study was created to validate the fact that this is, indeed, a solvable problem in this industry. And, a pilot was conducted to further prove the point.

But, in spite of all the promise and the compelling evidence, it will still require the participants in the healthcare supply chain to pull together and actually do something about this serious point of erosion that eats away at the top and bottom lines of all those who allow it to continue unchecked. In the long run, the problem will be solved eventually, one way or the other. Either the leaders within the industry will proactively move to solve the problem in a mutually beneficial manner or the significant progress made by other industries will make the lack of progress in healthcare seem unconscionable...and the industry will have to act.

This paper focuses on a significant, widely acknowledged driver of cost and inefficiency in the healthcare supply chain, namely, the widespread lack of information integrity and synchronization within and between organizations. It highlights why the problem must be addressed. And, it shows how it can be proactively fixed once and for all. Solving the data synchronization problem is no longer uncharted territory. Other industries have initiated programs that have resulted in significant decreases in supply chain management costs. From these, a clear path with demonstrable results already exists. What remains to be seen is when the healthcare industry will finally choose to act on this problem.

It's Unacceptably Bad

For those just beginning to realize the significance of the sad state of affairs of information in healthcare, it's time to admit that the poor condition of such simple and yet, foundational information elements as vendor identification, product ID, unit of measure/packaging, and price can no longer be condoned.

A given hospital often has several IDs and prices in their purchasing systems for the same product. The contract information established between a manufacturer and a GPO is frequently not conveyed to the distributor and/or hospital in anything even vaguely approximating a timely fashion. This leaves the distributor and provider in the dark about contract specifics and, in turn, creates mistakes that must be investigated, reconciled, and resolved after the fact...thus inefficiently using precious limited human resources. As Frank Fernandez, Asst. Vice President/Corporate Director of Materials Management at Baptist Health South Florida, puts it, "There's no reason why it should take more than a day to load pricing.[16] Today, the shortest time could be 30 days. It often takes as much as 60 days to get pricing and contract information. GPOs are trying to shorten this time, but it will require the cooperation of all participants in the supply chain to do so."

These delays result in a parade of preventable mistakes that require time and money to investigate, identify, and resolve. And, all of that results in higher healthcare costs to you and me, our employers, our government, and you and me again as taxpayers. Mr. Fernandez points out that, "The impact of upstream mistakes and inefficiencies is ultimately felt at the level of the healthcare care giver. This is forcing inefficiency and higher costs on the shoulders of the hospital and, ultimately, the payers and the patients."

The fog of information inaccuracy and inefficiency in which the healthcare industry has conducted business for decades can no longer be ignored or tolerated.

Worse yet, in an age where technology is being used extensively in other industries to reduce errors, cut cycle time, remove costs from the process, etc. the exchange and maintenance of this and similar critical item data is slow, highly error-prone, and disappointingly disorganized in healthcare. In fact, the fog of information inaccuracy and inefficiency in which the healthcare industry has conducted business for decades can no longer be ignored or tolerated.

At a time when industries such as retail, automotive, high-tech, and others have long been demonstrating how supply chain participants can drive efficiency and growth based on a foundation of consistent accurate business information, the majority of the healthcare supply chain remains inexplicably stuck in the data synchronization equivalent of creeper gear. The result is that attempts to streamline supply chain costs by implementing new technologies are sabotaged by inaccurate item data. In turn, these efforts merely accelerate the generation of errors. It's what Craig Wigginton, Vice President, Chief Technical Strategist at Neoforma, calls "garbage at the speed of light".

At a time when organizations like Dell report that they: (a) are integrated with over 85% of their suppliers, (b) issue a bill of lading every twenty seconds (and receive materials within two hours), and (c) have decreased inventory shelf life from thirteen to seven *hours*, healthcare plods along awash in a sea of inaccurate information with avoidable costs that are passed down to you and me, our employers, and our government.

[16] In fact, Wal-Mart reported a reduction in item maintenance time from 15-30 days down to 1 day courtesy of data synchronization.

Now, it should be noted that painting anything with a broad brush runs the admitted risk of not giving credit to those sectors that have made progress in the midst of near consistent failure elsewhere in the community. The pharmaceutical sector, for instance, has managed to make admirable strides toward standardizing participant identification[17] and product identification.[18] But, even as commendable as these steps are, that sector—like the rest of healthcare—still has yet to address a myriad of other issues related to information synchronization.

For instance, even with a standardized item numbering system and with electronic data interchange (EDI) standards defined for the timely accurate consistent exchange of GPO contract data amongst all participating parties in the pharmaceutical community—like medical/surgical—the industry still has yet to choose to synchronize contract data in a timely way to wrestle chargeback/rebate issues to the ground.[19]

But, the problem isn't just with activities surrounding changes to existing items or dealing with obsolete items. New item information is still exchanged in inefficient, highly error-prone, manual, proprietary methods that (1) take weeks to update the systems of those parties involved and (2) unnecessarily delay the introduction of those new products into the supply chain. [Meanwhile, organizations—like Wal-Mart—report having pared item maintenance times down from fifteen days to just one day courtesy of their data synchronization initiatives with their suppliers.[20]]

So, even in a sub-vertical of healthcare, like pharmaceutical, that has made admirable strides in areas that the rest of healthcare still needs to address, there are still numerous examples of preventable problems needing to be corrected...problems whose costs are ultimately passed down to you and me, our employers, and our government.

Specifically, How Bad Is It?

As intuitively obvious as the negative impact of the lack of information integrity is in healthcare, humans have a proclivity to want to quantify things.[21] Unfortunately, compared to other industries that have invested extensive amounts of time and money to perform detailed analyses of the problem and estimate the dollar value of solving the problem, healthcare has amassed comparatively few statistics. Fortunately, there are more than enough similarities between the healthcare supply chain and others (such as retail) that have been thoroughly studied to be confident of the results that healthcare can expect from data synchronization.

When asked whether the problems surrounding data integrity in healthcare are more or less severe than those extensively documented in the retail supply chain, Joe Pleasant, CIO at Premier, said, "The information problems in healthcare are more severe than in retail because of the added complexity of the products and the supply chain. And, the multiple purchasing agents at the provider level (e.g., dietary, laboratory, surgical, etc.) make it even more complex."

In fact, nearly everyone interviewed from the industry agreed that it is reasonable to expect that—because of these similarities and the added complexities of healthcare—the benefits to be realized by the healthcare sector would be

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[17] Through their use of DEA numbering

[18] Using NDCs, product bar coding, and now, pilots with RFID (radio frequency identification)

[19] Note: Standards have been in place since 1985 to facilitate the electronic exchange of GPO contract information.

