A close-up photograph of a person's hands holding a handheld barcode scanner. A bright red laser line is projected from the scanner onto a large, curved barcode. The background is blurred, showing a person's face and a blue shirt. The overall lighting is dramatic, with strong highlights and shadows.

# HANDBOOK FOR IMPLEMENTATION OF BARCODING AND UNIVERSAL PRODUCT NUMBERS (UPN)

**PREMIER**  
Purchasing Partners

*Prepared for the hospital and healthcare organizations that participate in the group purchasing programs  
of Premier Purchasing Partners, L.P.*

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## PREFACE

### *About This Handbook*

This handbook is intended for those medical centers and healthcare organizations that participate in the group purchasing programs of Premier Purchasing Partners, L.P. It is provided as a value-added resource to help you develop, navigate, and implement UPN capabilities at your medical center.

When materials, information technology, and clinical professionals team to implement UPN throughout your medical center and business practices, you can expect the results to reflect significant monetary and management efficiencies. These efficiencies can directly contribute to the improvement of your medical center's bottom line.

This handbook is intended as a road map to help you achieve those benefits for your medical center. It was co-written by Karen Longe, one of the industry's most respected authorities on barcoding and UPN.

### *Background*

The Efficient Healthcare Consumer Response (EHCR) Report was issued in 1996. This report predicts opportunities for annual savings of \$11.6 billion in healthcare supply chain costs. These projected savings are largely based on the industry implementing a series of automated trading transactions and integrating the supply chain information stream across the healthcare industry, from point-of-manufacture to point-of-use. One of the highest returns on investment from these automated transactions results from standard use of UPN across the supply chain. Most importantly, the study indicates that using UPN can result in significant efficiencies and cost savings for the healthcare supply chain and ultimately, your medical center.

The UPN standard will become as important to the healthcare industry as the Universal Product Code is to the grocery industry or the National Drug Code is to the pharmaceutical industry. This will require industry-wide teamwork. Toward that goal, 20 major healthcare buying groups recently met to jump-start the industry-wide initiative to standardize product numbering and labeling through the use of UPN. These 20 groups represented over 90 percent of all healthcare group contract purchases in the nation. By February 23,

1998, all of these groups had endorsed the joint communiqué to the healthcare industry that supported an industry-wide initiative to standardize product numbering and labeling by July 1999.



We expect that all healthcare buying groups, manufacturers, distributors, and software development companies will actively support the industry-wide initiative of implementing UPN. Accordingly, initiatives and milestones were identified for each of these stakeholders. These will enable us to achieve our collective objective of implementing UPN by the established target dates.

## ***Appreciation to Premier Leaders***

Professionals from Premier's membership rose to the significant leadership challenges of developing Premier's action plan for the implementation of UPN. These challenges were accomplished within the overarching framework of the entire healthcare industry's commitment across the supply chain to implement UPN. This was accomplished through the guidance of a nationwide Premier Steering Team for the Implementation of UPN. These contributions are acknowledged with great appreciation. The following Premier professionals are members of that pioneering steering team:

Ron Brady, Bon Secours Health System, Inc.  
Carole Hanon, Florida Hospital  
David Tiemeyer, Lutheran Health Systems  
Robert Baker, Penn State Geisinger Health Systems  
Donald Masser, Penn State Geisinger Health Systems  
Robert Schuweiler, Group Health Cooperative of Puget Sound  
Ted Lonitz, Carilion Health System  
Scott Farrar, Quorum Health Resources  
Elaine Yocum, Mercy Health Services  
Brian Alford, Catholic Health System  
Mark Goodhart, Premier, Inc.  
Melissa Varman, Purchasing Partners, Premier, Inc.  
Bill Short, Premier, Inc.

### ***Healthcare Electronic Data Interchange Coalition (HEDIC)***

We also want to express appreciation to Garren Hagemeyer for his leadership and steadfast commitment to implementation of UPN.

### ***Important Role of Your Purchasing Regional Managers (PRM)***

Your PRM is available to assist you in planning, implementing, and reporting on your progress with regard to the industry-wide UPN milestones.

Nancy L. Darr  
*Vice President for Planning and Program Development*  
*Premier Purchasing Partners, L.P.*



## SECTION ONE THE BASICS

### *Introduction*

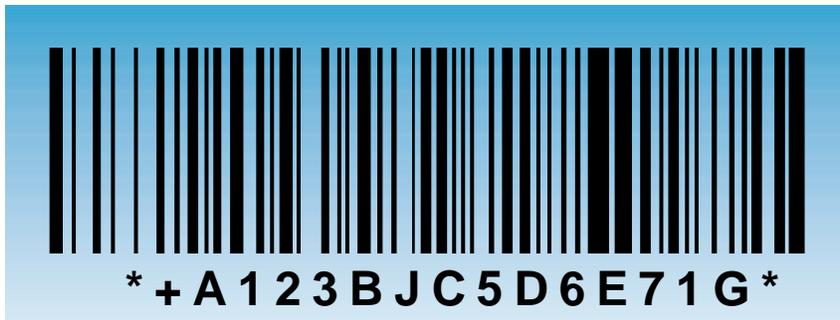
We have become accustomed to seeing our groceries scanned in the supermarket. We may have reached the point of becoming impatient when other stores do not use bar code scanning. But we may not really understand what those bar codes (or UPC codes, as they are also called), do for store management and what they can mean for healthcare. A UPC is used to identify the manufacturer and the product. In the healthcare supply chain for medical products, the bar coded symbol that provides similar product identification is known as the Universal Product Number (UPN).

In this handbook, we will explain what you can do with bar codes (and specifically UPN bar codes); some of the basic technology behind bar coding; how you use and benefit from bar coded UPN numbers on healthcare products; and how to make the entire process work for you. Taken together, the information provided in this handbook can have a positive impact on your medical center's ability to deliver high quality healthcare while keeping the costs associated with these efforts as reasonable as possible.

This handbook assumes you already have made the industry-wide commitment to implement UPN by July 1999. It also assumes that you have reviewed the initial information package, mailed to you in May 1998, which provided materials and guidelines for UPN implementation.

### *What is a Bar Code?*

A bar code is a graphic representation of data (alpha, numeric, or both) that is machine readable. Bar coding is a method of encoding numbers or alphabetic characters using wide and narrow bars and spaces according to a set of rules called *symbolologies*. Both the lines and spaces are read. Scanning a bar code gives instant access to information in an associated database. At the grocery checkout, as soon as the bar code is scanned, the item is identified and the price is displayed on the cash register. Later, store management uses this information to better understand buying patterns in the store and for additional purposes such as ordering, receiving, and making payments.



*Sample UPN bar code encoding information in Code 128 symbology following the HIBC Supplier Labeling Standard UPN format*

### ***How Can You Benefit From Bar Coding?***

Some Premier hospitals already use bar coding as a business practice. If you are among those medical centers, we hope that this section will give you ideas on how to make your system even more efficient.

Many people think of bar coding strictly as a technology. A broader way of looking at bar coding is viewing it as a tool for managing information. Bar codes allow for quick, accurate data entry. Having accurate data available allows managers to make decisions based on valid information. For example, with a manual system you (the materials manager) often must make an educated guess on inventory levels and when to reorder products. On the other hand, the accuracy of bar code scanning provides up-to-the-minute information about inventory levels, including the value of inventory investment. This information can help you maintain lower inventory levels and improve cash flow. This is invaluable to your medical center.

