McKinsey&Company

Strength in unity:

The promise of global standards in healthcare

Condensed version

October 2012

October 2012

Strength in unity:

The promise of global standards in healthcare

This is a condensed version of a more detailed report. For a copy of the full report in English, please visit http://www.mckinsey.com/healthcare_globalstandards

Thomas Ebel
Katy George
Erik Larsen
Everett Neal
Ketan Shah
David Shi

The authors wish to acknowledge Manuel Bäuml, Jackie Hu, and Sherry Kan for valuable contributions to the report

McKinsey would like to thank GS1 for its contribution to the analysis and fact base which provide the foundation of this report. McKinsey would also like to thank the interviewees for their expert insights.

Executive Summary

An opportunity for a new kind of healthcare innovation

Imagine a world where a patient's records capture the brand, dosage and lot number of each drug and medical device she uses, along with the name of the physician who ordered the product and the nurse who administered it; where bedside scanning confirms that she gets the right product in the right dosage at the right time; where hospitals and pharmacies know the exact location of medical devices and drugs and when they can be delivered; where regulators can recall adulterated products with accuracy and speed from every point in the supply chain; and where manufacturers can monitor real-time demand changes and shift their production schedules accordingly.

In this world, patients would enjoy safer and more effective healthcare and shorter average hospital stays. Redundant activities and costs would fall – reducing the cost of healthcare to society and enabling broader patient access to cutting-edge technologies. Doctors and nurses could spend less time with paperwork and more with patients. Innovation could blossom in personalized medicine, customized devices, and mobile health.

This world is technologically possible today. But it has yet to become a reality because the healthcare supply chain, from manufacturer to patient, remains fragmented. Certain channel partners are collaborating, and individual companies and even countries are making progress with cutting-edge practices. But only widespread adoption will permit significant, cost-effective improvements at scale. In fact, a patchwork of standards may raise the cost and complexity of global healthcare by spawning incompatible requirements and systems.

To achieve the kinds of benefits we describe, the healthcare industry could align around a single set of global standards, just as the consumer and retail industries have created billions of dollars in value with their adoption of GS1® barcoding.

New research by McKinsey & Company, conducted with the participation of more than 80 healthcare industry leaders around the world, has estimated the potential value – in lives and dollars – of adopting a single global standard in healthcare.

This report presents those findings and estimates the investments each industry player would need to make to adopt global standards, along with the benefits each player might reap. We point to some insights, products and services that might arise from global standards, as they have in the retail industry. And we look to consumer and retail industry precedents to understand how leaders in the healthcare space could align around a single global standard.

"Supply chain data standards will greatly improve healthcare safety and efficiency, but safety is our primary value. The needs of the patient come first."
-Medical device executive

[1] For our sources, please see the full report at http://www.mckinsey.com/healthcare_globalstandards

Global standards could significantly improve patient safety and supply chain efficiencies

Global standards that link geographies and stakeholders, from manufacturer to patient, could help the industry improve patient safety and the efficiency and effectiveness of healthcare systems.

Using global product identification to match patients with drugs, for example, could help hospitals reduce the number and severity of adverse drug events, which, according to our research, now occur more than 25 million times a year and lead to over 100,000 deaths. Product recalls, now occurring about 15 times per week in medical devices and 20 times per week in pharmaceuticals in the U.S. alone, could be managed more efficiently and more comprehensively. Global standards could help reduce the growth of counterfeit drugs, supplement electronic medical records and support the development of personalized medicine and customized medical devices.

Today, the healthcare industry has half a trillion dollars tied up in inventory. Global standards could enable inventory reduction of $60-94 billion and reduce the costs of managing and storing inventory by $10-14 billion. It could also help reduce obsolescence by $19-27 billion.

The impact of global standards will likely go beyond the advances we can identify today. For example, with global standards in place, payors, regulators and epidemiologists could learn more about the effectiveness of drugs, medical devices and treatments. End-to-end supply chain visibility could create new opportunities in mobile health, and help patients maintain their regimens, avoid drug interactions, learn about products and order refills electronically.

