
Dynamic CDM Strategies in an EHR Environment

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Hospital finance leaders should view a dynamic charge description master as a critical element in their organizations' strategy for building a truly integrated EHR system.

At a Glance

- **A dynamic charge description master (CDM) integrates information from clinical ancillary systems into the charge-capture process, so an organization can reduce its reliance on the patient accounting system as the sole source of billing information.**
 - **By leveraging the information from electronic ancillary systems, providers can eliminate the need for paper charge-capture forms and see increased accuracy and efficiency in the maintenance of billing information.**
 - **Before embarking on a dynamic CDM strategy, organizations should first determine their goals for implementing an EHR system, include revenue cycle leaders on the EHR implementation team, and carefully weigh the pros and cons of CDM design decisions.**
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Behind the scenes, electronic health record (EHR) deployments are challenging administrators to rethink conventional approaches to revenue cycle design. New EHR systems have more functionality and can offer solutions to age-old billing challenges. Providers that do not embrace these new concepts will miss opportunities to improve long-term revenue cycle outcomes. Hospital leaders often overlook these potential enhancements because:

- Facility objectives are primarily focused on government incentives and requirements.
- Too much change at one time can overextend administration and breed employee dissatisfaction.
- Comfort and familiarity with old methods and approaches create obstacles to progressive thinking.

Among the most significant of these often-overlooked new EHR concepts is the dynamic charge description master (CDM). Healthcare finance leaders should be familiar with this concept because implementation of a dynamic CDM is a critical step in building a truly integrated EHR system.

What Is a Dynamic CDM?

Traditionally, all information that appears on a hospital claim—including bill descriptions, CPT/HCPCS coding, and prices—is stored within the CDM, a table within the patient accounting system. The problem is that a traditional CDM tends to be large and complex, making it difficult to maintain.

A dynamic CDM solves this problem by integrating information from electronic clinical ancillary systems into the charge-capture process, which reduces reliance on the patient accounting system as the sole source for charge information. A dynamic CDM replaces paper documentation forms and paper charge sheets with computer screens, allowing revenue cycle elements to pass directly from clinical ancillary systems to the patient bill. Such an approach reduces the CDM's size and complexity, enhances billing accuracy, and streamlines maintenance processes. A look at how a

dynamic CDM can be used for both supply and pharmacy billing can illustrate how these results are achieved.

