A HEALTHTRUST PUBLICATION | ANNUAL CONFERENCE EDITION

# The Source

THIRD QUARTER 2018
VOLUME 13 | NUMBER 3

## DATA AS CURRENCY

The Challenges of Achieving Interoperability

## Seeing the Benefits

NVISION Gains Savings & Streamlined Purchasing With AdvantageTrust

## FAST ON THEIR FEET

HealthTrust Members Apply Lessons From Past Disasters to Future Crisis Planning

## CARING FOR BOOMERS

Meeting the Needs of an Aging Patient Population

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*As of March 2018 **HealthTrust Contract #35072**
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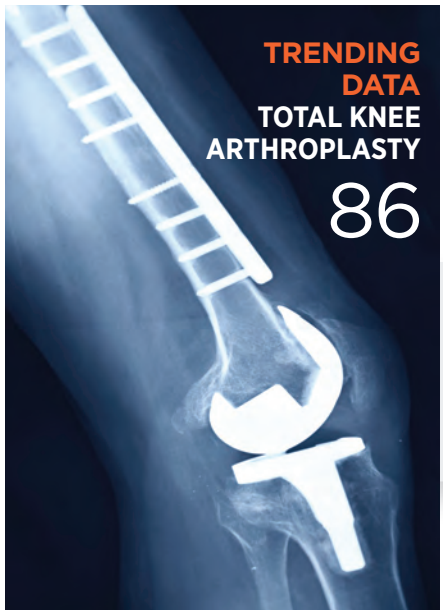
# Contents

## Features





**TRENDING DATA**
**TOTAL KNEE ARTHROPLASTY**
86

**SPOTLIGHT ON**



**On the Cover:** *Stacy Gober, RN, BSN, senior director of ASC operations, NVISION*
**Photography by** *Tracy + David, Stills and Motion*

**TABLE OF CONTENTS**

## Departments



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# Amplify Your Influence

In researching topics for our upcoming HealthTrust University Conference, the marketing team found hundreds of resources on leadership and, more specifically, *influence*. When thinking more in depth about the topic, a few of the front runners on my list include impact, importance, leadership, leverage, reputation and significance.

With influence comes great responsibility. Consider that: With each action, promise made or sentence spoken, each of us holds the ability to reflect positive examples of impact and influence in the relationships we're privileged to be a part of at work and at home. For those on the frontlines of healthcare, the ability to convey such influence can make all the difference in delivering a positive patient experience or helping to allay the fears of a patient facing the unknown.

As an industry, consider the influence that:

• ... legislation has had on the shift from traditional fee-for-service models to value-based care in this $3.3 trillion healthcare industry that isn't predicted to sustain itself at 18 percent of the GDP.

• ... outcomes and evidence-based research have had on supply chain. Cost, quality, outcomes and clinically integrated supply chain have become movements at the forefront of our industry.

• ... clinical and other patient outcomes data have had on influencing physician behavior by engaging them in the supply chain process. (*See story on page 66.*)

• ... predictive analytics have had in paving the way toward better patient outcomes, lower costs and fewer complications. (*See story on page 72.*)

•... unlikely partnerships and joint ventures will end up having on the marketplace. News reports earlier this year suggested partners, including Warren Buffett (via Berkshire Hathaway)/Amazon/J.P. Morgan as well as Aetna/CVS are attempting collaboration in hopes of changing the system with a focus on patient care and satisfaction and an attempt to fully align the incentives of providers with those of major health plans. Will the hype materialize or spark a healthcare revolution?

• ... other unlikely partners, through joint ventures, mergers and acquisitions, or declared centers of excellence could emerge as disruptive innovators, creating new value networks or markets.

• ... technology has on healthcare, including the new frontier of blockchain. (*See story on page 32.*)

• ... a highly functioning value analysis program has on ensuring financial efficiency and optimal patient outcomes through clinical efficacy. (*See story on page 12.*)

•... interoperability will have on the future of healthcare. (*See story on page 55.*)

•... baby boomers, becoming sicker as they age, will have on the healthcare system that's in place to care for them. Despite advances in medicine, clinical care and technology that are helping people live longer and more comfortably, boomers face higher rates of chronic disease than generations before them. (*See story on page 48.*)

I challenge each of you to think about how you can **amplify your influence**—both individually and within your healthcare system or facility. Whether by sharpening a skill, obtaining new knowledge or enhancing the compassion you bring to each patient or colleague encounter—how will you recommit to making more of a difference?

Organizationally, we are a collective of providers composed of the nation's leading healthcare systems. As a membership, how can we continue to leverage our collective reputation and influence to amplify the mission of delivering high-quality, cost-effective, evidenced-based care for patients across the country? That question will be considered throughout the HealthTrust University Conference in Nashville, Tennessee, at the end of July. I look forward to hosting those of you who will be attending our annual meeting. It's always inspiring to see the enthusiasm, networking and learning embraced by our members, business partners and colleagues.

My team will continue to deliberate on how we can amplify our critical marketplace differentiator—operator perspective and expertise—to bring additional value to current and future members seeking solutions for total spend management as they continue to build innovative, clinically integrated supply chains.

**Ed Jones**
*President/CEO, HealthTrust*

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1. Anderson, D., et al (2013). Decontamination of Targeted Pathogens from Patient Rooms Using an Automated Ultraviolet-C-Emitting Device. *Infection Control and Hospital Epidemiology*, 34(5), 466-471.
2. Mahida, N, et al (2013). First UK evaluation of an automated Ultraviolet-C room decontamination device (Tru-D). *Journal of Hospital Infection*, 05(005), 1-4.
3. Sexton, D., Anderson, D., et al (2017). Enhanced terminal room disinfection and acquisition and infection caused by multidrug-resistant organisms and Clostridium difficile (the Benefits of Enhanced Terminal Room Disinfection study): a cluster-randomised, multicentre, crossover study. *The Lancet*. 389(10071), 805-814

**HealthTrust contract #6629**

# Promoting Understanding & Results

Aligning medical device contracting initiatives with strategic education and learning opportunities is one of our objectives as select categories are launched moving forward. Medical devices in the trauma space were a prominent area of focus for HealthTrust's sourcing and clinical evidence research teams in the third quarter of 2017 and early 2018. Complementing the launch and/or renewal of related contracts, we hosted a trauma cadaver symposium for supply chain and C-suite healthcare executives in the middle of June. This immersive learning experience provided a rare opportunity for supply chain professionals to wear a physician's hat and "use" surgical tools that are either on contract or that could be added to our portfolio in the future.

At the recent symposium, physician advisors **James Bruffey**, M.D., **Clint Hill**, M.D., and **Stephen Press**, M.D., provided lectures and then hands-on guidance for participants interested in trauma procedures and the use of CMF plates, short intramedullary nail, hip hemiarthroplasty, external fixation and distal femoral plate(s). Thank you to these physician advisor members who served as preceptors in the lab: **Gregory Brown**, M.D., **Steven Evelhoch**, M.D., and **Christopher Kauffman**, M.D.

Attendees hung on the words of dinner speaker, **Jeffrey Murawsky,** M.D., CMO from Sunrise Hospital in Las Vegas, as he described his and hundreds of other colleagues' roles in responding to the influx of gunshot wound patients the Sunrise ED received late one evening last October. Jeff relayed how a clinician concert-goer called a hospital executive in real-time as the chaos unfolded, indicating he needed to get to Sunrise ASAP and alert anyone else he could as it became all hands on deck that night.

While designated as a Level II Trauma Center, Sunrise was the hospital closest to the site of the massacre inflicted on outdoor festival-goers. Hospital CEO **Todd Sklamberg** shares how 300+ physicians and nurses responded to help assess, triage and care for this large volume of injured people in the Fast on Their Feet feature, beginning on page 40 of this edition of *The Source*.

From that crisis to the hurricanes of last year to Boston's 2013 marathon bombing, a number of members offer firsthand accounts of these historic emergency responses in the same feature and as part of a two-hour panel—Disaster & Emergency Prep: Expect the Unexpected!—during the HealthTrust University (HTU) Conference in July.

## ADVANCING THE CLINICAL AGENDA

Having transitioned from my previous role as a hospital provider member, I look forward to attending my first HTU Conference as part of the organization's leadership team. I will be presenting information on inSight Advisory clinical integration services during the general session and in Information Sessions. I'll also detail how my team and I intend to maximize the expertise of our physician advisors, advance our clinical agenda and best leverage HealthTrust's tools, services and experts to build a best-in-class, integrated and aligned clinical data and analytics solution that empowers healthcare providers to achieve their strategic goals.

We are interested in learning how we can best serve your clinical service line initiatives that promote positive results for patients, improve outcomes and lower costs—from utilization tracking, data dashboards, physician profiling and an outcomes registry, to analytics and benchmarking capabilities that leverage data and clinical expertise to deliver scalable, evidence-based solutions.

If you are not attending HTU, I invite you to share your feedback and insights on the types of customized solutions that would best position your organization to meet its clinical integration and clinical data needs of the future. Feel free to correspond with me through thesource@healthtrustpg.com.

## TRADING PLACES

HealthTrust sponsored its first cadaver symposium in 2016, affording supply chain executives the unique opportunity to "perform" components of spine surgery under the guidance of practicing neurosurgeons who are part of HealthTrust's Physician Advisors Program. The 2017 lectures and hands-on lab featured orthopedic surgeons walking attendees through a conventional shoulder replacement, a reverse shoulder replacement, a total knee replacement and an anterior cruciate ligament reconstruction.

The cadaver symposium was started to assist supply chain executives in making more informed decisions on clinically sensitive products and to bridge communication between supply chain executives and physicians. Attendees have said that the symposiums provide executives with a deeper understanding of how implants are used and the nuances between different systems that drive physician preference.

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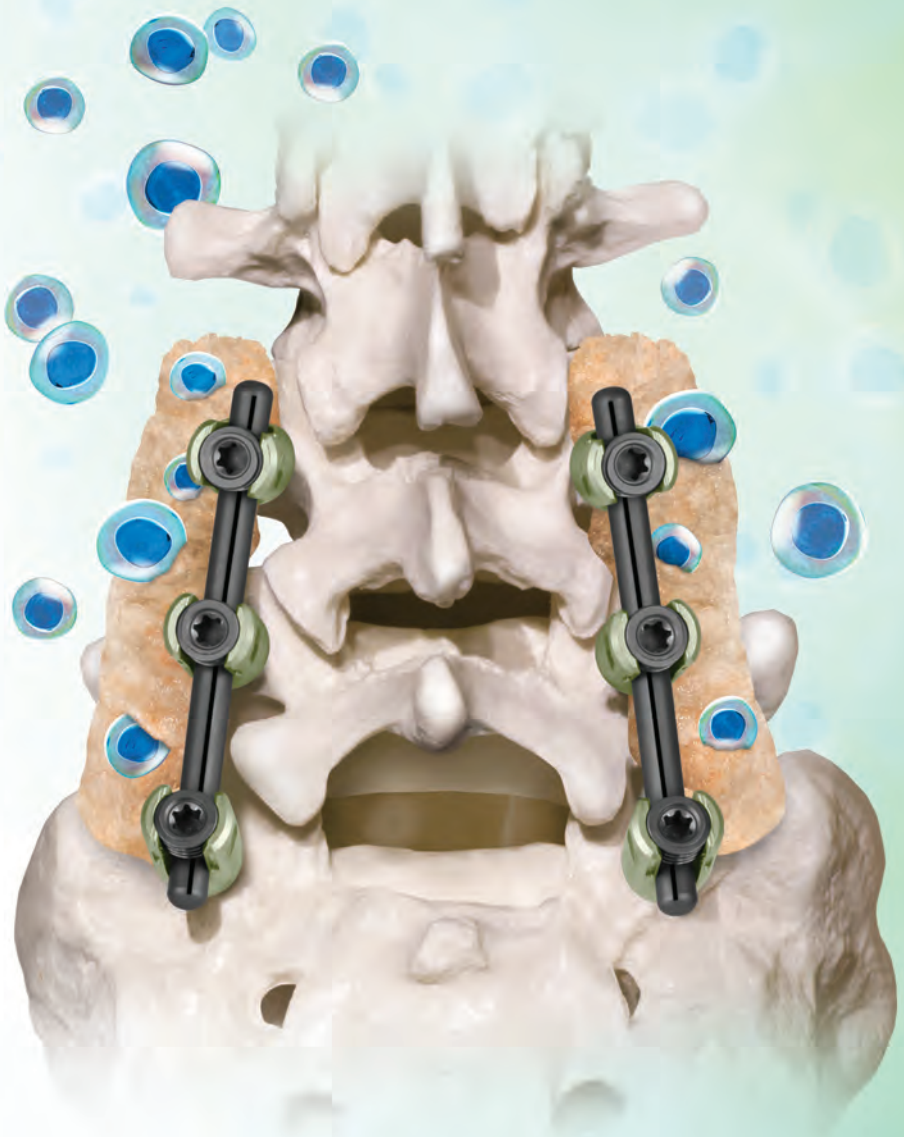

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# A VALUE ANALYSIS TOOLKIT

## Moving to Practice-based Purchasing

**To move toward** mature value analysis, a hospital or health system must understand all costs associated with caring for individuals and communities, deliver quality care aimed at achieving the best possible health, and achieve financial results driven by exceptional patient outcomes. A highly functioning value analysis program ensures financial efficiency *and* optimal patient outcomes through clinical efficacy.

Resources, tools and techniques are necessary to achieve maturity in value analysis. A value analysis toolkit should support the following five key processes:

### 1 Assessment

"The first step in any continuous improvement process is knowing where you currently stand," says **Vicki Alberto**, vice president, clinical resource management at HealthTrust. "When you want to shift your purchasing focus to the patient, you need an objective view of which maturity level your hospital or IDN is on."

Vicki Alberto

To accomplish this, Alberto recommends using a value analysis maturity tool to perform an assessment of the current program. This assessment can be done by holding departmental or individual meetings with C-suite leaders, supply chain leaders, clinical leaders and key stakeholders who are actually using the products. During these sessions, team members should be asked to comment on what's working best and which areas can be improved and be made more efficient.

"Key stakeholders' perceptions will differ, but there are no wrong answers," she says.

TABLE 1

**HealthTrust Value Analysis Maturity Model Results**

| Value Analysis Levels of Maturity | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Raw Scores | | | | Calculated Score | | | |
| | Foundational | Standardization/ Conversion | Optimization/ Utilization | Clinical/Data Integration | Foundational | Standardization/ Conversion | Optimization/ Utilization | Clinical/Data Integration |
| Level 4 | 13 | N/A | 1 | 1 | 52 | 0 | 4 | 4 |
| Level 3 | 19 | 27 | 29 | 30 | 57 | 81 | 87 | 90 |
| Level 2 | 20 | 18 | 20 | 21 | 40 | 36 | 40 | 42 |
| Level 1 | 5 | 12 | 7 | 4 | 5 | 12 | 7 | 4 |
| Totals | 57 | 57 | 57 | 56 | 154 | 129 | 138 | 140 |
| | Overall Score Per Attribute | | | | **2.7** | **2.3** | **2.4** | **2.5** |

In this client example, inputs were totaled and a score calculated for each maturity attribute.

The value analysis maturity model shows these varying perceptions objectively using a scoring system. "It's important to present the responses as numbers, so they're there in black and white," she explains. The team inputs raw responses to the tool, tallies them and calculates averages to assign a value analysis level based on overall response. (*See Table 1.*)

In addition to the surveys, Alberto's team asks each stakeholder a series of questions that will later be part of the verbatim responses shared with leadership. The questions point to certain levels of the value analysis tool such as poor communication, but they also offer potential solutions. If the hospitals across a health system are using different devices, there may be variability in the level of care.

The value analysis maturity model offers guidance on key attributes and how to reach the next level.

### 2 Information

"At every phase of a value analysis process, good data is key," Alberto says. "Through evaluating capabilities and resources, you inform product or service selection, ensure compliance and identify waste."

Data analysis tools should include:

- Opportunity Assessment – A deep dive of clinical and financial data, as well as external market data, can help you understand your hospital's dynamics, determine product utilization and variation, pinpoint places to eliminate redundancy and validate potential savings up front.
- Clinical Review – Review of published clinical evidence and industry observations is an exercise that should happen by each service line. "While the categories and levels of evidence may be difficult to interpret," Alberto explains, "as you add physicians to the value analysis team you bring clinical experience and scientific method to data analysis."
- Benchmarking – Benchmarking can help you identify clinical variation from best practices, deliver procedural and product-specific insights, and inform pricing decisions.
- Reporting – Hospital clinical and financial data should be combined to create online reports or interactive dashboards that illustrate clinical compliance and cost per case. Insights are shared with physicians and decision-makers at the hospital level.

### 3 Organization

"The value analysis team should strive to achieve Level 4, a clinically influenced, evidence-based culture across the continuum of care," Alberto says. "In order to accomplish this, it's important to establish the processes that will give your value analysis program a strong foundation."

Key tools that support a dynamic value analysis process include:

- Value Analysis Charter – A written document that outlines how the process will work, including committee structure, data review and compliance monitoring.
- Multidisciplinary Committee – An enterprisewide committee structure that

*Continued on page 15*

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**Indications and Usage**

wilate® is a von Willebrand Factor/Coagulation Factor VIII Complex (Human) indicated in children and adults with von Willebrand disease for on-demand treatment and control of bleeding episodes, and for perioperative management of bleeding. wilate® is not indicated for the treatment of hemophilia A.

**Important Safety Information**

wilate® is contraindicated in patients with known hypersensitivity reactions, including anaphylactic or severe systemic reactions, to human plasma-derived products, any ingredient in the formulation, or components of the container. Anaphylaxis and severe hypersensitivity reactions are possible. Thromboembolic events may occur. Monitor plasma levels of FVIII activity. The most common adverse reactions (≥1%) in patients with VWD were hypersensitivity reactions, urticaria, and dizziness. The most serious adverse reactions in patients with VWD were hypersensitivity reactions.

**Please see accompanying Highlights of Prescribing Information for additional important information.**

References: **1.** Berntorp et al. Haemophilia. 2009;15:122-130.

**HealthTrust Contract #4861**


Date of preparation: 5/2018. WIL-0149-PAD

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## HIGHLIGHTS OF PRESCRIBING INFORMATION

**These highlights do not include all the information needed to use WILATE safely and effectively. See full prescribing information for WILATE.**

**WILATE, von Willebrand Factor/Coagulation Factor VIII Complex (Human) Lyophilized Powder for Solution for Intravenous Injection Initial U.S. Approval: 2009**

## RECENT MAJOR CHANGES

Indications and Usage 8/2015

## INDICATIONS AND USAGE

WILATE is indicated in children and adults with von Willebrand disease for:

- On-demand treatment and control of bleeding episodes
- Perioperative management of bleeding

WILATE is not indicated for treatment of hemophilia A

## DOSAGE AND ADMINISTRATION

**For Intravenous Use Only**

- Use the following formula to determine required dosage:

  Required IU = body weight (BW) in kg x desired VWF:RCo rise (%) (IU/dL) x 0.5 (IU/kg per IU/dL)

- Adjust dosage and duration of the substitution therapy depending on the severity of the VWD, on the location and extent of the bleeding, and on the patient's clinical condition
- Dosing recommendations:

| Type of Hemorrhages/Surgery | Loading Dosage (IU VWF:RCo/ kg BW) | Maintenance Dosage (IU VWF:RCo/ kg BW) | Therapeutic Goal |
|---|---|---|---|
| Minor Hemorrhages | 20-40 IU/kg | 20-30 IU/kg every 12-24 hours | VWF:RCo and FVIII activity trough levels of >30% |
| Major Hemorrhages | 40-60 IU/kg | 20-40 IU/kg every 12-24 hours | VWF:RCo and FVIII activity trough levels of >50% |
| Minor Surgeries (including tooth extractions) | 30-60 IU/kg | 15-30 IU/kg or half the loading dose every 12-24 hours for up to 3 days | VWF:RCo peak level of 50% after loading dose and trough levels of >30% during maintenance doses |
| Major Surgeries | 40-60 IU/kg | 20-40 IU/kg or half the loading dose every 12-24 hours for up to 6 days or more | VWF:RCo peak level of 100% after loading dose and trough levels of >50% during maintenance doses |

**In order to decrease the risk of perioperative thrombosis, FVIII activity levels should not exceed 250%.**

## DOSAGE FORMS AND STRENGTHS

WILATE is available as a sterile, lyophilized powder for reconstitution for intravenous injection, provided in the following nominal strengths per single-use vial:

- 500 IU VWF:RCo and 500 IU FVIII activities in 5 mL
- 1000 IU VWF:RCo and 1000 IU FVIII activities in 10 mL

## CONTRAINDICATIONS

Do not use in patients with known hypersensitivity reactions, including anaphylactic or severe systemic reaction, to human plasma-derived products, any ingredient in the formulation, or components of the container.

## WARNINGS AND PRECAUTIONS

- Anaphylaxis and severe hypersensitivity reactions are possible.
- Thromboembolic events may occur. Monitor plasma levels of FVIII activity.
- Development of neutralizing antibodies to FVIII and to VWF, especially in VWD type 3 patients, may occur.
- WILATE is made from human plasma and carries the risk of transmitting infectious agents.

## ADVERSE REACTIONS

The most common adverse reactions (≥1%) in clinical studies on VWD were hypersensitivity reactions, urticaria, and dizziness.

## USE IN SPECIFIC POPULATIONS

**Pregnancy:** no human or animal data. Use only if clearly needed.

**Lactation:** There is no information regarding the presence of WILATE in human milk, the effect on the breastfed infant, and the effects on milk production.

**Pediatric Use:** No dose adjustment is needed for pediatric patients as administered dosages were similar to those used in the adult population.

**Geriatric Use:** Although some of the subjects who participated in the WILATE studies were over 65 years of age, the number of subjects was inadequate to allow subgroup analysis to support recommendations in the geriatric population.

## PATIENT COUNSELING INFORMATION

- Advise the patients to read the FDA-approved patient labeling (Patient Information and Instructions for Use).
- Inform patients of the early signs of hypersensitivity reactions including hives, generalized urticaria, tightness of the chest, wheezing, hypotension, and anaphylaxis. If allergic symptoms occur, advise patients to discontinue the administration immediately and contact their physician to administer appropriate emergency treatment.
- Inform patients that undergoing multiple treatments with WILATE may increase the risk of thrombotic events thereby requiring frequent monitoring of plasma VWF:RCo and FVIII activities.
- Inform patients that there is a potential of developing inhibitors to VWF, leading to an inadequate clinical response. Thus, if the expected VWF activity plasma levels are not attained, or if bleeding is not controlled with an adequate dose or repeated dosing, contact the treating physician.
- Inform patients that despite procedures for screening donors and plasma as well as those for inactivation or removal of infectious agents, the possibility of transmitting infective agents with plasma-derived products cannot be totally excluded.

