

Special Report

# Harnessing Big Data for Sustainable Health Care



# INTRODUCTION

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## Harnessing Big Data for Sustainable Health Care

The health care industry is working to harness the power of Big Data to make its supply chain greener. But doing so is posing quite the challenge, according to experts at the recent Wharton conference, “Sustainability & Health Care: Creating & Capturing Value.”



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Big data has an important role to play in greening the U.S. health care industry, which represents 18% of the nation's gross domestic product. But as became clear during the recent Wharton conference, “Sustainability & Health Care: Creating & Capturing Value,” harnessing the potential of big data is challenging. To be truly useful, environmental big data in health care has to be appreciated, available, accessible and actionable.

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A 2012 Commonwealth Fund study concluded that hospitals could save \$5.4 billion over five years by reducing energy use and waste, and achieving efficiencies in the operating room. In the four years since that report, the importance of sustainability has begun to take root all along the health care supply chain. But while virtually everyone involved has come to appreciate the value of sustainability, collecting the data has proved challenging.

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Frustrated by the lack of usable data, Kaiser Permanente began asking its suppliers to answer a list of standardized environmental questions in 2010. Before long, Practice Greenhealth and Health Care Without Harm persuaded group purchasing organizations (GPOs) to make these questions part of the normal bidding process. Suppliers responded, spending millions to make huge amounts of data available. But with the data sitting in thousands of unconnected spreadsheets, the challenge has now become how to make it all accessible and actionable.

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A new initiative launched in 2014 promises to do for health care what has been done successfully in the electronics and textile industries: bring stakeholders together to turn environmental big data into useful information. A pilot study unveiled at the Wharton conference demonstrated the viability of a new Healthcare Sustainable Purchasing Index (HSPI). Organizers say that HSPI is likely to see significant growth, enlisting the participation of more suppliers, GPOs and providers, and building out the robust technology engine that will power the whole enterprise.

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## The Four A's: Turning Big Data into Useful Information

**SUSTAINABILITY HAS MADE SERIOUS INROADS INTO MAINSTREAM HEALTH CARE**, but further progress depends on the industry's ability to access environmental data related to one area not often considered for this purpose: purchasing. At the recent Wharton conference, "Sustainability & Health Care: Creating & Capturing Value," sponsored by Johnson & Johnson and Wharton's Initiative for Environmental Leadership (IGEL), several speakers confirmed that the next step is supplying administrators, purchasing agents and frontline workers with crucial information about the sustainability of the drugs they administer, the food they serve, the medical equipment they use on patients and the supplies that clean the building.

Health care purchasing is a key part of the U.S. economy, with more than \$200 billion in annual outlays. Four large group purchasing organizations (GPOs) control the bulk of buying for most U.S. hospitals. Kevin Lewis, national program coordinator for the GreenHealthy division of Premier Inc. (one of the four) said at the conference that more than 95% of health care institutions are linked to GPO purchasing. And the products' green attributes aren't generally front and center when decisions are made.

To be truly useful, environmental big data in health care has to be appreciated, available, accessible and actionable. For providers, the financial reasons for appreciating data start with savings, particularly through what is called Environmentally Preferable Purchasing (EPP). Olivier Oullier, head of strategy, global health and health care at the World Economic Forum, said at the Wharton conference that a third of international spending in the category is wasted.

But the financial advantages of sustainability go beyond reducing waste. Applying environmental principles to

health care institutions — informed with good data — is usually very good for the bottom line. Energy efficiency improvements, for instance, can put a significant dent in one of the largest line items. Hospitals and other health care institutions annually spend \$9 billion on energy in the U.S. (enough to cover the salaries of 130,000 registered nurses, the U.S. Department of Energy reports).

Longer term, it makes good business sense for hospitals and clinics, which spend so much battling environmentally caused illnesses, to reduce, and where possible eliminate, the chemicals and other pollutants that are damaging their patients' health. That is precisely why Premier's GreenHealthy program is eager to move beyond price alone and take EPP into consideration. "Price doesn't give us the whole story," said Lewis. "Our prime concern is making our patients safer."

Suppliers, too, appreciate the value of EPP data. Furniture maker Steelcase, for instance, has crunched the data, and found that EPP is becoming big business. In 2014, 47% of its sales to Premier members were of recycled content (4.28 million pounds), and 62% was recyclable materials.