[20] Source: Cincinnati Business Courier – "Data Sync Might Be In Your Future"; Michelle Seibert

[21] In fact, several of those interviewed from the industry emphasized that the issue of bad data and the need to address it is a no brainer. Comments often cited the amount of waste in the industry being so significant and obvious that further study of the problem would, in fact, be a waste of resources that could otherwise be applied to solving it.

comparable to—if not greater than—those accrued in other industries that have already moved forward with data synchronization initiatives. Frank Fernandez, Asst. Vice President/Corporate Director of Materials Management at Baptist Health South Florida, emphasized that the benefits healthcare could expect to realize from data synchronization would be "at least as good, if not better {than those being reported by retail}. Once the problem is resolved (i.e., standardize how data synchronization will be done in healthcare) we will have many more efficiencies and lower supply chain costs in this industry."

This information combined with what we do know about the data synchronization state of the union for healthcare gives us a clear picture of just how sick the patient really is. In fact, in a series of interviews with providers, GPOs, distributors, manufacturers, and industry associations conducted in preparation for this primer, every respondent indicated that they felt the information quality and synchronization problems in most of the healthcare supply chain were at least as bad as—and likely much worse than—in the retail sector. Fortunately, we have numerous examples of just how bad the state of data was in the retail sector before they began addressing it with data synchronization.

As a benchmark, then, we look at the U.S. consumer products community which has invested heavily to determine the negative impact of bad data and the benefits that could be anticipated by companies addressing that bad data. Results from one of those studies show that according to an A.T. Kearney investigation in the retail consumer products supply chain:

- $40 billion or 3.5% of sales are lost each year due to supply chain information inefficiencies.
- 30% of item data in catalogs used by retailers and manufacturers for replenishment of stock is in error. And, each of those errors costs $60-$80 to address.
- Companies invest an average of 25 minutes per SKU (stock keeping unit) per year manually cleansing out-of-sync item information.
- 60% of all invoices generated have errors. And, each invoice error costs $40-$400 to reconcile.
- 43% of all invoices result in deductions.
- It takes an average of 4 weeks to roll out a new product—in large part due to the inefficient and error-prone approaches for the exchange and updating of new item information in buyer and seller systems.

The source of the business problems described by these dismal statistics is the erroneous information contained in the systems of the buy- and sell-side companies trying to conduct commerce through their distribution channels. Bad item numbers, incorrect prices, inaccurate units of purchase/use, etc. are costing individual companies literally millions of dollars a year, are unnecessarily driving up the cost of healthcare in the U.S., and will continue to do so until they're addressed.

So what is bad data costing companies in the retail supply chain? Based on findings in a recent study from CGE&Y, the answer is plenty! The study revealed that the impact of out-of-sync information within and between businesses in the retail supply chain is costing the industry an average of 1-3% of supply chain performance. Mike Haas, Vice President of Information Management, Johnson & Johnson Consumer/Personal Care & Consumer Pharmaceuticals Group noted in a Logistics 2001 article titled "Planning for the New Global Compliance Standards", that "item synchronization issues cost manufacturers ½% of sales annually."

For decades, corporations have used technology to remove the manual element from information processing to squeeze delays, errors, and resource inefficiencies out of the supply chain. But, amidst best efforts on this front,

organizations are realizing that they are still plagued by information exceptions that force manual intervention and erode the ROI they might have otherwise realized—had it not been for the information discrepancies. For example:

- A major wholesaler estimates that 37% of its roughly 2.5 million invoices a year error out with either bad prices or bad item numbers.[22] [Meanwhile, one of their major competitors estimates a discrepancy rate of only *two-tenths of one percent.* Consider the competitive mismatch!]
- A large retail chain indicates that it has item information strewn across more than a dozen internal databases—none of which are in sync with one another...let alone with suppliers. To make matters worse, 30% of their inbound shipments contain items whose numbers don't match item numbers on file. This (1) forces manual research and correction and (2) slows the receiving process—which normally takes only 24 hours, but extends to eight days when such exceptions are found. Such mistakes drive up Days Inventory, drive down Inventory Turns, and risk out-of-stocks. Of course, such inventory deficiencies have much more dire consequences when the end consumer is a patient in need of the product to address a health issue.[23]
- One consumer products manufacturer—which has long used electronic data interchange (EDI)[24] to receive orders electronically and process them through an integrated automated interface—admitted that 20% of their EDI orders kicked out with either bad item numbers or prices. The supplier noted that after having invested the time, effort, and dollars to implement EDI with their most important customers, their out-of-sync item information has relegated them to manual exception handling for 1 in 5 of their otherwise integrated orders. What's worse is that not only did the processing costs for those erroneous orders increase substantially[25] as a result of downshifting to manual mode, the cycle time to process the order was extended[26], as well, causing excess inventory carrying costs—or, worse, stock outs[27]—on their customer's side.
- One $500 million retail chain averages 100,000 manual purchase orders each year. They are able to match only 53% of those to the supplier invoices they receive.
- A 400-store retail chain found that 72% of the invoices from their suppliers kicked out with pricing exceptions with a 1% allowance for discrepancies. Even when they raised the discrepancy buffer to 5%, 68% of their invoices still couldn't make the cut.

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[22] A study by the National Wholesale Druggists Association (now, the Healthcare Distribution Management Association (HDMA)) estimates the average cost to research and correct a *single* reconciliation exception ranges from $15 to $50 per error (a cost that is shared between the buyer and the seller). Taking just half of the lower number and applying it to 37% of the 2.5 million invoices yields an annual cost of rework equal to nearly $7M. This, of course, assumes that the erroneous invoices had no more than one error each.

[23] Case in point: At a local emergency room, my 3 ½ year old grandson was just denied the customary shot of antibiotics—that is normally administered to treat children on the verge of blood poisoning before starting them on oral antibiotics—because the emergency facility was out of serum. He recovered, but more slowly than he would have had the emergency facility been better at supply chain management.

[24] See Appendix for a definition of EDI.

[25] A McKinsey and Company study of 1,200 companies showed that on average a manually processed order was nearly seven times more expensive to process than an integrated order.

[26] A McKinsey and Company study of 1,200 companies showed that integrated automated processes averaged five days shorter cycle time (2 versus 7 days)—from order to product receipt—than the same processing steps performed manually.

[27] A 1/16/96 Accenture study on out-of-stock merchandise in the grocery sector showed that "Out-of-stocks cost retailers more than 15% of potential sales of advertised items." "The net impact of consumer responses to out-of-stocks is to reduce consumer purchases 3.1% per shopping trip." "Sales lost on out-of-stock merchandise account for 6.5% of category sales volume." "A retailer's primary customers shop at competitors' stores 25% of the time."