Bar code technology can be translated into three primary functions: **tracking**, **inventorying**, and **validating**. Whether you use one function or a combination of functions, the benefits in cost savings, improved productivity, and quality can be substantial. While this handbook focuses on bar code applications in the materials management area (which is the key area for use of UPN), keep in mind that the three primary functions of the technology apply in every area of your medical center. This handbook will help you prepare to provide professional guidance to your colleagues in different departments. Experience shows that as your colleagues become aware of the benefits your department is receiving from the use of bar code technology, they will want to implement it in their departments to build upon your increased value to the medical center.

## *Tracking*

Anything that can be identified with numbers (or numbers and letters) can be tracked using bar code technology. Materials management, central services, medical records, radiology, pharmacy, and laboratory are areas where bar codes are commonly found in medical centers. However, applications continue to expand to nearly every area to help track cost per procedure, products used by clinicians, and total patient costs. In addition to assuring greater accuracy, bar codes help speed the process of recording where and what an item is, or what service is provided.

Bar codes can be used to track a product to a particular patient and can also identify the clinician who used it with the patient. Bar coded UPN numbers also can be used to track a particular item back to the manufacturer. For example, if a nurse discovers a defective IV bag, bar coding can help track the item back through materials management and purchasing to the distributor and/or original manufacturer so that the hospital can obtain a refund. Although it is possible to do the same thing manually, the amount of time involved may make the process too cumbersome. Often the medical center will bear the cost of an unusable item rather than trying to investigate and complete all the paperwork.

## *Inventorying*

Maintaining accurate inventory is a very complex process of knowing what you have, how much of it you have, who has it, where it is, how much it is worth, and when to reorder it. Every medical center maintains centralized and department-located inventories that could include medical/surgical products, office supplies, linens, pharmaceutical products, X-ray film, cleaning supplies, laboratory products, and more. Bar coding helps you manage these inventories wherever they are located, so that the right materials are available when and where you need them.

Using the bar coded UPN also can help you monitor usage patterns throughout your medical center. In one medical center, materials management began collaborating with nurses to reduce inventory at nursing stations. Because the materials management department had accurate, documented information, together materials management and nursing could create more realistic inventory levels. For example, if a particular unit used only eight of a certain item a day, but was keeping 17 of those items on the floor, the two groups

worked together to find a satisfactory lower inventory level. In addition to the savings in inventory costs, this process strengthened communication and trust between materials management and nursing.

Scanning the UPN on a product can speed the reorder process. Some medical centers use systems designed to automatically reorder products when they reach a specified inventory level. In some cases, this reordering occurs at the nursing station.

### ***Validating***

The validating function of bar coding can be an especially effective method of quality control in a healthcare setting. Validation assures that an action has taken place or that the item you want is on hand. The ability to validate an action by a bar code scan helps reduce errors and waste, provides a management check on productivity, and helps construct the necessary documentation to meet Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and insurance company requirements.

The most important validating function is to verify that the patient being treated is, in fact, the right patient. Nurses can scan a bar code to confirm that the item they are about to use with a patient is the item ordered by the doctor. They also can validate that they have used the item with the right patient. Nurses do this by scanning the bar code on the employee identification badge, the bar code on the patient wristband, and the bar code on the item.

### ***Bar Code Standards***

Bar code standards should not be confused with the “typical” standards encountered in medical centers, such as those issued by the JCAHO. Bar code standards exist to facilitate communication. Bar code standards standardize specific data and the order of those data. This is known as a data structure. In the grocery industry, this is what makes it possible for a cereal manufacturer to create a bar code identifying the manufacturer/brand and the specific kind of cereal, and to have that bar code read in any supermarket equipped with proper bar code scanners. The same principle holds true for healthcare products.

In addition, bar code equipment manufacturers rely on bar code standards to determine what kind of communication capabilities to build into the equipment. For a healthcare provider, this means that

you have a choice of equipment on the market, and you will not have to purchase unique equipment for UPN implementation.

### ***How Will You Use Bar Coding in Your Medical Center?***

As you think about where and how you are going to use bar coding, consider all the ways you will benefit from your products that are bar coded.

Medical centers throughout the world are using bar code technology in many different departments. The list that follows identifies applications associated with materials management functions. Use the list to start a brainstorming session about how and where you will use bar codes. In Section Three, "Making It Work," we will provide more information on how to get started.

- ▼ Inventory control and warehousing
- ▼ Shelf location labels for restocking
- ▼ Annual equipment inventories
- ▼ Order entry (for all types of products)
- ▼ Cycle counting/annual inventories
- ▼ Maintaining par levels
- ▼ Warehouse location recording
- ▼ Patient charges
- ▼ Linen inventory and distribution
- ▼ Receiving shipments of products
- ▼ Suture inventory control
- ▼ Exchange cart inventory control and distribution
- ▼ Forms inventory
- ▼ Patient rental equipment
- ▼ Gas cylinder tracking
- ▼ Scheduling operating rooms and services
- ▼ Product usage with patients

### ***Managed Care***

In a managed care environment, medical centers may not be charging patients for individual items used during the patient stay; instead, there may be a single charge for a specific procedure. However, this does not impact the benefits described above for bar coded products at unit-of-use and bedside scanning.



In order to negotiate a favorable managed care contract, medical center management must have accurate cost data for each procedure. The data should include the time spent by everyone who comes in contact with the patient and the items used with the patient. This is where bedside scanning becomes vital. Having accurate usage data allows medical center management to make accurate assessments on the average cost of a specific procedure. This is critical when negotiating a managed care contract. Your ability to help provide this information will be invaluable to your medical center.

### ***Team Approach***

When bar coding is regarded only as a “technology” some people are reluctant to use it. There are technical aspects to any bar coding strategy. That is one reason you need to take a team approach to UPN implementation. When material managers understand the broad technical issues, they can make good business decisions by relying upon the technical and professional advice of information systems managers. This team approach maximizes UPN benefits for your medical center.

### ***How Do You Plan for Hardware Purchases?***

Premier plans to provide contracts for hardware and supplies (labels and ribbons) so you can benefit from leveraged pricing. You will receive updates on the status of these offerings. Hardware guidelines are discussed in more depth in the appendices of this handbook.

## SECTION TWO – UNIVERSAL PRODUCT NUMBERS WHAT ARE THEY? HOW DO YOU BENEFIT FROM THEM?

*This section makes the assumption that you, along with the rest of the healthcare industry, are committed to implementing UPN by July 1999. This industry-wide commitment was solidified in the Joint Communiqué signed by over 90 percent of the group purchasing organizations associated with group providers in February 1998. That Joint Communiqué is included in the appendices of this handbook. Also in the appendices are implementation steps for each major stakeholder across the healthcare industry. This document is called “The UPN by '99 – Action Steps to Completion” and was published by the Healthcare Electronic Data Interchange Coalition (HEDIC).*

### ***Sign the Joint Communiqué***

Please confirm your support by signing and mailing the Joint Communiqué to HEDIC. You also may do this electronically at HEDIC's web site [www.hedic.org](http://www.hedic.org).