**To report SUSPECTED ADVERSE REACTIONS, contact Octapharma USA Inc. at 1-866-766-4860 or FDA at 1-800-FDA-1088 or *www.fda.gov/medwatch***

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*Continued from page 12*

includes top-down support and engaged physicians, nurses and other stakeholders to sustain the initiative.

- Standard Agenda – A format for every meeting that ensures team members are prepared when they come to the table.
- Products/Services Evaluation – A process to generate discussion, build consensus and, when appropriate, motivate change around clinical preference items. Team members will be assigned accountabilities, and leaders will monitor key metrics.

According to Alberto, "If you're a standalone hospital, you have one value analysis team with representation from all the key departments—supply chain, surgery, nursing, finance and cath lab. If you're a health system with more than one hospital, it may be beneficial to form teams by service lines with a financial representative to help guide and answer questions specific to reimbursement."

## 4 Communication

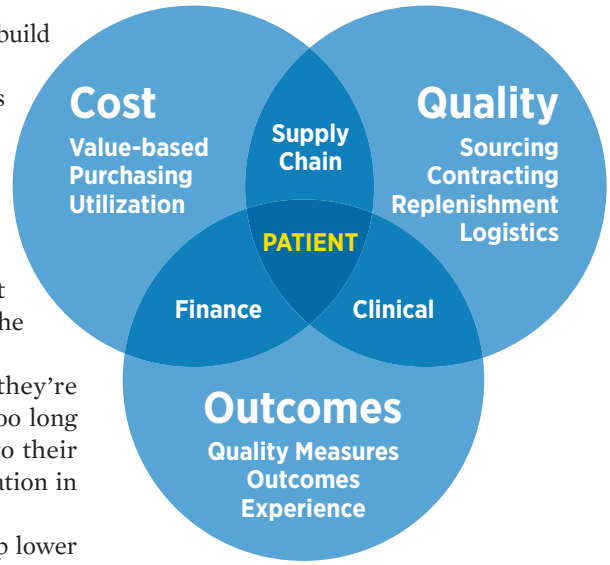
Because value analysis is a collaborative effort among leadership, clinical teams and other key players in the organization, it is important to communicate the process across departments and build confidence with early wins.

"People do receive messages differently," Alberto says. Corporate leadership might think it has sufficiently communicated a decision through its departments by simply sending an email or scheduling a meeting, while staff might claim to never have heard about the initiative.

"If departments report that they're not getting feedback, it's taking too long or leadership is not responding to their needs, you won't get any participation in the future," she continues.

A communications plan can help lower staff frustration and ensure a high level of supply chain/clinician engagement. The written plan should incorporate strategies for:

- Leadership Engagement – Messages aimed directly at the C-suite and other high-level leadership to help them understand the hospital's unique operating environment.
- Physician Engagement – Strategies to build relationships between hospital administration and physician leaders. "As you integrate physicians into the evaluation process," Alberto says, "it's critical to get their commitment—some are more 'in' than others."
- Organizational Alignment – Effectively communicating the rationale for product standardization and services selection is key. On scheduled conversions, the plan should outline which hospital departments will evaluate the product and then develop a plan that includes education, if needed, and conversion assistance.
- Operational Alignment – The supply chain team needs to be in tune to the pending changes. They are responsible for all the logistics required to bring about an effective conversion and have the appropriate product available—the right product, through the right route, in the right place, at the right time. This includes efficient utilization of current stock as well as initial inventory of the new products.
- Vendor Alignment – Effective communication to the supplier and/or manufacturer communities is critical to determine timelines for education and in-service, as well as provide business partners time to adjust inventories or ramp up manufacturing. Plans should include facility contact names and appropriate times they can be contacted by field representatives.




**A CQO-based system, focused on the patient, is the ultimate goal.**

*Continued on page 16*

## Key Benefits of Value Analysis

**Process Improvement**
Standardized product review, analytics and governance to ensure that the process is sustainable.

**Organizational Alignment**
A multidisciplinary, enterprisewide committee structure has been established that includes sustained top-down support, engaged physicians, nurses and other stakeholders, and physician leadership to maintain the initiative.

**Improved Patient Outcomes/Experience**
A clinically influenced, evidence-based culture across the continuum of care improves clinical outcomes and enhances the patient experience.

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**Cost Reductions**
Savings on the products and services that enable your hospital to deliver patient-focused care.

*Continued from page 15*

**5 Optimization**

A full value analysis maturity program requires top-down support, a clinical evidence review process and physician engagement. The value analysis committee has the means and resolve to examine spend data in the context of best practices.

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- Understand the impact of all medical supplies, devices, pharmaceuticals and services on patient outcomes and reimbursement.
- Determine if implemented strategies are effective and achieving expected outcomes, clinically and/or financially.

**External monitoring requires contract audits and service line experts to help you:**

- Track pricing and monitor supplier behavior.
- Stay up-to-date on the latest technological developments, perform ad hoc new technology assessments and report back to the value analysis team.

"When your value analysis program is mature, your organization should be examining spend data in the context of best practices, clinical outcomes and patient experience," Alberto says. "Having the right tools to monitor your progress can make or break your success."

### *HealthTrust Can Help*

HealthTrust's inSight Advisors—who are highly experienced in supply chain, clinical, workforce, IT, revenue cycle and various other health system functions—have developed analytical and tracking tools that support the value analysis process. With access to a proprietary database of more than 1,000 demonstrated best practices, HealthTrust can help hospitals establish a robust value analysis process or add rigor to an existing program. Methodologies focus on engaging physicians and key stakeholders to equip them with an effective, repeatable and sustainable means to stay ahead of continuous cost and quality pressures. ●

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# Care Across Distance

## The Benefits & Drawbacks of Telepharmacy Services

**When telepharmacy programs** began in the early 2000s, the idea was simple: enable pharmacists to review prescription orders remotely. A physician prescribed a medication based on a patient's needs and sent off orders to be reviewed by a pharmacist before a nurse administered the medication. In rural communities, this service allowed hospitals without 24-hour pharmacies to verify prescriptions at all hours. Even after the hospital or pharmacy closed for the night, a pharmacist—perhaps working several states away—could review orders.

Today the scope of telepharmacy has expanded to include a range of remote services, from verification to dispensing to advising. Telepharmacy allows pharmacists to provide specialized care in areas where patients might not otherwise have access to it. But despite all the benefits that have come with the industry's expansion, there are always opportunities for improvement.

Prior to his role at HealthTrust as senior director of clinical pharmacy services, **Jason Braithwaite**, PharmD, MS, BCPS, served four years as division director of clinical pharmacy services for a healthcare system with hospitals in Utah, Idaho and Alaska. The system decided to offer telepharmacy services to its hospitals and hired pharmacists to work in a centralized Colorado office. It was here Braithwaite encountered his first obstacle: insufficient training. Many of the pharmacists in the Colorado office came from retail settings and lacked the training to approve orders—like intravenous medications—from hospital physicians.

Today across telepharmacy services, however, "training has absolutely improved," Braithwaite says. With an informed understanding of telepharmacy's opportunities and challenges, hospitals are poised to offer the best possible care to their patients—no matter how remote the setting or how specialized the need.

"SMALL HOSPITALS WON'T OFTEN HAVE AN INFECTIOUS DISEASE PHARMACIST OR ONE SPECIALIZED IN ANTICOAGULATION. WITH TELEPHARMACY, HOSPITALS CAN REALLY START TO TAKE ADVANTAGE OF THOSE REMOTE SERVICES."

**Jason Braithwaite**, PharmD, MS, BCPS, senior director of clinical pharmacy services at HealthTrust

### BENEFITS

**Specialized services.** Telepharmacy democratizes healthcare by offering small hospitals the same benefits as larger urban facilities. With remote telepharmacists on call, a small hospital in rural America can still prescribe and verify medication even after the on-site pharmacy closes for the night. By utilizing remote pharmacists during daytime hours, the hospital's pharmacists are freed to accompany physicians on their rounds and make bedside recommendations. And while a smaller hospital most likely lacks a specialized pharmacist on-site, the practice of telepharmacy provides access to one. "Small hospitals won't often have an infectious disease pharmacist or one specialized in anticoagulation," Braithwaite says. "With telepharmacy, hospitals can really start to take advantage of those remote services."

**Personal care.** One of hospital pharmacists' main responsibilities is to approve orders before medication is administered. Yet that's not always the most efficient use of their time. Instead of remaining in the pharmacy, pharmacists could be accompanying doctors on rounds and optimizing prescriptions while patients are still in the hospital. By outsourcing the medication verification, pharmacists working within the hospital can spend more time with patients in the ICU or ER. For this reason, many hospitals use telepharmacy services during the day as well as night—not to replace pharmacists on staff, but to maximize their on-site work.

**Antimicrobial stewardship.** According to Braithwaite, telepharmacy is starting to be used in the management of antibiotics. Nationwide, antibiotics are over-prescribed in both inpatient and outpatient settings, leading to antibiotic resistance and susceptibility to infection due to a lack of healthy bacteria. "To produce a good outcome, you need a trained pharmacist who knows antibiotics and infections, and how to match the need for treatment with the need for smart infection control," he says. With the support of remote pharmacists trained in both, rural hospitals can practice better antimicrobial stewardship.

*Continued on page 20*

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1. Donelli A, Jansen JRC, Hoeksel B, et al. Performance of a real-time dicrotic notch detection and prediction algorithm in arrhythmic human aortic pressure signals. *J Clin Monit.* 2002;17(3-4):181-185. Study sponsored by Teleflex. Dr. Schreuder was formerly a paid consult of the study sponsor. Coauthors J. Bovelander and R. Hanania are current or former employees of the study sponsor.



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*Continued from page 18*

**Job flexibility.** No longer do pharmacists have to uproot their lives for a job or move to a rural area. Thanks to the growth of the telepharmacy industry, many pharmacists have the flexibility to provide quality patient care from any location. Though some telepharmacists work in a centralized setting, many work from the comfort of their own home office. The flexibility is often a perk when recruiting pharmacists to lesser-served areas.



## POTENTIAL DRAWBACKS

**Staff size.** Of course, the ability to outsource pharmacy services means that some organizations might reduce staff. To prevent hospitals from using telepharmacy as a means of cutting employment costs, many states address the issue of staff reduction in their pharmacy laws. Though regulations vary, state pharmacy laws increasingly include policies or—in California's case—specific language about job protection. Hospitals interested in telepharmacy should see it as a means of enhancing their on-site pharmacists' time in the hospital, rather than eliminating it.

**Level of service.** Telepharmacy can free up hospital pharmacists to spend more time with physicians and patients, but it can also have the opposite effect. "By over-utilizing the service, you're going to miss out on pharmacists being part of the discussion with the physician or nurse or whoever they're working with," Braithwaite says. "Having someone primarily remote [means] they would miss out on discussions that take place bedside or within hospital walls."

**Appropriate training.** As Braithwaite discovered, training pharmacists in skills specific to their work setting is an essential piece of telepharmacy's success. Retail pharmacists are knowledgeable about different areas than hospital pharmacists; likewise, a pharmacist in a clinic has different skills than one in a hospital. With thorough training, however, pharmacists with a range of experiences can succeed in a remote capacity.

## LOOKING TO THE FUTURE

One unforeseen benefit of telepharmacy and remote verification services is the improvement in standardization. Because telepharmacists might be working with dozens of hospitals at a time, hospitals have had to standardize how they practice medicine—something that will continue as the industry evolves.

"Anytime you can standardize the way you go about taking care of patients, you reduce variability. It's the variation that can lead to worse outcomes," Braithwaite says. "From a technology standpoint, telepharmacy has allowed us to go back and look at how we can mitigate errors that might have occurred previously."

Despite remaining challenges and pain points, telepharmacy makes services possible that—even 20 years ago—hospitals would have gone without. Thanks to these remote services, patients in rural and underserved areas can now access specialized, 24-hour care. The proliferation of telepharmacy illustrates one more way that technology empowers human connection. ●

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# Standardize Safety

## Fighting Device-related Infections With the Bundled Care Approach

Nearly a decade has passed since the publication of Dr. Atul Gawande's *The Checklist Manifesto: How to Get Things Right*, the nonfiction book arguing healthcare providers should dutifully follow written steps. It wasn't a completely novel idea, but Gawande was a persuasive advocate. The amount of data increased as greater numbers of practitioners incorporated checklists, making a powerful case for the benefits of rigorous consistency.

Of course, the checklist isn't the sole tool for improving patient safety. There are other ways to facilitate standardization and continuity of care, such as a care bundle, a group of three to five evidence-based practices or interventions that when grouped together lead to a better outcome than if performed individually. A bundle collects all of the components needed for specific processes into a single package.

"While it resembles a list, a bundle is more than that. A bundle has specific elements that make it unique," says patient safety expert **Carol Haraden**, Ph.D, vice president of the Institute for Healthcare Improvement. "Because some elements of a checklist are nice to do but not required, there may be no effect on the patient when they are not completed. When a bundle element is missed, the patient is at much greater risk for serious complications," Haraden explains.

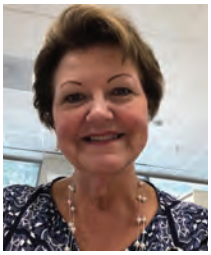
In particular, bundles are well-suited to one of the most significant concerns in any healthcare facility: the reduction of infections. The bundled care approach began in the early 2000s, when infection prevention specialists determined providers needed to improve patient safety measures, according to **Cheryl Herbert**, MSN, RN, CIC, service line director for medical, skin and wound care supply chain management at Irving, Texas-based CHRISTUS Health.

Education in infection prevention was already widely offered, but some part of the process was getting lost as staff went on to care for actual patients. Predictability and standardization were lacking, which meant missed steps.

"Ensuring the same level of care for every patient has definitely shown benefits," Herbert notes. "When you can hardwire processes of care, you will see an improvement in the data."

The bundled care approach has been especially effective in reducing rates for catheter-associated urinary tract infections (CAUTI) and central line-associated bloodstream infections (CLABSI). A care bundle for preventing CLABSI might involve the following steps: using proper hygiene and sterile contact barriers; properly cleaning the patient's skin; finding the best location possible for the central line; checking every day for infection; and removing or changing the line only when needed. By putting everything necessary for best practice patient care at the providers' fingertips, hospitals and other facilities have an easy way to achieve the desired consistency.

"They may know the steps, but the kits will reinforce the steps," Herbert explains. "It gives you a different opportunity to ensure you can apply the components of that kit in the proper order and as appropriate to the use. From when you wash your hands and put gloves on to when you change gloves and clean the patient's skin—the kit will guide you in the right direction through each important step."



"ENSURING THE SAME LEVEL OF CARE FOR EVERY PATIENT HAS DEFINITELY SHOWN BENEFITS. WHEN YOU CAN HARDWIRE PROCESSES OF CARE, YOU WILL SEE AN IMPROVEMENT IN THE DATA."

**Cheryl Herbert**, MSN, RN, CIC, service line director for medical, skin and wound care supply chain management at CHRISTUS Health

Professional organizations and regulatory agencies—such as the Centers for Disease Control and Prevention (CDC)—offer guidelines that help determine the specific products and steps included in the bundle. According to **Angie Mitchell**, RN, assistant vice president of physician services at HealthTrust, the CDC cites specific clinical

*Continued on page 24*

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*Continued from page 22*

literature in making their recommendations, so users don't need to worry about the objectivity of the study being impacted by manufacturers who may have footed the bill.

"That's the type of science HealthTrust looks for when we consider putting any supplier products on contract," Mitchell says. "And it's what our members look at before they implement the use of a protocol, bundle or toolkit, or the use of a product that supports a particular toolkit or bundle."

When a healthcare facility adopts one of these care bundles or toolkits, there's an education piece that's needed, too. Training on the use and importance of the bundle should be built into new staff orientation, communicated thoroughly and then reinforced through ongoing efforts. Proper, consistent use of the bundle becomes a core clinical competency.

"These processes have to start from administration down," Herbert says. "When you're supported at the executive level and the importance of this kind of work is understood, then there's a greater chance that a particular facility will have improved patient outcomes."

Supply chain is another critical touchpoint of institutional support. "We're starting to see in the medical literature how value analysis and improved patient outcomes are positively impacted by smart supply chain management," Herbert explains. "When supply chain leaders understand clinical needs and partner with physicians and clinicians to make decisions about products and care bundle kits, it adds a fantastic dimension to the whole world of healthcare."

The use of bundles also shifts some of the burden of staying clinically up to date from healthcare professionals to the manufacturers providing the kits. Manufacturers have a vested interest in making sure their bundles adhere to the latest recommendations established by regulatory and professional associations.

As appealing as all of these efficiencies and other operational benefits might be, there's a bottom line argument that's even more compelling: Bundles provide consistency, and consistency is better for patients.

"To make certain that you safeguard the patient, you want that process standardized," Mitchell says. "So if I'm a nurse on the fifth floor, I want to be using the same protocol as colleagues of mine on the seventh or ninth floor." ●

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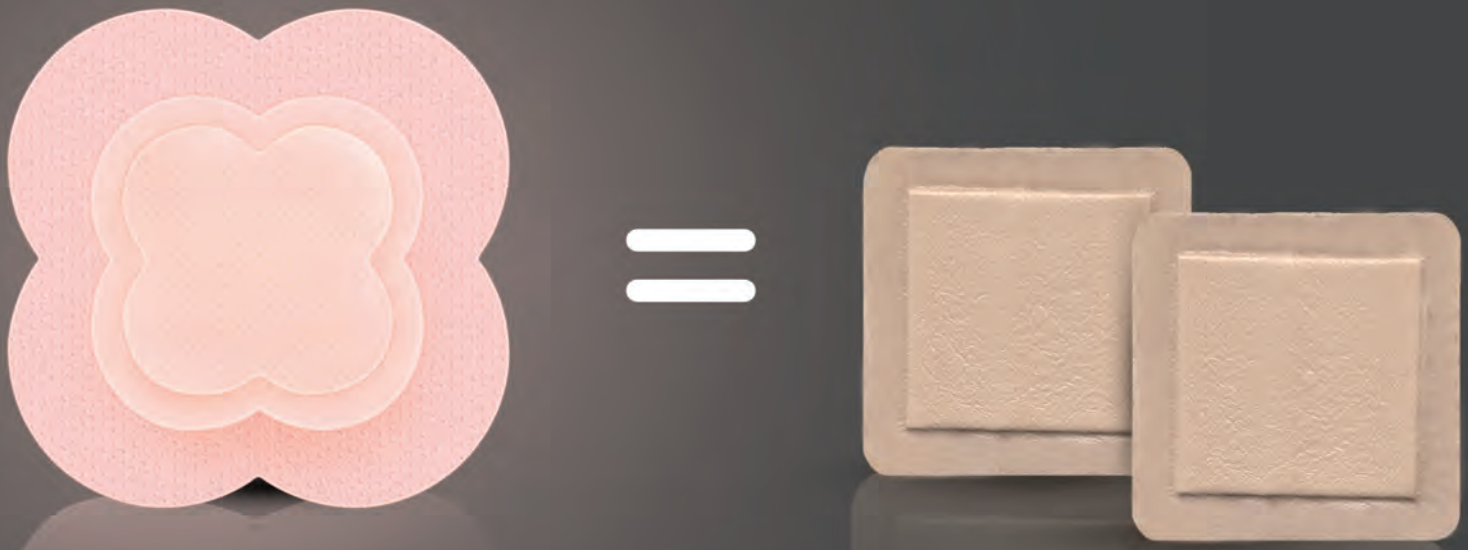

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References: 1. Joy H et al. A collaborative project to enhance efficiency through dressing change practice. Journal of Wound Care. Vol 24. No 7. July 2015 P3-4. 2. Data on File Report GMCA-DOF/08 –April 2016, A. Rossington. Product Performance of Next Generation ALLEVYN LIFE.

# Clearing Up Blind Spots

## 4 Ways to Use Technology to Fight Opioid Diversion

The opioid epidemic has grabbed national headlines in recent years. But the problem has actually been a pressing one for more than a decade, spurring new regulations across the healthcare industry, says **Mark Walsh**, PharmD, director of clinical pharmacy strategies for HealthTrust.


Mark Walsh

For instance, it's been 18 years since York Hospital in York, Pennsylvania, organized a team to focus on ways to treat pain that minimizes the potential for opioid addiction. "Our pain team has always focused on recognizing that every patient has the potential for addiction," says **Robert Patti**, PharmD, manager of clinical pharmacy services. "We try to consider a variety of ways to treat pain beyond opioids, including the use of non-addictive drugs like ibuprofen and therapies such as music, massage or visual distraction."


Robert Patti

While opioids have their place in the treatment of pain, until recently, few facilities have been able to keep a tight rein on their usage. Increased attention and regulation were aimed at fighting opioid addiction, but loopholes in the system allowed patients access to more pills than they needed. This created a surplus that was prime for diversion, which can happen at any point in the drug supply chain—from manufacturing to retail to healthcare professional and down to the patient level.

"People have been sent home from surgeries and hospitalizations with way too many pills, and for a long time, this practice was a blind spot for facilities and health systems in the effort to curb opiate addictions," Walsh explains.

Because pain management had become an important part of HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) scores, facilities were incentivized to put a high focus on controlling patients' pain levels, Walsh adds. But those efforts might have contributed to opioid misuse. Today, new technologies are available to help track and trace opioid prescriptions and prescribers in an effort to curb diversion, with an increasing number of facilities joining in with innovative practices. Consider these four examples:

**1 RFID chips.** After the FDA approved prescription pills that contain RFID microchips in 2012, this technology was used to study the utilization habits of patients who were prescribed opiates in certain settings. According to Walsh, "The RFID chips could show whether the patients actually ingested the pills or not, and the data showed that most patients just needed two or three days' worth of opioids after surgery. This was an important revelation as, historically, many patients were sent home post-surgery with up to a 30-day supply."