In describing how a senior executive might react to such situations as these, Bob Evans, editor-in-chief at InformationWeek, wrote in his June 2002 article, "Business Technology: The $40 Billion Question", "Wouldn't that trigger a vein-throbbing, spittle-spewing, fire-breathing tirade from the CEO, who'd seem to have good reason to threaten to fire every person in the company—starting with himself—unless fixing the problem became the top priority of the entire organization?"

But, how bad is the problem in your particular company? Well, it depends on a number of factors. One quick way to assess the size of just the *tip* of the iceberg in your organization is to ask your heads of order processing and/or accounts payable what percentage of your orders and/or invoices kick out with just bad pricing or item number discrepancies.[28]

The answers you get from your inquiry (i.e., percent of erroneous documents) multiplied times the number of physical orders or invoices you process a year will provide an immediate sense of the magnitude of the problem in your company and between you and your customers and/or suppliers. Now, expand your scope to include the litany of other information types used within your company and between you and your partners in commerce. Finally, consider how you obtain product information from your suppliers or how you provide such information to those who request it. Chances are that it's manual, slow, inconsistent, and flawed. Now, ponder the volume of pricing- or partner identification-based exceptions that you wrestle with in your chargeback/rebate reconciliation efforts. Indications consistently confirm that bad data is rampant throughout those processes.

When you consider these aspects of your product information management, exchange, and use, you begin to have a basic idea just how bad it really is. The reality is that in most organizations, it's shockingly bad! In fact, the sheer number of organizations—compared to other industries—dedicated to analyzing and cleaning up the data in the healthcare industry is a testament to the current sad state of affairs across the industry.

The Infection in Healthcare

As compelling as the reports from the consumer products channel are, there will invariably be those who will claim that the healthcare supply chain is sufficiently unique to render the consumer products statistics meaningless to the healthcare community. While this is most certainly an inaccurate sweeping generality, there is some merit to the added confidence that statistics from one's own industry engender. With that in mind, consider the following pieces of evidence about the state of information disarray in the healthcare industry.

A data synchronization pilot conducted by the Department of Defense[29] was designed to get a sense of the state of critical product information within and between healthcare supply chain sectors. The pilot included industry participants from manufacturing, distribution, GPOs, and providers.

At a high level, the pilot identified the alarming state of inconsistent and missing information within and between companies in the healthcare supply chain. In a community with frequent product changes, products becoming obsolete, and new products being introduced on a continuing basis, the pilot revealed a spider web of information disarray across all levels in the industry.

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[28] We've included a brief questionnaire in the Appendix to assist you with estimating the minimum savings your organization could expect to realize as a result of implementing even the most elementary form of synchronization (i.e., item number, partner IDs, and price).

[29] Conducted between January 2003 and May 2004

"There is an accelerating flow of new products into the healthcare industry. There needs to be a way to get these products quickly into the hands of the consumers by eliminating the delays of manual transfer of new product data which results in delays and errors in product delivery throughout the industry."[30]

In particular, three categories of "data disconnect" were identified between participants: part number disconnects, packaging disconnects, and description disconnects. Findings showed the following:

Manufacturer And Part Number Disconnects: When comparing manufacturing data with that which was held by the participating GPOs, distributors, and providers, striking inconsistencies were found.

- 7% of the part numbers in the pilot were found in the GPO's data but not the manufacturer's data.
- 5% of the part numbers in the pilot were found in the distributor's data but not in the manufacturer's data.
- The pilot showed that providers have the greatest problems with manufacturer name matching. In fact, manufacturer naming problems were found 30% of the time at the provider level.

The pilot indicated that there were four key causes for manufacturer names/part number mismatches:

(1) Obsolete products in the GPO's, distributor's, and providers systems
(2) Lack of a common manufacturer name or manufacturer name code across the industry. Everybody creates their own name for the same manufacturer
(3) Inability to identify the manufacturer of a product in GPO, distributor, and provider's systems when the supplier of the product is different than a manufacturer. Normally, GPOs, distributors, and providers only have a supplier name field in their systems
(4) Distributors and hospitals assign their own part numbers to products

Clearly, a mechanism for healthcare supply chain participants to establish, exchange, and maintain a unique ID for each supply chain participant (including manufacturers) would address the naming aspects of this problem.

Not surprisingly, such lack of consistent identification for a supplier creates trouble when trying to map the common name of a supplier to the correct part number for a product. Clearly, a mechanism for healthcare supply chain participants to establish, exchange, and maintain a unique ID for each supply chain participant (including manufacturers) would address the naming aspects of this problem.[31]

The inability to reliably reference participants in the healthcare supply chain has other implications. Craig Wigginton, Vice President, Chief Technical Strategist at Neoforma points out that, "There is a critical need to implement an industry-wide trading partner identification standard in the supply chain. Without a consistent numbering standard, such as the HIN or GLN, we will continue to see ordering errors within hospitals and added expenses for suppliers in contract administration, invoice reconciliation, and rebate processing. Unfortunately, these costs are not adding any value for suppliers and the millions spent performing contract administration is not visible to their hospital customers."

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[30] Source: Christine Vincent, Global Healthcare eBusiness Director, AGFA

[31] Note: Other industries that have solved this problem have established a globally unique global location number (GLN) to refer to a specific organization's logical, legal, or physical parts.

Indeed, many agree that the industry regularly relies on the resourcefulness of the primary healthcare provider to prevent supply chain issues like product stock-outs from becoming issues that could negatively impact the quality of care given. Michael Stanley, Director SCIS Content & Business Process for Trinity Health, explains, "Incorrect shipments are a problem because of bad item numbers. Hospitals have to carry additional inventory (especially through hoarding...e.g., items placed in cubby holes) or having to pay extra for expedited acquisition and delivery of needed products. These are just some of the many problems around inventory control that originate from inaccurate item identification." Sadly, these "resourceful" recovery measures create excess inventory or trigger higher-cost exception buying practices to ensure supply availability and, thereby drive up the overall cost of healthcare costs.

But, the problem with part number disconnects is not solely attributable to the lack of a consistent supplier identification mechanism. The lack of standardized part numbers and the lack of synchronization of the part numbers themselves is an enormous culprit, as well. The pilot showed that every one of the five distributors studied had a different part number for a particular product. To make matters worse, many of the hospitals involved had a different Product ID for this same product. This clearly points to a troubling waste in human capital throughout the healthcare supply chain that is spent making up for—or cleaning up from—the lack of standardized item numbering in this industry...again, an entirely fixable problem!