This was proven in the grocery industry, where GS1 barcodes and global standards created billions of dollars of value each year beyond original expectations.

Every part of the healthcare value chain can benefit

To align around a single set of global standards, companies will have to come together across geographies and sectors of the value chain. Major players will need to agree on standards that might differ from what they use today – and then adopt new processes and systems to make the best use of those standards.

Some healthcare pioneers have already begun. Certain pharmaceutical

and medical device manufacturers and hospitals are now using global standards such as GS1 Global Trade Item Numbers (GTIN®), GS1 Global Location Numbers (GLN®), and data exchanges such as the GS1 Global Data Synchronization Network (GDSN®). Their approaches leverage standards as a foundation for collaboration across the value chain – enabling new processes and capabilities that create both patient and business value

Our review of more than 25 of these collaborations suggests that each participant generated significant benefits. Our analysis also indicates that each player in the system could achieve positive returns on its investments – if a "critical mass" of channel partners adopt the same standards.

In other words, global standards adoption is not a "zero-sum" game: benefits could be shared across the value chain. In calculating the cost of working with multiple standards, we found that supporting two rather than one standard could still be well worth the additional one-time investment and ongoing operating cost.

Collaboration: A vision of progress for patient benefit

While our research indicates that all healthcare players could benefit from global standards, aligning around a single standard presents challenges. The industry is regional, fragmented and heavily regulated, for example. Indeed, some regulators are now defining standards to meet national rather than global goals, creating a range of sometimes conflicting requirements, although there are also efforts at harmonization, such as the International Medical Device Regulators Forum for global harmonization of medical device regulation, and the European Commission for harmonization of serialization of pharmaceuticals.

The leaders we interviewed are united by a commitment to improve patient safety, and many are keen to help the industry adopt global standards. They want a deeper understanding of the requirements and the benefits and costs of global standards. Some hope to leverage these standards to do more than comply with regulations: they aspire to create distinctive value in customer and patient service and relationships.

In our full report, we present an objective assessment of factors that industry leaders might consider in this effort. The following is a condensed version of our findings.

I. Introduction: Today's healthcare supply chain

Supply chain opportunities look bigger than ever

Healthcare organizations have sometimes been slow to recognize the importance of supply chain improvements. But industry leaders are now beginning to understand how basic supply chain improvements can significantly improve patient care and free human and financial resources for advances in other areas, including forecasting and R&D. Supply chain improvements are now among many leading organizations' top priorities, at least in the operations function. An increasing number of executives see that step-change improvements can deliver substantial top- and bottom-line impact. They recognize that making these changes will not be easy, particularly in these challenging economic times.

Quality and safety are more important than ever

Across the industry and around the world, quality is a rising concern. In 2009, medical devices injured 28,000 patients in the U.S. alone, and more than 700 devices were recalled. Pharmaceutical recalls now top 1,000 per year, and regulatory scrutiny has increased.

Few healthcare organizations have responded to the rise in recalls by improving the efficiency or effectiveness of their recall processes. Many recalls still require hundreds of hours of manual labor and still fail to remove all affected products from inventories or locate every exposed patient.

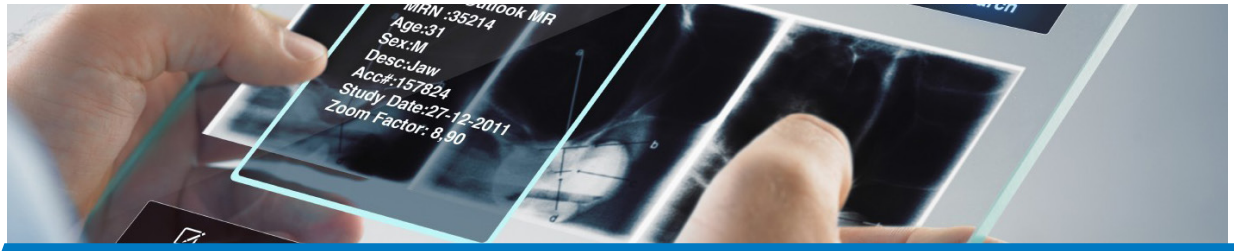
"We're seeing dramatic increases in recalls and in harm to patients. What we're not seeing is any major improvement in recall processes."
—National regulator

Standardized identification and automated tracking of products from factory to bedside could dramatically improve recall processes—and help providers optimize safety and the quality of care without raising costs by showing how pharmaceutical, medical device and supply choices affect patient outcomes.