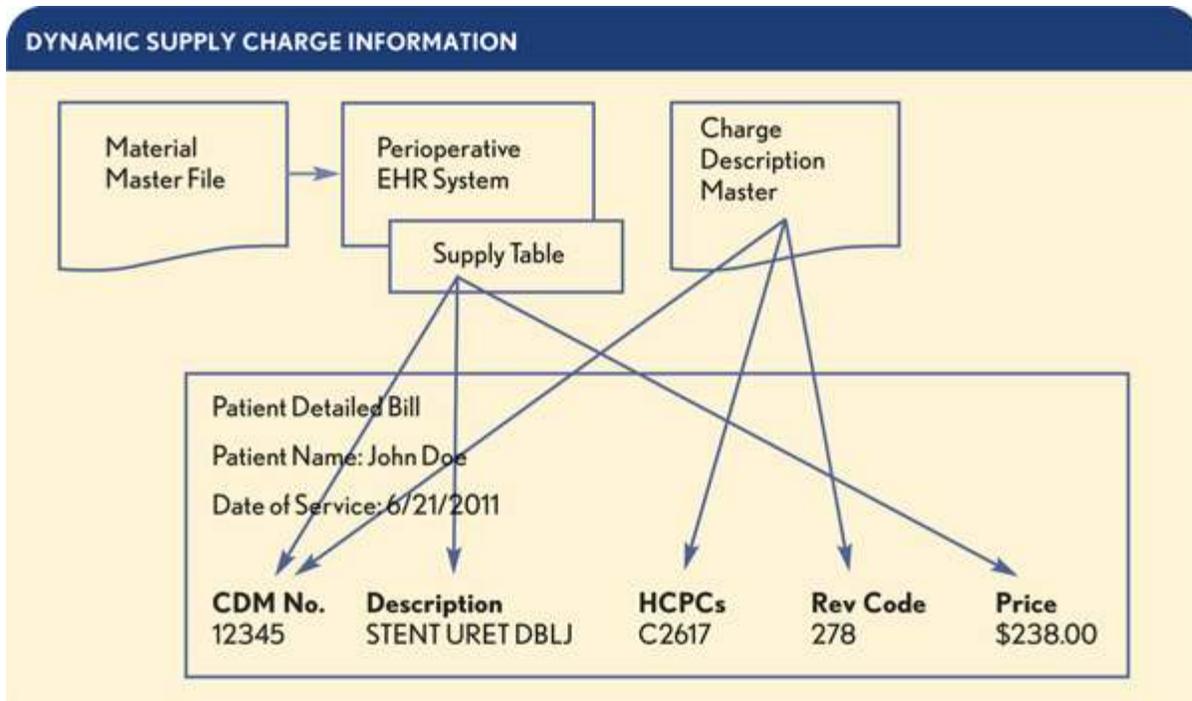
Dynamic CDM: Surgical Supplies

Hospitals and health systems have long struggled to maintain an accurate and complete list of charges for perioperative devices. Surgical supply billing is complex due to the diversity of materials used in surgery departments, complexity of coding under the Healthcare Common Procedure Coding System (HCPCS), and the challenge of keeping supply costs and CDM prices in alignment.

An increasing number of hospitals are moving to a dynamic charging structure, where a CDM record is combined with information from the perioperative clinical module to complete the fields that ultimately populate the patient claim. Information that can be sent from the perioperative clinical system includes descriptions, prices, and quantities. Among the many benefits to this approach are:

- Improved pricing transparency, because prices are calculated based on current costs each time a device is charged.
- Improved billing detail, because bill descriptions are based on the actual supplies used from inventory, not generic categories or cost ranges.
- Faster perioperative staff documentation time, because charging is automated based on the supplies documented during the case.
- Reduced CDM maintenance, because core revenue cycle data elements are maintained in a single master file instead of in multiple master files.

Exhibit 1



Each data element is maintained in one file rather than in multiple files, and it is interfaced to other modules/files when needed. For example, billing descriptions can pass from the perioperative clinical system, thereby eliminating the need to maintain detailed billing descriptions simultaneously in the CDM for each surgical supply.

For most hospital finance leaders, however, the biggest single benefit is pricing accuracy. In a traditional CDM, prices are seldom realigned to reflect changes in supply costs, even though these costs tend to rise and fall over time. The divergence between underlying supply costs and prices can result in incorrect payments and the risk of recoupment from managed care payers with implant or supply payment terms.

Of course, maintaining revenue cycle data elements in the perioperative clinical module may require an increased emphasis on maintenance of data within that module. But the benefits of a simplified CDM, streamlined maintenance, and improved billing accuracy outweigh the investment.

Exhibit 2

EXAMPLE OF HOSPITAL PRICES VERSUS ITEM COST					
ITEM NO	ITEM DESCRIPTION				
133581	SYNTHES TROCHANETRIC NAIL CANN 10X170MM				
	2007	2008	2009	2010	2011
Acquisition Cost (from materials data)	\$1,788.80	\$1,523.00	\$1,180.23	\$1,180.23	\$998.80
Facility Mark-Up Percentage	250%	250%	250%	250%	250%
Patient Price if Calculated from Perioperative Clinical System	\$4,472.00	\$3,807.50	\$2,950.58	\$2,950.58	\$2,497.00
Annual Price Increase	4.50%	6%	9%	4%	TBD
Actual CDM Price	\$4,472.00	\$4,673.24	\$4,953.63	\$5,399.46	TBD
Price Variance	\$0.00	\$865.74	\$2,003.06	\$2,448.89	TBD

Over the past five years, at a large California facility, the acquisition cost of this supply has decreased while the facility markup percentage has remained constant. However, the price listed in the charge description master has increased during this time due to annual rate increases and failure to update prices based on current cost. Generating prices from the perioperative clinical module eliminates the price variance that occur from not maintaining a link between price and cost.

Dynamic CDM: Pharmacy

Like billing for surgical supplies, hospital pharmacy billing is complicated. Pharmacy systems typically contain between 2,500 and 4,000 active drug records. In a traditional billing environment, CDM records, likewise, range between 2,500 and 4,000 records. In addition to maintaining each of these large databases and the interfaces between them, hospitals must also design a routine process for quickly adding new medications. Managing the pharmacy clinical and billing systems is challenging, often resulting in rejections, inaccurate charge information, and missed payment opportunities.