In one hospital that was studied, a particular product was listed in the hospital's systems with eight different Product IDs...each of which had a different price (only one of which was the correct contract price). An audit of the hospital's purchasing showed that they had paid as much as 30% above contract price simply because they used the wrong Product ID to order the product.

As Joe Pleasant, the CIO at Premier, points out, "Hospitals are spending a lot of money having to repackage and re-bar code their products because they can't rely on the relationship of their own databases to the product's id." Of course, all of this further exacerbates the rise in healthcare industry costs which ultimately results in higher healthcare costs for all of us.

The CPG/grocery industry standardized on the UPC as its common means of uniquely referencing products and tying them back to a specific manufacturer. The *annual* savings realized by that industry as a result of standardizing their product ids is $30 billion—more than 50 times greater than the originally projected annual savings promised in the 1975 business case.[32]

Packaging Disconnects:

- 20% of the items checked during the pilot suffered from missing middle level packaging.[33] This is clearly a problem since "Most hospitals buy at the box or pack level. They cannot use the GPO price in their MMIS without knowing how many boxes or packs are in a case."[34] Surprisingly, manufacturers in the pilot could not provide middle levels of packaging on 20% of their items.[35]

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[32] Source: PriceWaterhouseCoopers 1999 Study: "17 Billion Reasons To Say Thanks: The 25th Anniversary Of The U.P.C. And Its Impact On The Grocery Industry"

[33] For example, the GPO's file showed a case of 150 eaches while the manufacturer's file showed a case containing three packs of fifty each.

[34] Source: DoD Pilot Results presentation; John H. Clarke, February 3, 2005

[35] Source: DoD Pilot Results presentation; John H. Clarke, February 3, 2005

- An additional 2% of the items had incorrect packaging information (e.g., incorrect number of eaches in a box or case) in the GPO file compared to the manufacturer's data. Of the packaging data provided to the DoD by manufacturers, 18% is wrong or incomplete.[36]

Several of those interviewed indicated that far too many manufacturers have real problems providing complete packaging data. In such cases, they chose to abdicate that responsibility to distributors to figure it out on their own.

Description Disconnects: It was common for most of the product descriptions used throughout the supply chain for a particular product to differ from company to company. For most items, the pilot discovered different item descriptions for the same product for each of the pilot participants. Very rarely did two participants have the same description for a product. Normally, everybody in the supply chain creates their own item description for an item—manufacturers publish multiple item descriptions on items and distributors and providers normally create their own. Automated systems that are used to support the supply chain have varying description lengths (ranging from 20 to 500 characters) that require manual truncation of otherwise good item descriptions.

For the products inspected in the pilot, the following lists the percentage of items with incomplete item descriptions at the various community levels:

- Manufacturers: 5-15%
- Distributors: 3-12%
- GPOs: 5-15%
- Providers: 10-20%

But, it gets worse. To further compound the problem, every supply chain sector in the pilot had missing product brand names. For the products inspected in the pilot, the following lists the percentage of items missing product brand names at various supply chain partner levels:

- Manufacturers: 2-5%
- Distributors: 5-10%
- GPOs: 5-10%
- Providers: 20-25%

What should be most troubling is the fact that for nearly every data quality metric studied in the pilot, the problems were worst *closest to the patient*!

Not surprisingly, the problem worsens the farther down the supply chain you go. [After all, garbage dumped upstream invariably creates greater pollution downstream.] But, what should be most troubling is the fact that for nearly every data quality metric studied in the pilot, the problems were worst *closest to the patient*![37]

Of course, such mismatches have the very real potential to mislead the purchaser into buying the wrong item, thus risking stock-outs, creating inefficiency in the supply chain, and, therefore, driving up operational costs for those involved.

When you glue these foundational elements of information (part number, supplier ID, packaging, and description) together and consider the litany of problems that emanate from inaccuracies in one or more of these elements, you

[36] Source: AHRMM presentation by Kathleen Garvin, DoD, "Department of Defense A Case for Data Synchronization and Product Data Utility (PDU)"; July, 2005

[37] NOTE: See Appendix for a table summarizing the findings from the pilot.

can begin to appreciate what the lack of data synchronization is doing to manufacturers, distributors, GPOs, and providers in the healthcare supply chain.

The following real life examples demonstrate the pain caused by bad data and the benefits hospitals achieved after synchronizing their data with suppliers:[38]

- One 700-bed hospital with two distributors experienced purchasing errors caused by lack of data synchronization that contributed to higher freight costs that equal more than $400K annually.
- One hospital—that reportedly has multiple people updating its item master (containing 15,000 products) using a variety of sources for data, e.g. vendor catalogs, sales reps, etc.—reported a 90% error rate due to inaccurate data in the purchase order/purchase order acknowledgement reconciliation process.
- Hospitals that underwent a data synchronization process averaged the following results:
    - 50% reduction in discrepancies between purchase orders and purchase order acknowledgements
    - 33 to 50% reduction in invoice discrepancies
    - 25 to 50% less time spent by buyers and Accounts Payable staff on researching invoice discrepancies

- Prior to cleansing their data, one out of every 5 orders from a key Integrated Delivery Network (IDN) had an error. Now only 1 out of every 25 has an error. The IDN also cleansed and reduced the size of its product item master from 75,000 to 45,000 items—in part by eliminating obsolete and duplicate items. Today, they say they have virtually no price discrepancies or unit of measure errors with vendors it transacts business with via the exchange.
- A mid-west provider cleansed and consolidated eight item masters into one. They now report cleaner data with orders placed through the exchange accounting for less than four percent of their invoice exceptions—this is compared to 75 percent that are attributed to fax orders and the balance to orders by phone. The reduced work and fewer exceptions qualify the provider for early payment discounts which total $50,000 a year with their prime vendor alone.

Consider the experience of the DoD as it went about trying to outfit the hospital ship, USS Comfort, as it prepared to depart in support of Operation Iraqi Freedom. The Medical Directorate, Defense Supply Center Philadelphia (DSCP), was tasked with outfitting the ship with all pharmaceutical, medical/surgical, and capital equipment items required for war within 7 calendar (3 ½ business) days. This timeline presented a formidable challenge, even for DSCP.

DSCP's Pharmaceutical Business Unit was able to quickly identify and match the Pharmaceutical items requested with sources of supply for purchase by using the National Drug Code (NDC). The pharmaceutical industry must use this federally mandated standard number which identifies every drug and the different packaging quantities with a unique number. Unfortunately, this same "standard" does not apply to the Medical/Surgical product line. As a result, the Medical/Surgical Business Unit struggled simply to determine what exactly was required for the ship—a task that involved extensive manual research and continuous discussion and feedback from Navy customers.