The industry may face a costly patchwork of requirements

Regulators around the world are defining new supply chain requirements to protect patients from substandard and defective products and ever more sophisticated counterfeits. Manufacturers are being required to serialize products at the unit of sale level, which often requires new capabilities and investments. Recent research for a global pharma manufacturer indicated that over 70% of its sales would be subject to these new regulations by 2017.

These rules may vary widely around the world, posing complex new challenges for global manufacturers and raising costs at every step of the value chain. Over the long term, the patchwork could become unworkable. Our analysis suggests that adopting a single set of global standards will cost significantly less than two and far less than five or more.



II. Standards as a foundation for change

Global standards could help save thousands of lives and billions of dollars each year

Global standards could be a critical enabler to improving the safety and quality of patient care in a cost-effective way. Our analysis suggests that these standards have greater potential to improve care and save resources if they are truly global and adopted by all stakeholders, including manufacturers, distributors, wholesalers, pharmacies, and providers.

Global standards could enable industry-wide applications and processes that improve patient safety and supply chain efficiency:

- Bedside scanning: Before administering medications, caregivers could scan barcodes on medications, patient wristbands, and their ID badges, eliminating thousands of errors and preventing the use of expired and recalled products.
- Targeted full recall administration: Automated data capture at dispensing points and operating rooms could allow pharmacists, operating room staff and caregivers to track the medications and medical devices administered to each patient. In a recall, providers could identify and contact each patient who received the product and clear inventory.
- Traceability of medical devices: Supply chain partners could use barcodes to track medical devices according to their risk category.
- Medication receipt authentication: Distributors, pharmacies and hospitals could validate all medications against data from manufacturers and other supply chain points, making it significantly more difficult for counterfeit and compromised products to reach patients.
- Inventory management collaboration: Dispensing points, distributors and manufacturers could seamlessly exchange medical device or medication usage, location and availability information, analyze the data to optimize inventory and ensure that medical products are available at critical moments.
- Transaction automation: Processes and systems can be automated, eliminating most manual data entry, validation and correction. Medication and medical device administration could be captured through barcode scanning and automatically fed into logistics, billing, and procurement systems that connect all stakeholders, including payors and registries.

On the following pages we will describe the impact global standards could have at the global level and for individual stakeholders.

Global standards can support multiple stakeholder needs

Global standards can be configured and implemented in phases into meet a wide range of different stakeholder needs. Identifying every product that may be sold, delivered or invoiced – and capturing data about that product at every point in the supply chain – will help stakeholders identify and monitor each product from factory to patient. We consider three basic categories in global standardization of supply chain data in this report: product identification, location identification, and master data exchange.

Product identification

Unambiguous product identification is a foundation of global standards. It prevents errors in order processing and financial transactions and reduces relabeling and over-labeling. Globally standardized product identifiers greatly facilitate accounting and reporting. In the GS1 system, it is achieved via the Global Trade Identification Number (GTIN), and the Labeler Catalog Number in the HIBCC standard.

Location identification

Location identification links to an organization's name, address and type, from nursing stations to manufacturers. A standardized and globally unique location identifier could precisely identify a location anywhere in the world.

The GS1 system uses the Global Location Number (GLN), while the HIBCC standard uses the Healthcare Identification Number (HIN). Location identification numbers links information in central databases, increasing efficiency, accuracy and precision of information and logistics.

A data exchange network

A single source of product master data and a global registry could speed data transmission from manufacturers to customers. The network could provide continuous, automated access for authorized parties, accelerating business processes, improving processing accuracy and reducing costs. Incorporating clinical information into the master data could improve patient safety.

