Transforming the role of the orthopaedic sales rep in the hospital supply chain

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Abstract The intent of this paper is to evaluate critical elements in transforming the role of the orthopaedic sales rep and determine the next generation business model for either a 'Rep-less' or 'Rep-Lite' model by understanding the current role and the functions the rep performs in the operating room. An overview of trends in volume and reimbursement changes impacting the orthopaedic service line will be discussed along with a possible path to a new care model with a clinical support function outlined as a compromise to the current sales rep model. Finally, a proposed framework will be presented that transforms the value analysis and service line functions into a new care management model that integrates resource management into a more robust evidence based practice framework for realising the full value of the cost, quality, outcome movement.

KEYWORDS: rep-less, rep-lite, care management, clinical integration

INTRODUCTION

In the United States, Centers for Medicate and Medicaid (CMS) recently published a proposal to test a new bundled payment model for Comprehensive Care for Joint Replacement Model (CCJR) covering episodes of care beginning 1st April, 2016. 'This model tests bundled payment and quality measurement for an episode of care associated with hip and knee replacements to encourage hospitals, physicians, and post-acute care providers to work together to improve the quality and coordination of care from the initial hospitalisation through recovery. The model testing period will last for five years and will end on 31st December,

2020.'[1] Hospitals within a random sample of 67 Metropolitan Statistical Areas (MSAs) out of a total of 196 MSAs eligible for selection will be required to participate. If implemented, Medicare will begin paying hospitals based on a 'target price' for all related CCJR services within a 90-day episode of care.

Hip and knee replacements are the most common inpatient surgery for Medicare beneficiaries and can require lengthy recovery and rehabilitation periods. In 2014, there were more than 400,000 procedures, costing more than US$7bn for the hospitalisations alone. Despite the high volume of these surgeries, quality and costs of care for these hip and knee replacement surgeries still vary greatly among providers.

For instance, the rate of complications like infections or implant failures after surgery can be more than three times higher at some facilities than others, increasing the chances that the patient may be readmitted to the hospital. The average Medicare expenditure for surgery, hospitalisation and recovery ranges from $16,500 to $33,000 across geographic areas.[2]

This alternative payment model will contribute to the Medicare goals set by the Administration of having 30 per cent of all Medicare fee-for-service payments made via alternative payment models by 2016 and 50 per cent by 2018. Effective implementation of the CCJR model is designed to improve the quality and efficiency of care for Medicare beneficiaries, which is essential in creating a healthcare system that delivers better care, spends our dollars more wisely and leads to healthier Americans.

Medicare patients account for two-thirds of the total joint arthroplasty in the United States. In fact, there is a disproportionate procedure growth for Medicare patients in both total primary and revision knee/hip procedures. In fact, as noted in Table 1, the growth projections from 2015 to 2020 are:

- Primary hip: 35 per cent
- Primary knee: 48 per cent
- Revision hip: 18 per cent
- Revision knee: 44 per cent

In Figure 1, the volume is also shifting payer mix towards Medicare patients. In 2013 alone, Medicare paid for nearly 385,000 (55 per cent of all) primary Total Knee Arthroplasties (TKA) procedures.

Table 1: Model estimates and projections based on the National Health Expenditure for Primary and Revision Total Joint Replacement Procedures*

Procedure	2005	2010	2015	2020
Primary total hip arthroplasty	231,648 (184,165 to 279,132)	293,094 (237,717 to 348,472)	378,089 (308,449 to 447,729)	511,837 (413,092 to 610,583)
Primary total knee arthroplasty	471,088 (386,256 to 555,920)	655,336 (555,891 to 754,782)	926,527 (799,578 to 1,053,476)	1,375,574 (1,193,173 to 1,557,975)
Revision total hip arthroplasty	42,451 (26,279 to 58,623)	48,209 (29,296 to 67,122)	55,647 (31,851 to 79,442)	65,964 (32,030 to 99,898)
Revision total knee arthroplasty	47,262 (31,724 to 62,800)	64,129 (45,861 to 82,397)	88,274 (64,869 to 111,679)	127,510 (93,614 to 161,405)

*The values are given as the number of procedures, with the 95% CI in parentheses. Confidence intervals are approximate values only and did not incorporate some sources of uncertainty (e.g., future population) in the data.

Source: Kurtz, Steven.(2014) 'Impact of the Economic Downturn on Total Joint Replacement Demand in the United States', *The Journal of Bone and Joint Surgery*, Vol. 96-A, No. 8

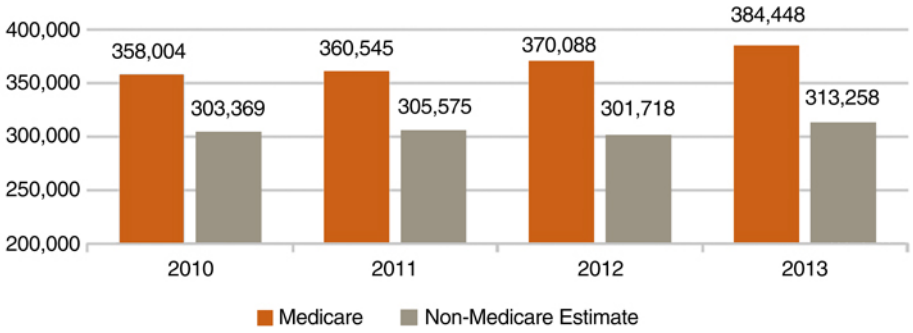

Figure 1: Historical Total Knee Arthroscopy Procedural Volumes

Source: FY2010–2013 Medicare Provider Analysis and Review (MEDPAR) Files (inpatient claims data), Medicare Cost Reports, Nationwide Inpatient Sample (NIS), IntralignCompare™

In recent years, the number of Medicare and non-Medicare primary TKAs has experienced modest growth, with a 7.4 per cent and a 3.3 per cent increase in volume from 2010 through 2013 respectively.