### ***What is a Universal Product Number (UPN)?***

A UPN is a number that uniquely and unambiguously identifies a specific healthcare product. That is, a unique UPN should be created and assigned to each packaging level (or inventory unit) of each product. Having the bar coded UPN on the unit-of-issue streamlines medical supply logistics and payment systems. It also makes bedside scanning possible, and ensures that the right product is administered to the right patient at the right time.

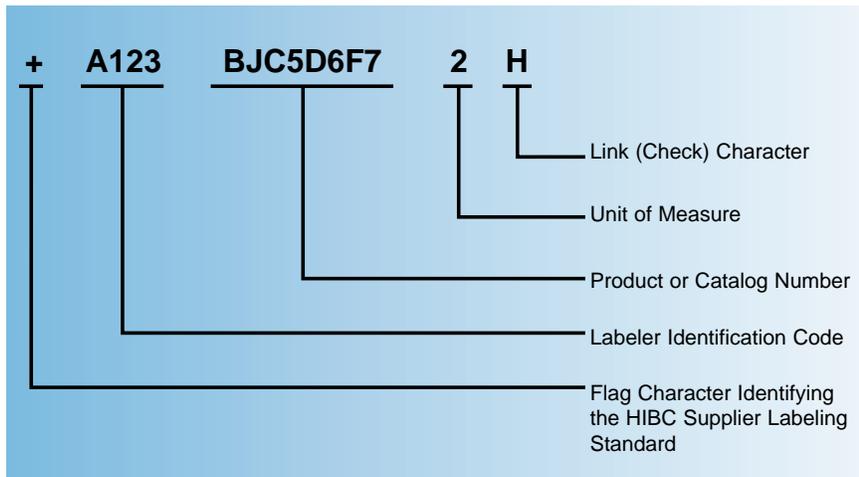
It is important to understand that UPN is *not* a bar code standard. However, it does mandate that a healthcare labeler (a manufacturer of healthcare products or a distributor producing customized kits) must use one of two standards: the Health Industry Bar Code (HIBC) Supplier Labeling Standard primary data structure (also referred to as the HIBC Labeler Identification Code (LIC) format) *or* the UCC/EAN primary data structure.

Healthcare providers have agreed to *accept both* of the UPN formats. The data structure of each provides the same basic information (identification of the labeler; the product or catalog number, and the packaging level). Therefore, *medical center databases must be prepared to accept both formats*. You must become familiar with both the HIBC Supplier Labeling Standard and UCC/EAN 128. The information provided here will get you started; however, be sure to get a copy of each standard as an exact reference. Information about how to obtain the standards is provided in Section Four of this handbook.

## ***HIBC Supplier Labeling Standard***

A supplier choosing to follow the HIBC Supplier Labeling Standard purchases a Labeler Identification Code (LIC) from the Health Industry Business Communications Council (HIBCC). This number is used to identify the manufacturer of the product.

The HIBC LIC primary data structure is 8 - 20 characters long. It consists of a flag character, an LIC number, a product or catalog number, a unit of measure, and a link character. The bar code information and the human-readable information is always printed in this same order. An asterisk (\*) always precedes and follows the human readable interpretation of the bar code. The elements of this data structure will be explained individually, in the order that they are used in the data structure.



### **Flag Character**

Every bar code following the HIBC LIC format begins with a + as a flag character. The + indicates that the bar code follows the HIBC LIC data structure.

### **Labeler Identification Code**

The HIBCC assigns a four-character LIC code. This represents the manufacturer's identity. The first character is alphabetic; the remaining three are numerals.

### **Product or Catalog Number**

The HIBC LIC facilitates the use of existing product or catalog numbers assigned by the labeler. It can be 1 - 13 characters long, and alphabetic, numeric, or a combination of the two.

Often characters such as hyphens, slashes, periods, asterisks and even spaces are part of a product or catalog number. These characters are not encoded in the UPN bar code or printed in the human-readable interpretation of the bar code; however, the complete product or catalog number using these characters may be printed elsewhere on the label or on the package.

### **Unit of Measure**

The Unit of Measure identifies the packaging level (e.g. unit-of-issue, shelf pack, carton, case, pallet). It is identified as 0-9 with 0 identifying the unit-of-issue.

### **Link Character** (sometimes called check character)

The Link Character serves two purposes. It is used as a link to the optional secondary bar code, and as a check character for additional data security to catch manual data errors and detect bar code decode errors.

### ***Symbologies for the HIBC Primary Data Structure***

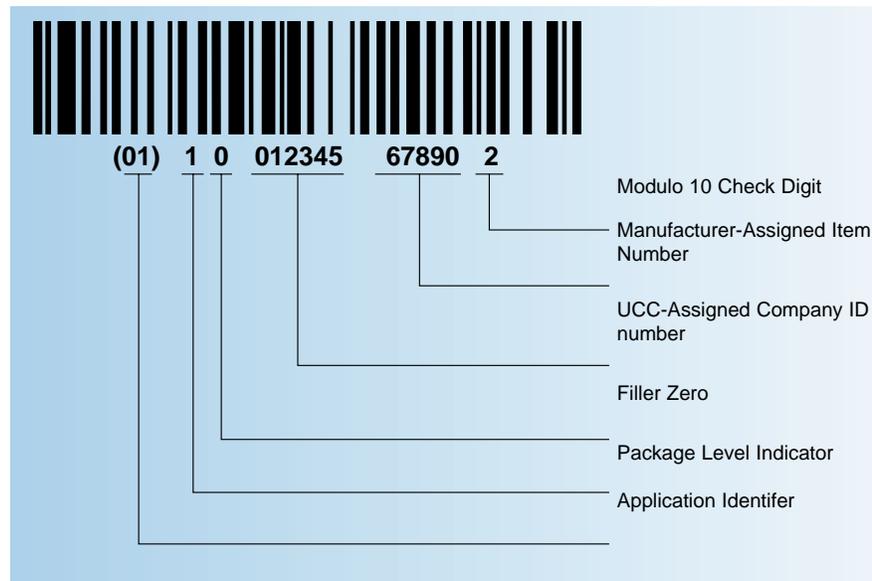
The HIBC Supplier Labeling Standard allows the labeler to choose either Code 128 symbology or Code 39 symbology. Both of these symbologies are alphanumeric. Originally Code 39 was the only symbology permitted for the HIBC Standard; however, technology (symbology, printers, scanners, verifiers) has evolved since the HIBC Standard was put in place, and Code 128 is now used in most bar code applications. One reason is that Code 128 is a denser bar code than Code 39; that is, you can print more information in the same amount of space. With so many small unit-of-use items in healthcare, this is an important feature of the symbology. The data structure, of course, is the same regardless of which symbology you use.

Medical centers can expect to receive products marked according to the HIBC LIC format, using either Code 128 or Code 39. This is not a problem: bar code scanners can autodiscriminate. This means that the scanners are preprogrammed to automatically identify the symbology used and decode the data.

### ***UCC/EAN Primary Data Structure for Healthcare***

A supplier choosing to follow the UCC/EAN format purchases a manufacturer's identification number from the Uniform Code Council. This number is used to identify the manufacturer of the product.

UCC/EAN SCC-14 is a 14-character, fixed length numeric data structure which includes an application identifier, a packaging level indicator, a manufacturer/item number, and a check character. The elements of this data structure are explained below in the order that they are used; however, the data structure should be considered as one number and should never be parsed.