The HIBCC system uses the UPN Repository, a form-based asynchronous online database. The GS1 system incorporates the Global Data Synchronization Network (GDSN), comprising a product registry and third-party data pools around the world that authorized parties access using GTIN and GLN identifiers.

Our research indicates that in a global supply chain standards system, product and location identification and data exchange may provide the greatest synergies and benefits when adopted together, throughout the supply chain.

Learning from the retail industry: Standards laid the foundation for transformation and value creation

Global standards have yielded enormous benefits in other industries. Research shows that the U.S. retail industry, for example, has used standards to create $18 billion in annual supply chain savings and operational efficiency improvements. To adopt global standards in the 1970s, the industry had to overcome several barriers: costs that looked high given uncertain economic benefits; adversarial relationships among players; a "critical-mass" problem, as no player seemed prepared to make the first investments; and resistance from some unions, consumers and regulators.

The healthcare industry will likely face many of the same challenges that the retail industry faced in the 1970s. But the benefits of a transformation in healthcare could dwarf any success in retailing, due to several factors:

- The size of the industry: Healthcare spending represents about 10% of GDP in OECD countries, and even more elsewhere.
- Better technology: Barcode and scanner technology is much more advanced today, as are data-sharing and data-mining capabilities.
- Payor and regulator trends: Market access and reimbursement organizations are asking for more granular data, while serialization and medication verification regulations are forcing many healthcare players to invest in technology that supports the use of global standards.
- Public awareness: People all over the world are clamoring for lower healthcare costs and innovation; patients are more involved and demanding more information and better quality care from healthcare providers.

III. Global standards: System wide benefits

Healthcare supply chain performance has room for improvement. In this chapter, we review each of the improvement opportunities and explain how global standards could help capture them (exhibits 1 and 2). To quantify the impact, we interviewed more than 80 healthcare executives, examined more than 25 cases of standards-enabled improvement, and used our internal benchmarking.

Reducing medication errors

Medication and device errors occur when a drug or medical device is not administered or used according to the "Five Rights" of medication safety: right patient, right route, right dose, right time, and right medication. The risks to patients include longer hospital stays, disability, and even death.

Medication errors can occur at any point, from prescription ordering (39%), to transcription (14%), dispensing (21%) and administration (26%). In developed markets, medication errors occur during 10-20% of all inpatient admissions. Experience in some developing countries may be even worse, and error rates seem poised to rise globally, given ever-increasing cost pressures.

.

Exhibit 1

Global standards could enable substantial patient safety benefits and enable total healthcare cost reduction of $40-100 billion

2011	Baseline potentially impacted by standard		Estimated Reduction	Description
Patient health and safety | Million cases	Medication errors	50-100	30%	*Improper administration of drugs (in hospitals only)*
	Adverse drug events	10-35	50%	*Patient impact of medication errors: preventable ADEs. patient disabilities, or lives lost (excludes ADEs, disabilities, lives lost not related to medication errors)*
	Patient disability	1-3		
	Lives lost	~0.1		
Health care cost | US$ billion	Medication error cost	18-115	50%	*Follow-on cost of meditation errors: longer hospital stays, treatments, disabilities, deaths*
	Recall handling cost	2-4	30-40%	*Labor required to identify, process, dispatch, return, receive recalled drugs*
	Inventory financing cost	33	10-20%	*Financing cost for inventory across the value chain, from manufacturers to hospitals*
	Inventory mgmt cost	53-65	15%	*Labor cost for booking of stocks & movements, stock counts, expiry date management, re-ordering*
	Obsolescence cost	51	35-55%	*Inventory write-offs mainly related to expiry, but also to losses and damages*
	Data management cost	2-5	40-45%	*Labor cost for data entry, maintenance, cleansing and synchronization with supply chain partners, e.g. for product catalogues, location IDs*
	Total	**~160-280**	**25-35%**	*$40-100 billion total cost reduction potential*

Medication errors can lead to adverse drug events, which lead to thousands of deaths and millions of short- and long-term disabilities every year. At the global level, we estimate an annual incidence of 50-100 million medication errors, resulting in 10-35 million preventable adverse drug events, and $18-115 billion in associated healthcare costs.