Medicare paid hospitals nearly US$5.7bn for primary TKAs—approximately $14,720 per procedure on an average—in 2013. The aggregate hospital costs and Medicare spending have increased at a compound annual growth rate of 4.7 per cent and 4.1 per cent respectively from 2010 to 2013 for primary TKAs as noted in Figure 2. For hospital providers, it has become abundantly clear that the costs of Total Joint Arthroplasties (TJAs) are rising much faster than the rate of Medicare spending. Medicare reimbursement rates will decline 2 per cent a year for the next ten years, which puts tremendous pressure on hospital providers to reduce their cost for the entire TJA episode.

Although overall hospitals continue to make a profit on Medicare TKA cases, the gap between average reimbursement and average cost has been shrinking with a trend toward reimbursing at the MSA average. Soon, insurance payers will gravitate toward the MSA average as well, putting additional pressure on providers.

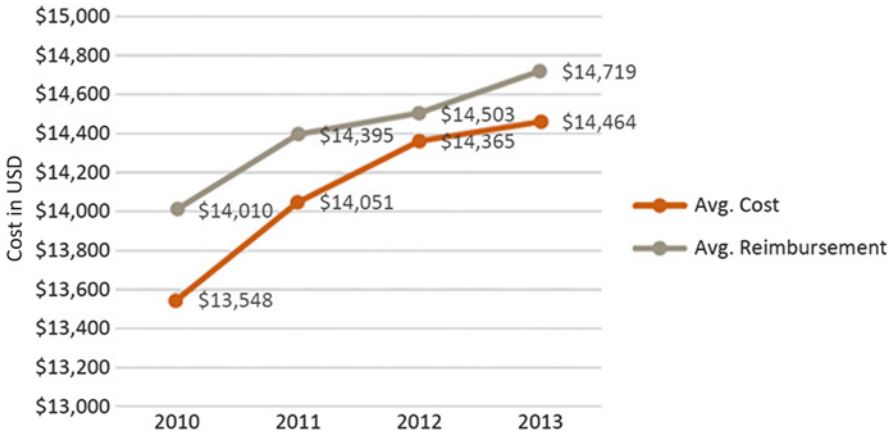

Figure 2: Historical Avg Medicare Cost and Reimbursement for primary TKA

Source: FY2010–2013 Medicare Provider Analysis and Review (MEDPAR) Files (inpatient claims data), Medicare Cost Reports, Nationwide Inpatient Sample (NIS), IntralignCompare™

Table 2: Costs across patients undergoing knee and hip replacement surgery

	Knee replacement			Hip replacement		
	Device cost *(U.S. dollars)*	**Total surgical cost *(U.S. dollars)***	**Ratio of device cost: surgical cost**	**Device cost *(U.S. dollars)***	**Total surgical cost *(U.S. dollars)***	**Ratio of device cost: surgical cost**
Minimum	1797	7129	12.71%	2392	7152	14.96%
1st percentile	2290	7465	20.17%	2683	7565	23.90%
25th percentile	4183	9891	35.76%	5034	10,732	41.80%
Median	4857	11,660	43.48%	6072	12,548	50.17%
75th percentile	6249	14,013	52.22%	7636	14,595	58.05%
99th percentile	11,143	21,954	70.36%	11,643	21,715	78.72%
Maximum	12,093	23,264	87.07%	12,651	23,051	87.24%

Source: Robinson, James.(2012) 'Variability in Costs Associated with Total Hip and Knee Replacement Implants', *The Journal of Bone and Joint Surgery,* Vol. 94-A, No. 18.

In order to be profitable, all parties, that is the hospital, orthopaedic physician, device vendor and primary care, must be aligned in addressing cost, quality and outcomes (CQO). The burning question then becomes: Do sales personnel create value in excess of their cost? All procedural supplies and services must be activity based cost assessed against contribution to CQOs. This methodology is still in its infancy, yet is imminent if providers expect to be successful in the CMS CCJR endeavour.

There is tremendous variation between device costs and actual procedural costs depending on geography, hospital volumes, etc. In fact, there is a wide variation without any good explanation when it comes to implant costs as noted in Table 2.
In fact, when one compares costs of TKA across countries in the Figure 3, there is wide variation as well.

The United States spends two and a half times the OECD average on healthcare yet the difference in outcomes or life expectancies does not reflect the additional expenditures. According to US News, the risks are much higher at lower volume hospitals as seen in the Figure 4 below. There is a clearly a correlation between high volumes and favourable outcomes, however, there are other factors that impact the outcomes—standard protocols and order sets along with experienced teams managing complications in a timely and efficient manner. We could think of aviation safety and the crew resource training that every crew person goes through before embarking on a flight. Remember the US Airways Flight 1549 over the Hudson? I had the pleasure of listening to Chesley "Sully" Sullenberger talk about that remarkable day—the entire talk was about safety training and all those hours that everyone reverted to when the engines began to fail. The same would apply to TKA procedures.

It should be clear that cost and reimbursement pressures require a complete review of the business model to include, beyond the procedure, the sales rep, the device manufacturer's logistics model, the care continuum and the strategy to concentrate volume to drive better outcomes.

WHAT DO YOU NEED THE SALES REP FOR?

There are several other complex procedures that are performed in hospitals where there is no sales representative in the operating room: open heart, valve replacements and laparoscopic procedures to name a few.