### THE RIGHT DATA

Of course, not all data are created equal. Knowing which data will be most useful can be challenging. But individual players have made progress. Several years ago, Kaiser Permanente set up the first list of relevant EPP questions, which have since been refined, updated and made generally available to all through the efforts of the nonprofits Practice Greenhealth (PGH) and Health Care Without Harm (HCWH).

In the private sector, Steelcase has devoted considerable effort to identifying the most important factors that hospitals need to know. Speaking at the Wharton conference, Dustin Heiler, the company's marketing and

business developer, said, “Important metrics are whether our furniture products have good end-of-life options, and whether they contain chemicals of concern, such as fire retardants, halogenated organic compounds, PVC plastic or DEHP plasticizer.”

Collecting such data is the first step towards making it accessible. Today, health care metrics are available only if a hospital or GPO asks for them from manufacturers. The result is that suppliers are inundated with redundant requests for information. And some of those queries are about products that have been discontinued, or no longer contain the toxic elements that are the source of the initial concern. An analysis of the Edward-Elmhurst hospital chain’s purchase and use of endotracheal tubes, for instance, found that some often-asked sustainability questions weren’t relevant to the category (including queries about the use of a long-banned chemical).

With the help of PGH and HCWH, GPOs have played a major role in collecting EPP data when their members request it. “The GPOs definitely hold a lot of power in this conversation,” said Seema Wadhwa, assistant vice president of sustainability and wellness at Inova Health System. But, she explained, “They’ve not had success in getting the data they need independently.”

And data alone is not enough. “Metrics are important, but sometimes the available sustainability metrics are terrible and their value is limited unless they are understood by

analysis,” said Erwann Michel-Kerjan, executive director of the Wharton’s Risk Management and Decision Processes Center. “Bad metrics create uncertainty in markets.”

## INTEGRATING THE DATA

Even when the value of Big Data is appreciated by those involved in the health care supply chain and the right data are identified and collected, providers need a way to easily integrate the sustainability data into their purchasing decisions. Ashley Swanson, a professor of health care management at Wharton and a moderator at the conference, noted, “Hospitals have a lot of objectives — community goals, clinical goals, sustainability goals — and how to balance those priorities in making procurement decisions is really complex. It’s important to give them more information to consider these tradeoffs.”

One promising approach was unveiled at the Wharton conference: a sustainability database that would provide actionable information for every category of products that hospitals buy. New products would automatically be entered into the database, and older entries constantly updated with the latest information.

An initial case study, including Johnson & Johnson, MindClick, Premier and Steelcase, offered a taste of what a fully functional database could achieve — large savings for providers and suppliers, and a healthier environment for everyone.





## Appreciating the Value of Sustainability in Health Care

**“HOSPITALS AND CARE SYSTEMS THAT PURSUE SUSTAINABILITY INITIATIVES FIND BENEFITS IN MULTIPLE AREAS,”** noted a 2014 report from the American Hospital Association and the Health Research and Educational Trust, “Environmental Sustainability in Hospitals: The Value of Efficiency.”

According to the study, “Environmental sustainability is also good business, as it helps lower operational costs and allows hospitals to direct more resources to patient care.” Among examples cited in the report are Memorial Hermann Health System saving \$47 million through energy improvements over five years; Kaiser Permanente saving \$4 million annually by simply buying energy-efficient computers; and the University of Arkansas for Medical Sciences making enough savings from just one project that it could “create 60 new beds, remodel five operating suites, build out a floor of a cancer institute, and buy seven acres of land.”

Other industries have demonstrated the financial benefits of sustainability. The Project ROI report, co-sponsored by Verizon and the Campbell Soup Co., concluded, “Corporate responsibility practices have great potential to deliver financial returns on investment ROI as well as related business and competitive benefits.” The report quantifies that 4% to 6% market value increases are possible, with a 4% reduction in systematic risk. The benefit to shareholders over 15 years can amount to \$1.28 billion, with a 2% to 10% reduction in share price volatility.

In terms of marketing, sales and brand reputation, corporate responsibility commitments — including Environmentally Preferable Purchasing (EPP) — can lead to a 20% revenue increase, the Project ROI report noted. Brand and reputation improvements can add 11% to the company’s value.

Case studies abound. The hotel industry is also seeing significant payoffs to taking a green path — in both brand building and revenue. According to Sustainable Brands, “Four years after launching its corporate responsibility strategy, Travel with Purpose, Hilton Worldwide said its investments in global partnerships and sustainability programs is not only driving positive social impact, but also supporting long-term business success.”