A global standard can help substantially reduce medication errors:

- Clinical decision-making applications can suggest better dosing based on patient and product data, and avoid interactions
- Computerized physician order entry can replace hand-written prescriptions with electronic orders to reduce transcription errors
- Product ID scanning can eliminate confusion caused by unit conversions and similar-sounding names
- Bedside bar code scanning can match the patient to the medication or device, preventing administration or usage errors
- Electronic prescription records, along with allergy checks and drug interaction programs, can reduce ordering and administration errors.

The opportunities are huge. Barcode-based scanning procedures cut potential adverse events by 51-63% at Brigham and Women's Hospital and by 75% at Gelre Hospital in the Netherlands. Assuming a 50% reduction, implementing global standards across the entire healthcare supply chain could save 22-43,000 lives, avert 0.7-1.4 million patient disabilities, and save $9-58 billion in healthcare costs each year. We have not estimated the impact of global standards on medical device error reduction, but similar logic would apply.

Improving recall efficiency and effectiveness

Thousands of pharmaceuticals and medical devices are recalled every year due to safety concerns. On average, about 200,000 units are affected in a drug recall and 105,000 units in a medical device recall.

Since the industry cannot generally track affected products across the value chain, today's recall process remains largely manual and therefore inefficient, ineffective and costly, causing waste and threatening patients.

Without specific batch information, stakeholders throughout the supply chain must sometimes return all of the products, including unaffected ones, to manufacturers. Manufacturers may spend several person-months on a single recall and face losses due to write-offs and compensation to trading partners.

And despite extensive manual searches, not all recalled products are removed from the supply chain.

We estimate the global healthcare supply chain spends 130-270 million person-hours on recalls every year and misses 40-80 million device units and 90-180 million drug units. Implementing global standards could improve recall processing in three ways: freeing clinical staff to spend less time on recalls and more on patients; minimizing product waste; and improving patient safety by pinpointing affected products

"We had a hip replacement recall a few years ago. The supplier told us the lot number that was affected, but it took us a month to figure out which patients got the medical devices. The difficulty is that data is everywhere—it's just difficult to pull out."

—Director of materials management at a major hospital

and patients more quickly. Even if some affected products are missed during the recall process, bedside scanning synched to centralized product information could alert caregivers of recall status and prevent those products from reaching the patient.

Assuming a 30-40% improvement rate, implementing global standards could save 45-90 million recall processing person-hours and identify 40-80 million units of missed recall products.

Protecting patients from counterfeit products

Counterfeit drugs represent a major and growing problem for public health and the industry. They can and do lead to low treatment efficacy, increased medication resistance, adverse side effects, and even death. Although it is difficult to pinpoint the counterfeit drug rate, estimates range from 2-4% to 5-10% globally, with significant variation across countries.

Implementing global standards could help fight counterfeit medications, as serialization, traceability, and authentication would catch duplicative and unauthorized serial numbers and allow stakeholders to verify supply chain history for each product. Global standards could help prevent tens of billions of dollars' worth of counterfeit drugs from entering the legitimate supply chain, resulting in significant improvement in health outcomes and supply chain savings.

Reducing inventory assets and associated costs

Without a clear picture of stock levels down the supply chain, manufacturers find it difficult to build lean and responsive supply chains with minimum stock, even where consumption volatility is low. Without real-time usage data, many distributors and providers carry excess inventory to avoid shortages. And in interviews, hospital executives report that medical staff, anticipating drug or supply shortages, often keep a "private" supply outside of official stock locations, further complicating inventory management and recall efforts.

Excess inventory imposes needless expenses at every step in the value chain. The savings opportunities may be huge, given that global inventory is worth about $516 billion, most of it at manufacturers ($181 billion) and hospitals ($165 billion). Carrying half a trillion dollars in inventory comes at a price: we estimate inventory financing costs at about $33 billion globally, and inventory management costs at $53-65 billion.