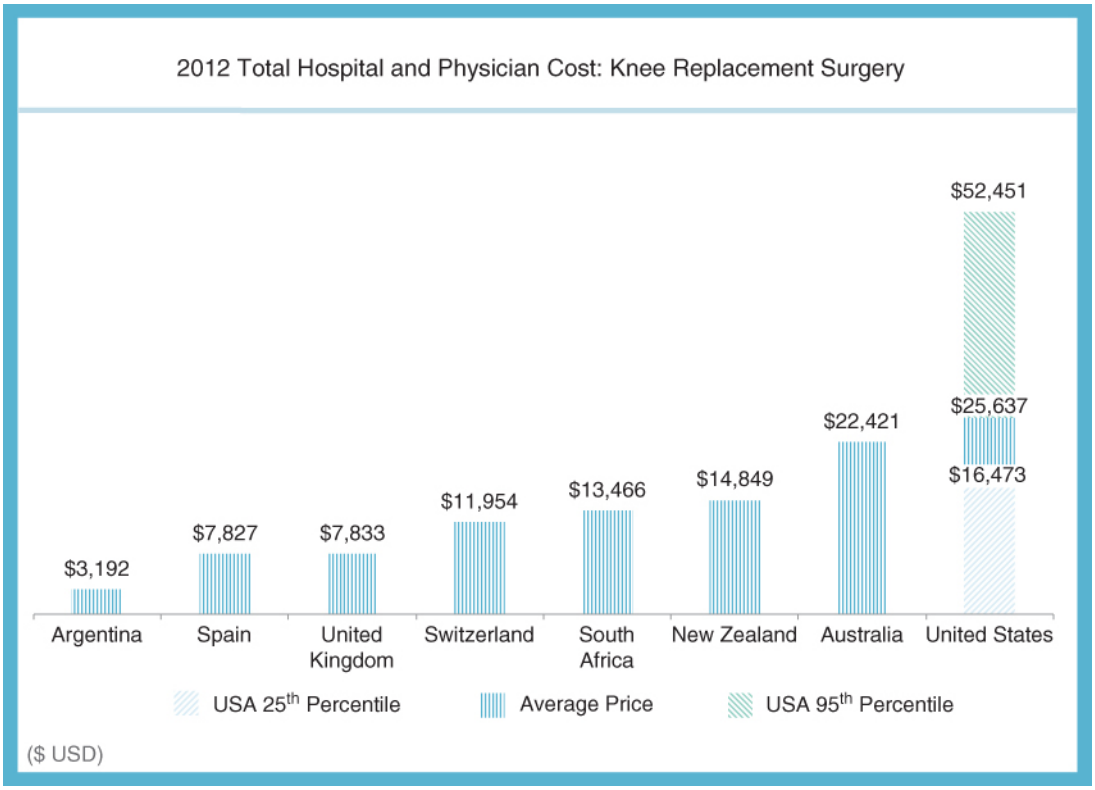

Figure 3: OECD Chart

Source: International Federation of Health Plans 2012 Comparative Price Report, available at: http://hushp.harvard.edu/sites/default/files/downloadable_files/IFHP%202012%20Comparative%20Price%20Report.pdf

Twenty-five years ago, the instrumentation for orthopaedic joint replacement was largely universal. Physicians bought their instruments and used them routinely for all joint replacements. The physician went to training sponsored by the manufacturer and there really wasn't a need for a sales rep to be in the operating room. Ironically, the device industry did themselves a great disservice by designing and introducing complexity into their instrumentation. By designing complexity into the instrumentation, the created a situation where a dependency on the sales rep in the operating room became a necessity, but they also increased the logistical costs associated with servicing each physician and each case. How many different screw head patterns are needed? For example, for a primary hip or knee, five to eight trays of implant system instrumentation *plus* trays for pan instruments and power tools are needed. The logistical cost of these for just one procedure is outrageous! Multiply that by the number of physicians times the number of procedures per day per hospital and you can easily see how much cost just goes into the logistics of moving trays and instruments around—that doesn't even include the cost of the implants and the inventory that must be kept nearby just to support one case. Sales reps usually bring in three to four sizes based on the imaging and the doctors request (just in case). What is even worse are the revision cases where there may be at least seven to twelve trays *plus* a very large selection of implant sizes.

The good news is that all of this can be simplified provided the device manufacturers proactively make the necessary changes to accommodate. First, let's examine what a

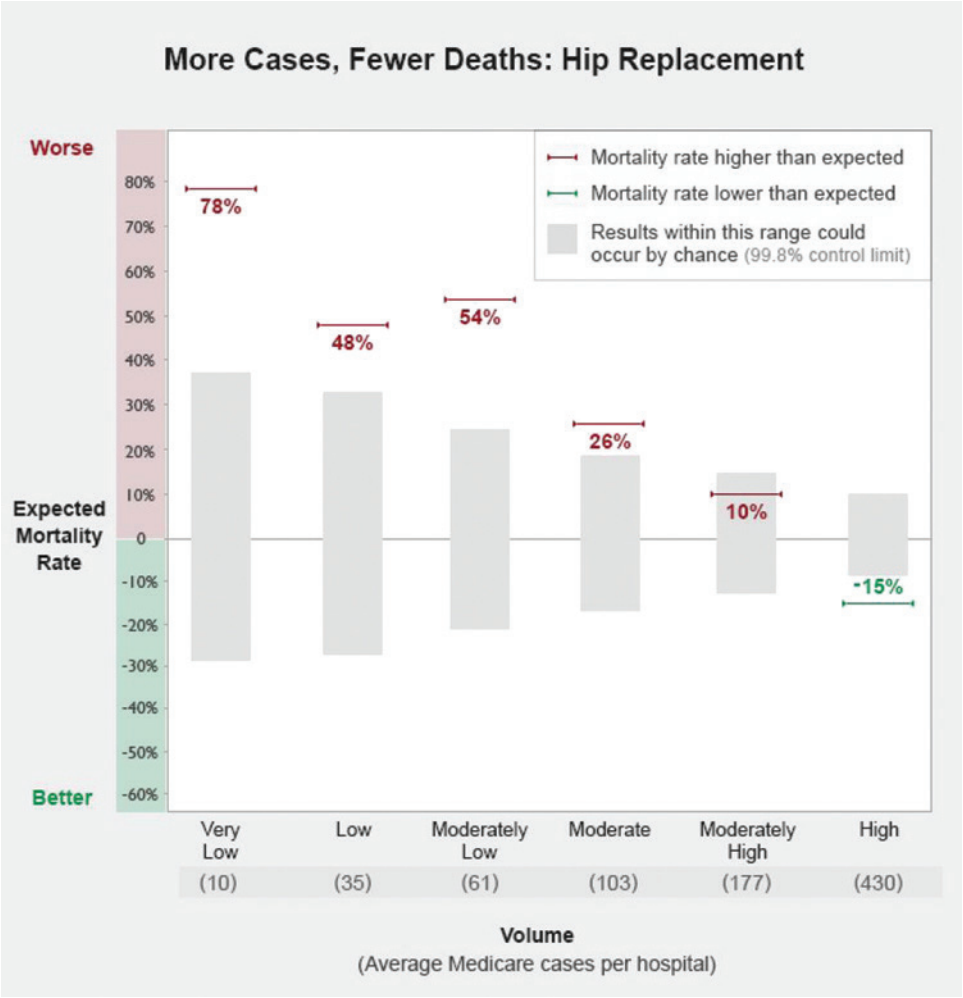

Figure 4: US News Chart

Source: US News & World Report and Sternberg, Steve. 'Risks Are High at Low-Volume Hospitals', available at: http://www.usnews.com/news/articles/2015/05/18/risks-are-high-at-low-volume-hospitals