**Application Identifier (AI)**

Every bar code following the SCC-14 format for healthcare is preceded by the application identifier “01.” An application identifier consists of two or more characters that indicate the format of a data element in the UCC/EAN-128 symbology. It defines the meaning and format of the data element.

**Package Level Indicator**

This identifies the packaging level (e.g. unit-of issue, shelf pack, carton, case, pallet). It is identified as 0-9 with 0 identifying the unit-of-issue.

**UCC Company ID Number**

The company ID or manufacturer number is assigned by the UCC. UCC-assigned numbers start with 00, 06, or 07. A pharmaceutical product that is FDA-controlled starts with 03.

**Manufacturer-Assigned Item Number**

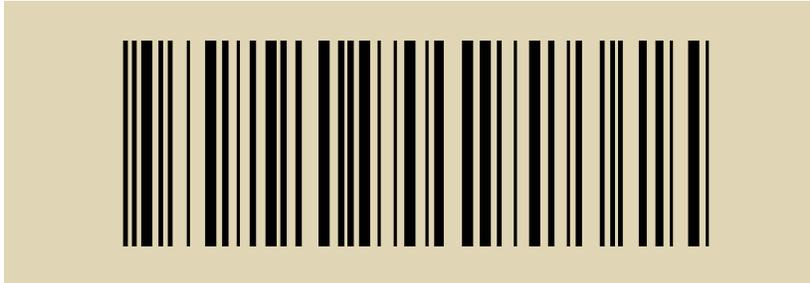
A five-digit item number is assigned by the labeler of the product. This number is not necessarily the true catalog number, but a numeric identifier of the item.

### Check Digit (sometimes called a link character)

This is used for additional data security, to catch manual data errors and detect bar code decode errors.

Sometimes manufacturers will print a UPN directly on the corrugated carton. They will use the UCC/EAN primary data structure shown below.

### *Secondary Data*



The UPN mandate requires only a primary data structure; however, the HIBC Supplier Labeling Standard and the UCC/EAN specification provide a method of encoding additional information such as lot,

batch, serial number, and expiration date. This is called secondary data. Secondary information is especially helpful as products move through the supply chain to the provider and ultimately are used in patient care. This kind of information is more critical for some products than others. For example, the secondary data structure will be of help to anyone in the supply chain (manufacturers, distributors, and medical centers) that must respond to the Safe Medical Devices Act (SMDA), which requires tracking of devices all the way to the patient. Other examples of products for which secondary data is critical include lab reagents and pharmaceutical products that have expiration dates.

Some labelers will choose to encode the secondary data, usually in a separate bar code. Occasionally, a labeler will concatenate or merge the data into one long bar code. The specific data structure for each format is found in the standard.

Please keep in mind that the information regarding UPN primary and secondary data formats is provided to help you become familiar with the data structures. Before implementing your system, you will need to obtain copies of the actual standards. Contact HIBCC and UCC at the addresses provided in Section Four of this handbook.

## SECTION THREE MAKING IT WORK

*Understanding bar coding and the value of a UPN is the first step. Implementing a UPN-based system is the next step. You will need to develop and follow a well thought-out step-by-step planning process, involving many people. This section, with its check list and road map, as well as the appendices of the handbook, are intended to assist you in this process.*

### ***The Bar Code/UPN Team***

The starting point is the formation of a bar code/UPN team with members from all areas that will be affected by UPN implementation, including:

- ▼ nursing
- ▼ central services
- ▼ receiving
- ▼ purchasing
- ▼ patient billing
- ▼ operating room
- ▼ management information systems
- ▼ management engineering
- ▼ materials management

Each medical center is organized differently; therefore, we recommend that you use the suggested list of team members as a guide. Do not be too concerned about team size, because the entire team will meet only occasionally. Smaller work groups will meet more frequently to accomplish specific tasks. However, there should be regularly scheduled and documented meetings.

The team must undertake a disciplined process to address overall facility and department needs. This means that the team will plan a long-term strategy, identify hardware and software needs, create a budget, obtain resources, develop an implementation timetable, develop an education and training plan, execute the implementation plan, and report progress through a process that will be established by Premier.



The work of the UPN team also can be supplemented by consultants. A word of caution: be sure anyone you include understands the unique needs of the healthcare industry and is familiar with UPN data structures and the data structure of the Health Industry Bar Code (HIBC) Provider Applications Standard.

*NOTE: The UPN is designed for labeling healthcare products. The HIBC Provider Applications Standard provides more detail for a data structure for use in identifying patients, employees, records, specimens, etc. (all non-product related items in a medical center). You will need to become familiar with this standard when you are ready to implement bedside scanning.*

### ***The Bar Code/UPN Team Leader***

It is critical for the UPN team to have an assigned leader. The most successful teams, and ultimately the most successful applications, are championed by a person appointed by executive management. This bar code/UPN team leader, supported by the team, is responsible for ensuring that the needs of the medical center and individual users are met. This team leader also will facilitate the implementation of additional applications.

The UPN Team Leader should ensure that letters are sent to all your business partners and that the Joint Communiqué is signed indicating your medical center's strong commitment to the implementation of UPN by July 1999.

### ***Role of Your Purchasing Regional Manager (PRM)***

Your Premier PRM will help you develop your implementation plan. Your PRM will keep you up-to-date on experiences and plans in other member medical centers and forward information from Premier's UPN steering team.

### ***How Do You Organize a UPN Labeling Project?***

The first thing the UPN team must do is to develop an organization-wide **needs assessment** to determine how and where the medical center will use bar coding; this is followed by department-wide assessments. In the following guidelines, we will limit the assessment to materials management-related areas in which to begin implementing UPN. Keep in mind that when other departments in your facility want to implement a bar code application, these same basic steps apply. We are focusing on how to set a very positive example that demonstrates visible efficiencies and savings for your medical center. You can expect other areas to follow your example.

### ***Areas to Consider for UPN Implementation***

Each medical center is different and has different systems capabilities. Therefore, it is not possible to provide an exact "cookbook" for implementation. Rather, we suggest you use this handbook, the references for additional help, and appendices as guides to your implementation plan.



Start with an area you will be able to implement immediately. You may want to review the list of suggested applications in Section One and the areas suggested below. As you are doing this, consider questions such as these:

- ▼ Are there processes or procedures that can be changed or eliminated?
- ▼ How will the information be used? By whom?
- ▼ Where does the information originate? A bar coded UPN on a product? A bar code on a patient wristband?
- ▼ Where does the information need to be collected? Receiving? Bedside? Operating Room?
- ▼ How quickly does the information need to be made available?
- ▼ Does this application need to interface with another system? Patient care? Billing?
- ▼ What reports are needed?

### *Receiving via Bar Code Scanning*

Ultimately, you will want to do all your ordering, receiving, and paying through the use of bar code technology and electronic data interchange (EDI). Therefore, one good starting place, which is within your area of responsibility, is receiving. You may choose to start scanning at the case level and then move to lower levels of packaging. Even before you move to actual bedside scanning, you can begin using bar coding in your distribution process to patient care areas.

This requires that you start the transition process for your materials management information system (MMIS) to use UPN. With the support of MIS, you will need to build a cross-reference from your current internal inventory numbers to UPN. Do not use your own proprietary numbers any longer than necessary. As soon as a manufacturer provides a UPN, you should begin using it. You should also consider internal labeling of unit-of-issue products as an interim step. You may need to start with your internal numbers, but convert to UPN as soon as possible.