Of the 995 Medical/Surgical items ordered, 224 had unidentifiable product identifiers and 205 had obsolete product identifiers. Because of a lack of a universal product number, the DoD was unable to electronically cross-reference

[38] Source: Global Healthcare Exchange (GHX) from experiences with their customers

for equivalents. It took 15 people two days to manually resolve the issues and order the needed items. A UPN would have enabled electronic processing in seconds.

Is Anyone Doing It, Yet?

As depressing as all this bad news is, the good news is that for years, many of the world's industries have been working to define a process and set of standards by which they could cleanse and synchronize the business information that they collectively used to conduct business. For the last several years, these industries have been implementing and executing data synchronization in full production. This is significant for healthcare because as Garren Hagemeier, Executive Director, Health Care EBusiness Collaborative, points out, "We can leverage the experiences of other industries to avoid mistakes and get to a solution quicker than if we were the pioneers in synchronizing product information."

This initiative is known as global data synchronization (GDS). It includes standards for the information that trading companies maintain about the items they buy or sell, an orchestrated process to ensure that all concerned receive the information they need, and the partner information they use to conduct commerce with one another (e.g., correct contact information; purchasing, shipping, and receiving locations; bill-to/pay-to data; eligible contract participants; etc.).

The benefits of this effort are well documented and substantial. [Note: See the next section for documented results reported by companies that are already synchronizing their business information.] As a result, participation in data synchronization is growing worldwide at a near exponential rate.

The number of companies launching data synchronization initiatives in the U.S. alone rose from 25 in January of 2002 to 2,607 in January of 2004. By the beginning of 2005, that number had risen to include more than 4,000 U.S. suppliers and retailers. In Canada, manufacturers and retailers in retail pharmacy, food/CPG, and food service have been synchronizing their product information and images for several years. By the end of 2004, more than 30 retailers/distributors were engaged and more than 2,000 suppliers had been certified. More than 297,000 trade items had been published. And, more than 66,000 unique item images had been loaded. Most recently, data synchronization in Canada is expanding to include hardlines, home improvement, and housewares.

As of this writing, 23 other countries—beyond the U.S. and Canada—have formal data synchronization initiatives in place. Industries involved span a wide variety including—but certainly not limited to—retail mass merchandising, food/CPG, direct store delivery, chain drug, apparel, hardlines/home improvement, housewares, office products, electrical, and automotive aftermarket. Many other industries—including healthcare—are launching pilots to perfect the process before rolling the initiative out to the entire community.

With the rapidly growing interest in RFID (radio frequency identification), there will be many more industries jumping on the data synchronization bandwagon—since a foundation of clean, consistent data is essential to RFID success. As Forrester put it, "Companies that view RFID projects as the panacea for their lack of visibility will be disappointed with the outcome of their investments. Before any RFID deployment, companies must invest in data synchronization."[39] Or, as was reported by Information Week in an article on Wal-Mart's RFID initiative, "Critical to the RFID effort is global data synchronization to enable communications with the industry."[40]

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[39] Source: Forrester Research report, *"RFID: Icing On A Half-Baked Cake,"* Noha Tahomy

[40] Source: "Wal-Mart's Way", Information Week, September 27, 2004

A survey of the direct store delivery community conducted in early 2005 revealed that 89% of the respondents placed data synchronization as the undisputed necessary first step before attempting RFID.[41] And, in a survey conducted by ATK/KSA, nearly 70% of manufacturers and 66% of retailers surveyed indicated that data synchronization should precede RFID.

Whether the healthcare industry pursues EPC, UID, UPN, RSS, etc. within an RFID initiative, it must first establish accurate consistent data throughout the supply chain or the RFID projects will fail. After all, if you and your partner attempt to implement RFID without first synchronizing your product information internally and between your two organizations, you'll be able to know exactly where the product is. You just won't be sure whether you agree on *what* it is. As Joe Pleasant of Premier put it, "Discussing RFID before addressing data synchronization is putting the cart before the horse—particularly since the industry still doesn't have standardized units of measure or a common means of identifying products."

If you and your partner attempt to implement RFID without first synchronizing your product information internally and between your two organizations, you'll be able to know exactly where the product is. You just won't be sure whether you agree on *what* it is.

Given the worldwide shift toward establishing a foundation of accurate, consistent business information within and between interacting companies, it's clear that neither the need/inclination nor the ability to do something about this problem is an apparition. Organizations the world over have come to recognize that any internal automation or external collaboration initiatives they might launch are directly dependent on the quality of the information used as input. As the old 50's adage reminds us, "garbage in equals garbage out".

Fortunately, several key healthcare providers, GPOs, distributors, and manufacturers have begun to take action. These industry leaders clearly understand the undeniable need to remove the shackles that industry-wide data disarray imposes on their daily business performance. For example, the DoD has launched a data synchronization pilot with a number of companies in its supply chain to address the current data dilemma in healthcare. As COL Don Buchwald puts it, "To be an effective supply chain manager for the DoD, we need to be able to communicate quickly and accurately with all our trading partners. Our Data Synchronization efforts are important not only for DoD, but for the entire healthcare industry."[42]

Debra Thompson, Deputy Chief Materiel Branch, Brooke Army Medical Center, Fort Sam Houston, Texas, participated in the DoD pilot. She was pleased with the results, and said, "Synchronizing our logistics system data with the supply chain has allowed us to monitor contract compliance by ensuring that we were getting the best price for the products we order and purchasing from e-commerce sources of supply whenever practical. In addition to pinpointing business process variations between sites, data sync also identified where we were buying the same product under multiple order numbers, item names, as well as multiple manufacturers or distributors. As we continue to synchronize our data, it will prove helpful down the road as we prepare for industry-wide data standardization. Our data is currently in very good shape, and is much easier to group by manufacturer for standardization actions. This entire effort puts us in a great position to enjoy all the benefits of seamless supply chain management as well as communication to achieve optimal savings."[43]

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[41] Source: GCI-DSD Process Group Survey, January, 2005

[42] Source: DMLSS news"flash"; "The Case For Data Synchronization"; March 2004

[43] Source: Kathleen Garvin, DoD; "The Time is Right To Reap the Benefits of Data Synchronization"

Bob Perry, 2006 President of the Association for Healthcare Resource & Materials Management of the American Hospital Association (AHRMM), notes, "Ten years ago, the healthcare industry wasn't ready for data synchronization, but with so much technology, so much knowledge of the value of data synchronization and e-commerce, so much use in other industries, the momentum and all factors point toward using this. The buyers of healthcare products need to encourage their manufacturers to join the effort to synchronize all the product information with an industry 'gold standard.'"[44]

WIIFM

Of course, no business blindly climbs aboard a bandwagon solely because of the list of others who have chosen to do so before them. It's only natural that participants in any supply chain—healthcare included—would want to assess the anticipated benefits for their particular company before supporting a particular initiative.