sales rep does starting with 30 to 60 days before the case all the way up to the day of surgery. In Table 3 and 4, you can see the activities and the timelines associated with what is required to get a case scheduled and performed.

The software used for templating is either provided by the device vendor or there are several third-party companies who, for an annual fee, will provide the latest implant templating that will interface directly with the hospital's picturing, archiving and communication system (PACS) so as to keep information confidential within the provider's electronic medical record (EMR).

The last activity, sometimes done after the case (because it only becomes known at that time), is contract management where the hospital (system) contracts for prices with the device vendor. There is tremendous sales rep influence here because of the surgeon-rep relationship, and in some cases, surgeon training can be a part of a vendor's device contract (device manufacturer won't let physicians use the 'new' implant unless they go through training). Although these activities were obtained from interviews, they are generalisations from experience across many hospitals. If a sales rep is not doing certain activities at one hospital, it doesn't

Table 3: Orthopedic Sales Rep Operating Room Activities and Interactions

30–60 Days Prior to Surgery (Based on Interviews)	3–4 Days Prior to Surgery (Based on Interviews)	Day Before Surgery (Based on Interviews)
Surgeon's Office **Key Activities:** • Schedule case at hospital • Template joint (software)	**Ortho Clinical Service Line Manager & Sterile Processing** **Key Activities:** • Ensure implants have been ordered and received • SPD (sterile products dept)—prepare instrument trays	**Sterile Processing** **Key Activities:** • Prepares case carts using surgeon preference card
Rep Activities: • Proactively check schedule • Call vendor for unusual sizes • Control the implant ordering process	**Rep Activities:** • Review OR schedule, defines implant system needs • Orders implants, supplies • Manage 'loaner' trays • Bring trays to SPD <48 hours before surgery	**Rep Activities:** • Retrieve implants from storage • Troubleshoot missing implants/ supplies

Table 4: Orthopedic Sales Rep Operating Room Activities and Interactions

Day of Surgery (Based on Interviews)		
Pre-Operative **Key Activities:** • Implants brought to OR in boxes with labels • Scrub Tech and Circulator set up the back table	**Intra-Operative** **Key Activities:** • Scrub and SFA competently assist surgeon • Circulating RN opens implant boxes; confirms choice and compatibility • Circulating RN ensures all equipment/supplies ready	**Post-Operative** **Key Activities:** • Bill for implant and supplies • Place restock orders for used supplies • Enter info into joint registry • Instrument trays sent to SPD for cleaning
Rep Activities: • Bring implants boxes from storage to OR	**Rep Activities:** • Open boxes, puts on back table • Talk scrub tech through the case • Pull up images on computer • Help staff find instruments/trays in OR storage	**Rep Activities:** • Bring instrument trays/special instruments to SPD • Send stock-out information to SPD/ Supply Chain Management • Put new parts into tray before going to SPD • Replace broken equipment/ instruments

mean they aren't doing more at others. As hospital consolidations continue in the United States, hospital providers may be thrust into very different circumstances from what they currently are in.

The important questions when considering what the rep does are: how do requirements for support vary across staff and surgeons? Are these same activities being performed by current staff for other service lines (think heart bypass)? Does taking on a portion or all of these activities require new staff or just training existing staff? Does the process, instrumentation or implant variation really need to be so complex? If a hospital provider can partner with a device manufacturer to reduce complexity of instrumentation (and trays), then there is a huge opportunity to reduce variation which can decrease errors and increase efficiencies in the operating room—which builds a strong case for training one's own staff and removing the sales rep.

The barriers to removing the sales rep entirely are not trivial. One has to strategically think through and address each element in a practical manner:

1. *Device rep relationship with clinicians*
   This is a very strong force and bond that may not be broken entirely among all physicians.
2. *Sourcing specialised clinical support with device knowledge*
   There are existing industry resources both at the device manufacturer, and also former distributors, and sales reps who are willing to become employees of the hospital or in some other type of model like a joint venture training company or clinical support company (highly feasible).
3. *Managing inventory and implant complexity*
   If instruments and trays can be simplified and standardised, it becomes more of a simple planning, scheduling and logistical problem which could be outsourced (Third Party Logistics (3PL) models). The planning and scheduling will give full visibility into case scheduling which will help the device manufacturer forecast more accurate implant demand and inventory. I have confirmed with two manufacturers (via in person meetings) that about 50 per cent of the inventory carried out in the field represents only about 2 per cent of the sales. There is a percentage of the total amount of inventory produced that may never be sold but is an albatross of cost carried by the device manufacturer. With the advent of 3D printing, manufacturers will soon 3D-print those implants that have little sales, customise them to the patient and overnight ship them in time for the cases.
4. *Back table management and surgical episode processes*
   This could be potentially managed through structured training programs for operating room technicians sponsored by device vendors.
5. *Transitioning physicians and staff to new model*
   This is by far the hardest and relates back to the first barrier. Many physicians who have been interviewed think that there is some value in the shared knowledge of physicians and hospitals that are brought to the OR by the sales rep. There is an argument for clinical support to continue, but no argument for the sales function to continue.