One advantage of starting at receiving is that you can begin communicating with your medical product vendors via EDI. Throughput and accuracy on the receiving dock will be greatly improved, and so will your area's productivity and use of resources. Again, you can start the process and expand as more manufacturers provide bar coded products.



This is another reason you need to send letters to all your suppliers indicating your requirement for bar coded products and your intent to purchase products from vendors who comply. When your suppliers respond and ship products marked with UPNs, be sure and let them know you appreciate their efforts.



### *Bedside Scanning*

Another area to consider is reengineering your materials management system to the unit-of-use level of usage and engaging in cost tracking and bedside scanning. Do not wait for all products to be bar coded at this level. As an interim step, you can label the products yourself with an interim internal number. Even though this is an extra step, the financial and quality benefits are so great some medical centers are already doing this. If you choose this option, use your proprietary number and encode it in a bar code. We suggest that you use Code 128 for the reasons cited under “Symbologies for

the HIBC Primary Data Structure.” This is an interim step and the only time you should consider using a proprietary number. You can eliminate this step gradually as products arrive with UPN. Remember: one of the goals of UPN is to eliminate the use of all proprietary numbers as quickly as possible.

### ***What is the UPN Repository?***

In support of the UPN, HIBCC is piloting the development of a UPN Repository. The repository is intended to be a master catalog of medical/surgical products containing basic data elements including UPN, manufacturer name, part, description, unit of measure, and quantity associated with the unit of measure. Its stated purpose is to provide a single place to collect and redistribute the information necessary for the healthcare industry to cross-reference manufacturer part numbers to UPN.

Industry-wide adoption of a unique identifier for med/surg products will benefit everyone in the healthcare supply chain, from the manufacturer to the consumer. Since the “Efficient Healthcare Consumer Response Report” issued in 1996 states that over \$11 billion annually can be saved across the supply chain, it is important to understand that the benefits of UPN extend to all members of the supply chain, not just providers. Initially, manufacturers will incur costs in bar coding products, assure distributors in bar coding custom kits to reflect UPN. However, by using those same bar codes to manage their own processes, they also will benefit. The UPN repository will facilitate the use of UPN throughout the supply chain and accomplish industry-wide cost savings.

- ▼ *Healthcare facilities* will be able to identify and order needed items without extensive catalog research and shopping time. They will no longer have to maintain large databases and cross-references of the products they stock. They will be able to communicate their needs in a language that the entire industry can understand.
- ▼ *Manufacturers* will realize improved product visibility in the marketplace. They will be assured that a customer wanting to order their specific products will be able to identify and specify those products when ordering. Payments also will be expedited, because products will be more easily verified as received and ready for payment.
- ▼ *Distributors* will save because they will not have to develop and maintain multiple cross-references to track their product lines.
- ▼ *Everyone* benefits since the UPN facilitates the use of EDI, increasing the ease, speed and accuracy of ordering, distribution, and internal processes. The UPN will also allow the entire industry to capture demand/sales information and identify industry-wide trends.

### ***Subscribe to UPN Repository***

Manufacturers now are submitting their UPN numbers to the repository. Your implementation process should include contacting HIBCC to subscribe to the UPN repository. The subscription fee will be more than offset by reaping the benefits of a single product identification standard across the industry and by eliminating the need for your medical center’s staff to work with each trading partner to build your own UPN database.

## *How Do You Obtain Budget Support?*

Developing the budget and cost justification should occur as part of project planning. Again, each situation is unique, but we can offer some suggestions to help you gain the budget support you need to return significant benefits for your medical center. Many bar code applications pay for themselves within a few months, but that depends on the amount of automation in place prior to the addition of bar code, as well as the type of application.

### **Items to include in the budget:**

- ▼ hardware
- ▼ software
- ▼ installation
- ▼ maintenance contract
- ▼ implementation purposes
- ▼ manuals
- ▼ cables
- ▼ subscription to UPN Repository
- ▼ subscription to HEDIC for education and training

There are many hard costs that can help justify medical center applications, such as the number of dollars saved, reduced FTEs, the number of square feet made available through reduced inventory, etc. In healthcare, there also are many costs that are difficult to quantify, such as improving quality of care and productivity. These translate into dollars saved or dollars put to better use in patient care.

How do you create measures for something as abstract and subjective as quality? The simple answer is that you need to obtain input from the people using the application to determine what defines these measures of quality. For a nurse this could mean having medical products available for patients at all times and ensuring that the right product is administered to the right patient every time. The cost involved when a product is not available includes nursing time to notify materials management and materials management time to resolve the problem. On a one-time basis, this may not seem significant, but this cost becomes very significant when measured by the number of times per shift, nursing unit, operating room, etc., per year.

The cost of staff time can be measured by using an average hourly wage including fringe benefits (approximately 30% of salary) and multiplying it by the time involved. For example, a nurse paid \$39 per hour (\$30 plus \$9 benefits) spends 10 minutes going from the patient to the exchange cart and then to the phone at the nursing station to call materials management to request a missing product;

this costs \$6.50 just for the nurse's time. If one nurse makes just one call to materials management each day requesting a missing product, it costs the medical center \$2372.50 per year in "nursing dollars." Of course, each call from nursing generates work in the materials management department to correct the error, so the cost to the medical center is approximately doubled.

Another measurement involves looking at the cost to correct purchasing and receiving errors. An error rate of three percent may not sound significant; however, processing 2,000 purchase orders with an error rate of three percent means errors on 60 of the purchase orders. Industry data suggests that it costs between \$50 to \$150 to place a purchase order, plus \$50 to \$75 to correct an error on both the shipping and receiving ends. That means errors on 2,000 purchase orders cost you between \$100,000 to \$150,000 per year. Your trading partner also is spending approximately the same amount. Therefore, it should be easy to partner with your business affiliates to achieve these efficiencies.

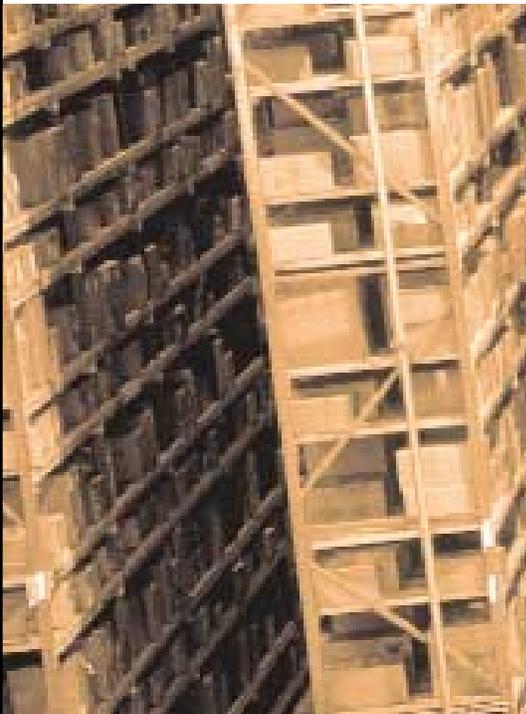
Use the following steps to develop a cost justification for the bar code application you intend to implement:

- ▼ Break down the process into its smallest parts.
- ▼ Calculate the amount of time (in minutes) that it takes to complete each activity.
- ▼ Calculate the cost per minute for each type of staff person involved in the process.
- ▼ Calculate the cost of the activity in staff time.
- ▼ Project the anticipated time savings for each activity with a bar code system in place.