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In response to that data, increasing numbers of physicians are decreasing the number of pills prescribed to patients—with some facilities also requiring a decrease. This move helps ensure that the prescribed pills will be used and not diverted to others without prescriptions.

**2 Narcotic audits.** Until recently, York Hospital had relied on a tedious manual process to compare its automated medication dispensing system transactions to the electronic medical record (EMR). Now, the hospital is leveraging its new EMR data to streamline monthly narcotic audits. While it's still a work in progress, the technology is allowing hospital personnel to "eliminate the noise and focus on the transactions that send up red flags," says **Mary Crerand**, R.Ph., quality assessment manager for York's inpatient pharmacy services.

To get a detailed narcotic audit, York is using these reports:

- Inpatient unreconciled dispenses report, which looks for undocumented medication administration or returns.
- Undocumented wastes report, which examines partial doses pulled from the automated dispensing system that are not wasted during removal.
- Activity report of overrides, which looks for every medication pulled on override, including those not captured in the inpatient unreconciled dispenses report.

After reviewing these reports, Crerand's team compiles a list of highlighted transactions and forwards the results to individual nurse managers for follow up and documents the occurrences in the master file. In addition, the group runs several monthly anesthesia audits comparing the automated dispensing system's pull of 100 medications to what is recorded in the anesthesia record.

Even when York Hospital was using a manual process, "because we were looking, we found suspicious activity," Crerand explains. "Working with a team from human resources, employee health and nursing, we could protect our patients and get staff the help they needed."

*Continued on page 28*

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*Continued from page 26*

**3 E-prescribing systems.** "It's almost impossible to track prescribing patterns with paper prescriptions, but as more healthcare facilities move to electronic prescribing systems, they're able to evaluate the patterns of their particular providers," Walsh says. "Facilities and hospital systems can begin to use this data to evaluate providers and look for trends and responsible prescribing of opioids."

Health systems that use e-prescribing can look at the data and score providers against each other to see if there are any outliers, Walsh adds. "If there are, the facilities can be proactive in providing training and information to those physicians to help them better control the opioids for which they are responsible."

Recently, York Hospital created a multimodal order set in conjunction with its electronic prescribing system. "When a physician orders opioids, they are presented with an option for a non-opioid treatment to consider," Patti says. "Our order set also limits how long the order for an opioid will be active in the system; the order is available for 72 hours and doctors get a reminder notice 24 hours before it expires so they can decide if the patient still needs it."

Also, York is utilizing surveillance software combined with protocol changes to minimize opioid orders on patients' charts and converting intravenous orders to oral therapy as soon as possible. As Patti explains, if a patient has an active order for patient-controlled analgesia, separate orders for intermittent doses of injectable opioids will be discontinued. Additionally, if a patient is tolerating other scheduled oral medications, intravenous opioid orders will be discontinued and replaced with oral options.

**4 State databases for monitoring controlled substances.** Many states employ a prescription drug monitoring program, a database that helps them track and address their residents' prescription drug abuse, addiction and diversion. These databases contain controlled substance prescription information, often provided by retail pharmacies, which can include patient, medication and provider level details.

"States can use this information to try to track patients who might be doctor shopping or identify prescribers who may be outliers in comparison to their peers," Walsh explains. "Some states encourage physicians to check these controlled substance databases to evaluate patients' recent controlled substance prescriptions and use this information to augment their exam and patient interview." ●

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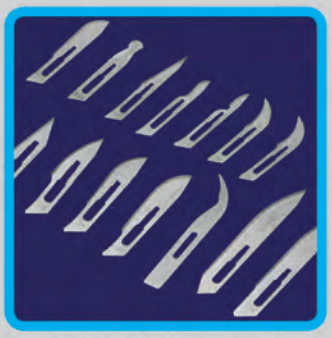

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Bill Miller

"The value of energy at 2 a.m. is different than the value of energy at 2 p.m.," explains **Bill Miller**, director of strategic accounts for inSight Advisory–Energy, HealthTrust's energy procurement solution. Through HealthTrust's energy efficiency initiative, Miller and his team help members save money—often to the tune of more than $30 million a year in combined savings.

inSight Advisory–Energy equips hospitals and medical offices to lower their capacity charges—the highest amount of energy a facility is expected to use on a monthly basis. Utility companies base capacity charges on a facility's peak energy usage during a given time. The charges are preemptive, meaning facilities pay to ensure the energy they need during peak hours will be available.

As Miller points out, energy at midday typically costs much more than energy in the middle of the night. When demand for energy across the grid peaks—in the middle of a workday, for example, or during a winter day—costs skyrocket. Up to half of a hospital's energy bill may be based on energy used during peak times. However, most hospitals don't realize that their opportunity for savings also rises concurrently.

Instead of treating hospitals and medical office buildings like any large commercial building, inSight Advisory–Energy offers cost-and energy-saving options that address healthcare's specific needs. "We look at the areas where we can help reduce usage without jeopardizing reliability of the facility," Miller notes.

To do this, Miller and his team first identify two things: a region's supply costs for energy and a facility's usage profile. These two indicators provide the building blocks for an energy-saving formula. If the resulting data is confusing, inSight Advisory–Energy consultants are available to help translate the information for members.

inSight Advisory–Energy offers three no-cost services to members to increase their energy savings and efficiency:

1 **Forecasting.** inSight Advisory–Energy eliminates guesswork by forecasting energy prices, helping facilities know when and how to sign energy contracts. "In areas where energy is deregulated and you can buy third-party supply, we track what the market looks like," Miller says. "It's the old adage that you want to buy low." By tracking and analyzing increases and dips in the market, we are able to predict when members should lock in energy supplies. In some cases, it's more advantageous to stay with a utility than go on third-party supply. We advise members when it's a good time to either enter into a new agreement or to extend their current agreement. At the end of the day, we're trying to make absolutely certain that the facility is getting the lowest price possible," Miller explains.

2 **Usage.** inSight Advisory–Energy also teaches facilities how to be smarter about energy use. As a first step toward efficiency, Miller recommends every facility undergo a detailed energy audit. After the audit, the inSight Advisory–Energy team reviews the results and the facility's usage profile to highlight when costs are highest and ways to reduce peak costs. "We ask questions like, 'Is there low-hanging fruit in the form of small changes to knock some of the usage off?,' " Miller says. For example, can a medical office raise the set temperature of air conditioning units? If a floor is unoccupied in a hospital, can employees shut off lights in that area? By maximizing their energy efficiency, hospitals and medical office buildings reduce their peak demand and thus their capacity charges.

3 **Rebates.** inSight Advisory–Energy connects facilities with cost-saving incentives and rebates offered by utility companies to increase their customers' efficiency. "Everyone wants to go green, and everyone wants to work toward energy efficiency," Miller explains. More efficient customers work to a utility's advantage, because they reduce the utility's need to build renewable energy infrastructure. In many cases, a utility would rather spend money to help customers reduce usage than build solar panels or wind turbines. inSight Advisory–Energy does the legwork of taking a critical look at incentives and presenting the smartest options to the member facility, offering yet another way to reduce costs and usage.

"The bottom line is: We want to cut member facilities' costs and maximize how they use energy as much as possible," Miller adds. "Our members are our customers, so their goals are our goals." ●

*For more details on energy- and cost-saving initiatives from inSight Advisory–Energy, contact **Bill Miller** at bill.miller@healthtrustpg.com; 615-344-3491.*

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Results in 13 minutes or less, with early detection of positives in as little as 5 minutes.[5]

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**HealthTrust Contract #30725**


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5. Clinical Trial Data- Held on File

# Blockchain

## THE NEXT FRONTIER IN HEALTHCARE?

**Of all the technologies** expected to transform healthcare over the next decade, blockchain may be the one many industry leaders find the most puzzling. Like with interoperability, artificial intelligence (AI) and machine learning, there's no shortage of hype about the distributed ledger technology, including conferences and consortiums devoted to exploring its potential for revolutionizing how providers, payers and patients manage and share healthcare data.

What exactly is blockchain? Many hospital leaders automatically associate it with the ransomware attacks they've been struggling to fend off from hackers who demand the digital currency bitcoin in exchange for stolen patient information held hostage. Though blockchain technology was initially developed a decade ago to power the exchange of bitcoin, its capabilities extend well beyond the cryptocurrency itself.

### HOW BLOCKCHAIN WORKS

Blockchain is a technology that stores and secures transactional data through a distributed ledger composed of encrypted blocks. Records are shared across a network of synchronized, replicated databases rather than a centralized one. These records are visible to credentialed users who may add to the transactions they are given access to—but not alter or delete anything. Each transaction is verified collectively among users and recorded chronologically across the network, forming an immutable chain.

The decentralized structure of the blockchain is designed to not only make data sharing more transparent and collaborative, but also to make it safer through its built-in trust protocol. Each block in the chain is secured by a time-stamped digital wax seal in the form of a cryptographic hash, which references the hash of the previous block. This makes the ledger virtually tamper-proof, because no block in the chain can be hacked without simultaneously hacking every other block before it.

Retail, financial services and supply chain industries are already deploying this technology for several reasons. It enables them to replace clunky, tedious record-keeping systems with the automated, real-time systems many customers crave. The technology also helps eliminate the cost and friction that come with relying on intermediaries to process and reconcile data on the back end.

ISTOCK

### WHAT BLOCKCHAIN MEANS FOR HEALTHCARE

With all of the complexity, mandates and privacy concerns in the healthcare industry, many are skeptical about whether blockchain would actually work for payers and providers. But a growing contingent of industry leaders see promise in the technology for alleviating some of the biggest challenges of managing healthcare data, including improving the accuracy and security of patient records and the interoperability of systems.

The crux of blockchain's potential for healthcare is its capability for helping clinicians share patient data seamlessly and expeditiously both internally and with physicians and specialists outside hospital systems, says **Ed Hickey**, assistant vice president of clinical data and analytics for HealthTrust.

Ed Hickey

"That's where this has immediate value, because you can share information with other organizations instantaneously and securely without exposing any private health records," Hickey says.

Currently, critical information about individual patients tends to be scattered across an assortment of records maintained by different providers, with few of the records actually validated against each other. This often results in incomplete, inaccurate data that can easily be duplicated, or in a worst-case scenario, potentially jeopardize a patient's health. Records are also fragmented and disorganized due to the lack of common architecture and different interpretations of standards across electronic health record (EHR) software and other clinical systems. Disparities throughout systems make it hard to share and access vital patient records when they are needed most.

Organizations abound with "siloed, sequestered pieces of information that make it difficult to tie all of the details in the

*Continued on page 34*

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2000 mg/100 mL DOUBLE STRENGTH

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|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AmerisourceBergen | Cardinal | HD Smith | McKesson | Morris & Dickson |
| Esmolol Hydrochloride in Water for Injection | 811-10 | 2500 mg/ 250 mL | 250 mL Premix Bag | 10 mg/mL | 10 | 10184851 | 5422282 | 5705850 | 3761202 | 220574 |
| Esmolol Hydrochloride in Water for Injection **DOUBLE STRENGTH** | 812-10 | 2000 mg/ 100 mL | 100 mL Premix Bag | 20 mg/mL | 10 | 10184852 | 5422274 | 5705884 | 3761210 | 220541 |

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**IMPORTANT SAFETY INFORMATION**
CONTRAINDICATED IN: severe sinus bradycardia; heart block greater than first degree; sick sinus syndrome; decompensated heart failure; cardiogenic shock; coadministration of IV cardiodepressant calcium-channel antagonists (e.g. verapamil) in close proximity to esmolol; pulmonary hypertension; known hypersensitivity to esmolol.

**WARNINGS AND PRECAUTIONS**
RISK OF: hypotension, bradycardia, cardiac failure; exacerbating reactive airway disease; unopposed alpha-agonism and severe hypertension in untreated pheochromocytoma; myocardial ischemia when abruptly discontinued in patients with coronary artery disease. In diabetes mellitus, increases the effect of hypoglycemic agents and masks hypoglycemic tachycardia. The most common adverse reactions (incidence >10%) are symptomatic and asymptomatic hypotension. Drug interactions may occur with digitalis glycosides, anticholinesterases, antihypertensive agents, sympathomimetic drugs, and vasoconstrictive and positive inotropic effect substances. Please see the package insert for complete prescribing information.


**References**
**1.** Esmolol Hydrochloride in Water for Injection [prescribing information]. WG Critical Care, LLC; Paramus, NJ. April 2016. **2.** Brevibloc (esmolol hydrochloride) [prescribing information]. Baxter Healthcare Corporation; Deerfield, IL. April 2014. **3.** *AHFS Drug Information 2018.* 1st edition. ASHP; Bethesda, MD. **4.** Trissel LA. *Handbook on Injectable Drugs.* 16th edition. ASHP; Bethesda, MD. **5.** Gahart BI, Nazareno AR. *Gahart's 2018 Intravenous Medications: A Handbook for Nurses and Health Professionals.* 34th edition. Mosby; St. Louis, MO.

*Continued from page 32*

medical record together as a patient moves within or outside of a healthcare system," Hickey says. Exchanging data across healthcare systems is still very much a manual process fraught with vulnerabilities.

With its distributed ledger, blockchain could help bind disparate information together more effectively and ensure that all stakeholders see, validate and confirm the details. The framework of the technology also provides multiple checkpoints for evaluating the consistency, integrity and security of patient data with each block added to the chain.

As a result of data breaches caused by increasingly bolder and more sophisticated cyber criminals, hospitals are more focused on protecting patient information. Records in a blockchain model would allow users to authenticate certain details without disclosing all of the information in the chain. Blockchains can also be public or private. For example, hospitals could limit a blockchain network to only HIPAA-covered entities through software programs such as smart contracts, which would require users to complete certain verification steps before exchanging and accessing information.

Healthcare executives find blockchain most appealing for its ability to facilitate transactions directly without requiring an intermediary. Not only could sharing ledgers help organizations cut costs, but it could also make data more transparent for all stakeholders. Blockchain would create a permanent record of activity users could access—a reality not currently possible because so many transactions are processed by third-party companies with little incentive to share data. Instances of fraud cost the industry millions of dollars each year, so the transparency and security advantages of blockchain could help reduce fraud as well as the risks that arise from single points of failure.

## FINANCIAL & SUPPLY CHAIN POTENTIAL

Proponents of blockchain believe the technology in its current form is best-suited to straightforward transactions that demand a high degree of trust and security, such as claims processing and billing. It has the potential to simplify and accelerate the process for submitting claims for patients and negotiating contracts with payers.

"Blockchain could eliminate a lot of today's manual activities and provide hospitals with more immediate status updates," Hickey says. "The technology enhances the security of assets moving through the supply chain, while also providing better visibility and tracking throughout the life cycle for products such as implants, medical devices and pharmaceuticals."

**16%**

OF HEALTHCARE EXECUTIVES PLANNED TO IMPLEMENT A COMMERCIAL BLOCKCHAIN SOLUTION IN 2017

**56%**

EXPECT TO IMPLEMENT ONE BY 2020

IBM, *Healthcare Rallies for Blockchain* study

Innovators are also exploring the potential of blockchain for advancing drug development, medical research, master patient indexes and population health initiatives. Not only could the technology create opportunities for improving patient care and safety, but it may eventually give patients more control over their own health data by enabling them to set parameters around who can access information in their medical records.

## CHALLENGES TO BLOCKCHAIN ADOPTION

Though blockchain poses exciting possibilities for helping hospitals achieve interoperability, cut costs and administrative time, and provide more patient-focused care, it's not a panacea for all of the challenges healthcare leaders face.

The technology is still emerging and would require organizations to agree upon standards for how data on the blockchain would be used and shared. This is already an obstacle for many current technologies in place. The technology would also disrupt existing IT systems and require organizations to revamp much of their current technological architecture, as well as their process for sending, receiving and storing data. The time and costs it would require might be more than some leaders are willing to take on at the moment.

Due to mandates and privacy rules, organizations would also need to be able to ensure that sensitive information on the blockchain would be secure from hackers, which would likely require some additional investment in cybersecurity. Some also question whether patients would be willing to accept ownership over their health records on the blockchain—and the role providers would need to play in the oversight.

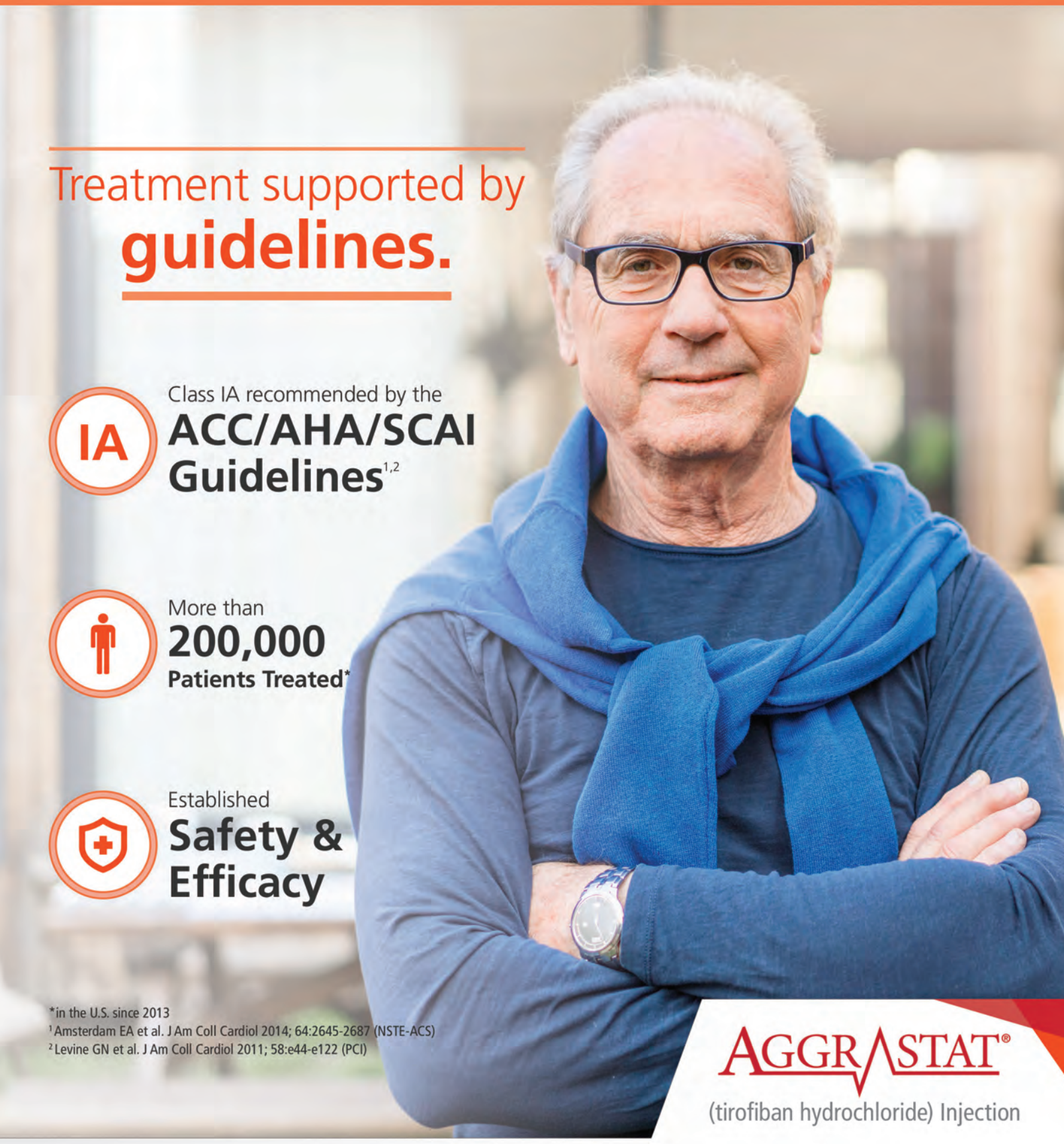
The technology would "introduce new processes and protocols that would need to be managed and accounted for, and that could cause disruption," Hickey says.

Because hospital leaders must balance new care delivery and payment models they are working to adopt, and deal with all of the financial and regulatory pressures, many are unsure how blockchain would fit into their operations. Unless the technology is tied to mandates or incentives, cultural adoption will likely be difficult to achieve, Hickey adds.

Successful implementation of blockchain in any organization will also hinge on how many other providers and payers are equipped to utilize the technology.

Hospital leaders can prepare for the upcoming blockchain revolution by educating themselves on what the technology might mean for their health system and other industry partners. Blockchain isn't going away anytime soon, so the sooner hospitals can deepen their understanding of it, the better positioned they'll be to reap its benefits.

According to **Kent Petty**, chief information officer for HealthTrust, "We've got to start building bench strength around the skills blockchain will require and understanding this technology better. Despite blockchain's promise, there are still a lot of questions to consider, including: How do we invest in blockchain in a way that unlocks its potential?"



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[1] Amsterdam EA et al. J Am Coll Cardiol 2014; 64:2645-2687 (NSTE-ACS)

[2] Levine GN et al. J Am Coll Cardiol 2011; 58:e44-e122 (PCI)

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# What's New in Server Security

**Are you aware** of all the potential threats to your organization's servers? Are you confident that you've invested in the best possible protection for all the data contained on them?

New risks and threats to server security continue to emerge, as technologies like cloud infrastructure deliver more opportunities for risks as well as benefits. Or as a recent whitepaper by Moor Insights & Strategy put it, "the threat landscape is increasing, and attacks are becoming more sophisticated."

"The threats are endless if your information is compromised, making security measures a critical component of any server deployment," says **Kevin Noreen**, senior director of product management for Dell EMC PowerEdge software.

Dell 14th generation PowerEdge Server

In response to the growing need for stronger security, Dell (**Contract No. 7593**) recently released the 14th generation of its PowerEdge servers, and Hewlett Packard Enterprises (HPE) (**Contract No. 7591**) recently unveiled its 10th generation server, the HPE ProLiant Gen10.

Both organizations promise that their products will provide healthcare systems with more comprehensive protection and vital security, ultimately saving money and time. Their latest server platforms incorporate a "silicon root of trust," an enhanced security methodology that makes them virtually impossible to compromise. They constantly monitor for cyberattacks and then take action when necessary.

In the past, cybersecurity's emphasis tended to be centered around software. And for a long time, that was the right tactic. But today, organizations need to be sure they don't also forget hardware-level security issues. The newest generation servers are tackling that problem.

"We believe security should be built into the hardware layer versus added later," Noreen explains.