Again, the results are tangible. Hilton has reduced its energy use by 14.5% since 2009. It also slashed carbon dioxide production by 20.9%, waste by 27.6% and water consumption by 14.1%. Total savings amount to more than \$550 million globally.

Hilton is one of the companies that, as *Harvard Business Review* described it, are reshaping products and markets, and redefining productivity in the value chain. “A number of companies known for their hard-nosed approach to business — including GE, Walmart, Nestlé, Johnson & Johnson and Unilever — have already embarked on important initiatives in these areas,” the magazine reported.

### MILITARY OUT FRONT

The U.S. military, too, has saved money and lives by focusing on sustainability.

“There’s a synergy between the military mission and the search for saving money and reducing energy demand,” said Sarah E. Light, a Wharton professor of legal studies and business ethics. Speaking at the Wharton conference, “Sustainability & Health Care: Creating & Capturing Value,” sponsored by Johnson & Johnson and Wharton’s Initiative for Environmental Leadership (IGEL), she pointed out that leaders of the nation’s military have concluded, “Global warming is a threat magnifier and energy efficiency is a force multiplier.”

When the services are measured together, the military is the world's largest energy user, and also the biggest landlord — in control of 2.2 billion square feet of building space and 28 million acres. By 2025, each branch will need a gigawatt of electric power generation. The environmental impact could be quite large, but Congress has given the Department of Defense authority to enter into 30-year power purchase agreements and create a forward-thinking Operational Energy office.

In 2012, an Operational Energy Strategy report noted, "Today's military missions require large and growing amounts of energy with supply lines that can be costly, vulnerable to disruption, and a burden on Warfighters. The Department needs to improve its ability to measure operational energy consumption, reduce demand and increase the efficiency of energy use to enhance combat effectiveness." Today, the military has become a large-scale early adopter of renewable energy. "They're building enormous solar arrays, geothermal, biomass and wind," Light said. "At Fort Bliss, they're using electric vehicles for trips around the base."

If the private sector has demonstrated the financial advantages of sustainability, what Light called "the military-environmental complex," it shows that, "mission-driven institutions can reframe to address climate change."

## **SLOW PROGRESS FOR HEALTH CARE**

Eric Olson, senior vice president at Business for Social Responsibility, said the simple fact that savings are available, "doesn't guarantee anything. ... Energy savings are important to the P&L of a company, but the opportunity may never get to the chief financial officer if the electricity bills report up through a different chain than the person reporting on electricity usage. They just continue to pay more."

For this reason, it's important that the value of sustainability be understood from the executive suite to the ground level, and that is, indeed, finally happening.

"We've done a good job of making the business case for sustainability," said Gary Cohen, president and co-founder of both Health Care Without Harm and Practice Greenhealth. "And the challenge of a warming planet changes everything. The sense of responsibility has trickled up to the C-suite. It's a total mind shift."

At Inova Health System, leadership from the top has driven an extraordinary level of attention to sustainability. In fact, measuring energy efficiency has become such a priority that when the organization found the building sub-metering options in the marketplace to be inadequate, it built its own systems. "The product didn't exist in the marketplace," said Seema Wadhwa, assistant vice president for sustainability and wellness at Inova. "Instead, we built that capacity ourselves and are now rolling it out live."

Others in health care — hospitals, clinics, suppliers and group purchasing organizations — are following suit, as a growing number learn the value of sustainability. A 2012 Commonwealth Fund study looked at hospitals that are reducing energy use and waste, and achieving efficiencies in the operating room. Its striking conclusion: "Savings achievable through these interventions could exceed \$5.4 billion over five years and \$15 billion over 10 years."

The report concluded with the striking recommendation "that all hospitals adopt such programs and, in cases where capital investments could be financially burdensome, that public funds be used to provide loans or grants, particularly to safety-net hospitals."

In the four years since that report, the importance of sustainability has begun to take root all along the health care supply chain. But the progress has been slow, because the vast percentage of purchasing decisions are still being made with the environment as a secondary consideration.

"We have to normalize these strategies, so they're no longer the exception," said Cohen. "Because of the savings potential and our growing consciousness about the global environmental crisis, we need to make it go a lot faster."