Because hospitals have always struggled to maintain a link between price and the fluctuating costs of medications, many hospitals currently generate prices from their pharmacy system. Data

vendors regularly update pharmacy-system clients with current cost information that can be used in conjunction with hospital-pharmacy-system pricing algorithms to establish a price.

In addition to interfaced prices, many pharmacy systems can also send billing descriptions and HCPCS codes to the patient accounting system. Many data vendors and software solutions provide HCPCS codes in addition to cost information.

With a dynamic pharmacy CDM, billing descriptions, HCPCS codes, and prices are interfaced from the pharmacy system. Thus, only a limited set of records are needed in the hospital CDM—one for each UB revenue code classification.

Again, a dynamic pharmacy CDM offers numerous benefits, including greater transparency, simplified maintenance, and improved billing compliance.

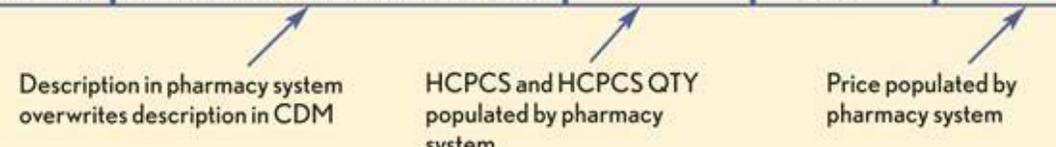
Greater transparency. A dynamic pharmacy CDM reduces billing errors resulting from duplicate maintenance and complex interfaces. Pharmacy system descriptions are more accurate and provide greater detail than do conventional CDM descriptions.

Simplified maintenance. Under a dynamic approach, CDM managers no longer need to process pharmacy CDM requests daily. Pharmacy techs simply link new drug records to the dozen-or-so existing dynamic pharmacy charges. Dual maintenance between the billing system and pharmacy system is eliminated. The pharmacy system becomes the primary source of revenue cycle data elements.

Improved billing compliance. HCPCS codes that reside in the pharmacy system are more accurate and can be checked against national drug codes for each medication. The streamlined interface helps avoid errors and issues related to billing units.

Exhibit 3

EXAMPLE OF DYNAMIC PHARMACY CDM AND DYNAMIC INTERFACE				
Charge Code	Charge Description	CPT HCPCS	IP Revenue Code	Price
6000001	Pharmacy Medicare OP Rev Code 250		250	
6000002	Pharmacy Medicare OP Rev Code 258		258	
6000003	Pharmacy Medicare OP Rev Code 634		634	
6000004	Pharmacy Medicare OP Rev Code 635		635	
6000005	Pharmacy Medicare OP Rev Code 636		250	
6000006	Pharmacy Medicare OP Rev Code 637		250	
6000007	Pharmacy Medicare OP Rev Code 253		253	



Pharmacy System				
Pharmacy System Mnemonic	Pharmacy System Description	Pharmacy System CPT/HCPCS	Calculated Price	Link to CDM
t120	acetaminophen 120 mg Supp	A9270	\$1	6000006
t6L	acetaminophen 160 mg/5mL 20.3 mL Liq	A9270	\$1	6000006
t325s	acetaminophen 325 mg Supp	A9270	\$1	6000006
t500t	acetaminophen 500 mg Tab	A9270	\$1	6000006
t650s	acetaminophen 650 mg Supp	A9270	\$1	6000006
t80L	acetaminophen 80 mg/0.8mL 15 mL Supp	A9270	\$1	6000006



Patient Accounting CDM				
CDM Bill Codes	CDM Charge Description	CDM CPT HCPCS	IP Revenue Code	Price
6000006	acetaminophen 80 mg/0.8mL 15 mL Supp	A9270	250	\$1

The first graphic displays a dynamic CDM (because nearly all revenue cycle information will come from the pharmacy system, only a few charge codes are needed). The remainder of the exhibit, focusing on charge code 6000006, demonstrates how information from the pharmacy system overrides the data in the patient accounting CDM.