Global standards may reduce those costs by enabling collaboration and data-sharing from factory floor to bedside: reducing inventory would free capital and physical space; taking the guesswork out of inventory planning could reduce inventory inflation without raising stock-outs.

Case studies and interviews suggest huge opportunities in global standards. We estimate that they could cut inventory levels by $60 billion-94 billion, or 12-18%, without reducing product availability, saving about $4-6 billion in financing costs and $6-8 billion in inventory management costs.

Reducing product waste due to obsolescence

We estimate that obsolescence in pharmaceuticals and medical devices costs the world more than $51 billion each year. Experience at leading organizations has shown that much of this expense might be avoided.

By implementing global standards and collaborating across the industry, the healthcare supply chain can reduce product obsolescence by tens of billions of dollars. Studies have found that 20% of inventory

assets at hospitals are discarded due to product expiry, translating to $33 billion worth of obsolescence at providers alone.

That level of impact on a global scale would mean reducing the waste of expired products by $18-25 billion. Experts estimate a reduction potential of 5-15% for manufacturers, distributors, and pharmacies, so we estimate an overall potential obsolescence reduction of $19-27 billion across the supply chain.

Reducing data management cost

The healthcare supply chain spends 24-30% of administration time cleansing data and resolving order processing errors. Using our industry benchmarks and corporate reports, we estimate that this translates to $2-5 billion annually in data cleansing and error resolution costs across the healthcare industry.

Global standards together with a harmonized system of exchanging information between supplier and customers could greatly simplify data processing, reduce duplication of efforts, and improve operational accuracy.

We estimate that global standardization and synchronization could help the industry cut data processing costs by 50-70%, saving $1-2 billion per year

"Without location ID or product ID, there's a massive need for cross-reference tables that need to be constantly updated. It's very time-consuming, labor-intensive work—from dozens to hundreds of people on the manufacturers' side, but hundreds on the distributor level. Some hospital systems employ 8-10 people to create master data as well."

—Senior executive at a medical device company

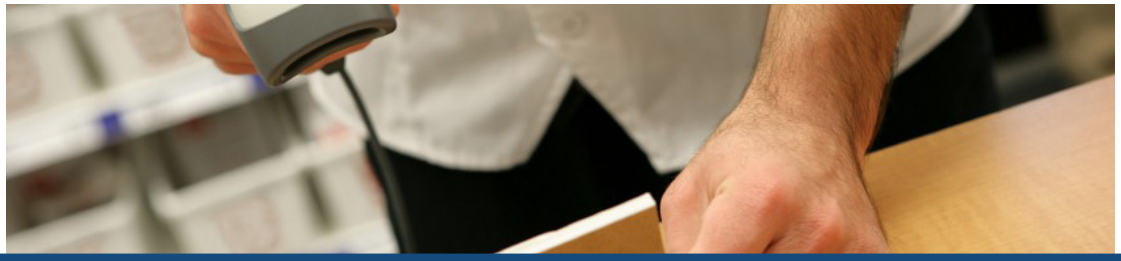
Improving transaction accuracy

The industry is challenged by costly, complex transactions, including patient billing, chargebacks, and returns that can lead to financial losses. Limited supply chain visibility can make these processes inefficient and difficult to execute.

Executives across the industry indicate that errors in financial transactions occur due to manual and non-standardized processes, and resolving such errors may take up to 20% of staff time in hospitals. Although the losses due to these inaccuracies and inefficiencies are not known, our client service experience and interviews indicate strong interest in using global standards and serialization to streamline and improve them.

Summary of benefits

Global standards could substantially improve patient health and reduce costs. We estimate that healthcare costs could be reduced by $40-100 billion globally, mainly from reduced follow-on cost of medication errors ($9-58 billion), improved inventory management (financing, processing, obsolescence cost reduction of $30-42 billion), and better data management ($1-2 billion).



IV. The benefits for individual organizations

What do global standards mean for individual healthcare organizations? How does a typical hospital handle general patient safety risks? How much waste can a typical manufacturer eliminate? In this section, we attempt to quantify the benefits of global standards for four main categories of stakeholders: manufacturers, wholesalers and distributors, retail pharmacies, and hospitals.

