charite by DePuy

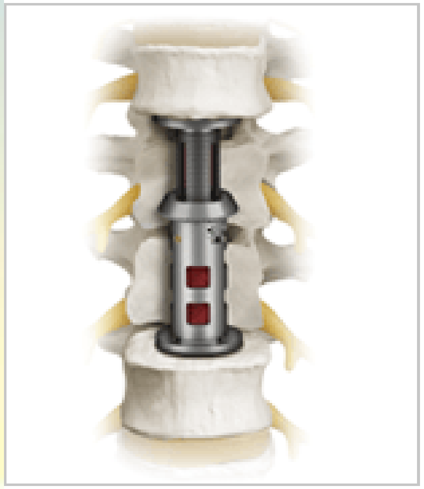


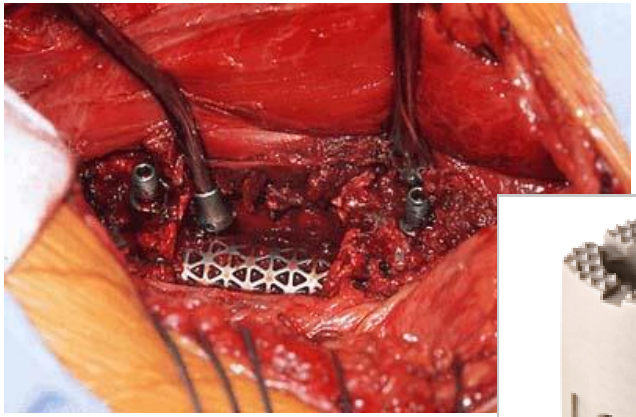


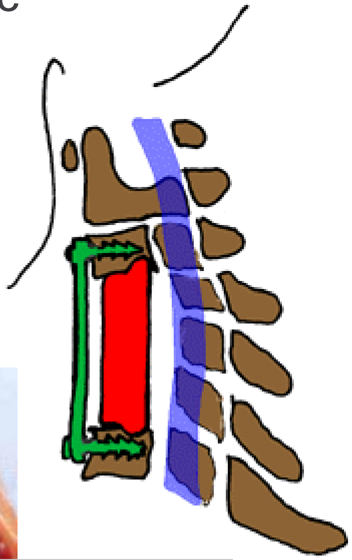
Prodisc-L by Synthes

Corpectomy

- When the surgeon removes the vertebral body as well as the disc space.
- Could be in any portion of the spine.







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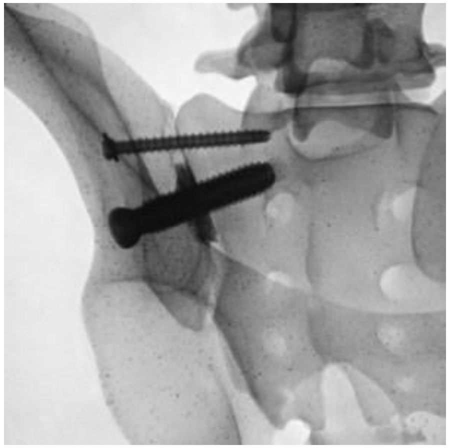
Sacroiliac Joint Fusion



iFuse Implants:
30-70mm length, 4 and 7mm diameter

Zyga Simmerty | **Globus SI-LOK** | **SI-Bone iFuse**

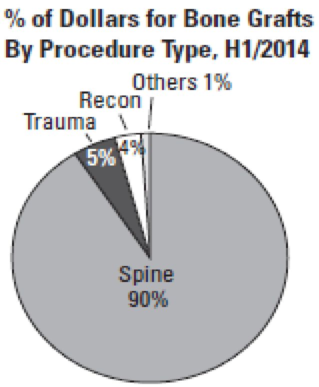
US Osteobiologics Market

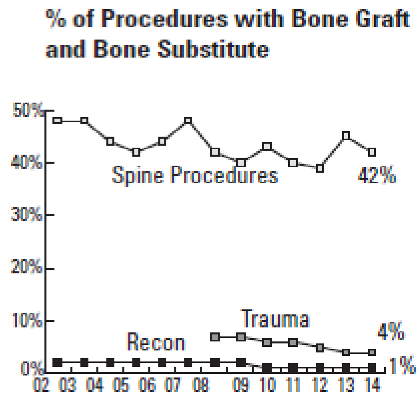
U.S. Sales of Bone Grafts and Bone Substitutes, 2013-2014