Virtual Accounting Unit Assignments

Traditionally, every charge in a hospital CDM is linked to a single accounting unit (e.g., department)—if 13 different accounting units perform a chest X-ray at a given facility, 13 different charge codes reside in the facility CDM. Each charge code requires maintenance of CPT coding and prices.

In an integrated EHR environment, volume and revenue can be allocated to accounting units based on the locations of the computers used by the clinicians or how the clinicians logged onto their computer screens. This solution reduces the number of CDM line items. A CDM with fewer charge records to maintain allows for more consistent and accurate claims data. Similarly, it becomes easier to maintain a consistent pricing strategy across the hospital when duplicate charges for the same service are eliminated in the CDM.

A dynamic CDM with virtual accounting units enhances decision support information for hospital and health system leaders. Organizations with a dynamic CDM can aggregate service area volume, revenue, and productivity statistics more easily. For instance, if a hospital executive wants to determine how many two-view chest X-rays were billed in the previous month at the facility (and how much revenue was generated), he or she needs only to look at the totals for one billing code. By contrast, in a conventional CDM, the executive may have to aggregate volume and revenue figures for 13 bill codes.

Facility personnel also can more easily navigate a condensed CDM for possible new charges, and it is easier to maintain the link between the clinical front-end and the CDM. Hospital executives also will have greater confidence in their simplified CDM when state agencies and payers request that they publish it.

As a hospital moves forward with virtual accounting units, it should evaluate the advantages and disadvantages of this approach for clinicians and the organization's overall strategy. For example, six hospitals in California that implemented a virtual accounting unit strategy decided not to pursue this strategy in areas where clinicians move between departments and locations throughout the day. The risk of users selecting the wrong accounting unit outweighed the benefits of simplification in this case.

Cloning

For hospitals that generate both facility and professional claims, cloning is a feature that can improve billing accuracy. This approach can be used in a hospital setting where physicians bill for their services in addition to the services billed by the hospital.

Many procedures are billable both from a professional (physician billing) and a facility (hospital billing) perspective (many payers separately reimburse both). This approach is commonly referred to as split billing and is standard practice for many procedures performed in a hospital setting. Traditionally, professional coders and hospital coders independently assign procedure codes (CPT/HCPCS) to patient accounts for the services that require split billing. These separate groups of coders often do not come up with the same codes.

By replicating (or cloning) a professional code and sending it to the hospital account, however, facilities can reduce redundant work steps and ensure professional and facility claims are consistent. After a clinician documents a specific procedure (CPT code) in the EHR system, the system checks if it is appropriate for a professional-claim-only, facility-claim-only, or if it can be billed on both patient claims. Depending on the billing requirements of the procedure, the system will trigger a facility-specific-charge, professional-specific charge, or both in the billing system. Often, one set of coders will review the coding to make sure it is appropriate, reducing the workload for coding departments.

Roadblocks

Implementing a dynamic CDM is a technology-driven strategy that, when implemented appropriately, will improve a hospital's revenue cycle. Nonetheless, organizations can expect to encounter obstacles during this process. Many organizations feel that moving from paper to electronic documentation is a large enough hurdle without adding the structural and process changes designed to improve revenue cycle. However, organizations that do not place a strong emphasis on rethinking the revenue cycle when they implement their integrated EHR systems could inadvertently jeopardize future revenue cycle performance.

Exhibit 4

CONVENTIONAL VERSUS DYNAMIC CDM						
CDM Number	CDM Description	CPT		CDM Number	CDM Description	CPT
41406695	XR Chest 2 Views	70120	→	xxx101219	Chest XR 2 Views	70120
16710204	Chest 2 Views	70120				
74710203	Chest 2 Views	70120				
17710203	Chest 2 Views	70120				
15710205	Chest 2 Views	70120				
16171639	XR Chest 2 Views	70120				
43020239	XR Chest 2 Views	70120				
41406695	XR Chest 2 Views	70120				
41795110	OH Chest X-Ray Two Views	70120				
41820218	OH Chest X-Ray Two Views	70120				
41860495	OH Chest X-Ray Two Views	70120				
41901265	OH Chest X-Ray Two Views	70120				
48774285	OH Chest X-Ray Two Views	70120				

This exhibit presents a before-and-after comparison of a hospital CDM that recently implemented a dynamic CDM structure during an EHR deployment. The hospital was able to condense the number of CDM records from more than 18,000 to fewer than 5,000.