## For a Greener Supply Chain: Information Hospitals Can Actually Use

**WHILE THE NUMBER OF HOSPITALS INTERESTED IN GREENING THEIR SUPPLY CHAINS HAS BEEN GROWING RAPIDLY** in recent years, progress has been slow. And that's not surprising, given the complexity of hospital procurement. At Johns Hopkins Medical Institutions, for example, 14 buyers purchase supplies for cleaning, building maintenance, the cafeteria, labs and physical therapy in addition to a vast range of medical supplies — including sutures, syringes, catheters, pacemakers, blood products and radioactive materials, to name just a few categories. One of the 14 handles everything from paper goods and stationery to motor vehicles and computer equipment.

The vast majority of hospital supplies — 72% according to the Healthcare Supply Chain Association — are purchased through group purchasing organizations (GPOs). GPOs are able to negotiate lower pricing for the goods and services their member hospitals buy; provide the information hospitals need to compare products and make buying decisions; and reduce the cost of purchasing itself by helping members manage the purchasing process.

What GPOs have not been able to provide is actionable information on sustainability — and it's not for lack of trying.

Kaiser Permanente helped jumpstart the move towards environmental purchasing. As the nation's largest not-for-profit health plan, it created its Environmentally Preferable Purchasing (EPP) policy in 2006. Four years later, the organization, which has 10.2 million members and \$62.7 billion in operating revenue, embedded its EPP principles into the purchasing process by creating a Sustainability Scorecard.

Rather than relying on the morass of eco-labels and product descriptions that were available, Kaiser developed a list of well-defined and standardized questions. Any

supplier of medical and surgical products that wanted to be considered by the supply chain team had to answer all the EPP questions as part of the bidding process.

The Scorecard allowed Kaiser to look beyond the basics of price, quality and availability. By incorporating the EPP information into its purchasing system, the health plan was able to add sustainability to the list of key attributes it considered when making decisions about which products to buy. "And when you're looking at so many products, it turns out in many cases that what pulls one product ahead of the others is its environmental attributes," said Kathy Gerwig, Kaiser's environmental stewardship officer and vice president of employee safety, health and wellness.

Suppliers took notice and responded not just with data but also with innovative new products. The benefit to Kaiser has been substantial, allowing the health care giant to reduce energy use, waste and chemicals of concern throughout all 38 of its hospitals, and save millions of dollars in the process.

### COOPERATION OR COMPETITION?

Kaiser also partnered with Practice Greenhealth (PGH) and Health Care Without Harm (HCWH) to make the EPP questions widely available throughout the industry. The two nonprofits used Kaiser's success stories to start persuading GPOs to make the EPP questions part of the normal bidding process.

The work dragged on for years, said Gary Cohen, co-founder and president of HCWH and Practice Greenhealth. The problem was that the GPOs saw each other as competitors and weren't willing to collaborate. So PGH and HCWH approached each GPO individually. "We would go to Premier and say, 'you should ask these questions,' and we would go to Novation and say, 'you should ask these questions,'" explained Cohen. "Then

we said, this is pretty inefficient. Let's just get them all together and agree on a common set of questions that they don't have to compete on."

Beth Eckl, director of the environmental purchasing program at Practice Greenhealth, managed to bring all the major GPOs together. And after working with them for a year, the group finally agreed on a common set of questions, which, according to Cohen, "was pretty modest. It's not like a comprehensive set of questions in any way, but at least we got them to agree."

Since then, explained Kevin Lewis, national program coordinator at Premier Inc., one of the nation's largest GPOs, "Every time a contract comes up to bid, the request for information (RFI) that goes out to suppliers also includes EPP attribute questions."

It turns out that collecting sustainability data is difficult and turning it into useful information is even more of a challenge. As things stand now, the questionnaire that is sent to suppliers is "literally just a blank spreadsheet asking specifics," said Lewis. "And this spreadsheet has to be repeatedly filled out by the suppliers every year, so it's extremely manual for anyone who has to fill it out and extremely manual for anyone who wants to run analytics on it."

## INQUIRY OVERLOAD

The result, for some suppliers, is thousands of sustainability questions streaming in every month from a dizzying array of health care clients. According to Dustin Heiler, market and business developer at furniture maker Steelcase, "There are some weeks that colleagues and I spend all our time answering questions." And because the same list of questions is generally included in RFIs for multiple product categories, Heiler explained, "Sometimes the questions are on point and sometimes they're out in left field." A question about radioactivity might be relevant to a product used in nuclear medicine, but meaningless to any of the products Steelcase manufactures, for example.