Remember bar coding has been successfully implemented in medical centers and other industries throughout the world. Cost justifications vary in complexity. Use your judgment as a decision maker and leader to know when to draw the line on calculations and when to take action involving your resource committees and business practices.

### ***Identifying Technical Requirements and Resources***

Premier intends to provide contracts for hardware, and in some cases, bar code labels. You will receive updates on the status of this service. Meanwhile, we have provided some guidelines in the Appendix for you to consider as you begin planning for these techni-



cal resources. These guidelines, along with the discussion below, should help you prepare for an intelligent implementation of UPN.

Now that you have identified your application needs, you can begin identifying your technical needs for software and hardware. The first thing to evaluate is existing computer systems. Your materials management information system manager will need to determine the changes that must be made in order for the system to accept bar code data entry. This also is the time to plan for your UPN database.



You should plan for the long term. This includes having a migration path for expansion of the system and adding additional scanning or printing stations. This automatically implies that you are developing a phased approach, starting with a carefully planned and monitored pilot. Pay special attention to compatibility and interface issues. Be sure to write detailed specifications for software and hardware. Take into account the user issues that need to be considered, ranging from the type of bar code scanners to be used to the type of reports to be generated. The team assigned to this part of the project needs to include users as well as MIS. The team also should work with the list of equipment available under the Premier hardware purchase plan. A variety of equipment is available for compatibility with different materials management information systems.

### ***Implementation of Hardware and Software***

As you begin installing hardware and software, make sure all connectivity issues are resolved. You will need to validate the data from the old system against the new system. Most experts recommend that you start by running parallel systems until you are sure the new system is operating effectively.

This may be a matter of days or weeks, depending on the complexity of the system.

### *Education and Training*

Education and training are critical success factors in the implementation of bar coding and UPN. This process should be considered part of the role of the UPN team. Well-designed bar code systems usually change the way work is accomplished. Change can cause resistance and fear in an organization. The best way to overcome this resistance is to keep everyone informed and to involve stakeholders in the change process. People who understand the purpose of the application and participate in the implementation usually are more willing to accept the new process and technology.



The UPN team should develop an ongoing communications program to keep everyone informed about the project, what is happening, why it is happening, when it will happen, and what everyone's role will be. Encourage the people who will use the technology to participate and contribute advice on issues affecting them or their workplace.

Learning to use bar code equipment is not difficult; however, it does require some training. Encourage people to handle the equipment, scan bar codes, load labels into a printer, and to print labels.

We recommend that after a training and demonstration session, you leave lots of different labels and scanners in an easily accessible area. People can then “experiment” with the equipment and get over their concerns before they have to use the equipment in a work setting.

Education and training needs are ongoing. Three or four weeks after a system is installed, the UPN Team Leader should meet with the users of the equipment to get feedback. Users frequently can suggest improvements or even expanded uses for the technology. This type of meeting also helps overcome any remaining resistance. Be sure to develop training plans for new or temporary employees as well.

### *Post-Implementation Audit and Expansion*

After your pilot application has been running for a period of time, begin the evaluation process. Look at how operations have been changed; look for additional changes or improvements. Determine what modifications, if any, need to be made. Assign responsibility for the changes to specific individuals. You are then ready to follow your plan and expand to another area or to another application. Keep in mind that this is all part of a continuous improvement process.

### *Summary*

An effective UPN program requires the commitment of your medical center’s top management and a well-developed team effort. Representatives of user areas should be involved in assessing current systems, recommending improvements and opportunities, and evaluating the UPN process. The UPN Team and its Leader usher the process through the organization and determine which applications to support, in what order, in what time frame, and with what budget. The UPN team also is responsible for cost-justifying the project. Education and training, evaluation and feedback are integral components of a successful application. Once an application or system is in place, the UPN Team Leader’s role is to monitor the process, system changes, and continuous improvements from lessons learned. The following checklist, road map and timeline are provided to help guide you through the UPN implementation process.

When all of these steps are mastered, you will have provided your medical center a very important long-term process improvement and cost-saving service that supports the medical center’s mission of delivering high quality healthcare in your community.



## THE IMPLEMENTATION ROADMAP

- 1.0 Medical center makes commitment to implement UPN by July 1999
- 2.0 Project team is organized
  - 2.1 Executive management initiates project
    - ▼ States priority to the healthcare facility
    - ▼ Empowers UPN Team Leader
  - 2.2 UPN Team is formed
    - ▼ UPN Team Leader given mandate by senior management
    - ▼ Nursing
    - ▼ Central Service
    - ▼ Purchasing
    - ▼ Receiving
    - ▼ Patient Billing
    - ▼ Operating Room
    - ▼ Management Information Systems (MIS) (software provider)
    - ▼ Management Engineering
    - ▼ Materials Management
    - ▼ Other resources
      - PRM
      - Consultants
  - 2.3 UPN Team Leader ensures signed Joint Communiqué is sent to HEDIC
  - 2.4 UPN Team Leader ensures letters are sent to business partners, including distributors, requiring UPN on products
  - 2.5 Work plan is developed
    - ▼ Meeting schedule is determined
    - ▼ Methods of documenting and communicating assignments and progress are established
- 3.0 UPN Team conducts needs assessment
  - 3.1 Determines how materials management will use UPN bar coding
    - ▼ Identifies processes
    - ▼ Identifies phases of the project
    - ▼ Develops implementation plan
    - ▼ Determines details of pilot application
  - 3.2 Develops UPN bar code policy
    - ▼ How materials management will use bar coding, maintain equipment, label formats, communicate with trading partners, etc.
    - ▼ How to make the transition from labeling and scanning proprietary numbers to scanning manufacturer applied UPNs
- 4.0 UPN Team develops understanding of the specifications
  - ▼ Obtains HIBC Supplier Labeling Standard from HIBCC

- ▼ Obtains UCC/EAN specification from UCC
- 4.1 Agrees on interim step of how to proceed with products that do not have UPN bar codes
- 4.2 Agrees on label content, including:
  - ▼ Human-readable and bar code
  - ▼ Use of proprietary numbers as interim step
  - ▼ Additional information, if any, to include on the label
- 4.3 Agrees on label layout and design.
- 4.4 Determines what level of packaging will be bar coded and label sizes needed
  - ▼ Unit-of-issue
  - ▼ Shelf pack
- 4.5 Assures that bar codes conform to medical center and quality standards
  
- 5.0 UPN Team develops budget request
- 5.1 Identifies items and costs to include in budget
- 5.2 Develops cost-justification
- 5.3 Obtains management approval for budget
  
- 6.0 Information system is prepared
- 6.1 Contacts HIBCC and subscribes to UPN Repository
- 6.2 MIS flowcharts inputs/outputs
  - ▼ Inputs
    - Where will the information needed on each label format be entered?
    - What data comes from a database stored on the host?
    - What data is manually input? (i.e., doesn't come from the host)
    - What data will be input at print time?
    - Where, (physically) is the data entered?
  - ▼ Outputs
    - Hard copy (reports & labels)
- 6.3 Prepare information system to adhere to UPN data structures
  - ▼ Prepare database to accept HIBC LIC data structure
  - ▼ Prepare database to accept UCC/EAN data structure
- 6.4 Select printer interface method
  - ▼ Host to printer
  - ▼ Host to terminal to printer
  - ▼ Host to PC printer
  - ▼ Stand-alone
- 6.5 Prepare site diagram
  - ▼ Data entry points
  - ▼ Printer location(s)
  - ▼ Scanning stations
  - ▼ Quality inspection points
  - ▼ Consumables storage
  