He refers to it as the technology's "immune system"—a built-in and critical component for detecting and thwarting an attack. An important component of these next-generation servers is how they're positioned to address the threat of ransomware attacks, which continue to grow exponentially. Ransomware is a type of malicious software that locks up a system and demands payment before it will unlock the system and allow users to regain access. Some ransomware even encrypts files and scrambles the information contained within before demanding a ransom and releasing a decoding key for the user to un-encrypt their files.


HPE ProLiant Gen10 family

An organization that's vulnerable to ransomware attacks could be looking at a demand for huge amounts of money—and no guarantee that they'll actually get back all their data from the individual or group holding it hostage. That's why the latest generation of servers were specifically designed to thwart that problem.

**Bob Moore**, director of software and product security at HPE, noted that with the HPE Silicon Root of Trust, an industry-first silicon-based security solution, the HPE ProLiant Gen10 servers improve security by ensuring they do not execute compromised firmware code. "If any ransomware or malware is somehow inserted in the server, it will be detected because it doesn't match the fingerprinting that we've put into the silicon," he explains.

Moore noted that rapid recovery is another key feature of HPE's latest generation servers. If an attack occurs, the server can quickly go into recover-and-restore mode so the system doesn't remain down for long.

"We can facilitate a restoration of the operating system, applications and data," Moore says, adding that each piece of firmware will be carefully checked to make sure they're completely free of malware during the process.

Dell has a similar approach, which Noreen calls "health insurance for your motherboard." This intrinsic feature, called Easy Restore, enables an organization to easily retrieve information stored off the motherboard from another part of the system. That way, if the motherboard has to be replaced, the internal service processor simply asks the user if missing information should be restored and then initiates the process to get the system functioning again. "This allows you to easily engage with the new motherboard," Noreen explains.

Imagine the repercussions of a security event: What would happen in your hospital or healthcare organization if the servers were compromised and went down? At best, it might be inconvenient. At worst, it could be terribly expensive and harmful to countless individuals whose information was compromised.

Ultimately, you want to be confident that your technology investments will protect your organization financially and also protect the health and safety of your patients.

"We can preclude lengthy outages," Moore says. "We can prevent the need to pay ransom. And we can prevent the costly nature of downtime, planned and unplanned, which is especially critical in healthcare because you are literally dealing with life and death."

Both Dell and HPE pledge to continue seeking ways to stay one step ahead of anyone who might try to undermine the safety and security of an organization's data. ●

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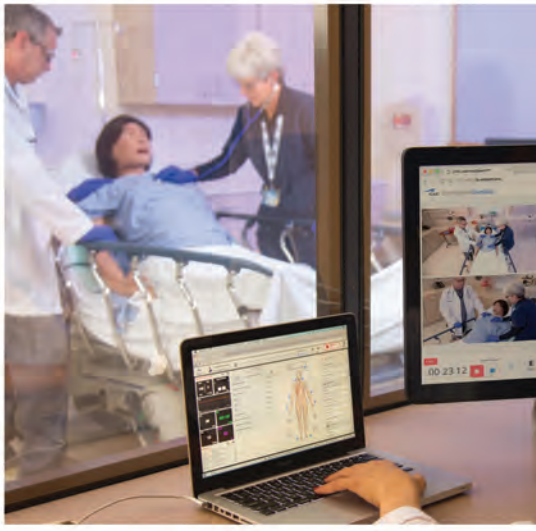
*CAE Juno clinical skills manikin*





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1. Huseman KF. J *Nurses Staff Dev.* 2012 May-Jun;28(3):120-4 doi: 10.1097/NND.0b013e3182551506.

# FAST ON THEIR FEET

ISTOCK


# HEALTHTRUST MEMBERS APPLY LESSONS FROM PAST DISASTERS & EMERGENCIES TO FUTURE CRISIS PLANNING

**When a shooter opened fire** on an outdoor concert in Las Vegas this past October, the number of critically wounded patients threatened to overwhelm local emergency responders and hospitals. In the hours that followed, Sunrise Hospital and Medical Center in Las Vegas, Nevada, saw more than 240 patients, 124 of whom had gunshot wounds—the largest mass casualty shooting event in modern U.S. history, says **Todd Sklamberg**, CEO at Sunrise Hospital.

Todd Sklamberg

The Joint Commission guidelines require healthcare organizations to have plans in place for responding to natural and human-caused or terrorist-related disasters and emergencies. Those guidelines require regular training to prepare staff and resources throughout a facility for optimal performance in the case of such an event.

Michael Wargo

"HCA Healthcare has had decades of experience in emergency operations management dating back to the days after 9/11," says **Michael Wargo**, RN, BSN, MBA, PHRN, vice president of enterprise preparedness and emergency operations for HCA Healthcare. "HCA Healthcare has incident management teams at every facility that undergo intensive training that includes working through crisis scenarios. When a crisis happens, our approach is to organize locally, coordinate at the division level and strategize at the corporate level. This gives us economies of scale and takes the burden away from individual facilities to do all the work themselves."

When events like the Las Vegas shooting or natural disasters occur, facilities—and their communities—see firsthand how those emergency preparations play out, and what should be adjusted next time.

"Unfortunately, the question is not whether this will happen again, but where and when," Sklamberg says. "As healthcare leaders, we have a responsibility to prepare our facilities to handle such events to the best of our ability."

## EXPECT THE UNEXPECTED

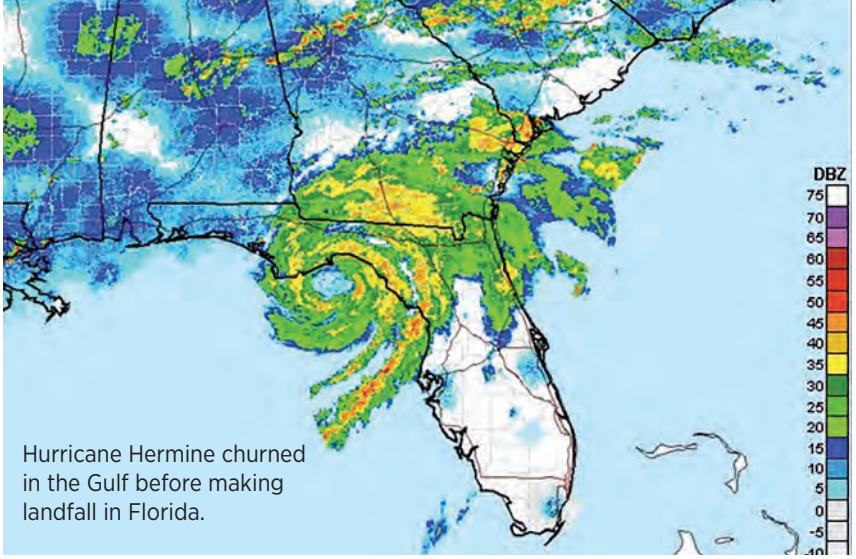
Though planning and drills can help facilities respond to crises, it's impossible to prepare for every eventuality. As the Las Vegas crisis unfolded, Sunrise staff were required to respond to one unforeseen event after another. "The events of Oct. 1 were so unique, there's no way we could have prepared specifically for them," Sklamberg

explains. "But our drills gave us the foundation we needed to scale up."

For example, 92 of the injured patients at Sunrise had no identification at all, so staff had to work toward identifying them in order to reunite them with their family members. One team of social workers and other staffers began interviewing family members as they came in, asking for descriptions of their loved ones. Another team went through the hospital, writing descriptions of the patients who did not have any identification. Yet another group sat in a room and matched the family members' descriptions with the staffers' descriptions. "It took about six hours to identify everyone," Sklamberg adds. "Body art and piercings helped a lot."

Tom Lawhorne

Preparation is a necessity, "but a disaster or emergency is never going to happen the way you expected," says **Tom Lawhorne**, CFO at Regional Medical Center Bayonet Point in Hudson, Florida. On Aug. 31, 2016, as Hurricane Hermine was churning in the Gulf, the coastal hospital was prepared for an influx of patients the following night, when the hurricane was expected to make landfall 100 miles north. About 6:15 p.m., when most staffers had left to prepare their homes for the incoming storm, power went out in the hospital. Lights flickered as the emergency generators tried to kick in, but within a matter of seconds, the facility was completely dark, Lawhorne explains.




Hurricane Hermine churned in the Gulf before making landfall in Florida.

A lightning strike caused an electrical fire on the roof, taking out all access to power. Bayonet Point's emergency drills had always been conducted in the daytime with the CEO, COO or assistant COO (ACOO) taking the lead. When the fire happened, top leaders were

*Continued on page 45*

## MANAGING STAFFING CHALLENGES IN TIMES OF DISASTER

When disaster hits, most healthcare facilities need extra staffers to help handle overflow traffic or maintain increased patient loads over several days. For instance, when Hurricane Harvey hit, Gonzales Healthcare Systems in Gonzales, Texas, was adequately staffed, but "it would have been easier for everyone if we would have had more staff on hand from the beginning," says **Steven Ackermann**, director of materials management. "When people left work on that Friday, they couldn't make it back to help until Sunday night due to the winds and flooding."

Unfortunately, the nature of hurricanes, mass shootings and other disasters means that facilities will be caught off guard to some degree, says **Brendan Courtney**, president and CEO of HealthTrust Workforce Solutions. "However, the extent to which your staffing operations are impacted often comes down to how well you've prepared in advance," he says. "The best approach is to have a strategic plan to address how your business will react to the immediate and evolving needs that will inevitably arise."

Brendan Courtney

According to Courtney, achieving staffing continuity requires a multidimensional approach that gets the right people to the right place at the right time.

In moments of crisis, medical personnel are often willing to answer the call to serve in uncertain circumstances. For instance, in 2017, HealthTrust was in contact with more than 1,000 nurses who volunteered to serve communities affected by Hurricanes Harvey and Irma.

To support healthcare organizations in times of crisis, HealthTrust Workforce Solutions created the Disaster Response Team, a special group made up of a wide variety of clinical professionals with broad geographical representation. "Disaster response team members must be highly adaptable and resourceful, willing to pick up and deploy when and where they are needed at a moment's notice," Courtney explains. "We assess clinician interest and availability on a regular basis, usually in advance of forecasted times of need such as hurricane season. It is imperative that these clinicians be fully credentialed at all times. Even in the worst crisis conditions, quality can never be compromised."

In addition to identifying seasoned professionals who are ready to answer the call to serve, facilities also typically encounter logistics challenges. HealthTrust's corporate operations in Sunrise, Florida, coordinates crisis relief staffing efforts with regional and localized command centers established near the disaster location to provide on-the-ground support.

"Constant and consistent communication among these corporate and regional command centers, as well as the disaster response team itself, are critical to the overall success of the workforce disaster response," Courtney says.

Sometimes it takes flexibility and resourcefulness to get qualified professionals to places dealing with hazardous conditions. This past fall, HealthTrust Workforce Solutions utilized duck boats and helicopters to ensure nurses were able to access a flooded facility during Hurricane Harvey.

"While the first step in responding to a crisis situation must always be to execute your predetermined continuity plan, you can never underestimate the critical impact that quick, out-of-the-box thinking can have in times of desperate need," Courtney adds.

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**THROMBOSIS, RENAL DYSFUNCTION AND ACUTE RENAL FAILURE**
*See full prescribing information for complete boxed warning*

- Thrombosis may occur with immune globulin intravenous (IGIV) products, including OCTAGAM 10%. Risk factors may include: advanced age, prolonged immobilization, hypercoagulable conditions, history of venous or arterial thrombosis, use of estrogens, indwelling vascular catheters, hyperviscosity, and cardiovascular risk factors.
- Renal dysfunction, acute renal failure, osmotic nephropathy, and death may occur with the administration of Immune Globulin Intravenous (Human) (IGIV) products in predisposed patients. Renal dysfunction and acute renal failure occur more commonly in patients receiving IGIV products containing sucrose. OCTAGAM 10% does not contain sucrose.
- For patients at risk of thrombosis, renal dysfunction or renal failure, administer OCTAGAM 10% at the minimum infusion rate practicable. Ensure adequate hydration in patients before administration. Monitor for signs and symptoms of thrombosis and assess blood viscosity in patients at risk for hyperviscosity.

## INDICATIONS AND USAGE

- OCTAGAM 10% is an immune globulin intravenous (human) liquid preparation indicated for the treatment of chronic immune thrombocytopenic purpura (ITP) in adults.

## DOSAGE AND ADMINISTRATION

**For intravenous use only.**

| Indication | Dose | Initial Infusion rate | Maintenance Infusion Rate (if tolerated) |
|---|---|---|---|
| Chronic ITP | 1 g/kg daily for 2 consecutive days | 1.0 mg/kg/min (0.01 mL/kg/min) | Up to 12.0 mg/kg/min (Up to 0.12 mL/kg/min) |

- Ensure that patients with pre-existing renal insufficiency are not volume depleted; discontinue OCTAGAM 10% if renal function deteriorates.
- For patients at risk of renal dysfunction or thrombotic events, administer OCTAGAM 10% at the minimum infusion rate practicable.

## DOSAGE FORMS AND STRENGTHS

Solution containing 10% IgG (100 mg/mL)

## CONTRAINDICATIONS

- History of anaphylactic or severe systemic reactions to human immunoglobulin
- IgA deficient patients with antibodies against IgA and a history of hypersensitivity

## WARNINGS AND PRECAUTIONS

- IgA-deficient patients with antibodies against IgA are at greater risk of developing severe hypersensitivity and anaphylactic reactions to OCTAGAM 10%. Epinephrine should be available immediately to treat any severe acute hypersensitivity reactions.
- Monitor renal function, including blood urea nitrogen and serum creatinine, and urine output in patients at risk of developing acute renal failure.
- Falsely elevated blood glucose readings may occur during and after the infusion of OCTAGAM 10% with testing by some glucometers and test strip systems.
- Hyperproteinemia, increased serum osmolarity and hyponatremia may occur in patients receiving OCTAGAM 10%.
- Hemolysis that is either intravascular or due to enhanced red blood cell sequestration can develop subsequent to OCTAGAM 10% treatments. Risk factors for hemolysis include high doses and non-O-blood group. Closely monitor patients for hemolysis and hemolytic anemia.
- Aseptic Meningitis Syndrome may occur in patients receiving OCTAGAM 10%, especially with high doses or rapid infusion.
- Monitor patients for pulmonary adverse reactions (transfusion-related acute lung injury (TRALI)).
- OCTAGAM 10% is made from human plasma and may contain infectious agents, e.g. viruses and, theoretically, the Creutzfeldt-Jakob disease agent.

## ADVERSE REACTIONS

The most common adverse reactions reported in greater than 5% of subjects during a clinical trial were headache, fever and increased heart rate.
**To report SUSPECTED ADVERSE REACTIONS, contact Octapharma at 1-866-766-4860 or FDA at 1-800-FDA-1088** or *www.fda.gov/medwatch*.

## DRUG INTERACTIONS

The passive transfer of antibodies may:
Confound the results of serological testing.
Interfere with the immune response to live viral vaccines, such as measles, mumps, and rubella.

## USE IN SPECIFIC POPULATIONS

- Pregnancy: no human or animal data. Use only if clearly needed.
- Geriatric Use: In patients over age 65 or in any person at risk of developing renal insufficiency, do not exceed the recommended dose, and infuse OCTAGAM 10% at the minimum infusion rate practicable.

Revised: **April 2015**


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Tel: 888-429-4535

**Reimbursement:**
usreimbursement@octapharma.com
Tel: 800-554-4440 Fax: 800-554-6744

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Office: 201-604-1137 Cell: 201-772-4546 Fax: 201-604-1141
or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.


*Store Octagam 10% for 24 months at +2°C to + 8°C (36°F to 46°F) from the date of manufacture. Within the first 12 months of this shelf-life, the product may be stored up to 9 months at ≤ +25°C (77°F). After storage at ≤ +25°C (77°F) the product must be used or discarded.


**References: 1.** Octapharma, Data on File. 2014. **2.** Buchacher et al. In: Bertolini et al, eds. Production of Plasma Proteins for Therapeutic Use 2013:185-205. **3.** Octagam 10% Full Prescribing Information. Hoboken, NJ: Octapharma; 2014. **4.** Robak et al. Hematology 2010; 15:351-359.

Continued from page 42

either out of town or on medical leave, the roles of ACOO and emergency preparedness coordinator were vacant, and the plant operations director was brand new in the role. Lawhorne was the only C-level staffer available, and he happened to be working late that night.

"We had no power or generators, and none of the people who had run the drills were here," says Lawhorne, who had only a flashlight and a cellphone.

The computer and phone systems were also down, so Lawhorne had no way of communicating with staff throughout the facility. When the fire chief needed to know how many people were in the building so they could properly evacuate everyone, "We got the word out by word of mouth, cellphones and social media," Lawhorne says.

Aerial view of the flood during Hurricane Harvey

"When the storm was at its worst, we lost power and had to control water going under some of the doors. I had people coming up to me asking, 'Where can I help?'

**WE CAME TOGETHER AS A TEAM AND GOT THE JOB DONE."**

**Steven Ackermann**, *director of materials management, Gonzales Healthcare Systems*

Even when a disaster is expected, there are likely to be surprises. Gonzales Healthcare Systems in Gonzales, Texas, held meetings twice a day for several days before Hurricane Harvey made landfall in late August 2017. They were prepared with essential supplies and enough staff to support current patients and up to 250 extra patients and visitors for a maximum of five days. But then they were faced with the unexpected: "When the storm was at its worst, we lost power and had to control water going under some of the doors," says **Steven Ackermann**, director of materials management. "I had people coming up to me asking, 'Where can I help?' We came together as a team and got the job done."

Steven Ackermann

## PREPARATION PAYS OFF

Even though the Gonzales team may not have prepared for severe flooding, their focused training mobilized the facility's staff to be ready for almost anything. Although any disaster or emergency will be fraught with unknowns, careful preparations make a positive impact on how facilities are able to cope.

Bayonet Point staffers had never trained for an electrical fire that would eliminate all power, but they had been trained to think on their feet in an emergency. A so-called "old school" house supervisor who had never abandoned her hard-copy patient census was able to refer to her list to ensure that every patient was evacuated and each family was contacted, Lawhorne says. Because the phones weren't working and there was no way to make large-scale announcements, leaders on each floor took over their units, manually ventilating patients with bag valve devices and carrying patients down the stairs in the absence of working elevators, he explains.

Staffers felt empowered to make the right decisions for their own areas in the event of a crisis, which allowed the hospital to evacuate 225 patients in eight hours with no negative patient outcomes or injuries to emergency staff.

Emergency preparedness also facilitates a focus on collaborative teamwork. As word got out about the fire at Bayonet Point, off-duty staff members just started showing up to help evacuate patients, find places for them to go, and do whatever other tasks were needed. Physicians and staff members accompanied patients being evacuated to nearby hospitals to avoid an interruption in care.

After the shooting in Las Vegas, "Our colleagues rose to the occasion," Sklamberg says. "The teamwork we saw that day was remarkable. We had phlebotomists working in the ER, a pediatric surgeon serving as a scrub nurse, and another pediatric surgeon operating on adults. Multiple people just put aside their normal roles and responsibilities to do what was needed."

In the aftermath of the shooting, Sunrise staffers made an early triage decision that helped organize and manage care throughout the night. They stationed an ER physician at the door to assess injuries and send patients where they needed to go: Walking wounded went to a waiting room, while those in critical condition were moved to trauma rooms where they were stabilized or resuscitated. At that point, patients were sent to a second level of triage based on their wounds: Those with gunshot wounds to the head were sent to an area where neurosurgeons were waiting; those with chest wounds went to the thoracic ICU where cardiac surgeons were on standby; and those with orthopedic injuries were sent to a separate area for care.

"As specialists came in, they were dispatched to the area of their expertise," Sklamberg says. "It made for an efficient and effective process and contributed to our success."

Systematic preparations also help facilities build closer relationships with local emergency response agencies, which is crucial in a

WIKIMEDIA

time of crisis. For example, before Hurricane Harvey hit, Matagorda Regional Medical Center in Bay City, Texas, had built a dome with the Federal Emergency Management Agency, which allowed the hospital to house first responders and essential personnel during the hurricane and its aftermath.

"Luckily, many of our personnel were also a part of the Matagorda County Emergency Operations Center (EOC)," says **Travis Ursery**, materials management supervisor. "The EOC provided real-time expertise and support before, during and after the event, and the first responders ensured that we could reopen as quickly and as safely as possible. Our advanced planning also allowed us to stand up a makeshift urgent care center long before the hospital and the medical group were operational. We were able to provide basic medical services to our community and surrounding areas, which took some of the pressure off of first responders and medical personnel located in areas that were harder hit."

Travis Ursery

## PLANNING FOR THE FUTURE

After experiencing a large-scale disaster, it's wise to reexamine emergency preparedness and make necessary adjustments based on what you learned. For instance, after losing power and phone systems, Bayonet Point's Lawhorne says his facility now has a cellphone text group so that leaders can immediately text staffers in the event of a crisis. His facility has also shared its emergency phone tree with nearby hospitals so that another hospital could activate it if necessary. In addition, Bayonet Point has placed compact flashlights throughout the hospital, as well as headlamps—a tip staff learned from the crisis.

"If you're trying to a carry a patient, you can't hold a flashlight," Lawhorne says.

In Las Vegas, cell towers went down because of the overwhelming number of phone calls following the shooting. As a result, Sunrise is moving to an automated phone system for use in case of emergencies. Sunrise is also working closely with emergency responders to enhance the process of tagging patients and provide more advanced equipment in emergency preparedness kits.

Even though no hospital can prepare for a specific emergency, those who have been forced to use their emergency plans say the practice drills are critical.

"Go over your disaster plans with all of the staff and make sure they clearly know their roles," Ackermann says. "Take all drills seriously, and make sure the staff knows emergency preparedness is a vital part of their jobs."

Above all, be flexible and listen to feedback, Ackermann adds. "Your staff may see something in your plan that needs to be tweaked or changed all together." **S**

*To learn more about the experiences of HCA Healthcare staff during disasters, visit https://hcatodayblog.com/emergency-preparedness.*

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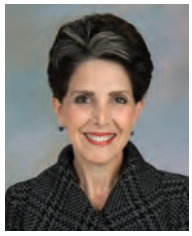
# CARING FOR BOOMERS

## Meeting the Needs & Challenges of an Aging Patient Population

When **Caroline Fife**, M.D., sees patients over 65 at the CHI St. Luke's Wound Clinic in The Woodlands, Texas, she no longer asks, "What did you do for a living?" She now asks if they are still working because many of her patients have yet to retire. Working into their golden years is just one of the ways aging Americans are defying the norms of previous generations and changing expectations for how they want to live the rest of their lives.