These analyses are not intended as investment cases for individual organizations; investment decisions depend heavily on each organization's unique situation. We present these analyses as starting points for building business cases tailored to circumstances.

For each case, we suggest a hypothetical organization and discuss the benefits of global standards and costs of adopting them. For manufacturers, we describe benefits separately for pharmaceutical and medical device manufacturers.

Pharmaceutical and medical device manufacturers

Our representative global pharmaceutical manufacturer has 25 packaging lines, annual revenue of $4 billion, and earnings before taxes of $720 million, or 18% of sales, in line with McKinsey industry benchmarks. We assume 30% of revenue is earned in developing markets to estimate exposure to counterfeits.

Our representative global medical device manufacturer has annual revenue of $4 billion, and earnings before taxes of $470 million, 12% of sales. Given the wide variety of medical devices, supply chains and patient risks, organizations may see a different profile of benefits and costs.

Benefits for pharmaceutical manufacturers

By adopting global standards in partnership with its trading partners, our representative pharmaceutical manufacturer might expect a range of benefits worth about $43-62 million annually, about 1-1.6% of base revenue and 6-9% in earnings before taxes, due to reduction in inventory costs, obsolescence, recall costs, and losses due to counterfeits. We expect a one-time cash flow benefit of about $90 million due to reduction in inventory assets.

Benefits for medical device manufacturers

By adopting global standards in partnership with its trading partners, our representative medical device manufacturer can expect annual benefits of $16-19 million, or about 0.5% of revenue, and about 4% in earnings before taxes, due to reduction in inventory costs, obsolescence, and recall costs. We expect a one-time cash flow benefit of about $90 million due to reduction in inventory assets.

Net benefit to manufacturers

Over 10 years, we expect global standards to deliver 4-25 times more in benefits than costs for pharmaceutical manufacturers, depending on the specifics of implementation and use.

For medical devices, the situation is more complicated—the variety of products precludes simple assumptions about the value of barcoding—but barcoding with product identification itself could realize 15-20 times the benefit/cost ratio over 10 years.

Distributors and wholesalers

We built our business case based on a hypothetical distributor with one central distribution center, 5 warehouses, $2.6 billion in revenue and $39 million in gross margin.

We estimate that by implementing global standards, the distributor could achieve annual savings of $1.2-1.9 million, or 3-5% of base profit, by reducing inventory costs. Non-quantified benefits include recall effectiveness, counterfeit reduction and more seamless transaction processing.

In sum, the distributor could see a roughly 10-15x benefit/cost ratio over 10 years by implementing global standards.

Retail pharmacies

Many retail pharmacies, especially in more developed countries, have already installed scanning technology, linking product receipt, inventory management, and patient dispensing. Those systems typically follow multiple manufacturer-driven coding algorithms, however, and can miss critical information.

We built our business case based on a hypothetical independent retail pharmacy with 80,000 annual prescriptions filled, 2 pharmacy locations, 4 pharmacists and 6 technicians on staff, and $5 million annual revenue. We estimate this pharmacy could achieve annual operation savings of $30-40,000, or 0.6-0.8% of revenue, after implementing global standards and updating its key processes, due to more efficient recall processing and reduced data-cleansing costs. Other non-quantified benefits include a reductions in obsolescence and counterfeit risk.

In sum, our pharmacy could improve patient safety, generate annual profit impact and recover the cost 3x over 10 years by implementing global standards.

Hospitals

We built our analysis based on a hypothetical hospital with 20,000 patients treated annually and 300 beds, 10 operating rooms and $300 million in revenue (or equivalent value in reimbursed services).

We estimate this hospital could achieve annual savings of $2.7-4.3 million, 0.9-1.4% of revenue, after implementing global standards and implementing the necessary system and process changes, due to reductions in adverse drug events, inventory costs, obsolescence, recall processing and data-cleansing costs.