The bigger question is where does one start the journey? Since there is no established approach, it would make the most sense that it should be iterative, but all the components should be well thought out and integrated into some sort of a pilot. There are certain aspects that could be grouped together:

1. *Physician incentive alignment with hospital and alternative based payment models:*
   Based on cost, quality and outcome metric transparency. It is generally accepted that it would have to include some form of co-management or gain sharing agreement that aligns incentives to both Medicare and commercial payers for value based payments.
   Physician operational efficiency:
   - Physician led process re-design of total episode of care (inclusive of acute/post-acute provider, anaesthesia, nursing, ancillary physicians, etc.).
   - A list of by vendor implant set (construct), preferably two, (high/low demand or by patient demographics like age, comorbidities, etc.) that can support greater than 80 per cent of the patient population and is proven technology that produces consistent outcomes at the lowest possible cost. Standardising implants will standardise instruments and trays, which will reduce cost. The same would be done with preference cards for items that are less contentious or more commodity-like in nature (this would be entirely physician driven).
   - Co-management or gain sharing agreement with very clear metrics for cost, quality and outcomes as prescribed by Medicare and commercial payers.
   - Technology vetting process (for drugs, devices and equipment) to ensure

that any new technology is properly reviewed for improvement of clinical outcomes, safety, quality, etc with clear criteria for resource utilisation and performance measurement.
- Risk scoring methodology and standard order sets with pathways, protocols and development of evidence based best practices.
- Committee structure at hospital and system level for physician driven, evidence and outcome based value analysis, peer review, conflict of interest management, etc.

2. *Provider operational efficiency:*
   - Risk assessment/pre-admission
   - Scheduling and block time
   - Instrument flow (SPD)
   - Care delivery maps and standardisation tools
   - Surgical patient throughput (inclusive of room turn over)
   - Standardised OR staff training for TJA with teams assigned by block time schedules (annual training would be required to maintain proficiency).
   - Post-op discharge clinical integration plans (post-acute/home, etc.)
   - Re-admission avoidance protocols
   - Communication hand-offs (care coordination—from care redesign)
3. *Vendor operational efficiency:*
   - Case schedules in advance (minimum of two weeks, four weeks better)
   - Implant templating (30 days out)
   - Implant inventory planning and ordering
   - Inventory management program that reduces vendor inventories locally and in pipeline
   - Instrumentation and tray standardisation/consolidation
   - Coordination of instruments/trays with schedules for SPD
   - Forward and reverse logistics scheduled (instruments/trays) with physician case schedules
   - Development of a clinical support model (employed or contracted with vendor) without the sales component (recommend a salaried position with annual bonus based on CQO metrics shared with physician/hospital).
4. *Supply chain (contract) management:*
   - **Optional**: Setup a warehouse operation for physician preference item management directly with 'preferred' device manufacturers (could be Limited Liability Corporation (LLC) owned by provider or a joint venture with contracted device manufacturers, employees could be former device sales reps who are now 'clinical support representatives').
   - Implant order replenishment based on more accurate case schedule forecasting and implant templating.
   - Provider owns and manages the distribution channel either solely or with vendor for lowest total *implanted* cost.
   - Incorporate lean value management capabilities and services into the value analysis process for resources to address operational efficiencies and improvements. Utilise activity-based costing principles for value stream mapping and process improvements.
   - Work with physician committees to setup contracts with fixed (bundled) pricing for knee and hip implants (as a part of total procedural bundle) that meets an agreed upon price target that would represent two potential options: one would be without a clinical support rep (would be trained hospital staff) and the other would be with a clinical support rep.
   - Work with physician committees on what would constitute clinical support and how to measure impact of rep in the operating room, and also post-acute within 90-day readmission window (this would start out with an idea or assumption and then have to be pilot tested and refined).

- Gain physician agreement on vendor strategies to employ for contracting (number of vendors, price points for primary TJAs, capitated pricing for TJA revisions, etc.)

Additional note: I recommend merging value analysis team and methodology with service lines to create a new operational management model that is scalable and standardised within and across a hospital system. More to come.

Service line efficiency:

- Develop centres of excellence that concentrate volumes at hospitals that are operationally redesigned for better outcomes.
- Develop a robust (acute care) service line clinical outcome analytics panel and scorecard that looks at overall service line performance and allows for drill down detail to hospital, procedure and physician level with comparatives within provider network.
- Develop a "patient continuum of care" predictive analytics panel that monitors patient-centred metrics and progress to those metrics for the 90-day readmission window (even at home).

Now that the major clusters of activities have been outlined, the rest of the discussion will focus on *where* and *how* to start.

The first critical area for *where* to start is the recommendation for a new business operational and governance model whereby the value analysis and service line functions are merged into one new care management function by service line area, for example, orthopaedic, spine, etc. There is a trend to embed a physician medical director into the supply chain, which is also recommended; however,no one structure is particularly recommended, but how it could be accomplished is illustrated.

Figure 5 below is a proposed organisational chart that represents a framework which will be described in more detail. The Supply Chain Executive should be elevated to the C-Suite at the system level with the Chief Medical Officer. There are several reasons for this recommendation:

- Supply Chain has the demonstrated ability to lead multidisciplinary teams across multiple service areas and facilities (these are the value analysis teams—but now physicians will be leading with Supply Chain supporting).
- Supply Chain has a working understanding of insurance, managed care and Medicare reimbursement for orthopaedic cases at provider level.
- Supply Chain has a more strategic orientation to all clinical and non-clinical areas of organisation and takes a systems-based approach to problem solving, consensus building and process improvement.
- Supply Chain has value analysis teams that employ exceptional soft skills such as relationship-building, communications, listening, negotiation and diplomacy.