Caroline Fife, M.D.

Born between 1946 and 1964, baby boomers may be rapidly reaching retirement age, but few are ready to slow down or can afford to stop working.

Today's seniors also aspire to stay active and independent for as long as they can, even when their bodies struggle to keep up. This resiliency is shared by many of the 75 million Americans born between 1946 and 1964. Baby boomers may be rapidly reaching retirement age, but few are ready to slow down or can afford to stop working.

Dave Jevsevar, M.D.

**Dave Jevsevar**, M.D., sees this firsthand in his orthopedics practice at Dartmouth-Hitchcock Medical Center in Lebanon, New Hampshire. He consults with a steady stream of patients in their 50s and 60s eager to trade in their rusty joints for new hips and knees.

"They want to do more things, and they don't want to be encumbered by pain and the loss of function," Jevsevar explains.

Improvements in anesthesia, minimally invasive surgical techniques, recovery times and implants have made joint replacement surgery more appealing than in years past, when patients often delayed the surgery for decades or until the pain became debilitating.

"In addition to a pain reduction, patients also want improved functionality so they're able to get back to skiing, playing sports and other activities they enjoy," he says.

Though Jevsevar does recommend the surgery for patients who want to be more active, some are so anxious for bionic joints, it's important that he also manages their expectations about how much implants can actually help.

"We have to make sure the expectations patients have match the outcome they will likely experience," he says.

## AMERICANS LIVING LONGER, NOT HEALTHIER

Despite advances in medicine, clinical care and technology that help people live longer and more comfortably, research indicates baby boomers are becoming sicker as they age and facing higher rates of chronic disease than previous generations. Though boomers may see themselves as invincible, the indulgent, rollicking ethos that marked their generation also has made them more vulnerable to chronic conditions such as hypertension, high cholesterol, diabetes and obesity, according to a 2013 study in *JAMA Internal Medicine*. Researchers from the West Virginia University School of Medicine and the Medical University of South Carolina found that boomers tended to be less active and have more mobility issues than their elders.

Obesity has been linked to rising disability rates in boomers, a consequence Jevsevar sees often among his patients. Weight gain can exacerbate conditions like arthritis and make damaged joints and pain less tolerable.

"The wear and tear of joints is largely due to the fact that people weigh more than in previous generations," he says.

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**IS SPENT BY MEDICARE ON WOUND CARE, ONE AREA OF CLINICAL CARE MOST IMPACTED BY THE CHRONIC DISEASE EPIDEMIC.**

Four out of every five adults over age 65 suffer from a chronic condition, and more than half of those juggle two or more maladies, according to the National Council on Aging. Depending on how many ailments a patient has, these conditions are costly to treat—ranging between $15,000 to $50,000 per person. In addition, nearly two-thirds of all deaths are caused by the most common illnesses: heart disease, cancer, stroke and diabetes. Boomers have also shown higher rates of cancer at younger ages than their parents, though this may be partly due to technologies that have improved detection.

The rising chronic care needs among older patients, coupled with the double-digit increase in boomers eligible for Medicare over the next decade, will threaten to strain an already overtaxed healthcare system, leaving hospitals to bear the regulatory and financial burdens. As boomers with multiple conditions age, medications enable them to live longer. As a result, hospitals are devising creative strategies for balancing the influx of these patients with complex health needs along with the quality of life this growing population desires.

### IMPACT ON CLINICAL CARE

One area of clinical care most impacted by the chronic disease epidemic is wound care, which affects nearly 15 percent of seniors and conservatively accounts for more than $28 billion in Medicare spending per year. When wound infections are included, the cost could be more than three times that figure.

More than half of the patients who visit the CHI St. Luke's Wound Care Clinic are over 65, and most of them struggle with multiple health issues, including diabetes, obesity, autoimmune disease, and heart and kidney problems, says Fife, who serves as medical director of the center and executive director of the U.S. Wound Registry. The average patient with a chronic wound may juggle up to 10 of these conditions and take a dozen different medications.

"Many of these patients never really get discharged because as soon as we get one wound healed, they're back with another one," she says. "We can't fix all the underlying problems causing the wounds. The wounds are actually a symptom of other diseases."

Surgical site infections are the most expensive causes of wounds among elderly patients, but diabetic foot ulcers, pressure ulcers from bedsores and venous stasis ulcers caused by damaged veins are also common, Fife explains. Having thinner skin that stays wet from urinary and bowel incontinence, along with failing eyesight and an increased risk for falls, make seniors more prone to wounds from traumatic injuries.

"They can bang their leg on an open dishwasher door or bump into a door frame, and their skin tears like a wet paper towel," Fife explains.

The fragility of the skin, along with years of sun damage, makes healing from these injuries more difficult for seniors. Medications like blood thinners and some corticosteroids and cancer drugs also hamper wound healing for those taking them.

Whatever the ailment, treating patients with multiple conditions typically requires the input of several specialists, along with a primary care physician (PCP). This can be difficult to coordinate with the structure of the current healthcare system, but providers

*Continued on page 52*

## Baby Boomer 411 for Providers

**Adults born in the baby-boom generation** are the fastest aging population in the United States, with about 3 million baby boomers hitting retirement age every year over the next decade and a half. By 2030, adults over 65 will make up 20 percent of the U.S. population. What do hospital leaders need to know about healthcare consumers in this generation?

- **They are loyal but tough customers.** Older boomers (ages 65–72) are the least likely to leave their physicians and the most likely to recommend them to others. They prefer to stay with longtime providers and value medical credentials and hospital affiliation when making care decisions. Younger boomers (ages 54–64) are more likely to leave their provider if they're dissatisfied with the quality of care or even break a referral to find a specialist of their choice.
- **They like convenience and staying close to home.** Both older and younger boomers would rather not travel for their care and consider travel time a key factor when choosing primary care physicians and specialists. Younger boomers indicate they would pay more for access to earlier appointments.
- **They are sensitive to cost.** Younger boomers care about affordability when choosing a specialist or surgeon and are more likely to shop around for the best deal.
- **They are open to technology.** Boomers are receptive to mobile technologies and say they would consider a virtual visit with a doctor if in-person care wasn't available. Younger boomers are especially adept at using tools to remotely monitor their health and wellness.

*Source: The Advisory Board. A 2017 survey conducted across age groups.*

At the St. Luke's Wound Care Clinic at The Woodlands Hospital in Houston, Texas, **Caroline Fife**, M.D., has noticed something else about her boomer patients over 65: They like to be in the know.

"They all want to understand what's going on," Fife explains. "I sketch out the circulatory system for them on my clipboard and make lists of the issues we need to address, diagnoses we need to explore and labs we need to obtain. I write down every medical term they need to know, and how often they'll need to return and for how long. I make a list I call their 'homework' that may include getting nutritional supplements, having blood drawn or bringing me the results of a prior angiogram. Then I tell them I will be checking their homework. The percentage of them who say that they will be reading about this at home on their computer is very high."

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*Continued from page 50*

are tackling this by implementing team-based models of care that draw upon the expertise of a caregiver network that may include geriatricians, nurse practitioners, social workers, pharmacists, dietitians and audiologists. Some hospitals even require nurses and technicians to undergo basic geriatric training, while others are developing acute care units for the elderly that specialize in case management, urgent care, acute care screening, geriatrics, and psychiatric and social care.

New value-based care delivery and reimbursement models being tested by Medicare also show promise for improving the effectiveness and coordination of care for aging patients. Initiatives include:

- Bundled payments for acute care and post-acute care hospital stays
- Community-based organizations to help patients transition out of the hospital
- Accountable care organizations and patient-centered medical homes that focus on creating closer relationships between patients
- PCPs
- Family caregivers

Clinical researchers are also exploring links between aging and chronic disease to gain a deeper understanding of how to keep people healthier longer.

THE PRACTICE OF HOUSE CALLS, COMMON IN THE EARLY 20TH CENTURY, HAD MOSTLY DISAPPEARED BY THE 80S, BUT IT IS MAKING A COMEBACK, THANKS IN PART TO MEDICARE CHANGES THAT HAVE MADE THESE VISITS EASIER TO BILL.

## HOUSE CALLS MAKING A COMEBACK

With more people struggling with chronic conditions and limited mobility as they age, hospitals are revisiting the idea of home health, a service that has been phased out in recent years as providers sought to cut costs.

Angie Mitchell

"We're going to see some things start cycling back around and becoming more pertinent," says **Angie Mitchell**, RN, assistant vice president of physician services at HealthTrust.

Though advances in telehealth and remote patient monitoring show potential for providing some of these services virtually, "traditional care can't go by the wayside," Mitchell says. "We're still going to need face-to-face interactions with patients that don't just happen over a computer."

Increasingly, patients choose to age at home instead of moving into nursing facilities, but for those living miles away from the closest healthcare facility, this can mean less access to care. Homebound elderly patients account for more than half of the costliest 5 percent of patients, according to a study by the University of Virginia's School of Medicine. Without a physician to check in with them regularly, these patients often end up being rushed to the nearest hospital when their conditions deteriorate.

A small but growing contingent of doctors, nurses and nurse practitioners are reviving the concept of house calls to improve in-home care for elderly patients. The practice, common in the early 20th century, had mostly disappeared by the 80s, but it is making a comeback, thanks in part to Medicare changes that have made these visits easier to bill.

Advocates of house calls say they could help hospitals deliver more cost-efficient, relevant care by helping caregivers keep a closer eye on prevention instead of just treating patients in crisis situations. Home visits can also reveal details about patient needs not as obvious during office visits.

While studies do show that patients do better in their own environment, "there are limits to being able to provide in-home care," Mitchell explains. "That's why we're seeing such an increase in assisted living centers connected to long-term care facilities like nursing homes, because they help ensure that continuity of care."

## PALLIATIVE CARE IN THE ER

The prevalence of chronic illness among the elderly is also fueling a rise in the number of seniors making frequent trips to the emergency room. At least one out of every six visits to the ER is made by a patient 65 and older, according to the Centers for Disease Control and Prevention. Half of those adults visit the ER in the last month of their life, according to a study in the journal *Health Affairs*, and most of those patients are transferred to critical care or acute units, where more than half end up dying.

*Continued on page 54*

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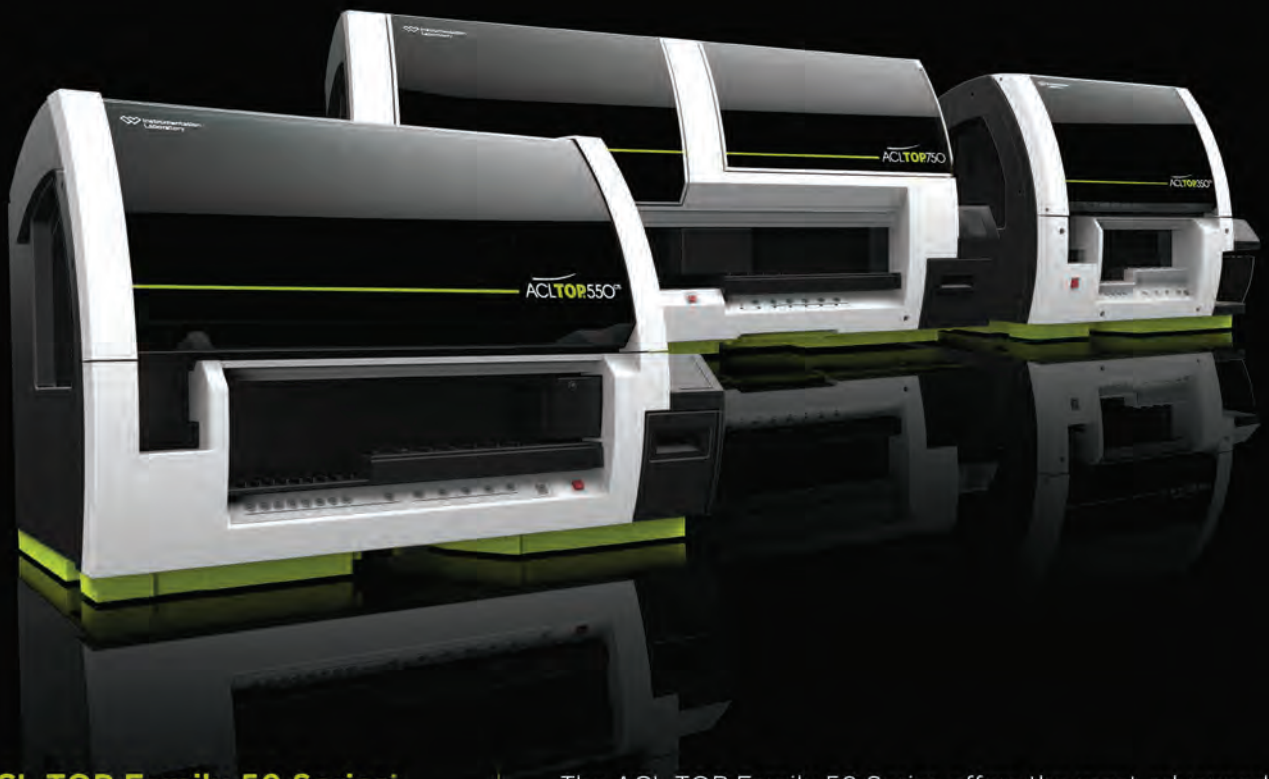
# A Breakthrough in Hemostasis Quality Management.

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*Continued from page 52*

Repeated exposure to overcrowded ERs full of gunshot and car crash victims can be traumatic and disorienting for patients in the throngs of serious illnesses such as dementia, cancer and heart disease. Even if ER doctors can relieve symptoms such as fever, pain and dehydration, they can't meet the underlying needs of the critically ill. Without an advance directive or family member to consult with about next steps, ER or ICU doctors typically turn to aggressive care tactics to keep patients alive.

This trend is prompting some hospitals to explore the idea of bringing palliative care, which tends to the psychological and spiritual needs of the terminally ill, into the ER. Proponents of integrating this service into ERs believe it could possibly extend the lives of patients with advanced illnesses by helping them avoid the stressors of acute care units—where they are vulnerable to hospital-acquired infections and delirium—and giving them access to options like hospice care at home sooner.

Though some ER doctors have begun pursuing palliative care certifications or working closely with palliative teams in hospitals, many ER teams are reluctant to initiate end-of-life discussions with patients they hardly know in such a fast-paced, harried setting.

"Palliative care needs to be delivered in the right environment by the right people—and not everyone can do it," Mitchell says.

Though the strategy has some merit, Mitchell indicates that hospitals should consider the pros and cons carefully and ensure that any palliative care delivered occurs "away from the trauma that comes through the ER. Hospitals need to make sure they're providing appropriate care for these patients and not contributing to their decline by exposing them to an environment that may compromise them further," she adds.



### THE ROAD AHEAD FOR HOSPITALS

With a projected shortage of millions of physicians, nurses and caregivers in the years ahead as boomers retire from the medical field or reduce their hours, more care-efficient models and patient-centered technologies could help hospitals fill the growing gap in clinical manpower and expertise while also meeting rising patient demands from aging boomers. But hospitals must be judicious about the models and products they implement going forward, especially with so many expensive new technologies on the market with few proven, clinical outcomes.

"Hospitals will need to take a deeper look internally at their processes and their protocols, including how much of what they do is driven by clinical data versus what's driven by clinician preference," Mitchell says.

Wireless and portable technologies, along with point-of-care testing, that allow providers to bring care to patients holds some of the best potential for helping hospitals meet the future needs of aging boomers.

Mitchell explains, "When people think about supply chain, they tend to think about products on a shelf. But, it's going to be the procurement of wireless and portable technologies and point-of-care capabilities that will help hospitals keep up with the influx of baby boomer patients. That's what will characterize the supply chain of the future." **S**

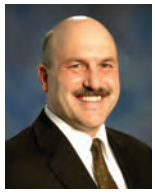
# DATA AS CURRENCY

## THE CHALLENGES OF ACHIEVING INTEROPERABILITY

Throughout the healthcare industry, facilities and organizations are coming to terms with the nuances and challenges inherent in their journey to achieve interoperability. Prompted further by the industrywide shift to a value-based model of care, it's more crucial than in years past for an enterprise to quickly reach interoperability.

A 2017 survey on health information technology purchasing intentions, conducted by TechTarget and the College of Healthcare Information Management Executives, revealed that 36 percent of healthcare IT (HIT) respondents said that interoperability and data exchange were the main factors driving technology buying decisions at their respective organizations. Fifty-three percent of respondents also cited "improving the quality of patient care" as the top reason for making those changes in 2017, a significant jump from 44 percent in 2016.

**Kent Petty**, chief information officer for HealthTrust, defines interoperability as the ability to make the right data available to the right people at the right time.



Kent Petty

"Data is really the currency of healthcare and the currency of HealthTrust; it's the way we bring cost, quality and outcomes together," Petty explains. "We need large amounts of data in order to make decisions about the right cost for the right quality outcome, whether it's in supply chain asset tracking, or in pharmaceutical or product tracking. We have to have an engine driving the analytics to provide the best care to the patient."

> "In value-based care, it's incredibly important to put knowledge in the right place, and interoperability enables that."
>
> **Kent Petty**, chief information officer at HealthTrust

Most HIT professionals would agree on the benefits that interoperability can afford both patients and providers. Aside from an overall improvement in the comprehensive and efficient care of patients, interoperability can also streamline patient care transitions across different organizations; reduce operational and administrative waste across a facility's enterprise; assist in providing essential data for population health initiatives; reduce wait times and delays between insurance providers; and improve communication and response times between patients and clinicians.

Conversely, a lack of interoperability within an enterprise can be damaging to a facility and to patients. According to the National Transitions of Care Coalition, communication breakdowns are a leading cause of medication errors, with "an estimated 60 percent of medication errors occur[ing] during times of transition."

In addition to putting patients at risk, communication breakdowns and the absence of an interoperable system will also directly affect the bottom line for hospitals and healthcare organizations as delivery and payments continue to shift to value-based care.

"In value-based care, it's incredibly important to put knowledge in the right place, and interoperability enables that," Petty says.

According to Petty, the shift to interoperability is similar to banking's transition to ATM technology, which is now so ubiquitous it's barely noticed. "Originally, if you walked up to an ATM and wanted to get money out of your account, you had to do it at your bank," Petty explains. "As ATMs started exchanging information about how much money you had in your account, that changed. Even if you had all your money at Bank A, you could go to Bank B and get your money out of that ATM machine."

Now, fast forward to the present. "You can go to an ATM in France today and take out money," Petty continues. "The machine can access your funds, do a security check and an exchange rate simultaneously—that whole system is interoperability. That's the kind of migration we're seeing in healthcare. We were interfacing, then we were integrating, and now we're moving to interoperability."

*Continued on page 58*

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*Continued from page 56*

## THE JOURNEY TO COMPASSIONATE CARE

Despite this upswing in investment and the need to transition away from the traditional fee-for-service model, achieving interoperability remains elusive. That's in part because the drive to become interoperable has exposed communication gaps and data-sharing inefficiencies some organizations were either unaware of or had previously chosen to ignore.

Plus, integration overhauls or HIT adoptions are disruptive to those who work within them, not to mention costly and time-intensive. Additionally, legacy patient data systems might not possess the technical capability to interact with next-generation technology that interoperable operations demand.

A larger challenge is that few, if any, roadmaps exist to guide the industry along the path toward achieving interoperability. Bridging the gap between data silos and connecting relevant data sources is complex and cumbersome work, and inconsistent interoperable standards between suppliers, regulators and providers do little to drive the progress onward.

According to a February 2018 article in *Health Management Technology*, provider and supplier inertia is a major roadblock. "Providers have long been the gatekeepers of patient content, and old habits die hard," the article reads. "Many have yet to find adequate motivation to liberate health data so that it can be freely exchanged with patients and other providers."

Petty realizes there's still work to be done. "We still need to get interoperable standards to a place where everyone can agree on a standard exchange of information," he notes. "We have very inconsistent standards between suppliers, which might be a paradox we can't solve, but we need to continue to focus on the benefits of sharing this information. Rising to the challenge of interoperability means focusing on what it can do to improve the treatment of the patient."

Though achieving a broad adoption of standards is critical, variations in state adoption rules can also be a constraint. Stronger patient matching technologies and more widespread trust among healthcare stakeholders looking to embrace the patient-first vision of care enabled by interoperability are also needed.

Challenges aside, what exactly does achieving interoperability look like? According to Petty, beauty is in the eye of the beholder.

"You know you've achieved it when you have the right information to do what you're charged to do," Petty says. "If you're in emergency care, interoperability needs to enable patient identification. For supply chain, interoperability needs to be able to tell me if we have a drug shortage in this part of the U.S. If so, we need to be able to look at sourcing elsewhere."

"We need to strive for the benefits of compassionate care," he continues. "Having a lot of data can help you make the right decisions." **S**

*The Office of the National Coordinator (ONC) for Health Information Technology has created a 10-year plan for advancing healthcare interoperability. Download the ONC's Shared Nationwide Interoperability Roadmap at www.healthit.gov/topic/interoperability.*


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# SEEING THE BENEFITS

## NVISION Gains Cost Savings & Streamlined Purchasing Through Membership in AdvantageTrust

With a strong commitment to patient care and positive patient outcomes, NVISION Eye Centers has grown steadily in recent years, operating 24 vision clinics and five ambulatory surgical centers (ASCs) throughout Arizona, California, Nevada and Oregon, and in Toronto, Canada.

But as NVISION has added clinics, each one continued to make its own decisions about supplier contracts. Every center was ordering from suppliers chosen by its staff, and there was no product standardization.

"We felt like we were missing the boat by not leveraging our purchasing power," says **Stacy Gober**, RN, BSN, senior director of ASC operations. "Each center managed its purchasing differently, and NVISION wasn't benefiting from the potential discounts of bulk ordering across the enterprise. We decided it was time to overhaul our purchasing efforts and combine the volume from all of our locations."

### HINDSIGHT IS 20/20

HealthTrust had been the GPO of record for a company where NVISION's Chief Financial Officer **Greg Cunniff** worked previously. Based on his positive experience with account director **Rachel Strong Egan**, Cunniff recommended HealthTrust membership for NVISION to both streamline its purchasing and save money. Cunniff and Gober then met with HealthTrust representatives, and according to Gober, "We immediately felt like it was the right fit."