Suppliers, who receive questions about sustainability not just from GPOs but also directly from hospitals and from architects and designers employed by hospitals, find this repetitive and sometimes irrelevant work both frustrating and expensive. According to an analysis by MindClick, a company now developing an EPP-based health care database, the top 100 suppliers to U.S. hospitals spend about \$25 million each year collecting and submitting sustainability data.

And that \$25 million is contributing very little to the greening of health care supply chains. Because the EPP answers are sitting in thousands of unconnected spreadsheets, there is no practical way for the GPOs to integrate the sustainability data into their systems. So while hospitals technically have access to the EPP questionnaire responses, they are unable to factor them into their purchasing decisions. "The GPOs are collecting the information," said Cohen, "but it's not like it's trickling down to the people who actually write contracts."

## BRIGHT SPOTS

Progress has been made in some isolated segments of purchasing, food being one of the most prominent. According to Seema Wadhwa, assistant vice president for sustainability and wellness for Inova Health System, "As an industry, with HCWH, we started a food roundtable and invited the major suppliers to sit down with the major hospital systems, and we said we need this data, and if we work on it collectively, we won't be asking you guys for unique definitions or sets of data." The effort paid off.

When Morrison Healthcare, one of the major food suppliers for hospitals, heard that three of its biggest clients — Tenet Health (84 hospitals), Inova (five hospitals) and Adventist HealthCare system (35 hospitals) — were all asking for the same information, it responded with a fast-track action plan. Speaking specifically about Inova's partnership with Morrison, Wadhwa said, "We're now able to get that data. And over the last eight months, I've been able to get quarterly reports on key indicators, and that's a tool that I've been able to use."

"But when it comes to the broad-range portfolio of the supply chain," Wadhwa is quick to add, the same leverage doesn't exist. "EPP is the biggest challenge," she said. "Over the past five years, the ability to benchmark how many products that Inova is purchasing have a sustainability element, and what those products are, has been the holy grail." For now, however, all the EPP data that is being so laboriously collected is "just sitting in a database in the shadows," said Lewis.

But things are changing. An industry-wide effort to bring the potentially valuable EPP data into the light, in the form of an easily accessible index, is now underway. Wadhwa, for one, noted, "There's no way we could do it on our own. I'm extremely excited about it."



## The Promise of Big Data: Revolutionizing Health Care Sustainability

**FOR PEOPLE WORKING TO MAKE U.S. HEALTH CARE PURCHASING MORE GREEN**, it's not data that's lacking, it's discovering the meaningful part. "That's the big question now: How can we leverage technology in a way that converts data into meaningful information that purchasing managers can use to do their jobs better?" asked JoAnna Abrams, CEO of MindClick, a supply chain sustainability company.

If such information were available, it could revolutionize hospital procurement, saving money for everyone involved; reduce health care's impact on the environment; improve the health of patients, hospital staff and the public; motivate manufacturers to invest more in sustainable products; and spark innovation all along the supply chain.

But as things stand now, the information is not generally available. "What there's almost none of — and this is where we have tried to focus some of our work in sustainable procurement — is support for the buyers actually making the purchasing decisions," said Eric Olson, senior vice president at Business for Social Responsibility (BSR), a global nonprofit that develops sustainable business strategies and solutions. "Big companies make commitments to all these wonderful things, but people down in the guts, who have to actually do the buying, don't really know how to do that. Or if they do know how to do it, they don't know how to also keep their job, because sooner or later they're going come against a trade off between unit cost and these other important attributes."

### LEARNING FROM OTHER INDUSTRIES

As different as they are, the electronics and apparel industries share a similar history when it comes to their supply chains. Both were exposed in the media for abusing the environment and the people laboring to make their

products; both suffered real financial pain as a result of the negative press; and both responded by creating data-driven coalitions of otherwise competitive companies to address the environmental, social and governance (ESG) issues involved.

When the electronics industry began working on the challenge with BSR in 2004, it quickly became apparent that, "improvement was not going to be driven if all the suppliers in east Asia and elsewhere were being presented with large numbers of conflicting requirements from buyers," Olson explained. "We needed to get together, agree on root causes, agree on what acceptable and good practices would look like, and then we had to agree on the protocols that would guide everything from auditing to remediation."