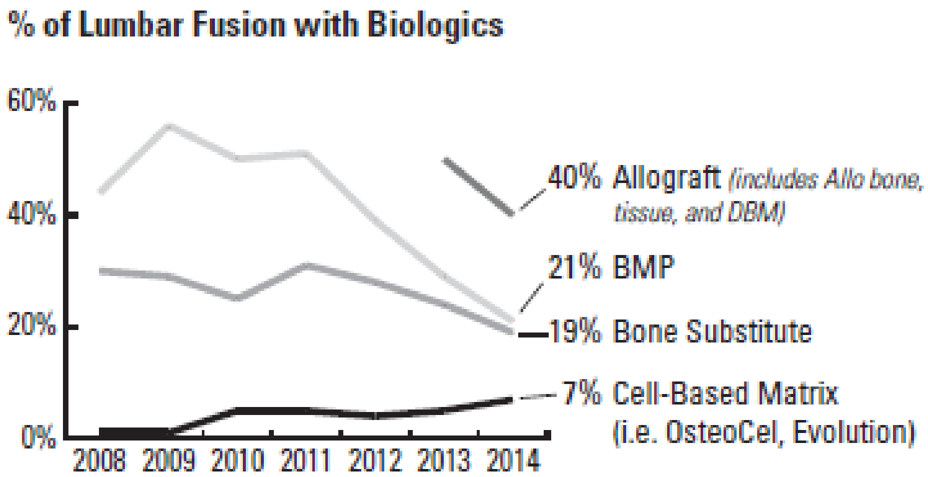
	2013	Est 2014	% Chg
BMP/Growth Factors	$430	$387	-10.0%
Platelet Concentrators	9	9	nc
Bone Substitutes	298	291	- 2.5%
Machined Bone	230	207	- 9.8%
Cell Based Matrices	189	211	11.7%
DBM	364	365	0.2%
Allograft Bone	68	66	-3.3%
Total	$1,588	$1,536	- 3.3%

Source: Spinemarket, Inc. estimates based on analysis of company reports and data from ORN. Company reports include Medtronic, Stryker, Zimmer, Orthofix, Alphatec Spine, Wright Medical and others.

Bone Grafts and Bone Graft Substitutes by Procedure Type







Source: ORN (2002-2014). "% of dollars for bone grafts" calculated by cross-tabulation of the segments of the cases in the ORN that had a bone graft or bone substitute (GIC61, type1=Allo Bone, CBM, DBM, or Bone sub). Trends in % of procedures with bone graft is the percentage of cases with Spine, Trauma, or Recon segments which had bone graft or substitute. Spine procedures are cervical and lumbar fusions only.

- BMP usage has dropped from 51% of lumbar cases in 2011 to 21% in 2014.
- The use of cell-based matrix products is increasing
- 90% of bone graft spend is for spine cases
  - Some cell-based matrix products are also marketed for trauma and foot & ankle
    - Bio4 by Stryker/Osiris

Source:" Orthopedic Network News, October 2014

Sustainability of PPI Costs

- Data is king
  - Have a consistent feedback loop
  - Evaluate metrics on a regular basis
  - Communicate data to physicians regularly
    - Seek involvement and input
- Establish/ keep an active clinical value analysis process
  - Adopt new technology based on clinical evidence
    - Procured Health
  - Seek continual physician involvement
- Coordinate service line management across the continuum of care
  - Shared risk/ benefits are coming, if not in your facility already
  - Prepare for efficiencies across service lines
    - Adopt an end to end view of patient management

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