The following are hurdles that a hospital's financial leader should be prepared to address.

Cost Accounting. Many hospitals have historically used patient accounting system data for cost-accounting models and studies. By analyzing charge information and volumes, cost accountants develop models to arrive at "cost-per-case" statistics to help management understand which services are profitable.

Using dynamic strategies, billing information is captured closer to the point of care and no longer resides in the CDM. As a result, cost accounting models must be updated to incorporate data from ancillary systems (e.g., perioperative and pharmacy systems).

The good news is that these ancillary systems can produce significantly more detail and better cost information than the patient accounting system. For example, the operating room module can provide costs for all supplies used during the procedure, including nonbillable costs for items such

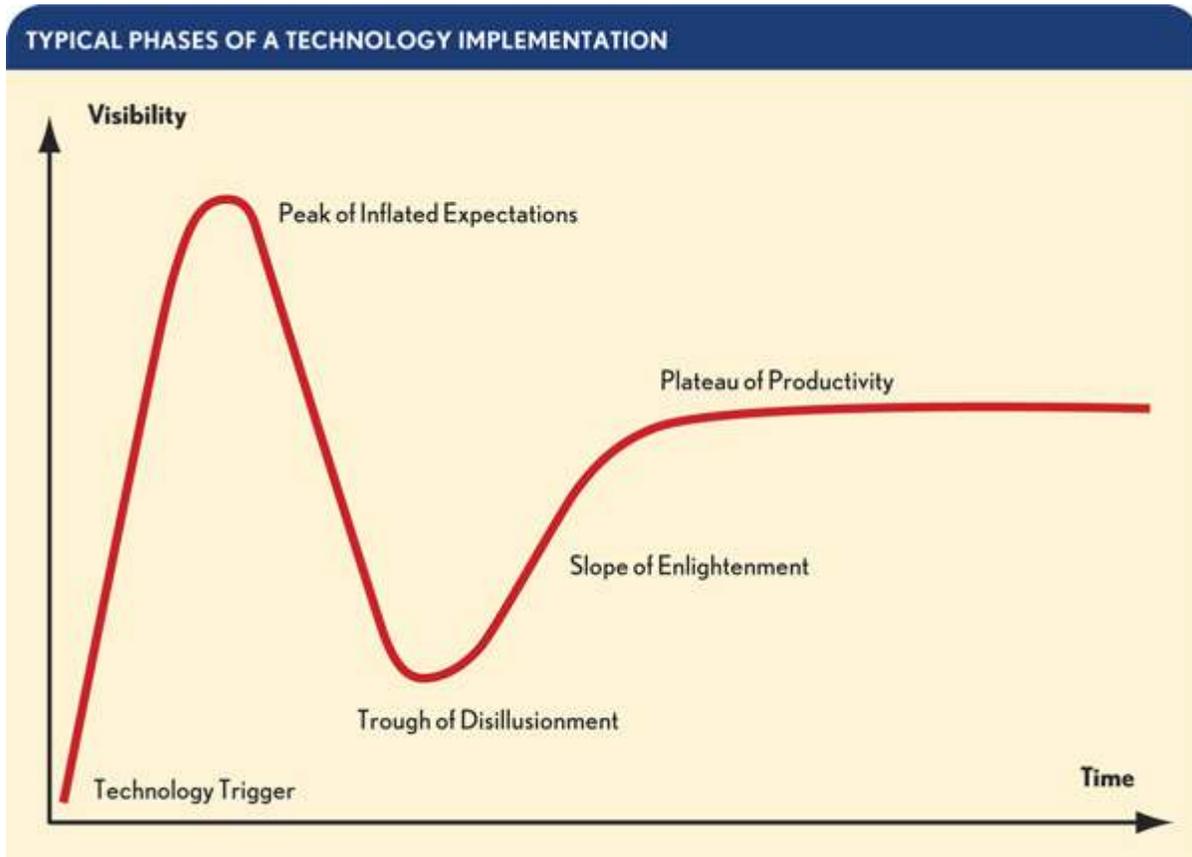
as drapes and gauze; for the physician who performed the procedure; for wasted implants that were not billed; and even for nursing teams and specific case tracking times for overhead allocations.