Things did not go smoothly at first. There were stormy meetings, as the group of eight companies went through the "storming and norming" phase of building a collaborative team. But eventually the storms abated, as "we found pre-competitive space in one of the most competitive industries on the planet," said Olson. By working on common issues that would benefit all concerned, the group came to see clearly the value of what could only be done together.

The group was spun off by BSR in 2008, and today the Electronic Industry Citizenship Coalition (EICC) has 100 members that generate combined annual revenues exceeding \$3 trillion. All of these companies — which directly employ more than 5.5 million people and have another 3.5 million contributing to the production of their products — abide by the EICC Code of Conduct, governing labor, ethics, environment, and health and safety.

While there are still plenty of challenges facing the EICC, Olson said that successes to date have included these three key elements:

- **Getting the governance right:** “What are we trying to achieve, what are the rights and responsibilities of those who join, what truly are pre-competitive issues where we can afford and benefit from collaborating, and what areas are just out of bounds?”
- **Investing in the right transparency mechanisms:** “We’re tantalizingly close to a step-change. The infrastructure has just gotten so much better, with the cloud offering the ability to share information without having the mother of all management software systems.”
- **Taking a practical approach:** “We’ve had to satisfy ourselves with a subset of information that we can actually get our hands on, believe and take action on when we get it. The train wrecks have been when people overbuilt — went for way more information than they were ever going to be able to take action on.”

In 2010, a remarkably similar process led to the creation of the Sustainable Apparel Coalition (SAC). At the time, “buyers throughout the industry were receiving an ever-increasing number of audits and surveys,” said Scott Miller, director of business development for SAC. Many of the questions were redundant, he said. “And nothing was getting better. The manufacturers were simply becoming expert audit takers.”

## INDUSTRY OUTREACH

In response to the situation, the senior management at Walmart approached the senior management at Patagonia about coming together to develop a universal standard for the measurement of sustainability in the apparel industry. Joined by 10 other companies, the group consulted with other stakeholders and came up with the Higg Index. (The name isn’t significant; it was painstakingly devised to be inoffensive in all languages.)

The Higg Index was first created in Excel and focused only on environmental sustainability. As feedback came in, SAC made revisions, moved from spreadsheets to a sophisticated, transparent online platform and expanded the index to encompass social and labor issues. Today, more than 6,000 manufacturers and suppliers contribute to the Higg Index, now including both footwear and home textiles. Other industries, including glassware and tableware, also use the Higg Index, because they see major retail customers (such as Macy’s, Target and Walmart) using it.

As EICC did, SAC worked hard to create a pre-competitive space where competitors “can literally sit at the same table, as sustainability professionals, and collaborate on improving practices in the supply chain,” noted Miller.

## WHERE HEALTH CARE FITS IN

The challenge facing health care is both the same and different. All three industries — electronics, apparel and health care — have faced essentially the same obstacle to sustainability: the redundant collection of disparate data that cannot be meaningfully integrated into the purchasing process.

But Abrams pointed out some clear differences.

While the apparel and information and communications technology (ICT) industries have complicated global supply chains, their suppliers are generally confined to certain key industries. Neither electronics nor apparel “deals with the huge array of manufacturers that health care does, where you can be talking about everything from endotracheal tubes to baby formula,” said MindClick’s Abrams.

“There is also a much more manageable number of players in those other industries,” Abrams added. One hundred companies are members of EICC and SAC has 174 members. “In health care, you’ve got 5,000 hospitals alone, plus all the manufacturers, plus all the GPOs, plus all the clinical services that are in non-hospital settings. The scale of this thing is absolutely massive.”

Still, the experiences of SAC and EICC point to some essential ingredients that any solution in health care ignores at its peril, including most clearly a collaborative system that eliminates redundant and irrelevant data collection, provides transparency and translates data into actionable information. Just as important, SAC and EICC succeeded by starting slowly and growing incrementally over time.

These lessons have not been lost on health care professionals, who are now in the early stages of creating their own collaborative effort to green hospitals’ supply chains.

## A DAUNTING TASK

A great deal of time, effort and money will be required to make such an index a reality. “And at the end of the day there has to be an ROI,” said Abrams. “The way we approach this is to look at what each stakeholder is looking to get out of the index.”

Suppliers want to know how they compare to the competition. If a manufacturer’s product scores better than a competitor’s, it can use that information to help increase market share. If its product performs poorly, a manufacturer can work to improve the product, provided, of course, that the market justifies the investment. That’s another benefit of a sustainable health care index: It allows

suppliers to see how robust the market is for a product with specific EPP attributes.