There is an Associate Chief Medical Officer, Supply Chain role that is a direct report to the CMO and a dotted line report to the Chief Supply Chain Officer. The reason for this dual reporting structure is twofold. First, the structure is designed to create a training platform for physicians to orient them to resource management, value analysis methodology, and skills such as project management, facilitation, meeting management, etc, since these skill sets are not generally taught in medical school and residency programs. It is also a way to develop physician skill sets beyond their medical or surgical training into system-level executives while still having responsibilities as physicians, medical directors, etc. Supply Chain is best positioned to provide this important set of

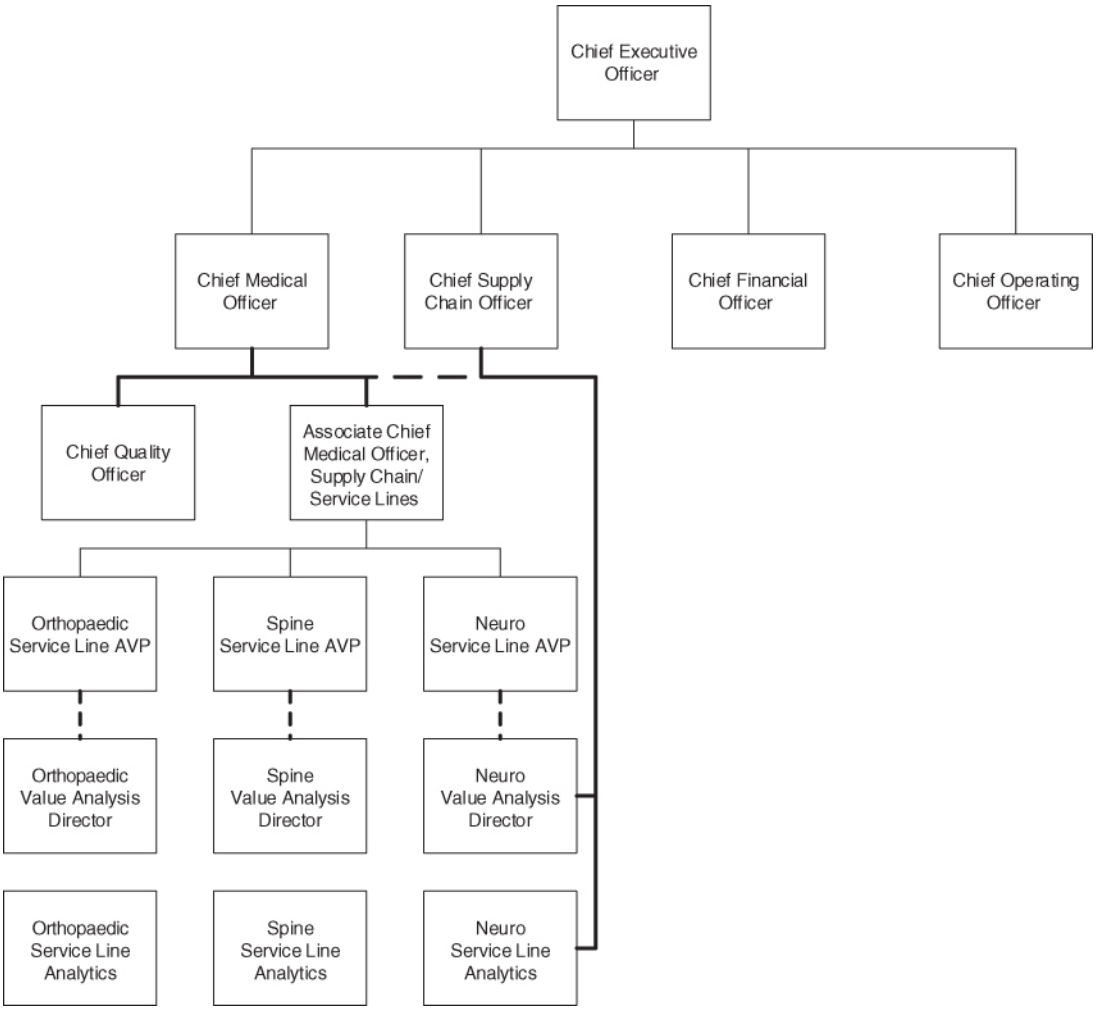

Figure 5: Organisational structure for service line value management

skills since it already exists in the Supply Chain organisation. Doing so creates a sorely needed partnership with critical physician leaders in any health system. The benefits are numerous and won't be elaborated in this paper. Secondly, it is also designed to invoke physician engagement at a system level for the service lines where there is a 'trained' physician leader skilled in value analysis methodology (and other skills). Ideally, the role is meant to be rotational such that after a defined period of time (say two years), the physician will move into a dyad role over the service line with an appointed medical director (a full time practicing orthopaedic surgeon) to facilitate the evidence based medicine (formerly value analysis methodology) approach for driving cost, quality and outcomes for the service lines. This physician could then own holding physicians accountable to the CQO and run monthly peer-review sessions. The AVP of the service line would own the co-management and gain sharing agreements and keep physicians aligned to those agreements along with the growth and centre of excellence strategies.

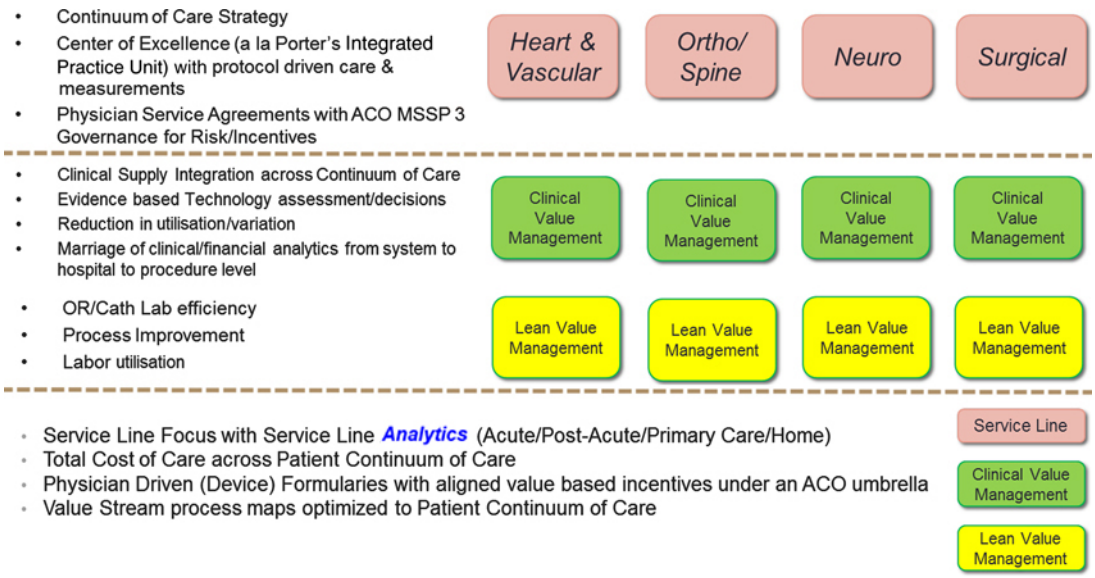

Figure 6: The value management governance operating model

Figure 6 illustrates the Service Line, Value Analysis and would also include the Lean Value Management structure to support CQO (Triple AIM).