Rachel Strong Egan

In August of 2017, NVISION joined AdvantageTrust, a division of HealthTrust, offering non-acute care providers access to industry-best pricing achieved by leveraging HealthTrust's $30 billion of purchasing power. AdvantageTrust presents the information in a way that is most relevant to facilities outside of a hospital setting.

Josh Moll

Similar to NVISION, other non-acute care facilities often have a variety of staff conducting purchasing activities who typically aren't supply chain or purchasing professionals. AdvantageTrust communicates information about discounts and terms in a user-friendly way that can be easily understood by anyone involved in placing orders for a facility.

**Josh Moll**, AdvantageTrust account manager, says, "With multiple, unique locations—the corporate headquarters, five surgery centers and 20-plus physician

Stacy Gober, RN, BSN

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> "Eventually, we anticipate moving purchasing responsibilities back to individual centers, and because of AdvantageTrust, the process will be much easier."
>
> **Stacy Gober**, RN, BSN, senior director of ASC operations, NVISION

clinics—it was important to Stacy and Greg to have an experienced team to guide NVISION through the process of working with a GPO."

## PURCHASING WITH A VISION

Because NVISION staff members were accustomed to making site-specific decisions about suppliers and products, moving to a companywide purchasing program presented some new opportunities. Existing staff had to learn how to select suppliers based on the concept of enterprisewide purchasing rather than handling orders in a vacuum.

"To streamline our purchasing and accomplish the cost savings available to us by ordering in bulk, we had to centralize responsibility for the initiative," Gober says.

NVISION hired a purchasing agent to work at the corporate level to manage the process and oversee supply orders. "Currently, this corporate employee is assisting in collating the data from all centers to realize the benefits of volume-based purchasing," Gober adds. "Eventually, we anticipate moving purchasing responsibilities back to individual centers, and because of AdvantageTrust, the process will be much easier. Facility personnel will no longer have all of the legwork involved in comparing prices and selecting suppliers. Instead, they'll simply order products from the suppliers contracted with HealthTrust."

## SEEING THE BENEFITS

Despite the challenges of managing change, becoming a member of AdvantageTrust is already paying off for NVISION. The company has found cost savings in a variety of areas, including shipping charges, office supplies and medical-surgical items, especially sutures, Gober says.

AdvantageTrust analyzed NVISION's office supply category and, through the Staples Advantage contract, helped the company achieve approximately 20 percent savings on many of the core items they purchase, Moll explains. On some office supplies, NVISION achieved savings of more than 50 percent. With the assistance of AdvantageTrust, NVISION also was able to access savings through many contracted suppliers such as Airgas, CDW, Henry Schein and Shred-it.

AdvantageTrust representatives Egan and Moll continue to work with NVISION leaders to focus on individual areas of spend and look for additional cost savings as well as ways to further streamline the purchasing process. According to Moll, NVISION recently inquired about new e-signature pads for all of its locations. And, the AdvantageTrust contracted supplier was able to provide a savings of approximately 10 percent.

In the coming months, NVISION plans to tackle information technology product categories. "We feel like we have just opened the door to the cost savings available, and we have a lot more work to do," Gober says.

But cost savings haven't been the only benefits of working with AdvantageTrust. NVISION staff members have also noticed that they are receiving better, more attentive service from suppliers and distributors since joining the GPO. "We feel like our suppliers are doing a better job for us now," Gober adds. "And if there are any issues, we are able to lean on our HealthTrust account managers, and they make sure the suppliers are doing everything expected of them. Being part of a large purchasing organization has really made a difference in both costs and service."

The improved service isn't just an extra perk; it's an expected benefit of membership in HealthTrust or AdvantageTrust. GPO representatives have deep relationships and experience with the suppliers on contract, and through those relationships, they require contracted suppliers to provide a certain level of service and attention.

Moll adds, "As an AdvantageTrust member, NVISION will benefit from continued assistance, as our team works with each supplier to ensure NVISION's connection to HealthTrust pricing and verify they are receiving the best service. AdvantageTrust will also collaborate with NVISION to help the organization develop purchasing best practices for all of its locations." ●

# COMMON GROUND

## Engaging Physicians in the Supply Chain Process Pays Dividends

Physicians, hospital administrators and supply chain professionals all desire to provide patients with high-value care based on quality outcomes and cost efficiency. Each group, however, has a different perspective on how to achieve that mission. This can sometimes lead to misunderstandings and disagreements.

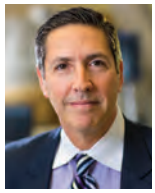
Overcoming miscommunication and engaging physicians and surgeons in the supply chain decision-making process will take time, says **John Young**, M.D., MBA, chief medical officer for HealthTrust. "You have to build relationships, establish trust and demonstrate a willingness to be transparent with the information you have and timelines you're dealing with," he says. "Decisions are often made on incomplete information, and the more transparent you can be with this process, the more likely the physicians will stay engaged."

John Young, M.D.

Building stronger, more transparent relationships always comes back to finding and articulating each side's shared goals. "Everyone in healthcare is facing the same external forces around cost and quality," Young adds. "That's common ground for both physicians and supply chain professionals."

### THE ADVANTAGES OF PHYSICIAN INVOLVEMENT

Hospitals are turning their focus to cutting costs as the healthcare industry continues its shift toward a value-based reimbursement model, in which claims are tied to quality of service. The supply chain process is one of the first areas hospital administrators examine. When the healthcare supply chain operates more efficiently, hospitals can then create cost-saving opportunities throughout the entire organization. However, when the supply chain decision-making process doesn't include the physicians who have personal preferences about the products, tools and technologies they use, cost-saving efforts can be jeopardized.



Gregory Mishkel, M.D.

"Every hospital system is unique, and there's no single recipe to gain physicians' cooperation," explains **Gregory Mishkel**, M.D., MBA, FRCPC, FACC, executive medical director of the cardiovascular product line at Prairie Heart Institute of Illinois. "Perhaps it starts with the realization that physicians are more business-minded than many hospital administrators give them credit for."

At Prairie Heart, supply chain committees are made up of inventory management specialists and physicians from all areas of the cardiac service line (cath lab, electrophysiology, non-invasive and CV operating room), as well as a physician executive leader. When physicians or surgeons want to use a new product or device, they make a request to the committee. The committee then examines whether it's a duplicate item, something novel or unique, or simply a more cost-efficient product.

"Using our product line committee with shared governance between physicians and hospital administrators, we have recovered about $1 million in the cost of implantable devices and reduced the cost of a percutaneous coronary intervention by more than $1,000 per procedure over the past two years," says Mishkel, who serves as a HealthTrust Physician Advisor.

By keeping up with industry connections, reading the latest scientific literature and attending expositions at medical conferences, physicians typically have access to new technologies, devices or treatments while they're in development, Mishkel explains. And, due to the less-regulated climate in Europe, much of what is new on the market is already in practice there, which provides a platform for determining its utility in the U.S.

Leveraging physician awareness of promising treatments can be in the best interest of a hospital—if the decision-making structure is sufficiently strong. "Physician leaders could help identify truly promising technologies and collaboratively create roadmaps about the clinical proof points they need and the data that matters to hospital operators," according to an article in *Becker's Hospital Review*, co-written by **Atiq Rehman**, M.D., director of Robotic and Minimally Invasive Cardiac Surgery at Our Lady of Lourdes Medical Center; **Michael Schlosser**, M.D., FAANS, MBA, HCA National Group's chief medical officer, and vice president of clinical excellence

*Continued on page 68*

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*Continued from page 66*

and surgical services; and **Eugene Schneller**, Ph.D., professor of supply chain management at W.P. Carey School of Business. "Although hospital employment of physicians has been associated with better supply chain performance, the fact remains that administrators still have to demonstrate the value of their initiatives and set up the right committee structure to drive standardization of care and products as well as manage the necessary utilization changes."

Genevieve Everett-Sigwalt, M.D.

Regularly scheduled committee meetings targeted to different specialties can help provide a clinical context and better understanding of the profitability of certain procedures, explains **Genevieve Everett-Sigwalt**, M.D., FHRS, director of cardiac electrophysiology at Johnstown, Pennsylvania-based Conemaugh Health System.

"When we have new technologies or products, we bring those to our scheduled meetings for discussion. These meetings are a good opportunity to interact with supply chain leaders. They are the ones negotiating with suppliers and making decisions about product purchases," says Everett-Sigwalt, a HealthTrust Physician Advisor. "We have conversations about the device and its safety, efficacy and importance in clinical settings before we ever discuss the financial aspect."

A technique used to treat atrial fibrillation is a prime example of the importance of looking at the total cost of a procedure—and including physicians in on the decision. As Everett-Sigwalt explains, there are two types of ablation procedures—cryoablation, which uses extreme cold to restore the normal heart rhythm, and radiofrequency ablation, which uses radioactive energy. Because the equipment and tools needed for a cryoablation are more expensive, it would seem to make sense not to purchase that technology at first glance.

"But, if something is truly a better technology or technique, it's going to be a win-win for both physicians and supply chain," she says. "With an atrial fibrillation cryoablation, the procedure time is much shorter, safety is improved, and patients don't have as many repeat procedures or hospitalizations. In short, patients achieve excellent outcomes and require fewer future interventions. Better outcomes typically result in more savings."

## MIND THE GAP

Although many physicians are cognizant of the pressures and challenges of rising healthcare costs, many often don't believe their input is needed to make purchasing decisions. However, physician

*Continued on page 70*

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*Continued from page 68*

input can help supply chain executives better understand how products and tools are used in the clinical context, Mishkel says.

In what other ways can supply chain and hospital administration bridge the gap? Young, Mishkel and Everett-Sigwalt recommend the following:

**1. Make it worth their time.** Physicians are among the busiest people in the hospital, interacting and treating patients, performing surgeries or procedures, documenting notes on electronic health records, and conferring with staff members. If scheduling a physician meeting, make sure it's about a specific topic. Trying to carve out time for a 30-minute or hour-long meeting can sometimes be a challenge, especially for physicians and surgeons who are doing the procedures and using the tools that need to be discussed. Keep in mind also that physicians are likely to stay engaged only if they participate in something that leads to significant change.


**2. Focus on the data.** Physicians respect data-driven exchanges. When presenting new products or technologies to physicians, present them with evidence-based studies and clinical data to gain their support.

**3. Find common ground.** Each institution needs to find creative ways of fostering alignment, cooperation and understanding. Find mechanisms that help align physician and supply chain interests, whether that's a shared savings model or some other method.

**4. Close the loop.** While physicians are regularly asked to give their opinion about certain products or technologies, more often than not, they never learn of the final decision. It's important for supply chain to close that communication loop. Explain to physicians why a decision was made one way or the other and the reasons behind that decision.

## HOW HEALTHTRUST CAN HELP

HealthTrust created its Physician Advisors Program in 2015 to help bring together supply chain executives and physicians for mutually agreed upon goals. The program seeks physicians' insights on clinical evidence reviews in categories that significantly impact patient care. HealthTrust's more than 140 physician advisors help lead technology reviews, study and analyze drug and device utilization trends, and identify ways to better drive value for partners and members.

"Being a HealthTrust Physician Advisor has given me credibility within my own healthcare institution and introduced me to other physicians who share their own experiences, which I can learn from," Mishkel says. "Through HealthTrust, I gain an objective overview of new technologies not available through industry sources."

"HealthTrust continues to educate its physician advisors on the contracting process, the information and decisions our supply chain colleagues are faced with, and how collaboration improves not only the cost of care, but quality as well," Young adds. ●

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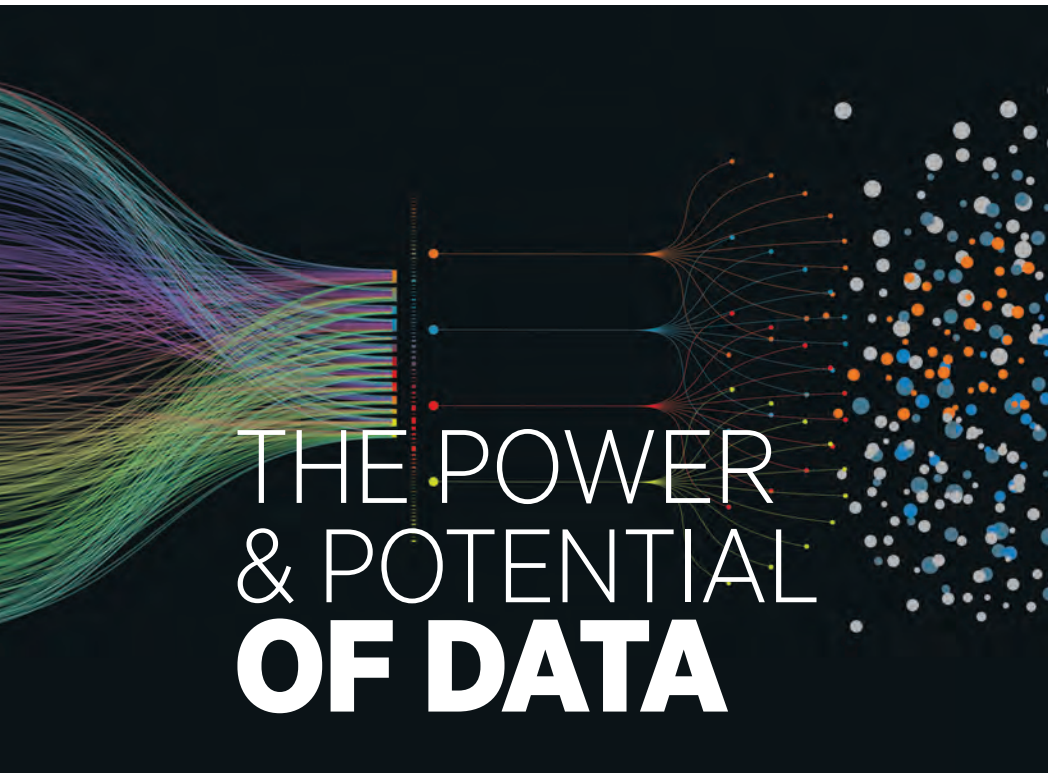

# THE POWER & POTENTIAL OF DATA

## Q&A
*with Shay Bess, M.D.*

**Shay Bess**, M.D., believes the key to the future of medicine is data—and he works tirelessly to spread the message of its power to transform the quality of healthcare. As director of surgical quality and resource utilization for spine services at the Denver International Spine Center at HealthONE's Presbyterian/St. Luke's Medical Center, and founder and president of the International Spine Study Group (ISSG), a nonprofit research foundation, he has merged his love of hands-on clinical practice with a desire to improve patient care through academic research. He spoke with *The Source* about the future of predictive analytics and its promise for improving patient outcomes and reducing costs and complications, particularly for at-risk populations.

***What led you to your present role balancing clinical and academic duties?***

After medical school and residency training, I worked in orthopedic spine surgery at several places, including at the University of Utah and San Diego Center for Spinal Disorders. For about eight years, I was director of the pediatric scoliosis services at the Denver International Spine Center at Presbyterian/St. Luke's Medical Center, and then I was recruited to be the director of the scoliosis and spine research programs at New York University (NYU). I was there for a year before I realized that one does not need to be in a university setting to be productive in research and academics. The research we were doing in Denver and with ISSG was more productive and influential than some of the work I had done in a university setting. Consequently, I returned to Presbyterian/St. Luke's Medical Center in 2016 to serve as director of surgical quality and resource utilization for spine services and to focus my efforts on the ISSG, HCA Healthcare and HealthTrust.

My practice is devoted to pediatric and adult patients with spine problems, the majority of whom have scoliosis. Adults with spine deformities are one of the most expensive patient populations. They are also one of the most at-risk for complications. So, much of our research seeks to identify and mitigate those risks and improve care for this patient population.

***What is the main focus of the International Spine Study Group?***

The current incarnation of ISSG (issgf.org) was founded in 2009. Dedicated to advancing the treatment of adults with spinal deformity and complex spine surgery, the ISSG has presented the model for multi-center research efficiency as well as over 1,000 abstracts worldwide and is now the most productive spine study group in the world. With the goal of achieving the best possible outcomes, we have 20 participating sites nationwide sharing ideas and producing research studies on spine treatments and techniques. We collaborate with the European Spine Study Group (ESSG) based out of Barcelona, Spain, and we also conduct research in Japan and Korea.

Working with the ISSG sparked my interest in predictive analytics, or using data and algorithms to try to predict which patients will benefit from certain treatments, who will likely have complications, what the costs will be, and the duration of hospital stay. The ISSG initiated an online database in 2009 to allow for seamless data entry and centralized data quality assurance.

Our research has demonstrated that, based upon a patient's profile, we can predict outcomes—not just how they're going to do in surgery, but also how they're going to respond to post-surgery questions, such as, Do you feel healthier? Can you now do the things you want to do? Do you like your posture and the way you look? Not only does the data we're collecting hold enormous potential for us to assess who is a good candidate for spine surgery and who is at risk for complications, but it also enables us to counsel patients and identify their post-surgery goals. This kind of analysis has positive ramifications for the patient and physician, as well as for the hospital and payer systems.

***How would you describe the evolution of analytic research?***

There has been an evolution in research from descriptive analytics (what happened) to diagnostic analytics (why did it happen) to predictive analytics (what will happen). There are numerous

*Continued on page 74*

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*Continued from page 72*

examples of predictive analysis in finance and business. Stock analysts assemble your retirement portfolio based upon your wishes and capacity to take risk. Investment firms use data to know when to buy, sell and trade. Companies like IBM can use data to predict if an employee is going to quit after six months, be promoted or stay in the job for 30 years. Academic institutions use data to improve student retention and optimize their resources.

So, why can't those of us in medicine make the same kind of predictions when it comes to outcomes, length of hospital stay, types of complications, catastrophic costs, and good and bad spine investments? We should be optimizing data and using predictive analysis to tailor our care for patients just as other industries do.

***How do you determine which predictive questions to ask your spine patients?***

Machine learning, a subfield of computer science, is only as smart as the questions asked. The algorithms you develop can quickly take you in a wrong direction if you're not asking the right questions. As with most forms of artificial intelligence, good data begets good data.

That's why we plan our questions depending on our goals: Are we trying to reduce hospital stay or reduce duration in the ICU? Are we trying to preoperatively identify cases that might trigger catastrophic costs? We discovered that within roughly a 95th percentile we can predict what the cost of a patient's care is going to be at the outset. Data becomes an extremely powerful tool, allowing us to pinpoint outliers and then change variables that are driving up costs so that the care becomes affordable.

As we looked further into our data set, we found that we could predict patient responses to different questions on a validated, standardized questionnaire within 70 to 80 percent accuracy. The questions we asked targeting pain level, activity level and attractiveness proved to be the most accurate. These questions included: How much pain have you experienced during the past six months? What is your current level of activity? Do you feel attractive with your current back condition? We use activity markers to see not only if patients are more active physically and socially, but if they're also more satisfied with their lives. We are looking at how effective certain treatments are from a cost standpoint and in improving the quality of life.

We start by finding out what the patient's expectations are at the outset and changing the way we assess outcomes. Patients want answers to their issues: Will I walk better? Will I be able to return to work? Will my pain improve? Will my mood improve? Will I feel better about the way I look? Will I be satisfied with surgical treatment? Because of predictive modeling's ability to put incredibly powerful data in your hands, we have the ability to tell patients they will improve by roughly X amount or their pain scores will improve by X amount. The data can also indicate potential complications, so that you can more accurately counsel a patient on their best surgical options as well as make strategic budget decisions.

***How do you handle resistance to change when it comes to data analysis? How do you convince people that even if there's a little pain to get through the start-up phase, it will ultimately result in something better?***

Everybody wants what's best for patients, but it takes time for some people to be open to the power of data analysis to change patient lives on a daily basis. Once you show surgeons the capacity of data to improve their outcomes, they tend to come around and adopt meaningful change in how their care is delivered.

It's hard to get people outside of their comfort zone, but change is going to happen anyway, so why shouldn't we be at the forefront of it? Look at the latest disruption to the healthcare system from Amazon, Berkshire Hathaway and JP Morgan. By banding together and sharing information, these companies are using data to reduce healthcare waste and build new efficiencies for their employees.

If you use data effectively, you can identify areas where waste can be reduced safely and efficiently. These more streamlined ways of practicing medicine are not only faster and easier, but they make the whole system run so much more efficiently. Data can be utilized to improve cost efficiencies, reduce wait times and lessen the amount of unnecessary labor that goes into providing care for patients.

***How can data help reduce the redundancy and variance that exists in the supply chain?***

When you look at the amount of goods delivered to a hospital at a single point in time, it can be staggering. Some of it is unnecessary. If we could predict what we're going to use in a certain case—whether it's screws or biologics or a rod of a particular shape or length for a scoliosis surgery—we can better manage our hospital inventory and eliminate a huge amount of redundancy. Data can also help us reduce shipping costs and improve efficiencies in supply processing.

We are going to have to change the way we look at our routine practices. Healthcare professionals are somewhat reluctant to adopt these efficiencies because they're used to having the comfort of excess inventory waiting in the back room just in case. We have found that the data to help us predict exactly what was needed for a specific procedure is sitting there, but it's not being used. When data is used to predict specific patient behaviors and outcomes, facilities can better plan surgeries ahead of time and markedly reduce variance and redundancy.

***What are some of your goals as a HealthTrust Physician Advisor?***

When I was asked to be part of the physician advisors program at the beginning of 2018, I was excited about helping others develop algorithms and use data platforms in a significant way to improve care delivery. There's so much data available to us through HealthTrust, and I would like to help analyze it on a national and global level to improve supply chain and reduce waste to a nominal level. Healthcare costs are astronomical and non-sustainable because of the variance and redundancy within the system. The good news is: The solutions are right here in front of us. We just need to apply the data we have to optimize patient situations.

***In what ways are you promoting the message of the power of data analytics?***

Since 2009, our ISSG team has presented more than 1,000 abstracts across the world. I'm fortunate that I've not only been part of the research team, but I also get the opportunity to share those results with others. That's critical: You need to be able to effectively enunciate your concepts or they won't help anybody. You have to put your ideas together distinctively and open people's eyes to new methodologies for improving the way they practice—further enhancing the good points and improving on the bad. I want to be active in the decision-making process for how healthcare is delivered. If it isn't going the direction that we want it to go, I want to be a driver for change, not just a passive observer.