Hospitals and other providers are driven by their mission, and by the changing economics of health care under the Affordable Care Act, to protect and improve the health of the communities they serve. They can use a sustainability index to steer clear of products that can actually aggravate the very conditions they are spending precious resources to alleviate and cure.

And with solid metrics to work with, they will be able to evaluate the complex tradeoffs between short-term and long-term costs. Such metrics are less likely to be helpful in marketing, at least in the near future. While a hospital may promote its overall sustainability, it is unlikely to showcase incremental reductions in its use of harmful materials.

Group purchasing organizations (GPOs) stand to benefit from an index in a variety of ways. Kevin Lewis, national program coordinator at one of the largest GPOs, Premier Inc., noted that as its 3,600 hospital members increasingly look for EPP data they can use in purchasing, suppliers not now on contract with the company will be motivated to sign on. In addition, said Abrams, “Contracting is really the tip of the iceberg.” GPOs are really in the business of providing valuable analytics to their members so they will benefit by having a third party that cost effectively provides verified information they can integrate into their own analytical tools.

## STRENGTH IN NUMBERS

As a demonstration of what a sustainable health care index could achieve, six companies recently participated in a case study: Premier, Johnson & Johnson, Steelcase (a furniture and furnishings company) and three health care providers, Edward-Elmhurst Health, Anne Arundel Health and Fairview Health. The results from Edward-Elmhurst were first released at the conference on “Sustainability & Health Care: Creating & Capturing Value” at Wharton, co-sponsored by Johnson & Johnson and Wharton’s Initiative for Global Environmental Leadership (IGEL). Since then, results from the other two health care systems have also been released, so “now all three hospitals are in a position to see how they compare to each other,” explained Abrams, whose company, MindClick, is at the center of the initiative.

The case study focused on three categories — endotracheal tubes, furniture and sutures — and used the Environmentally Preferable Purchasing (EPP) data already being collected. Although the EPP data includes responses to only 25 questions, and only the data from one GPO and

two suppliers was used, once that data was matched with a line item list of the purchases Edward-Elmhurst had made in all three categories during the 12 months preceding September 2015, MindClick had more than 300,000 data points to work with.

To translate those data points into usable information, the MindClick team identified which questions were relevant in each category and sorted responses into three simple categories: Starter, Achiever and Leader. The study revealed that 66% of the \$60,000 Edwards-Elmhurst spent on endotracheal tubes during the year went for products that earned Achiever status. The remaining 34% was spent on products not on contract with Premier, and therefore with unknown EPP performance.

## SUCCESS STORIES

The story was even better in the sutures category: 91% of the hospital’s spending was on products at the Leader level from Ethicon, which not only dominates in market share, but also performs at the Leader level across its entire reported product line. No EPP information was available for furniture, because Edwards-Elmhurst purchased all of its furniture during the year from distributors, not Premier. (A what-if scenario demonstrated that if the hospital had purchased products available from Steelcase, 88% would have been at the Leader level, with the remaining 12% rated as Achievers.)

In total, Edwards-Elmhurst learned that 50% of the money it spent in the three categories purchased products that positively contributed to human and environmental health, but that the other half did not. This knowledge gave the hospital a benchmark against which to measure its progress in the years ahead.

As in the ICT and apparel industries, health care is building its index slowly and carefully. During the coming year, MindClick will be working with a pilot group of hospitals and a pilot group of categories to create the first phase of the Healthcare Sustainable Purchasing Index (HSPI). Two advisory councils, one for providers and one for suppliers, are also being formed to identify the questions that are most pertinent in each category.

Based on the experiences in other industries, the HSPI will continue growing over the coming years, sharpening the questions that are asked, enlisting the participation of more suppliers, GPOs and providers and building out the robust technology engine that will power the whole enterprise. As it does so, the index will help green a health care supply chain that represents 18% of the nation’s GDP.

Special Report

# Harnessing Big Data for Sustainable Health Care

## IGEL

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ENVIRONMENTAL LEADERSHIP

### About IGEL

The Wharton-led, Penn-wide **Initiative for Global Environmental Leadership (IGEL)** promotes knowledge for business sustainability through world-class research, transformative teaching and constructive dialogue between top alumni, academic, corporate, government, and non-government organizations. IGEL is a hub for business and sustainability, connecting and leveraging academic capital at Penn to help business leaders of today and tomorrow to create more sustainable industries.

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