- 7.0 Prepare for printing, applying, and monitoring quality of labels

- 7.1 Printing
  - ▼ Select printing methods
  - ▼ Buy preprinted labels
  - ▼ Print in-house
- 7.2 Develop operational procedures for printing and applying labels (involve user representatives to assure their acceptance)
  - ▼ For each different label/bar code:
    - Where will it be printed?
    - Where will it be applied?
    - Who will apply it?
    - How will quality be monitored?
- 7.3 Develop operational procedures for scanning incoming products (involve user representatives to assure their acceptance)
  - ▼ Mark products purchased with UPN
  - ▼ Label products internally
  - ▼ Use bar code license plates in warehouse/receiving
- 7.4 Develop procedure for scanning the UPN on products (eliminating internal labeling on a product-by-product basis)
- 7.5 Select specific hardware and software or pre-printed labels from Premier's hardware and supplies contract
- 7.6 Select label materials (also from Premier's hardware and supplies contract) and document for the purchasing department. (Make sure the purchasing department understands the importance of purchasing the specified labels)
- 7.7 Purchase hardware and software
  - ▼ Printers
  - ▼ Verifiers
  - ▼ Bar code scanners
  - ▼ Consumables
  - ▼ Bar code labeling software
- 7.8 Document maintenance procedures
  - ▼ Name of procedure
    - Purpose
    - Frequency
    - Description of procedure
    - Responsible party
  - ▼ Examples
    - Daily printer maintenance
    - Replace ribbon
    - Replace print head
    - Replace label stock

- 7.9 Document quality procedures
  - ▼ Data content
  - ▼ Print quality
  - ▼ Label placement
  
- 8.0 Develop training and education program
  - 8.1 Start before the system is rolled out
  - 8.2 Include details about the system, why it is being done, individual roles and responsibilities
  - 8.3 Allow users to become familiar with and “experiment” with the equipment before the system is implemented
  - 8.4 Provide ongoing training for everyone, especially if system is modified
  - 8.5 Train all new employees
  
- 9.0 Test/modify systems
  - 9.1 Conduct pilot tests
  - 9.2 Modify the system (if necessary)
  - 9.3 Conduct another test (if modifications were substantial)
  
- 10.0 Full-scale implementation/ongoing operations
  - 10.1 Maintain communications with trading partners and internal users (use medical center bar code policy)
    - ▼ Maintain label format and database
    - ▼ Respond to inquiries and complaints
  - 10.2 Maintain label quality checking procedures
  - 10.3 Seek recommendations for changes, improvements and new areas for bar code applications from end users
  
- 11.0 Eliminate use of proprietary numbers
  - 11.1 Convert from use of proprietary numbers to UPN number with the arrival of each new product bar coded with UPN
    - ▼ MMIS notified as new UPN received
    - ▼ Database modified
    - ▼ Procedure to label that product eliminated
    - ▼ Vendor acknowledged for support of UPN
  
- 12.0 Implementation status
  - 12.1 UPN Team Leader provides monthly implementation status report to PRM
  - 12.2 PRM provides status report to Premier

This check list is adapted from *UPN Bar Coding Labeling: A Guide for Implementation in Healthcare*

## UPN PROJECT CHECKLIST



The UPN team can use this checklist to monitor UPN implementation performance. If the answer to any question is “yes,” then the team should ask, “How do we verify that?” If the answer to any question is “no,” then the team should ask, “How will we accomplish it?”

1. Has your medical center made the commitment to implement UPN by July 1999?  Yes  No
2. Have you signed the Joint Communiqué and submitted it to HEDIC?  Yes  No
3. Have you officially formed your UPN Team?  Yes  No
4. Has management empowered a UPN Team Leader?  Yes  No
5. Have letters been sent to your business partners requesting UPN on all healthcare products?  Yes  No
6. Do you have ongoing communications with your internal customers to keep them informed of UPN implementation progress?  Yes  No
7. Have you developed a well-documented work plan?  Yes  No
8. Have you established a UPN Bar Code Policy for your medical center?  Yes  No
9. Have you determined your initial application?  Yes  No
  - Are your applications systems UPN capable?  Yes  No
  - Receiving via bar code scanning?  Yes  No
  - Bedside scanning?  Yes  No
  - Other \_\_\_\_\_?  Yes  No
10. Have you developed a budget and a cost-justification for the budget?  Yes  No
  - Has the budget received approval?  Yes  No
11. Is your database prepared?  Yes  No
  - Has your software provider accommodated UPN?  Yes  No
  - Have you subscribed to the UPN Repository?  Yes  No

- Do you need to build cross-reference tables?  Yes  No
  - Can you accept the HIBC LIC data structure?  Yes  No
  - Can you accept the UCC/EAN data structure?  Yes  No
12. Have you developed procedures for labeling products that do not have a UPN?  Yes  No
  13. Can you send the right data to the label generation software?  Yes  No
    - Are label formats created?  Yes  No
    - For each label, do you know what data will be:
      - Keyed in?  Yes  No
      - Automatically generated by the computer?  Yes  No
      - Retrieved from databases?  Yes  No
      - Entered by bar code?  Yes  No
  14. Can you create formatted labels, in the quantity needed, that meet quality specifications? Do you know what the quality requirements are?  Yes  No
    - Do you know how many labels are needed?  Yes  No
    - Do you have label generation software?  Yes  No
    - Do you have printers?  Yes  No
    - Do you have the right label stock?  Yes  No
    - Have you printed sample labels?  Yes  No
  15. Can you apply the labels properly?  Yes  No
    - Do you have procedures and written instructions for each product explaining where labels should be placed?  Yes  No
    - Have you trained your employees to apply them properly?  Yes  No
  16. Can you troubleshoot and maintain the system?  Yes  No
  17. Do you have a contingency plan if your primary printing system breaks down?  Yes  No
  18. Have you selected bar code scanners?  Yes  No
  19. Do you have a contingency plan if your scanning system breaks down?  Yes  No
  20. Have you developed procedures for converting from your proprietary number to UPN as soon as products arrive marked with UPN?  Yes  No
  21. Do you acknowledge your business partners for responding to your request and marking products with UPN?  Yes  No
  22. Have you developed and implemented an education and training program?  Yes  No
  23. Have you conducted a pilot test?  Yes  No
    - Have you made any required modifications or changes?  Yes  No
    - Are you ready to expand the application?  Yes  No
  24. Are you keeping the medical center informed of the changes and benefits accruing through the use of UPN?  Yes  No
  25. Have you devised a simple way of keeping your PRM apprised of your implementation status?  Yes  No

This check list is adapted from *UPN Bar Coding Labeling: A Guide for Implementation in Healthcare*

## SECTION FOUR HOW TO GET MORE HELP

### *Organizations*

These organizations have an interest in UPN bar coding. Contact them for additional information.