***What do you enjoy most about the career you've forged so far?***

We have to be passionate in our lives; otherwise, what's the point? We have to enjoy what we do. Luckily, I get to work as a physician providing patient care in a clinical setting, but I also get to work in academics, developing algorithms and trying to improve the way we deliver care at a system level. That's the fun of medicine for me. I have been able to wear these different hats, have a diverse practice, and continue to grow and learn. ●

Since August 2016, **Shay Bess**, M.D., has served as director of surgical quality and resource utilization for spine services at the Denver International Spine Center at HealthONE's Presbyterian/St. Luke's Medical Center. Previously he served the hospital as director of pediatric scoliosis services from 2008 to 2015. In 2015, he served as chief of adult spine deformity service and chief of spine research at the New York University School of Medicine and Hospital for Joint Diseases. From 2007 to 2008, he was a fellowship faculty member in pediatric and adult spinal surgery at the San Diego Center for Spinal Disorders in La Jolla, California. From 2005 to 2007, Bess was assistant professor of orthopedic surgery at the University of Utah School of Medicine.

Bess earned his undergraduate degree at Columbia University and medical degree from Johns Hopkins. He completed an internship and orthopedic surgery residency at Case Western and completed a fellowship in pediatric and adult spine surgery at Washington University in St. Louis. Bess is the president of the International Spine Study Group Foundation, which was founded in 2009. He's active with the Scoliosis Research Society and the North American Spine Society, among other organizations.

# 2018 HEALTHTRUST MEMBER AWARDS

The 2018 HealthTrust Member Recognition Award winners have demonstrated outstanding performance, leadership and service in many significant ways. They have achieved savings through strong compliance measures, implemented a clinician-driven supply chain council, captured physician interest in the value analysis process, made a difference in fighting opioid dependency in their community, and created a pharmacy-led pain management team. In the categories of **Outstanding Member**, **Operational Excellence**, **Clinical Excellence**, **Social Stewardship** and **Pharmacy Excellence**, the members spotlighted on these pages are this year's honorees during the 2018 HealthTrust University Conference in Nashville, Tennessee.

## OUTSTANDING MEMBER AWARD

**Parrish Medical Center, Titusville, Florida**

**George Mikitarian**, DHA, FACHE, president/CEO
**Michael Sitowitz**, CPA, MBA, controller
**Robert Wildermuth**, MBA, CPA, CMRP, director, materials management – team leader
**Tina Phillips**, operations director
**Frank Polidora**, buyer
**Valerie Cooper**, buyer
**Sue Lessard**, OR/SPD, inventory coordinator


George Mikitarian


Michael Sitowitz


Robert Wildermuth


Tina Phillips


Frank Polidora


Valerie Cooper


Sue Lessard

## Compliance & Conversions Drive Savings

When Parrish Medical Center put out an RFP for a new group purchasing partner in 2014, it wasn't the projected year-one savings of $1 million dollars that pushed the Titusville, Florida, hospital to HealthTrust. Instead, it was the onboarding support from an on-site HealthTrust team that sold administrators.

"They promised to work right alongside of us to convert our contracts and help us get as much savings as possible right out of the gate," says **Robert Wildermuth**, director of materials management. "They were really committed to being part of our team."

Thanks to that team mentality, Parrish Medical Center "easily eclipsed" the million-dollar savings in year one and has shown no signs of slowing down. The freestanding hospital's compliance rate—which stands at over 90 percent—is among the highest in HealthTrust's membership. And, Wildermuth says, the supply chain team will continue to look for ways to become even more compliant.

"As a stand-alone, public, nonprofit facility, we don't have a lot of leverage or volume to swing one way or another," he says. "Compliance is key for us, because compliance drives pricing at HealthTrust as a whole. The more compliant we are, the better opportunity HealthTrust has to negotiate prices on our behalf."

While compliance is a key factor in Parrish Medical Center's value-analysis process, it's not the only one. Clinical leaders, buyers and even hospital executives make up an active Clinical Quality Value Analysis (CQVA) team, which convenes monthly to review and approve contract conversions.

"The first question we ask is: 'Clinically, is this the best supplier?' " Wildermuth explains. "If we have a choice between two suppliers and the clinical quality is the same, then why wouldn't we use one that is contract compliant?"

Last year, the CQVA team saved $484,000 on a variety of products. This year's $450,000 goal has been set across six different clinical areas. "While we've beaten the bushes and already found a lot of low-hanging fruit, we're trying to be realistic but still challenge ourselves," Wildermuth says. "What's so great—and important—about supply chain savings is that every dollar we save comes right off the bottom line." ●

## OPERATIONAL EXCELLENCE AWARD

**Trinity Health Clinically Driven Supply Chain**
**Livonia, Michigan**

**Suzette Bouchard-Isackson**, MSN, RN, director, perioperative services, transformation team officer
**Kelley Young**, director, strategic sourcing
**Mark Pinto**, M.D., medical director, surgical services and orthopedic service line
**Walter Whitehouse Jr.**, M.D., medical director, surgical services


Suzette Bouchard-Isackson


Kelley Young


Mark Pinto


Walter Whitehouse Jr.

## The Power of a Clinically Driven Supply Chain

Reducing variations in care delivery, including the products used, is proven to improve patient outcomes, reduce waste and lower the overall costs of care—all goals aligned with the kind of people-centered care Trinity Health pursues on all levels. Building a people-centered health system, in fact, was the driving force behind Trinity Health's efforts to more closely align its clinical supply chain—which represents approximately $1.35 billion in annual spend—with its care delivery model. Trinity Health has leveraged a clinically driven supply chain (CDSC) model to identify, implement and optimize yearly savings opportunities since 2015. The goal of this collaborative work is to improve Trinity Health's annual supply chain savings. Phase one launched in 2015, streamlining med/surg contracts, while phase two kicked off the following year, tackling medical devices and some specific cardiovascular and orthopedic initiatives.

*Continued on page 78*

*Continued from page 77*

Since 2016, Trinity Health's Clinical Excellence Council has provided accountability, leadership and direction to the CDSC model. The council is made up of carefully selected team members and represents all Trinity Health hospitals. To date, the council has created three subgroups—cardiovascular, orthopedics and surgery. Each is co-led by a physician, clinical director and supply chain representative.

"We launched with a test pilot addressing cardiovascular needs, carefully assessed and course-corrected before moving on to other areas," says **Suzette Bouchard-Isackson**, MSN, RN, director, perioperative services, transformation team officer. "We are intentional in this work; our goal is to have all groups operating from the same product-review processes and standards, even though their perspectives may be unique."

The subgroups meet monthly, mostly via conference call, but in face-to-face meetings whenever possible. Even the meetings are standardized. Before each meeting, team members submit new initiatives using a SBAR (situation, background, assessment, recommendation) format. The council reviews the initiatives and determines if an expert panel should be formed to conduct research or provide more information. Once the expert panel weighs in to support or amend the initial recommendations, the initiative is presented to hospital leaders for a defined comment period.

Finally, the Clinical Excellence Council votes, and, if the work is approved, the clinical leaders are accountable to implement the initiative.

"We are very proud of our collaborative accomplishments," says **Kelley Young**, director, strategic sourcing for Trinity Health. "The work our teams are doing echoes the processes and protocols implemented in the hospitals; both are evidence-based and motivated by aspirations to deliver excellence in care and service."

To support consistent implementation, the CDSC team developed a playbook, with guiding principles, core practices, references and links to key, evidence-based literature.

"We continue to refine the processes, but we make sure to stay agile and ready to launch additional groups as needs arise," Bouchard-Isackson adds. "We take it one step at a time so we can make sure that we do not have any variation, either—in how our teams are created, or how our initiatives are implemented."

## CLINICAL EXCELLENCE AWARD

**Scripps Health Clinical Value Analysis Team**
**San Diego, California**

**Jonathan Worsey**, M.D., medical director, value analysis – team leader
**Cecile Hozouri**, assistant vice president, supply chain management
**Erin Arnold**, clinical resource specialist
**Stacy Griffin**, director, logistics
**Lisa Otte**, director, cost accounting


Jonathan Worsey


Cecile Hozouri


Erin Arnold


Stacy Griffin

## A Focus on Physicians

A clinical value analysis program is only effective with committed physician involvement. Yet, getting physicians involved in the product selection process can be a real challenge. But at Scripps Health, a five-hospital system based in San Diego, physicians aren't backseat participants in the value analysis process—they're the ones driving it.

This focus on physicians enabled the clinical value analysis team, led by **Jonathan Worsey**, M.D., to save $17 million in 2017 through a variety of physician-led, evidence-based initiatives that are reducing variation in supply utilization and standardizing some elements of clinical practice.

The core value analysis team, which includes physician champions from each of Scripps' five hospitals, identifies opportunities by looking for areas with high spend and significant variation in practice. Physicians and clinical resource specialists (most with a nursing background) review data and look at variation in utilization, outcomes and comparisons between practitioners

*Continued on page 80*

*Continued from page 79*

at Scripps hospitals with regard to accepted benchmarks. Out of that review process comes recommendations for the standardization of supplies, more efficient use of resources and potential best practices. Before they can be implemented, they must be presented to physicians, who vote "for" or "against" them at formal, in-person events dubbed "summits."

The first summit, for general surgery, was held in spring 2017. Since then, summits for spine, orthopedics and robotic surgery have taken place. Worsey says the summits have been effective because the issues on the agenda are chosen carefully, so that key physicians see value in giving up some of their free time to attend. The value analysis team places particular emphasis on providing clear, believable and easy-to-understand data (specifically, individual practitioner and procedure data) to the physicians ahead of time. This allows any questions or concerns about the data's validity to be addressed beforehand and not detract from the more important discussion of what it means and how it can be used. At the summit, presentations about specific initiatives are followed by discussions led by practicing physician champions.

"The tone is collegial and collaborative with input solicited from all participants. Decisions are made on the basis of consensus, though unanimous agreement is not required," he explains. "Participants generally agree with sensible, well-prepared and thoughtful proposals, the key being to present the data and guide the discussion in such a way that the answers are clear and obvious."

Once consensus is established, the value analysis team leans on physicians, as well as the marketing department and medical staff leadership, to ensure adoption. Each initiative is broken down into milestones and tasks necessary for a successful completion. Finally, a 120-day lookback period helps the value analysis team measure the impact of the initiatives.

Some of the highlights include:

- Reduced new product adoption by 60 percent, which had a financial improvement on the overall supply costs by 1.5 percent.
- Changed hundreds of surgeon preference cards to remove supplies that were being wasted and not used.
- Converted more than 38 product categories, which changed 735 individual items and reduced the overall item count by 35 percent.
- Reduced unused inventory (> 12 months) by 30 percent ($2.2 million).
- Standardized central line trays to sustain below benchmark central line-associated bloodstream infection (CLABSI) rates. ●

**THE HEALTHTRUST UNIVERSITY CONFERENCE** will be held on July 23–25 at the Gaylord Opryland Resort & Convention Center in Nashville.

The 2018 HealthTrust **MEMBER RECOGNITION AWARD** winners will be honored on Tues., July 24, during the morning's general session.

## SOCIAL STEWARDSHIP AWARD

**Opioid Task Force – Saint Peter's University Hospital**
**New Brunswick, New Jersey**

**Linda Carroll**, RN-BC, MSN, vice president, patient care services and chief nursing officer – team leader
**Margaret Drozd**, MSN, RN, APRN-BC, director, community health services
**Genevieve Kumapley**, PharmD, BCOP, clinical pharmacist specialist


Linda Carroll


Margaret Drozd


Genevieve Kumapley

## Fighting the Good Fight

Middlesex County, New Jersey, home of Saint Peter's University Hospital, has been hit hard by the opioid epidemic. In 2016, the drug overdose death rate jumped 71 percent over the previous year, and according to state data, opioids were to blame in about 85 percent of the deaths.

It's those types of grim statistics that led to the formation of the Opioid Task Force at Saint Peter's University Hospital, a 478-bed acute care teaching hospital in New Brunswick, New Jersey. Led by **Linda Carroll**, RN-BC, MSN, vice president, patient care services and chief nursing officer, the all-volunteer task force consists of physicians, nurses, social workers, law enforcement officials, pharmacists and community activists.

Since its launch in October of 2017, Carroll estimates the task force has reached more than 4,000 lives by providing information, education and support services to local schools, law enforcement agencies and patients who have been treated for opioid overdoses.

For patients brought to local emergency departments, the task force offers counseling about rehabilitation and support services. Opioid overdose recovery coaches, as they're known, are recovering addicts with at least four years of sobriety who have been trained upward of 40 hours. They make initial contact in the ED and follow up by phone in six to nine months. If the life-saving drug naloxone was used on the patient, the hospital also replaces the local law enforcement agency's supply, free of charge.

Task force volunteers host community programming at the hospital and visit local schools several times a month to discuss opioid addiction with students, teachers, parents and athletic coaches. Hospital social workers are also available to meet with guidance and student assistance counselors to educate them about community treatment resources.

*Continued on page 83*

## 2018 GITA WASAN PATEL PHARMACY EXCELLENCE AWARD

**Pharmacy-Led Pain Management Team**
**WellSpan York Hospital, York, Pennsylvania**

**Larry Owens**, PharmD, BCPS, clinical specialist – team leader
**Benson Mathew**, PharmD, clinical 1 pharmacist
**Nicholas Haas**, PharmD, clinical 1 specialist
**Brittany Thomas**, PharmD, clinical 1 specialist
**Christine Higgins**, PharmD, clinical 1 pharmacist
**Danielle Bowen**, PharmD, clinical 1 pharmacist


Larry Owens


Benson Mathew


Nicholas Haas


Brittany Thomas


Christine Higgins


Danielle Bowen

## Taking the Pain Out of Pain Management

For the past 18 years, pharmacists at WellSpan York Hospital in York, Pennsylvania, have played a key role in managing patients' pain at the 580-bed community teaching hospital. Like many programs, the pharmacy-led pain management initiative started small, with two pharmacy residents creating pain management protocols, revising order sets and providing individualized interventions for patients with orthopedic pain. Outcomes were measured as part of a resident research project, which demonstrated that the program significantly improved pain scores and reduced side effects.

The pilot program ended after one year, but **Larry Owens**, PharmD, BCPS, continued to offer pain-management services

to orthopedic patients while also expanding the program to include oncology and palliative care. "There was such an outpouring of demand for our services," he says. "It got to be quite burdensome, so we looked at making it a full-time position."

In 2006, the pain management team was created. Today, there are five clinical pharmacists, plus Owens, who rotate with the team on a weekly basis. Each week, Monday through Friday, a pharmacist is available to complete initial pain management consultations and conduct follow-up visits with patients who require additional monitoring. Annually, the team completes between 700 to 900 initial consults. With follow-up monitoring included, the team is responsible for over 2,000 patient encounters each year.

"Days are rarely typical," Owens says. "It's either feast or famine." The pain team clinician's day can vary from two to 10 new consultations. And, with physicians requesting that the pain team manage care in 98 percent of cases, this can lead to a very busy day.

The team also serves as an educational resource for hospital staff, equipping them with tools and insight for managing pain in both routine and complex cases. In light of the opioid epidemic, the pain team utilizes an assessment tool, which can assist physicians in identifying risk factors for the development of opioid misuse disorder and provide additional safeguards for patients who might be susceptible to abuse.

Regularly reviewing patient questionnaires lets the pain team know how they're doing. Survey results validate that the team's efforts are leading to high patient satisfaction, improvement in functionality and reduction in pain scores. ●

## SOCIAL STEWARDSHIP AWARD

*Continued from page 81*

Parents are especially surprised to learn that because the adolescent brain is still in development, there is a heightened risk of addiction in tweens and teenagers, explains **Margaret Drozd,** MSN, RN, APRN-BC. "Drug overdose is seen as early as middle school. As we plan for 2019, we are revising the educational programs for our school outreach to share even more about the pathophysiology of the adolescent brain as it relates to addiction."

The task force also leads two-hour education sessions with residents and clinical staff. Led by **Genevieve Kumapley**, PharmD, BCOP, who manages Saint Peter's University Hospital pain committee, the sessions provide updates on the epidemic and training on the hospital's multimodal approach to pain management. ●

# Thank you for an outstanding conference.

HealthTrust is pleased to acknowledge the generous contribution from the following suppliers to the 2018 HealthTrust University Conference. Thank you for your commitment to our members.

Melinta THERAPEUTICS The Antibiotics Company

General Conference
**MELINTA**

AMERICAN EXPRESS

Wireless Internet/Cyber Café
**AMERICAN EXPRESS**

teva

Room Key Sleeves
**TEVA PHARMACEUTICALS**

Allergan

Closing General Session Keynote
**ALLERGAN**

OM Owens & Minor

Reception — Monday
**OWENS & MINOR**

Baxter

Lanyards
**BAXTER**

QUIDEL

Tote Bags
**QUIDEL**

HUGGIES

Reception — Tuesday
**KIMBERLY-CLARK**

Lunch
**FRESENIUS KABI**

Cyber Café — In Kind
**CDW**

Power Breaks
**TRONEX**

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**EDM**

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Chair Drop
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Room Drop
**AMAG PHARMACEUTICALS**

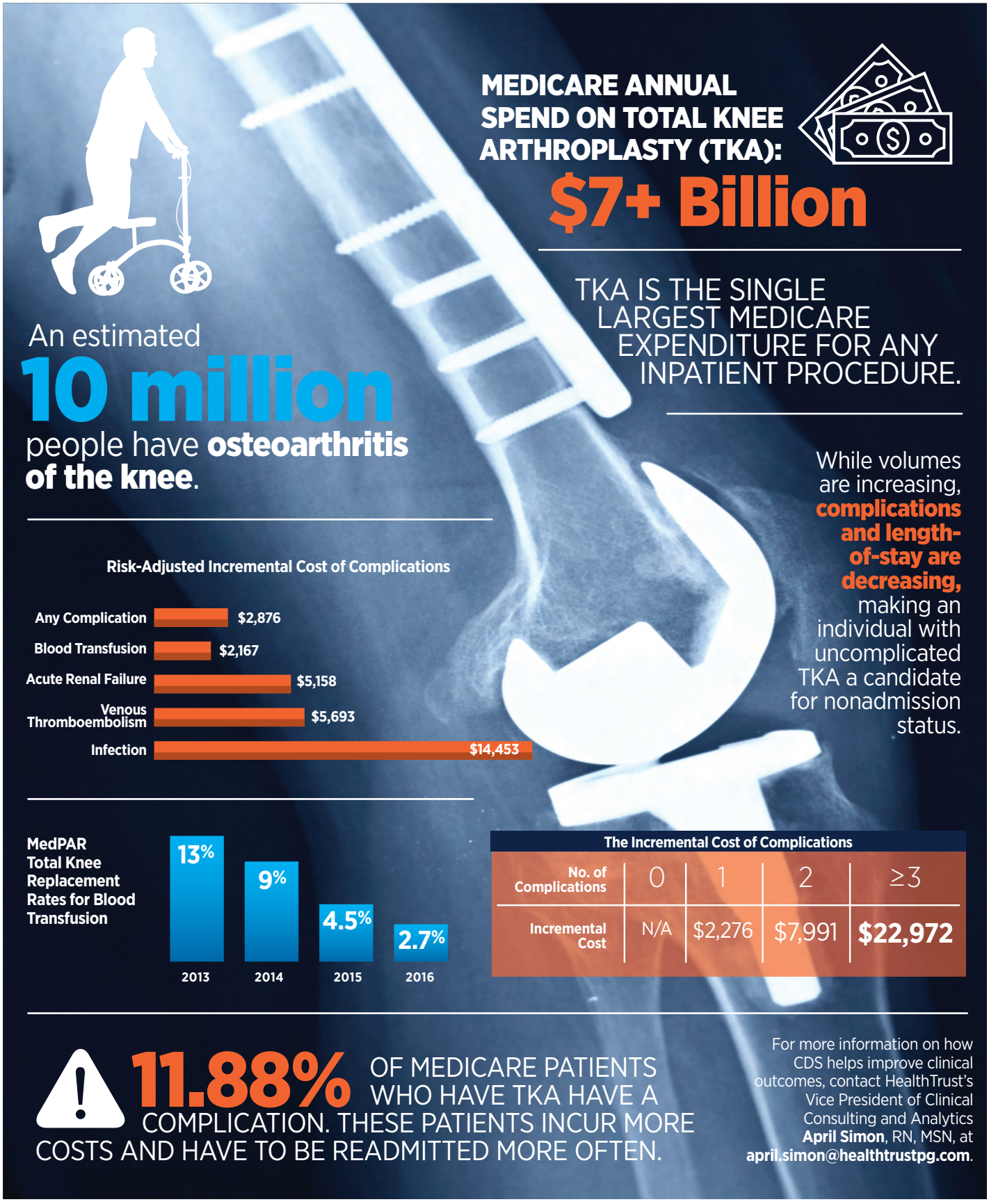
Room Drop
**TIDI PRODUCTS**

Water Stations
**MEDLINE**

Hand Sanitizer
**DEBMED**

Pens
**URESIL**

Luggage Check
**STORAGE SYSTEMS**



## MEDICARE ANNUAL SPEND ON TOTAL KNEE ARTHROPLASTY (TKA):

# $7+ Billion

TKA IS THE SINGLE LARGEST MEDICARE EXPENDITURE FOR ANY INPATIENT PROCEDURE.

An estimated **10 million** people have **osteoarthritis of the knee**.

While volumes are increasing, **complications and length-of-stay are decreasing,** making an individual with uncomplicated TKA a candidate for nonadmission status.

**Risk-Adjusted Incremental Cost of Complications**




**MedPAR Total Knee Replacement Rates for Blood Transfusion**




**The Incremental Cost of Complications**

| No. of Complications | 0 | 1 | 2 | ≥3 |
|---|---|---|---|---|
| Incremental Cost | N/A | $2,276 | $7,991 | **$22,972** |

**11.88%** OF MEDICARE PATIENTS WHO HAVE TKA HAVE A COMPLICATION. THESE PATIENTS INCUR MORE COSTS AND HAVE TO BE READMITTED MORE OFTEN.

For more information on how CDS helps improve clinical outcomes, contact HealthTrust's Vice President of Clinical Consulting and Analytics **April Simon**, RN, MSN, at **april.simon@healthtrustpg.com**.