In summary, there would be a physician dyad with Supply Chain and the Service Line (not duplicate) where the Value Analysis role would be merged with the Service Lines. There would be clear roles and responsibilities as outlined in Figure 6. These two governance structures are foundational to the transformation of (in this case) the Orthopaedic Service Line, but is applicable across other service lines. The Lean Value management is the critical capability that supports care redesign in the hospital operations that would also extend beyond the hospital. True clinical integration can occur between the physician, the resources, Service Lines, and Supply Chain along with hospital operations. Fundamental to this framework is a robust clinical/financial

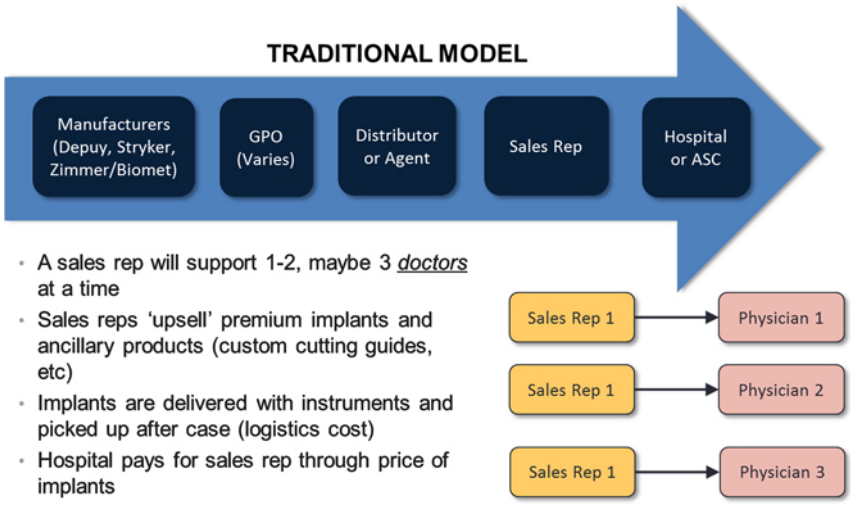

Figure 7: The tradition vendor operating model

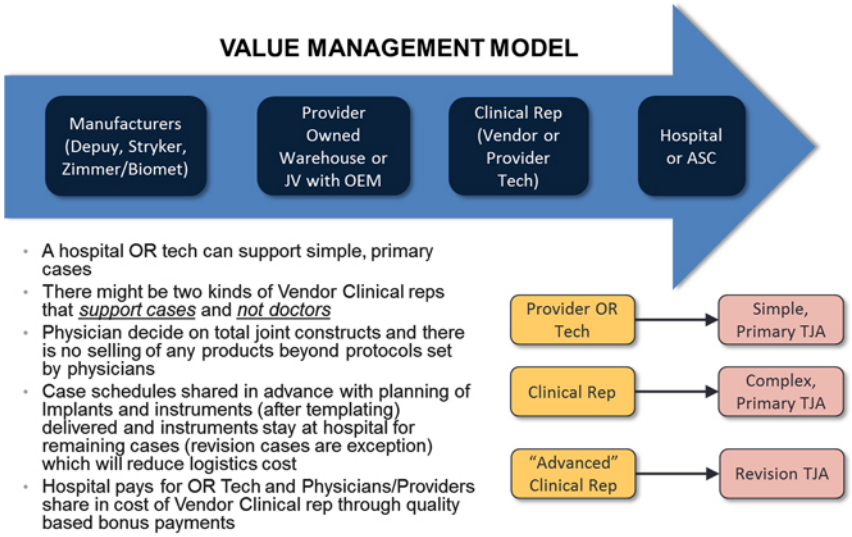

Figure 8: Transformed vendor value management operating model

analytics infrastructure to support data requirements for evidence based care to support the Triple AIM (CQO).

Figure 7 shows the traditional vendor operating model, which undergoes a complete transformation to create a value based operating model where the vendor is integrated to create a value based provider operating model. The traditional model has too many players in the supply chain, each of which adds cost ultimately to the provider. The larger part of the cost is incurred by the manufacturer and distributor relationship. The logistical cost alone offers huge opportunity for efficiency with better planning/scheduling, simplification of instrumentation and a reduction in inventory carried in the manufacturers supply chain. The role of the sales rep is to "up"sell and support doctors. Usually one sales rep supports the same two-three doctors on a regular basis.

In Figure 8, there are several key areas that are different in what will be referred to as the Value Management model. First, there is a direct relationship between the manufacturer and the hospital system (this could be solely managed by the provider or could be a joint venture with a third-party logistics provider, or even several manufacturers who would pay fees to cover the cost of the operation). The second is that the nature and function of the sales rep is completely transformed. The hospital provider in conjunction with the manufacturer would provide training to the provider's OR techs to handle the simple total joint cases, leaving for the vendor cases that are more complex and that require more training, years of expertise, etc. The manufacturers sales rep becomes more of a clinical support rep where there is no longer an incentive to sell more expensive products. The contract established between the provider and the manufacturer would dictate products used, the cost, etc. The role eliminates sales and becomes entirely clinical supporting the case and not any one doctor. This is a huge change and would most likely require a transition period in order to be implemented successfully. The benefit of this new clinical orientation is that the (now) clinical rep would be only utilised for technically complicated cases where shared knowledge and experience adds value to the physician.