In sum, adopting global standards could help hospitals could realize significant benefits by reducing medication errors and improving the safety and quality of care. The 10-year benefit/cost ratio can be as high as 15-20x to capture immediate efficiency improvements or 3-6x with bigger investments in bedside scanning; eliminating manual processing could also free hospital staff to spend more time caring for patients.

V. A possible roadmap to adoption

Adopting global standards could benefit all participants in the healthcare industry and unleash new insights and innovations. The technology needed to bring these benefits to life exists; the only missing element is industry alignment.

In the 1970s, the grocery industry formed a committee of well-respected leaders of major manufacturers and retailers. In consumer packaged goods, a few global players worked together tirelessly to align on GS1's single global standard for the industry. More recently, the Consumer Goods Forum organized senior executives to define requirements for global data synchronization. These leaders worked together across the value chain, and their decisions drove adoption throughout the sector.

Healthcare is more fragmented and regional than the retail industry. Unlike consumer packaged goods, healthcare has no major players who could set new requirements for suppliers. In healthcare, manufacturers, not customers, are the largest and most global players, and regulators have more influence.

Healthcare industry leaders will need to work across competitive and customer-supplier relationship boundaries to agree on a common vision and approach. Customers, vendors, competitors and regulators will have to act and collaborate in new ways. Their aim will be to create interoperable systems; these are the enablers for change.

"Pursuing global standards, we've learned a few things: start early, learn by doing, and don't wait until the eleventh hour. Trading partners also appreciate this and overall, early adopters usually reap the largest benefits."
—Senior pharmaceutical executive

A role for each participant in the value chain

Given the structure of the global healthcare industry, each channel segment could play a unique and critical role in shaping standard-setting and adoption.

1) Manufacturers have much to gain—and to lose

Pharmaceutical and medical device manufacturers are the largest and most global players, and can therefore play a unique role in driving global standards adoption. They could realize significant benefits if they work together to create greater visibility to their end-to-end supply chains and demand patterns. Healthcare manufacturers could also benefit greatly if they improve control over their products' shipment and usage conditions, protect brand reputation and improve patient safety and effectiveness outcomes.

2) Large hospitals and retail pharmacies are positioned to integrate across product segments and to drive compliance

As in retail, the final stage of the supply chain could realize great gains from global standards adoption, at less cost, relative to manufacturers. Large hospitals and retail pharmacies, as well as industry associations and GPOs, might consider defining requirements and driving adherence up into the supply chain through their interactions with suppliers and distributors. Since hospitals and pharmacies can also integrate

pharmaceutical and medical device technology segments, they have the most to gain from global standards.

3) Distributors, third-party logistics and solutions providers could create unique services around value chain connectivity

Distributors and 3PLs could add unique value by creating products and services that enable total supply chain connectivity based on global standards. These players could extract even greater value if they can also maintain proprietary access to the data generated–giving them further opportunities to generate service offerings to manufacturers and to hospitals and pharmacies. Data connectivity could enable attractive new business models, such as customer order management and invoicing or co-packing services for manufacturers.

4) Regulators are uniquely positioned to improve global harmonization and alignment

Regulators are likely to play a major role in driving global adoption, no matter how it unfolds. Parties in both the public and private sectors are considering how they can begin working together now to develop a clear vision of global standards and how they will enhance patient safety and outcomes. This vision could guide health authorities and regulators around the world as they develop their requirements, avoiding (or minimizing) the fragmentation now underway.

One approach for driving adoption - to the benefit of patients

Many of the executives we speak with say they are working to unify the end-to-end healthcare industry around a single standard but that uncertainty about the universal adoption of a single standard is preventing their companies from making the needed investments. Representatives from leading companies will need to convene to articulate a vision for adoption, along with time frames, milestones and objectives. Aligning on a single global standard would save lives and avert medication and device errors. This is a true win-win opportunity: the industry and patients would benefit enormously.

"Global standards are the right thing to do. They will benefit patients and healthcare organizations around the globe."
—Pharmaceutical executive

January 2013
Designed by the US Design Center

www.mckinsey.com