# Cloud Recognized as a Supply Chain-focused Physician

HealthTrust Physician Advisor **William G. Cloud**, M.D., MACM, FACS, general surgeon at Providence Hospitals, was recently chosen as one of three PURE award winners by *Healthcare Purchasing News*. In an effort to recognize physician contributions to supply chain operations and processes, the publication annually profiles **P**hysicians **U**nderstanding, **R**especting and **E**ngaging Supply Chain professionals who are taking an active role as decision-makers in product and supplier selection and contracting.

Cloud, also a physician for LifePoint subsidiary Omnipoint Surgery and a member of LifePoint Health's National Physician Advisory Board, is one of six general surgeons who were tasked with maintaining and advancing surgical service line developments for the organization. Cloud was nominated by HealthTrust for his work with an Enhanced Recovery After Surgery (ERAS) colorectal initiative that evolved and expanded into a template for the creation of a broad approach to improving surgical outcomes and lowering costs for all surgical service lines. ●

# Starmann-Harrison Elected Chair-elect of IHA Board

HealthTrust member **Mary Starmann-Harrison**, FACHE, president and CEO of Hospital Sisters Health System (HSHS) in Springfield, Illinois, has been elected chair-elect of the Illinois Health and Hospital Association's (IHA) 2018 Board of Trustees. Starmann-Harrison will become chair of the board in 2019. The board of trustees is the policymaking body for the association, representing more than 200 hospitals and nearly 50 health systems across Illinois.

Starmann-Harrison began her career as a registered nurse in the emergency department and has served in healthcare management since 1979. She joined HSHS as CEO in 2011 and served previously as the first regional president and CEO of SSM Health Care of Wisconsin; CEO for the western region of Tenet Physician Services; and held various other leadership roles previously, including CEO at St. Luke's Medical Center in Phoenix. ●

## Extension Granted for Appropriate Use Criteria For Advanced Imaging

**The Centers for Medicare & Medicaid Services** (CMS) delayed the effective date for the Appropriate Use Criteria (AUC) consultation and reporting requirements to Jan. 1, 2020, and made several other changes to the policy. On and after Jan. 1, 2020, radiology professionals who order certain advanced imaging services must consult certain AUC using a qualified clinical decision support mechanism (CDSM).

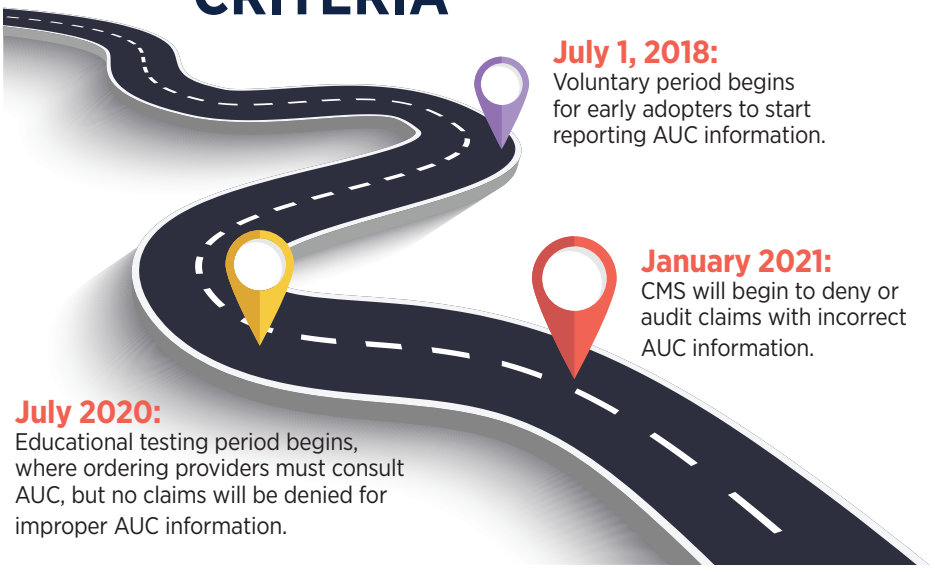
The rule was delayed after industry stakeholders expressed concerns over implementation given the complexity of the AUC program.


Luann Culbreth

"Some facilities are going to continue with implementation, but this extension gives them more time to work out any issue they are going to encounter," says **Luann Culbreth**, MBA, RT, FACHE, director, radiology and cardiovascular services at HealthTrust.

The rule allows for an educational and operations testing period of one year that will begin on Jan. 1, 2020. This testing period is helpful for providers since it allows participation while avoiding claims denials, according to the Association for Medical Imaging Management (AHRA). During this period, the CMS will continue to pay claims whether or not the correct AUC information is included. However, by January 2021, the CMS will begin denying or auditing incorrect AUC claims.

The CMS is also moving forward with the voluntary reporting period, which extends from July 2018 through Dec. 31, 2019. "However, the voluntary reporting period is dependent on the ability of the Medicare claims system to accept and process AUC claims that include consultation information," AHRA says. ●



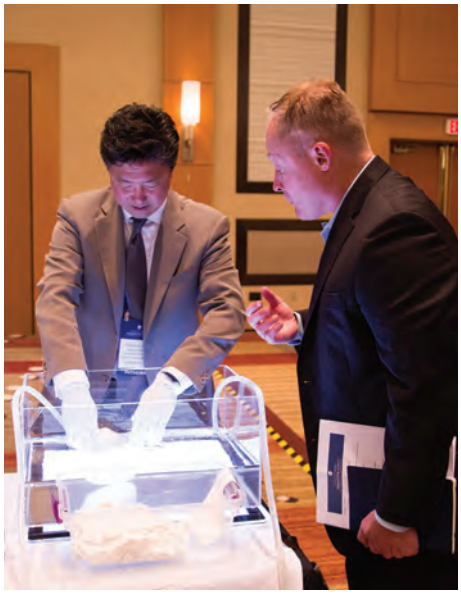
Source: Association for Medical Imaging Management (AHRA)

## INNOVATION SUMMIT 2018

**HealthTrust will host** its fourth Innovation Summit, Oct. 16–19, 2018, at The Westin La Paloma Resort in Tucson, Arizona. The annual event is an avenue for suppliers with new technology to present innovative products to service line clinical experts and physician advisors from within the HealthTrust membership.

The 2018 application process ran through mid-May and had 150 submissions vying for 70 available positions. Invited members will review the technology in an exhibition setting as well as in specialty board meetings where they will discuss their findings.

"The feedback of our physicians and clinical experts in assessing which showcased innovations truly deliver an improvement in care delivery or patient outcomes is an important clinical and operational vetting process in adding new products to HealthTrust's contract portfolio," says **Mark Dumond**, assistant vice president of physician services for HealthTrust. ●



# CHECKS & BALANCES

## Contracting Considerations & the Safety of Medical Devices

**HealthTrust's Physician Services** team provides a monthly review of FDA Premarket Approvals (PMAs) and 510(k)s for physician preference items. In support of its contracting efforts related to national agreements, these compendiums—along with new technology summaries and clinical evidence reviews (CERs) for implantable medical devices and clinically sensitive products—are made available to members through the secure HealthTrust member portal. Physicians in the relevant specialty who are part of HealthTrust's Physician Advisors program provide input on the CERs, which are a critical component of HealthTrust's contracting process.

Have you ever wondered how the process works for getting a device to market? How do healthcare providers know before they buy if a device is worth all of the marketing hype? This type of checks and balances system is the responsibility of the FDA's Center for Devices and Radiological Health (CDRH), which provides premarket review and approval of all medical devices, as well as oversight of the manufacturing, performance and safety of related devices.

The FDA regulates devices and safeguards customers with one of two types of approval processes—the PMA or 510(k).

- **PMAs** require manufacturers to submit an application *before* they market any new products that contain new materials or differ in design from products already on the market. The application requires valid scientific evidence collected from human clinical trials showing the device is safe and effective for its intended use.
  > Examples of PMAs include digital mammography, minimally invasive and non-invasive glucose testing devices, implanted defibrillators and implantable middle ear devices.
- **510(k)**, a section of the Food, Drug & Cosmetic Act, established the risk-based device classification system for medical devices. Before a manufacturer can market a medical device in the U.S., it must demonstrate to the FDA's satisfaction that the device is substantially equivalent to, or as safe and effective as, a device already on the market. If the FDA rules the device is "substantially equivalent," the manufacturer can market the device.
  > Examples of 510(k)s include X-ray machines, dialysis machines, fetal monitors, lithotripsy machines and muscle stimulators.

| | % of Medical Devices | Examples | Potential Risk Level | Subject to |
|---|---|---|---|---|
| Class I Devices | 47% | Toothbrushes, oxygen masks, elastic bandages | Low to none | "General" controls to ensure device safety and effectiveness once manufactured |
| Class II Devices | 43% | Orthopedic and spine implants, IV pumps, ultrasound equipment | Potentially pose more risk | "General" controls + "Special" controls (labeling, testing and performance standards) |
| Class III Devices | 10% | Cardiac pacemakers, implantable defibrillators, coronary stents | Potential for adverse outcome | Premarket approval since they typically support or sustain life or are implanted in the body |

Exempt — If a device falls into a generic category of an exempted Class I device, a premarket notification application and FDA clearance is not required before marketing the device in the U.S. However, the manufacturer is required to register its establishment and generic product with the FDA.

Examples: Manual toothbrushes and stethoscopes, mercury thermometers, bedpans

HealthTrust's Physician Services team conducts clinical evidence reviews of Class II & III devices, seeking input from Physician Advisor specialists relevant to a category of products under contract consideration.

### Device Classifications

The classifications of medical devices are based upon the degree of control necessary to ensure the various types of devices are safe and effective *before* they are marketed to the public. As device class increases from I to III, the regulatory controls also increase, with Class III devices subject to the greatest number of regulations.

### Ongoing Protections

The FDA monitors reports of adverse events and recalls related to medical devices. When it perceives the health and safety of patients or product users poses a potentially significant risk, it issues alerts to health professionals and consumers through the medical device safety section of FDA.gov.

HealthTrust also issues important information related to product recalls and/or safety issues through special editions of its contracting newsletter, *The Response*. ●

*For more information on how HealthTrust uses information on FDA Premarket Approvals (PMAs) and 510(k)s in its contracting process for medical devices, contact* ***Mark Dumond*** *at mark.dumond2@healthtrustpg.com.*

*Sources: FDA.gov; Mark Dumond*

# THE COMPETITIVE ADVANTAGE OF CYBERSECURITY

**Because cybersecurity incidents** are dynamic and ever-evolving, HealthTrust deploys defensive, in-depth strategies to combat the threats that members face thousands of times every day. While these strategies include physical and electronic perimeters, they also include contracting with suppliers that offer secure products and services.

**Terry Moon**, senior director of strategic sourcing, says that HealthTrust is dedicated to researching and contracting for the most secure products and services on the market to help members with their security strategies and protect patients from malicious activity.

"HealthTrust suppliers' products and services are now being evaluated on their

cybersecurity capabilities during the contracting phase," Moon says. "How the company includes cybersecurity mitigations in their product development, as well as how the products will attach to a hospital network or to a patient, are put through various risk assessment processes."

Moon explains that supplier risks are evaluated and then used to determine the best possible scenario for members as part of the sourcing process. Suppliers that have better cyber-risk assessments are more likely to be recommended. HealthTrust anticipates that suppliers will mature their cybersecurity processes and products as a competitive advantage.

This year for the first time, HealthTrust established a Cybersecurity Supplier of the Year award, honoring a supplier that stands out for its efforts on protecting patients. The criteria for the award is based on a multitude of factors including, but not limited to, a supplier's cybersecurity policies and processes, secure products on the market, information sharing before/during/after cyber events, and their acceptance of cybersecurity requirements. The winner will be announced at the HealthTrust University Conference at the end of July.

"HealthTrust is focused on protecting patient from cybersecurity threats," Moon says. "Suppliers who react accordingly, reduce exposure, and/or eliminate cyber threats should be recognized for such efforts."

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**Rx ONLY**

**The XIENCE V®, XIENCE nano®, XIENCE PRIME®, XIENCE PRIME® LL, XIENCE Xpedition®, XIENCE Xpedition® SV and XIENCE Xpedition® LL, XIENCE Alpine®, and XIENCE Sierra™ (XIENCE Family) of Everolimus Eluting Coronary Stents on the MULTI-LINK VISION® or MULTI-LINK MINI VISION® Delivery System**

## INDICATIONS

The XIENCE Sierra stent system is indicated for improving coronary artery luminal diameter in patients, including those with diabetes mellitus, with symptomatic heart disease due to *de novo* native coronary artery lesions (length ≤ 32 mm) with reference vessel diameters of ≥ 2.25 mm to ≤ 4.25 mm. In addition, the XIENCE Sierra stent system is indicated for treating *de novo* chronic total coronary occlusions.

## CONTRAINDICATIONS

The XIENCE Sierra stent system is contraindicated for use in:

- Patients who cannot tolerate, including allergy or hypersensitivity to, procedural anticoagulation or the post-procedural antiplatelet regimen.
- Patients with hypersensitivity or contraindication to everolimus or structurally related compounds, or known hypersensitivity to stent components (cobalt, chromium, nickel, tungsten, acrylic, fluoropolymers), or with contrast sensitivity.

## WARNINGS

- It is not recommended to treat patients having a lesion that prevent complete inflation of an angioplasty balloon.
- Judicious patient selection is necessary because the use of this device carries the associated risk of stent thrombosis, vascular complications, and/or bleeding events.
- This product should not be used in patients who are not likely to comply with the recommended antiplatelet therapy.

## PRECAUTIONS

- Ensure that the inner package sterile barrier has not been opened or damaged prior to use.
- Stent implantation should only be performed by physicians who have received appropriate training.
- Stent placement should be performed at hospitals where emergency coronary artery bypass graft surgery (CABG) is accessible.
- Subsequent restenosis may require repeat dilatation of the arterial segment containing the stent. Long-term outcomes following repeat dilatation of the stent are presently unknown.
- Care should be taken to control the guiding catheter tip during stent delivery, deployment and balloon withdrawal. Before withdrawing the stent delivery system, visually confirm complete balloon deflation by fluoroscopy to avoid guiding catheter movement into the vessel and subsequent arterial damage.
- When DES are used outside the specified Indications for Use, patient outcomes may differ from the results observed in the SPIRIT family of trials.
- Compared to use within the specified Indications for Use, the use of DES in patients and lesions outside of the labeled indications may have an increased risk of adverse events, including stent thrombosis, stent embolization, MI, or death.
- Orally administered everolimus combined with cyclosporine is associated with increased serum cholesterol and triglycerides levels.
- A patient's exposure to drug and polymer is proportional to the number and total length of implanted stents. See Instructions for Use for current data on multiple stent implantation.
- Safety and effectiveness of the XIENCE Family of stents have not been established for subject populations with the following clinical settings:
  - Patients with prior brachytherapy of the target lesion or the use of brachytherapy for treated site restenosis, patients in whom mechanical atherectomy devices or laser angioplasty catheters are used in conjunction with XIENCE Family stents, women who are pregnant or lactating, men intending to father children, pediatric patients, unresolved vessel thrombus at the lesion site, coronary artery reference vessel diameters < 2.25 mm or > 4.25 mm or lesion length > 32 mm, lesions located in saphenous vein grafts, unprotected left main coronary artery, ostial lesions, lesions located at a bifurcation or previously stented lesions, diffuse disease or poor flow (TIMI < 1) distal to the identified lesions, excessive tortuosity proximal to or within the lesion, recent Acute Myocardial Infarction (AMI) or evidence of thrombus in target vessel, multivessel disease, and in-stent restenosis.
- Everolimus has been shown to reduce the clearance of some prescription medications when administered orally along with cyclosporine (CsA). Formal drug interaction studies have not been performed with the XIENCE Family of stents because of limited systemic exposure to everolimus eluted from the stent.
- Everolimus is an immunosuppressive agent. Consideration should be given to patients taking other immunosuppressive agents or who are at risk for immune suppression.
- Oral everolimus use in renal transplant patients and advanced renal cell carcinoma patients was associated with increased serum cholesterol and triglycerides, which in some cases required treatment.
- Non-clinical testing has demonstrated that the XIENCE Sierra stent, in single and in overlapped configurations up to 71 mm in length, is MR Conditional. It can be scanned safely under the conditions in the Instructions for Use.
- The XIENCE Family of stents should be handled, placed, implanted, and removed according to the Instructions for Use.

## POTENTIAL ADVERSE EVENTS

Adverse events (in alphabetical order) which may be associated with percutaneous coronary intervention treatment procedures and the use of a coronary stent in native coronary arteries include, but are not limited to, the following:

- Abrupt closure, hematoma, or hemorrhage, Acute myocardial infarction, Allergic reaction or hypersensitivity to latex, contrast agent, anesthesia, device materials (platinum, polymer, cobalt, chromium, nickel, tungsten, acrylic, fluoropolymers), and drug reactions to everolimus, anticoagulation, or antiplatelet drugs, Arterial rupture, Arteriovenous fistula, Arrhythmias, atrial and ventricular, Bleeding complications, which may require transfusion, Cardiac tamponade, Coronary artery spasm, Coronary or stent embolism, Coronary or stent thrombosis, Death, Dissection of the coronary artery, Fever, Hypotension and/or hypertension, Ischemia (myocardial), Myocardial infarction (MI), Nausea and vomiting, Palpitations, Peripheral ischemia, Pseudoaneurysm, Renal Failure, Restenosis, Shock/pulmonary edema, Stroke/cerebrovascular accident (CVA), Total occlusion of coronary artery, Unstable or stable angina pectoris, Vascular access complications which may require vessel repair, Vessel dissection

The risks described below include, but are not limited to, the anticipated adverse events relevant for the cardiac population referenced in the contraindications, warnings, and precautions sections of the everolimus labels.

- Abdominal pain; Anemia; Angioedema; Constipation; Cough; Diarrhea; Dyslipidemia (including hyperlipidemia and hypercholesterolemia); Dyspnea; Edema (peripheral); Headache; Hyperglycemia; Hypertension; Hypokalemia; Elevations of serum creatinine; Infections: bacterial, viral, fungal, and protozoan infections (may include opportunistic infections); Lymphoma and skin cancer; Male infertility; Oral ulcerations; Nausea; Non-infectious pneumonitis; Pain; Proteinuria; Pyrexia; Rash; Thrombotic microangiopathy (TMA)/Thrombotic thrombocytopenic purpura (TTP)/Hemolytic uremic syndrome (HUS); Urinary tract infection; Upper respiratory tract infection; Vomiting

Live vaccines should be avoided and close contact with those that have had live vaccines should be avoided. Fetal harm can occur when administered to a pregnant woman. There may be other potential adverse events that are unforeseen at this time.

Caution: This product is intended for use by or under the direction of a physician. Prior to use, reference the Instructions for Use provided inside the product carton (when available), at *eifu.abbottvascular.com* or at *Manuals.sjm.com* for more detailed information on Indications, Contraindications, Warnings, Precautions and Adverse Events.

Photos on file at Abbott.

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# HEALTHTRUST MEMBERS RECOGNIZED FOR ENVIRONMENTAL EXCELLENCE

Practice Greenhealth's Environmental Excellence Awards annually honor outstanding achievements in the healthcare sector. Congratulations to the HealthTrust member health systems and facilities below that were recognized during the CleanMed conference in May. For more information on the awards and a complete list of winners, visit the awards section of the Practice Greenhealth website.

## BOSTON MEDICAL CENTER

***Top 25 Environmental Excellence***

***3 Circle of Excellence Awards for: Energy, Climate, Green Building***

## HACKENSACK MERIDIAN HEALTH

Facility-level awards include:

***Top 25 Environmental Excellence***

- Hackensack University Medical Center

***Partner for Change***

- Bayshore Medical Center
- Jersey Shore University Medical Center
- Ocean Medical Center
- Riverview Medical Center
- Southern Ocean Medical Center

***Circles of Excellence***

- Hackensack University Medical Center – for Energy, Leadership, Food, Safer Chemicals, Waste and Environmentally Preferable Purchasing
- Ocean Medical Center – for Environmentally Preferable Purchasing

***Greening the OR Recognition***

- Ocean Medical Center
- Hackensack University Medical Center

## HCA

Facility-level awards include:

***Partner for Change***

- Alaska Regional Hospital
- Lee's Summit Hospital

***Partner Recognition***

- Centerpoint Medical Center
- Parkland Medical Center
- St. Mark's Hospital

***Making Medicine Mercury Free***

- Centerpoint Medical Center
- MountainView Hospital

***Greening the OR Recognition***

- Lee's Summit Medical Center

## HOSPITAL SISTERS HEALTH SYSTEM (HSHS)

***System for Change Award***

Facility-level awards include:

***Partner Recognition***

- HSHS St. Clare Memorial Hospital
- HSHS St. Joseph's Hospital Highland

***Partner for Change***

- HSHS Sacred Heart Hospital - Eau Claire
- HSHS St. Anthony's Memorial Hospital
- HSHS St. Elizabeth's Hospital
- HSHS St. Francis Hospital - Litchfield
- HSHS St. John's Hospital
- HSHS St. Joseph's Hospital - Chippewa Falls
- HSHS St. Mary's Hospital Medical Center - Green Bay
- HSHS St. Mary's Hospital - Decatur
- HSHS St. Nicholas Hospital
- HSHS St. Vincent Hospital - Green Bay
- HSHS St. Mary's Hospital Medical Center of Green Bay
- HSHS St. Nicholas Hospital

***Greening the OR Recognition***

- HSHS St. Nicholas Hospital
- HSHS St. Vincent's Hospital – Green Bay


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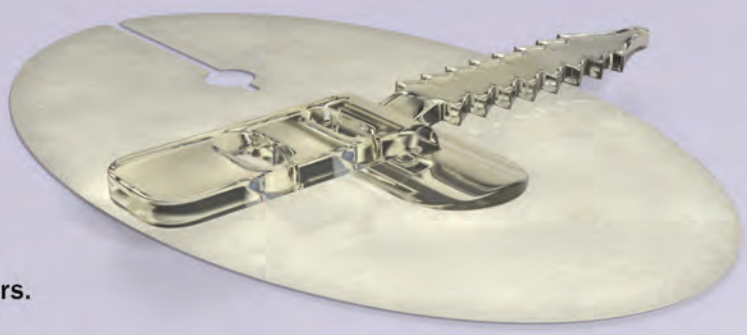

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**See Important Safety Information referenced on Page 91.**

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