The new clinical rep model and orientation leaves many questions with regard to how to compensate them fairly

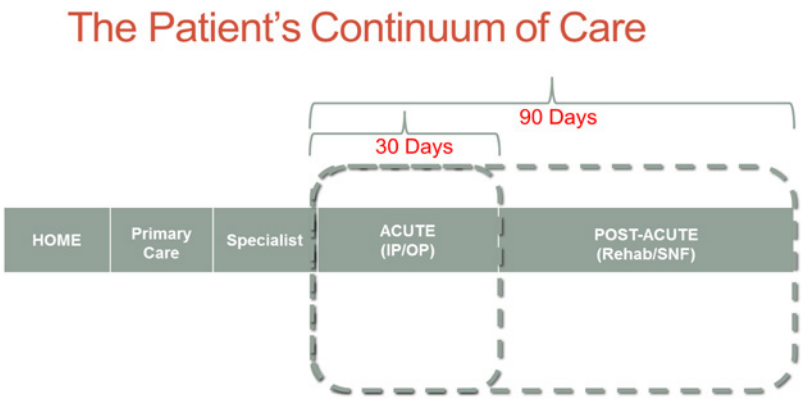

Figure 9: The patient's continuum of care

(and not excessively) to support and drive high quality care and outcomes. The question that needs to be answered is how does the clinical support rep now influence the outcomes across the patient care continuum, especially the 90-day readmission window?

Manufacturers will have to offer some value added service through the clinical rep or directly to the hospital provider that helps monitor patient progress and supports patient's transitioning home sooner. There are probably several ideas that would need to be piloted coupled with the many physician led protocols and order sets to determine the best practice. There are currently some software programs that are analytical in nature being piloted by some manufacturers to cover the care continuum, but have not yet been proven to add value.

Figure 9 shows the patient's continuum of care which starts at home and progresses from primary care to a specialist, the acute (hospital) and finally to the post-acute—inpatient/outpatient and rehab/skilled nursing facility (SNF). It shows the 30-day and 90-day readmission windows for bundled procedures. Where would the clinical rep have the most influence on patient outcomes? That's yet to be determined.

Figure 10 shows how the Triple AIM comes together with Supply Chain, Physician Executive Leaders, Physician/Quality Leaders and (in this case) Orthopaedic Physicians. The intersection of cost, quality and outcomes is the value that matters to the patient, and it is clearly a team effort. The final recommendation on where and how the clinical rep influences CQO still needs to be determined.

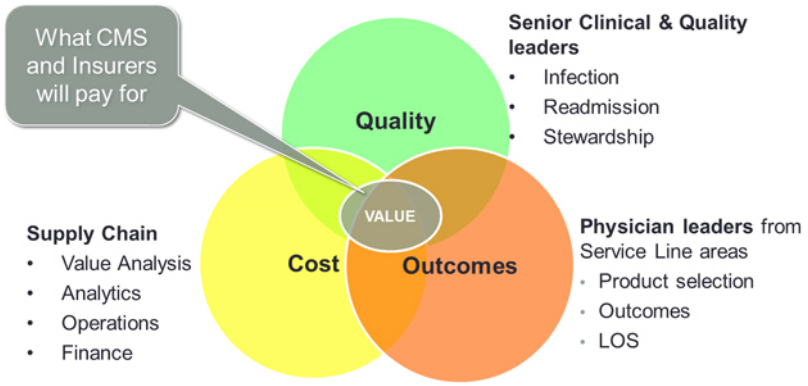

Figure 10: Service line value and the Triple AIM

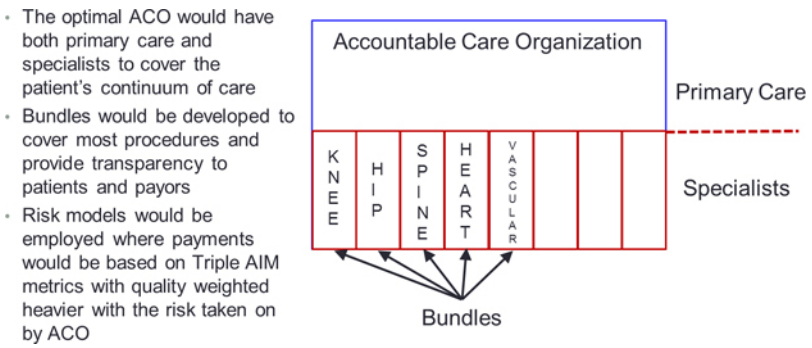

Figure 11: The optimal ACO risk model for alternative payment models

Lastly, is there an opportunity to explore how it all comes together in an ACO environment? Figure 11 shows a schematic of a hybrid ACO that would include both primary care and specialists. Bundles would be developed for acute episodes initially; however, over time, the bundle would reach out past the acute episode to patients' primary care physician and ultimately to their home. Would the clinical rep (and ultimately the manufacturer) participate in gain sharing of savings through the ACO for lowering cost and helping to improve the quality and outcomes? This possibility needs to be explored (if the clinical rep is not fully funded by the cost savings of the new, streamlined logistical model).

In conclusion, it has been shown that total joint procedures will continue to grow in volume with costs soon overcoming Medicare reimbursement. There will be tremendous cost pressures on providers (physicians and manufacturers) to not only reduce costs, but to move simple, primary total joint procedures to ambulatory surgery centres where reimbursement will be even less.

The mandatory reimbursement changes (alternative payment models) are scheduled for January 2018 and while some providers are preparing, most are not ready for this change, and more importantly, physicians and vendors definitely are not ready for value-based payments. What was proposed in this paper is a transformative model that integrates physicians with supply chain, service lines and vendors to potentially eliminate sales rep from the operating room and modify the role to a more clinical role where the vendor is involved in taking on the same type of risk where they have to demonstrate value in their products in producing quality outcomes.

References

1. https://innovation.cms.gov/initiatives/cjr (accessed on 26th December, 2016)
2. https://innovation.cms.gov/initiatives/cjr (accessed on 26th December, 2016)