The challenge, of course, comes in the form of the proverbial chicken and the egg dilemma. In communities that are just getting started with an initiative, there are precious few industry-specific examples available to help a company calculate "what's in it for me". This dearth of quantified industry-specific ROI data invariably fans the flames of the inevitable naysayers who are all too quick to declare a problem unsolvable before the first cure can be administered.

This lack of a slam-dunk argument specific to a given industry is also quite convenient for those foot-draggers who—for a variety of provincial reasons—don't really want the initiative to take flight at all. They are usually among the first to point out the absence of a detailed cost/benefit analysis for their particular industry. They are also usually the ones to most quickly point out that the ever-so-compelling success statistics reported by other industries have little applicability to their own industry because of its many unique aspects.

Matters are made worse if such resistant elements hold ill-founded misconceptions about a negative impact that the initiative in question might have. For instance, those first learning about data synchronization often cite concerns over losing competitive advantage as a result of the initiative. But, as Joe Pleasant of Premier points out, "The fears that data synchronization would cause a loss of competitive edge for those that implement it have simply not materialized in industries that are well down the path of doing it." Dennis Byer, Senior Director of IT for Consorta, notes that, "Manufacturers and distributors are learning that data synchronization isn't something to be feared. Other industries have proven this."

Though the closet opponents of a new initiative are usually able to delay industry-wide adoption without having to openly oppose it, eventually, enough representatives in the community take the evidence at hand to be sufficient to warrant action and start without their reticent colleagues. Once sufficient critical mass is achieved, such reluctant holdouts readily climb aboard quickly in order to avoid falling too far behind the rest of the industry.

It must be noted that it is unfair to presume that *every* company that is not doing something about global data synchronization in healthcare is secretly trying to undermine progress in that area. On the contrary, it's wholly understandable that companies faced with multiple priorities must juggle and prioritize those initiatives according to the benefit that they can deliver. As such, it's reasonable to want to know what one could expect to net from an investment in global data synchronization. In doing so, however, it's important to recognize that while the penalties

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[44] Source: Kathleen Garvin, DoD; "The Time is Right To Reap the Benefits of Data Synchronization"

of not addressing data synchronization are relatively self-evident, the benefits that companies implementing global data synchronization are realizing are frequently seriously underestimated.

To begin with, the benefits from data synchronization are not limited to the immediate, significant, and intuitively obvious positives that come from reducing order and invoice content exceptions. Instead, they go on to generate improvements in *any* part of your organization that is dependent on accurate item and trading partner information to perform their business function effectively.

Failure to address information synchronization first directly undermines the ROI from any of their automation initiatives because of the impact of inaccurate information.

But, the benefits don't stop there, either. Many of today's companies are launching substantial process reengineering efforts to further drive redundancy, inefficiency, and cost out of their distribution channels. What they've found is that failure to address information synchronization first directly undermines the ROI from any of their automation initiatives because of the impact of inaccurate information.

While this realization may seem to many like a quote from "The Corporate Book of 'Duh'", growing numbers of healthcare leaders are beginning to turn their attention toward cleaning up their internal information discrepancies first so that they can get on with further revolutionizing their processes. Millions of dollars are spent each year in an attempt to clean up and synchronize internal data stores. Unfortunately, without a process in place to *keep* information synchronized between these companies and their supply chain brethren, the information quality begins decaying the moment a change is made in one system without it being updated in all other systems.

Programs such as vendor managed inventory (VMI), automated product receipt and check-in, evaluated receipt settlement (ERS), electronic funds transfer (EFT), collaborative planning, forecast, and replenishment (CPFR), radio frequency identification (RFID), electronic product code (EPC), and other initiatives that are successfully driving time, cost, and inefficiency out of chains all have their "roots" in an inextricable dependency on accurate information.[45] The remarkable potential that each of these—and similar—initiatives have to catapult an organization to previously unheard of levels of performance efficiency and effectiveness is completely reliant on whether each participant is in sync internally and with their partners in commerce.

As PricewaterhouseCoopers put it in their paper "Scan-Based Trading—Moving Toward a Demand Driven Supply Chain", from February 2001, "Going forward, the problem of data synchronization will have to be dealt with, not only for SBT (scan-based trading) to be successful, but also for VMI (vendor managed inventory), CPFR (collaborative planning, forecasting, and replenishment), and other collaborative supply chain initiatives to reach their potential."

But, let's back up from what some like to think of as being "pie-in-the-sky" pictures of how business can be conducted in a modern supply chain—in spite of the fact that there are documented examples of leading buy- and sell-side companies successfully benefiting from *each* of these more advanced process approaches once they clean up their data. What can an organization expect to realize from *just addressing data synchronization*?

In fact, let's narrow the scope even more to show just how remarkable the ROI from a synchronization effort aimed at item information only can actually be. [NOTE: Because of paper-thin profit margins, intense competition, and the complexity of daily business interaction, many of the early adopters of global data synchronization were in the grocery arena—hence the higher concentration of success statistics from that sector. Not surprisingly, innovators like Wal-Mart have also been quick to leverage this powerful tool.]

[45] See Appendix for a brief explanation of each of these strategic initiatives.

Quotes from companies having implemented item synchronization underscore the kinds of impact such an initiative can have:

- "We have already added $1M to our bottom line as a result of the work done. That figure could grow to $30M, or 1% of sales, once everyone is on." leading U.S. retailer
- "Cleaning up and standardizing *internal* data has generated benefits, even without {external} synchronization." leading Canadian manufacturer
- "Synchronized data between us and our customer results in drastic reduction in rework due to errors." leading U.S. manufacturer
- "Electronic collaboration is inevitable: It is not a matter of whether we will do it, but rather when we will do it.... In our case, I just have one regret: we should have started one year earlier." major retailer

Why the regrets for having waited to start? Consider the following documented results produced by companies that have already launched data synchronization initiatives.

An item synchronization pilot between Procter & Gamble and their customer H.E. Butt yielded the following:

- 75% reduction in invoice deductions due to invoice pricing and product delivery discrepancies
- 30% improvement in the number of accurate purchase orders received
- 80% improvement in "speed to retail" for new items, price changes, and promotions[46]
- 99.8% retail scanning accuracy achieved (versus 85% before the pilot) [Of course, this increase in scanning accuracy would apply to point of shipment receipt for non-retailers.]