Although cost accounting data from ancillary systems will be much more robust than data derived from the patient accounting system, developing and integrating data extracts into existing cost models may present challenges at some facilities. When considering dynamic CDM strategies, it is important to understand the implications to cost accounting systems and processes.

Management of changes in responsibility. Many clinicians prefer delegating various revenue cycle responsibilities to other parties so they can concentrate on what is most important to them: their medical practices. Yet it is the people who treat the patients, more than anyone, who know what services were rendered. Despite their potential resistance, clinicians need to be educated on the dynamic CDM and their role in the revenue cycle in an EHR environment. To encourage greater clinician engagement, clinicians should be involved in the EHR technology design, testing, and implementation phases.

Information extracts. A dynamic CDM requires information to be collected from systems other than the patient accounting system. For instance, with a dynamic pharmacy CDM, analysts must pull information from the pharmacy module to determine how many Tylenol tabs the hospital pharmacy has dispensed and billed. Similarly, if virtual accounting units are used, the hospital will need to generate reports displaying billed procedures by accounting unit. Building a process to routinely extract information from the clinical systems will take work, but this information will yield better cost, revenue, and operational information than can be obtained using a basic CDM revenue and usage report. A hospital that intends to engage a coding software company should do so early to give both parties sufficient time to design extracts that integrate with the software.

Exhibit 5



Critical Steps

Hospital finance leaders should ensure that their organizations take three important steps before embarking on a dynamic CDM strategy:

- Determine the organization's goals for implementing an EHR system
- Include local revenue cycle leaders on the EHR implementation team
- Weigh the pros and cons of each core CDM design decision

Determine the organization's goals. Before selecting software and deploying implementation teams, the organization should identify its overall goals for implementing an integrated EHR. Taking this important step helps ensure that all design decisions are based on the overall project goals, and not on vendor recommendations or the ideas of the project team member with the loudest voice. Today's healthcare IT systems have become incredibly sophisticated. The future-state of having clinical documentation electronically drive the coding and charges that ultimately populate the patient bill is becoming a reality. However, as most organizations can attest, IT implementations can be costly endeavors that yield headaches, angry employees, and even lost revenue.

Include local revenue cycle leaders onto the EHR implementation team. Among the typical phases of a technology implementation is a phase often referred to as the "trough of disillusionment," during which there is increased risk of lost revenue (see the exhibit on Page 68). To mitigate this risk and enhance revenue cycle outcomes, local revenue cycle leaders should be actively involved on the core EHR implementation teams. Including these leaders on the team

helps to ensure that revenue cycle concerns are not lost amid competing priorities (IT folks trying to meet tight deadlines and clinicians wanting something in place that is simple to use).

More than anyone, local revenue cycle leaders provide CDM expertise for IT implementations. In particular, they understand how new technology can improve revenue cycle. From a project management perspective, they can help IT teams navigate the complexities of the organization, and understand how IT decisions can impact existing revenue cycle processes.

Local revenue cycle leaders also provide implementation assistance. These individuals know the current CDM, processes, and charge policies. They can assist in mapping ancillary system tables to a dynamic CDM. By being involved, they offer unique perspective on departments, systems, and revenue cycle readiness.

Revenue cycle oversight becomes increasingly more important in a fully integrated EHR environment. In the words of leadership guru Steven Covey, “Think with the end in mind.” To project managers, the end is turning on a new system and having it work properly. To revenue cycle leaders, the end is having a functional maintenance plan in place for updating systems to address the ever-changing needs of the organization.

Weigh the pros and cons of each core dynamic revenue cycle strategy. This step is challenging because it requires getting into the technical nuances of foundational decisions, which is likely to be time-consuming and difficult. The best practice is to pursue decisions regarding CDM design/strategy internally, while gathering input from existing users of the integrated software solution.

Having an “if it ain’t broke, don’t fix it” philosophy will limit organizations’ revenue cycle performance. But by the same token, hospital leaders should not jump on every new revenue cycle solution, because such a philosophy is likely to lead to buyer’s remorse. Yet organizations should at least carefully weigh the pros and cons of revenue cycle technological advancements. Those that closely consider the dynamic CDM strategies described here more often than not will embrace them. As Anthony Grove, founder of Intel Corporation, once said, “Not all problems have a technological answer, but when they do, that is the more lasting solution.”

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