According to an A.T. Kearney paper on data synchronization[47], Proctor and Gamble expects synchronization to:

- Eliminate 30,000 to 50,000 hours per year in unnecessary transcription work
- Reduce stock-out incidence by 10%
- Reduce the time required for new item introduction by 80% in the U.S. alone
- Save them a minimum of $25 million a year

At the Retail Systems 2002 conference, Randy Salley, Wal-Mart's vice president of merchandising, reported that their item synchronization pilot with Procter & Gamble netted the following results:

- Reduction in data maintenance time from 15-30 days down to 1 day
- 98% up-to-date synchronization

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[46] Reduced the average time required to communicate and execute changes from 10 days to 2 days

[47] Assessment and recommendation paper prepared by A.T. Kearney for the GMA-FMI Trading Partner Alliance titled, "Action Plan To Accelerate Trading Partner Electronic Collaboration"

- 15% market share (up from 5%) in the early weeks of a new item introduction

As Salley put it, "The ability to compete at the speed of information will determine winners and losers."

Sara Lee reported a reduction of 59% in cost mismatches after the initial 90 days of their price synchronization pilot. Item mismatches were eliminated. The remaining mismatches were resolved in half the normal time (down from 5+ days to 2-3 days for resolution).[48] Additional benefits realized include:

- Short pays down 86%
- Over pays down 81%
- Errors resolved in 2 days versus 10-30 days

The results from a study in the foodservice industry on the anticipated impact of data synchronization reported that:

- As much as 63% of manufacturer invoice errors can be prevented if item, price, and promotion data can be aligned
- Misalignment of item and price data is responsible for 21% of distributor invoice errors

At the Grocery Manufacturers of America (GMA) Executive Conference in White Sulphur Springs, WV June 10, 2002, Bill Grize, president and CEO, Ahold U.S.A., Inc. speaking of the need for manufacturers and retailers to move forward with global data synchronization said, "The numbers behind this are so compelling that it is frightening to think we would be reticent to move forward. If we do not...we are doing an injustice to our customers, our shareholders, ourselves, and our associates."

WIIFM for Healthcare

But, are there any statistics that begin to describe the benefits that organizations in the healthcare community could expect to realize? Fortunately, some documentation is available. And, though much of it is anecdotal, collectively it provides a glimpse into the muck and mire that is the state of information in the healthcare community, today, and the positive impact that addressing these conditions could have on every aspect of the healthcare community.

Garren Hagemeier of HCEC describes an overview of the benefits healthcare supply chain members could realize as follows: "Providers would get the products they order at the right price (fill rates would go up and pricing errors would be decreased). Providers would eliminate invoice discrepancies and rework. Providers and GPOs would improve contract compliance which would reduce product costs. Distributors and Manufacturers would eliminate rework of orders, returns and duplicate shipments, reduce telephone calls from customers, and improve contract reporting, improve rebate accuracy, and reduce errors in transactions between manufacturers and distributors."

A study was conducted for the medical/surgical supply chain to (1) determine the feasibility of adequately addressing the data synchronization problem in healthcare and (2) identify the benefits that could be realized by the industry if standards and a centralized information repository (i.e., a product data utility) were put in place and utilized.[49] The study identified the following benefits for each industry segment:

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[48] Source: Martha Uhlhorn, EVP eCommerce & Category Mgt, Sara Lee presentation to the Magazine Publishers of America 3/18/2002.

[49] Source: Medical PDU Feasibility Study; CHeS – HCEC; 2003; Attachment D: PDU Value

Manufacturers:

1. The electrical industry conducted a benefits assessment after their industry PDU was implemented. Annual savings to manufacturers were documented to be $97,000 for every $10 million of sales—0.97% of sales.
2. Substantial direct cost savings through elimination of product errors, accelerated time to market, and unprecedented market visibility of products to the industry.
3. Reduction of errors and bad data between trading partners and freeing up of staff time for more revenue producing pursuits
4. Single point of distribution of product information to all participants in the medical supply chain. Eliminates multiple customized product data feeds.
5. Single point for accurate UPN data to get distributed to the supply chain so value of UPN markings can be derived.
6. Easier to integrate product information after manufacturer mergers and acquisitions.
7. More rapid distribution of product data on new product introductions to increase sales of new products and reduce invoice errors on new products. Also applies to new products acquired through acquisition
8. Rapid distribution of information on discontinued and replacement products.
9. Cleansing internal information reduces errors in product data distributed to the supply chain thereby eliminating invoice errors to the supply chain.
10. Small business manufacturers: single source for product information distribution. Much easier for their products to reach more Distributors/providers in the supply chain.
11. Multi-divisional companies without a single ERP system: single source of catalog data for all divisions within the company.
12. Manufacturer Direct Vendors: reduced invoice errors because of more accurate product data used by provider organizations.
13. Validation and data field matching in a PDU enables more accurate ordering, bill paying, rebates and administration fee calculations, etc. Processing transactions could then become more efficient and accurate.
14. The creation of a web accessible healthcare PDU data element to link provider's organizations, distributors, etc. back to manufacturer's web site for enriched information on each of their products.

Distributors:

1. The electrical industry conducted a benefits assessment after their industry PDU was implemented. Savings to distributors were documented to be $73,000 for every $10 million of sales—0.73% of sales.
2. Substantial direct cost savings through elimination of product errors, accelerated time to market, and unprecedented market visibility of products to the industry
    - Wal-Mart – Identified and eliminated 30% of items that were discontinued.
    - Shaw Supermarkets – Saw a 5-10% increase in market share by the more rapid arrival of new items. "If we did nothing but changed the way we transact new item information, this in itself would be worth the investment."
3. Single source for accurate product data from hundreds of manufacturers reduces:
    - Multiple data feeds
    - Data cleansing efforts
    - Personnel manually loading catalog data
4. Timely product data on both new products and discontinued products
5. Enables the following business enhancements:

- Fewer invoice errors with suppliers and customers
- Reduction in reconciliation of rebates/charge back mismatches with manufacturers
- Automatic replenishment by suppliers
- Closer integration with customer's systems
- Tighter integration with eCommerce exchanges

Hospital IDN:

1. Accurate and consistent item information throughout the healthcare supply chain
2. Easier and faster sourcing of products from prime vendor distributors, healthcare exchanges, and direct from manufacturers
3. Matching of product data master files to GPO and local contract files to ensure that hospitals are being charged the lowest contracted prices for purchases.
    - A Novation study estimates 2%+ reduction in product pricing because of reductions in payment of greater than contract pricing.
4. Automated loading of new items with accurate product information and maintenance of existing items
5. Standardized identification of product information throughout the supply chain
   Enables:
    - Leveraged purchasing to achieve lower prices based on visibility of purchased volumes
    - Increased patient safety
    - Improved product standardization
    - Improved product utilization
    - Increased overall operating efficiencies
    - Reduction in invoice errors by 50%
6. Master file of UPN bar codes enables use of automated identification throughout the supply chain to increase patient charges and reduce medical errors

eCommerce Exchanges:

1. Customers able to source and order products from the exchange easier, faster, and more accurately
2. Single source for accurate and robust product data from hundreds of manufacturers
3. Reduction in multiple data feeds
4. Reduction in data cleansing efforts
5. Reduction in personnel manually loading catalog data
6. Open and neutral repository
7. Standardized data for all members of the supply chain
8. Eliminates multiple standards for product data
9. Gives a single point for standards organizations
10. Potential for numerous value added services to member hospitals once product data is accurate and consistent
11. Opportunity to offer enhanced data mining and reporting capabilities
12. Data cleansing services can include catalog master maintenance
13. Product information accuracy for all members of the supply chain including
14. Hospitals who order through the exchange
15. Distributors who receive orders through the exchange
16. More rapid new product introductions and sales

17. Current UPN bar code standards are recognized

GPOs:

1. Increased Sales of GPO Items/GPO distribution Contracts.
    - Easier for customers to match items they are buying to items on GPO contracts
    - Easier for customers to identify product standardization opportunities
    - Easier for customers to identify items stocked by their GPO distributor
2. Single source for accurate product data from hundreds of manufacturers
3. Reduced and simplified data feeds from potential manufacturer contractors
4. Reduced data cleansing efforts
5. Better product identification for sales tracking to capture administrative fees and rebates for GPO
6. GPO is able to more quickly determine and aggregate information on the new items members are buying that need to be added to GPO contracts
7. Enhanced relationship with members:
    - Better product data for members
    - Healthcare PDU will become the basis of product item master in all customer Materiel Management Systems and Contracts systems
    - Easier sourcing of products by members
    - 100% eCommerce by members (to include invoicing)

But, there is additional evidence from the healthcare industry that points to the benefits of having and utilizing a standardized approach for synchronizing data in the industry. "Standardization lowers the costs of implementation for everyone."[50] "Many hospitals, GPOs, and suppliers spend millions of dollars annually synchronizing product information. Unfortunately, the data matching is often done against non-authoritative sources."[51]

Paul Higday, VP Program Development at Owens And Minor, concurs, "The current state of the industry is to cleanse/synchronize product data 'after the fact', i.e. months after an order is placed and the product is delivered. While this process can help ensure an accurate historical analytical view of purchasing, inventory, etc., it doesn't solve the real-time supply chain issues that inaccurate product data causes.... The retail industry has chosen to adopt a set of standards and technologies that solve their {data synchronization} problem efficiently and effectively. In Healthcare, we've largely chosen to address the problem individually, resulting in a significant increase in cost without much success."

And, since there's no standardized mechanism for keeping the cleansed product information up to date over time—as values change, new products are introduced, older products are discontinued, etc.—the companies suffer from data decay (i.e., get back out of sync with themselves and their supply chain partners as information changes). This recurring expenditure to clean up information that (1) once was clean and (2) could have been kept clean—had a standard for ongoing synchronization been put in place and implemented by the industry—is unnecessarily wasteful. Certainly, the money saved by avoiding the need for annual data clean up will more than offset the costs to implement a data synchronization solution.

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[50] Source: Dennis Black, Director eCommerce, BD

[51] Source: Presentation by Craig Wigginton; VP, Chief Technical Strategist; Neoforma; "The CHeS/HCEC Product Data Utility Feasibility Study"

A study conducted by Consorta on a group of its member hospitals revealed similarly promising savings. They pulled the hospitals' data and looked at their processes and annual spend. By benchmarking against other industries, they identified the savings that hospitals could glean if they had good data. Even though the hospitals studied had already centralized their purchasing and had improved much of their data internally, the study still showed that the potential opportunity for annual savings ranged from 3.6-12.6% of their total spend.[52]

In a July 2004 briefing[53], Kathleen Garvin, Program Manager for the DoD Data Synchronization reported findings from internal data analysis. She highlighted three seemingly straightforward information elements that could make or break an organization's ability to effectively order, receive, and pay for products (manufacturer name, a standard item part number, and an accurate unit of measure). She indicated that for one representative medical/surgical manufacturer, the DoD had over 400 different manufacturer names on file.

She highlighted the problems created by not having standardized item numbering in med/surg. She showed eight different product ids for the same product. Each id came from a different distributor. No two were alike. And, none of the ids were the actual product id used by the manufacturer. She highlighted the inconsistency of unit of measure data by indicating that "10% of packaging data provided to DSCP by manufacturers are wrong or incomplete".

Summarizing the results obtained from their global data synchronization (GDS) initiative with Wal-Mart, Johnson & Johnson Consumer reported the following:

	Before GDS	After GDS
Percent of out-of-stocks that were data integrity related	2.5%	0%
Item set up	Manual; averaged 10 days	Automated
Item maintenance	Manual; averaged up to 10 days	Automated; less than 24 hours
Percent of deductions that were data integrity related	.1%	0%

Commenting about the project, Johnson and Johnson representatives said, "Along with RFID, GDS is one of the greatest opportunities for collaboration throughout the value network that should be rapidly adopted."[54] "We learned how critical data management and data quality are to the trading partner relationship"[55]

No wonder, the savings potential for hospitals that choose to address the data integrity problem is enormous. Consider that for hospitals, 7% of all purchases have invoice errors. If this affects just 30 to 50% of the entire potential, healthcare can save between 1.72 to $2.9 billion a year.[56] The Department of Veterans Affairs (VA) and the Department of Defense (DoD) jointly spend $800M a year on medical/surgical (med/surg) items and conservatively estimate that their facilities could reduce the cost of med/surg item purchases by 1-4% or $8-$32 million a year using synchronized data to leverage joint buying power.[57]

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[52] Source: Dennis Byer, Senior Director of IT, Consorta

[53] Source: "Department of Defense: A Case for Med Surg Data Synchronization and Product Data Utility (PDU)" Kathleen Garvin, July 2004

[54] Source: Michael J Haas, Vice President of Information Management, Johnson & Johnson Consumer/Personal Care & Consumer Pharmaceuticals Group

[55] Source: Kyle Thompson, Global Data Strategy Manager, for Johnson & Johnson Consumer Companies, Inc.

[56] Source: CHeS GLN Marketing Plan, page 3

[57] Source: Veteran's Administration and Defense Supply Center Philadelphia Directorate of Medical Materiel (DSCP) Joint Incentive Funding Data Synchronization For Medical Surgical Items