#### **Health Industry Distributors Association (HIDA)**

66 Canal Center Plaza

Suite 520

Alexandria, VA

Phone: 703-549-4432 Fax: 703-549-6495

[www.hida.org](http://www.hida.org)



HIDA is a not-for-profit trade association that represents medical products distributors and home care companies. It provides industry information and data, industry-specific education and training, federal and state government relations information and advocacy, operations and systems products and services, and an annual trade show and education forum. The Supply Chain Committee of HIDA has been actively involved with UPN-related issues.

**Healthcare EDI Coalition (HEDIC)**

1405 North Pierce, Suite 100  
Little Rock, Arkansas 72207  
Phone: 501-661-9408 Fax: 501-661-0507  
*www.hedic.org*  
*E-mail: hedic@hedic.org*

The Healthcare EDI Coalition is the national association of electronic trading partners in healthcare who are working together to expand and improve electronic data interchange (EDI) and electronic commerce (EC) capabilities throughout the healthcare industry. Membership is encouraged for all healthcare providers and their trading partners.

HEDIC helps organizations optimize EDI/EC development efforts and minimize EDI/EC costs through cooperative efforts and sharing of information, experiences, and resources within the healthcare EDI/EC community. HEDIC facilitated the industry-wide Joint Communiqué on implementation of UPN by July 1999 and will monitor the industry-wide progress toward that goal.

**Health Industry Business Communications Council (HIBCC)**

5110 North 40th Street, Suite 250  
Phoenix, AZ 85018  
Phone: 602-381-1091 Fax: 602-381-1093  
*www.hibcc.org*  
*E-mail: info@hibcc.org*

HIBCC is an industry-sponsored, nonprofit standards development organization (SDO). It is a fully accredited member of the American National Standards Institute. HIBCC's mission is to facilitate electronic commerce by developing appropriate standards for information exchange among healthcare trading partners.

HIBCC develops and maintains the HIBC Supplier Labeling Standard, the HIBC Provider Applications Standard, the UPN Data Repository and EDI message formats. Membership is encouraged for all healthcare providers and their trading partners.

**Uniform Code Council (UCC)**

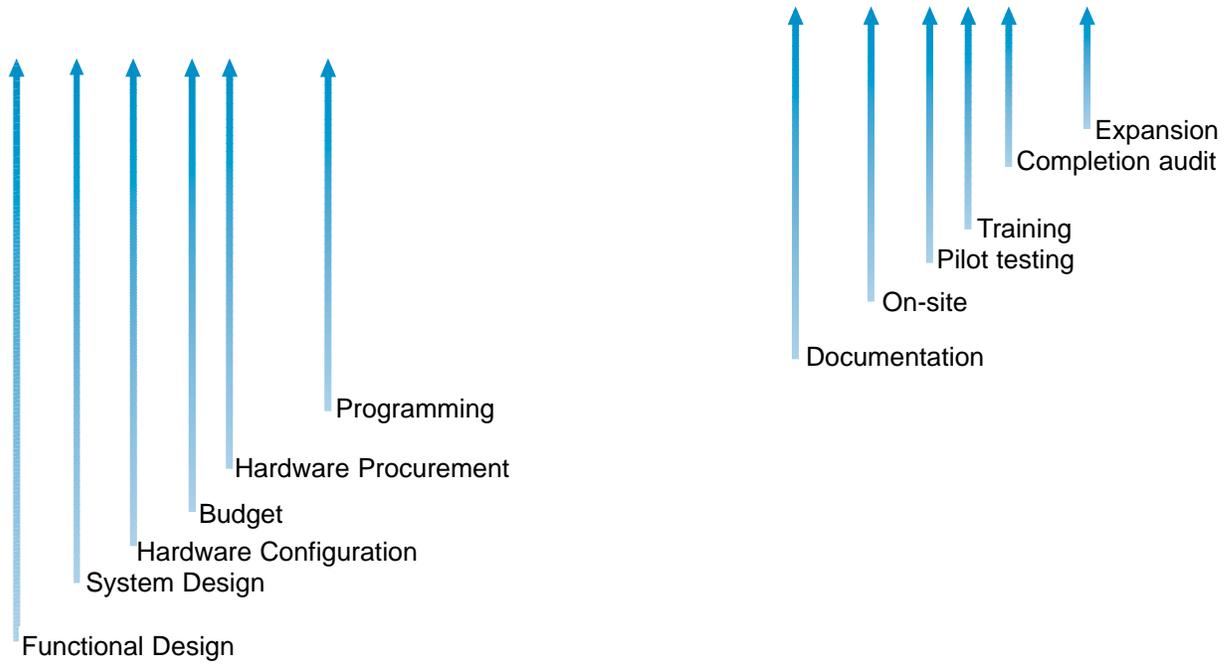
8163 Old Yankee Street, Suite J  
Dayton, Ohio 45458  
Phone: 937-435-3870 Fax: 937-435-7317  
*www.uc-council.org*  
*E-mail: info@uc-council.org*

The Uniform Code Council, Inc., establishes and promotes multi-industry standards for product identification and related electronic communications. In addition to standards documents, the council has several reference materials on bar coding in the healthcare industry.

## Timeline graph



### Needs Assessment Expansion



## RESOURCES

### ***Books***

*Automatic Identification: Making It Pay* by Kevin R. Sharp

*Bar Code Technology in Healthcare: A Tool for Enhancing Quality, Productivity and Cost Management* by Karen M. Longe and Lisa B. Brenner

*Getting Started with Bar Codes: A Systematic Guide* by Rick Bushnell and Richard B. Meyers

*Lines of Communication: Bar Code and Data Collection Technologies for the 90's* by Craig K. Harmon

*UPN Bar Code Labeling: A Guide for Implementation in Healthcare* by Karen M. Longe

*Using Bar Code: Why It's Taking Over* by David J. Collins and Nancy N. Whipple

### ***Magazines***

The publishers of these magazines devoted to bar coding and other data capture technologies offer free subscriptions.

*Automatic ID News* and *Healthcare Automation* are published by Advanstar Communications. To subscribe online, go to the company's website ([www.AutoIDNews.com](http://www.AutoIDNews.com)), or fax your subscription request to 1-218-723-9437.

*ID Systems* is published by Helmers Publishing Inc. To subscribe online, go to the company's website ([www.idsystems.com](http://www.idsystems.com)), call 1-603-924-9631, or fax 1-603-924-6746.

### ***Websites***

Two non-commercial websites with general information about bar coding and other data capture technologies:

[www.adams1.com](http://www.adams1.com)      [www.ISIT.com](http://www.ISIT.com)

### ***Equipment***

*It is Premier's intent to provide contracts for hardware and supplies; however, information is provided in Appendix A because there are decisions you must make regarding the equipment and associated labels and software most appropriate for your medical center.*

## APPENDIX A

### GUIDELINES FOR BAR CODE EQUIPMENT AND SUPPLIES

#### *Equipment*

Decisions on equipment and supplies should be among the last made when implementing a bar code based system. First understand your application; then find the appropriate hardware and supplies. Another important caveat: Do not base your decisions on price alone. It can be a very expensive decision if the equipment does not work with your application or if the people assigned to use the equipment find it too awkward to use. As an extreme example, consider the worker who has to inventory products on the top shelf of a warehouse. Should this person have to climb a ladder just to scan the bar codes, or would it be faster and safer if the job could be accomplished from the floor with the use of a long-range bar code scanner?

#### *Bar Code Printers*

##### *Dot Matrix Printers*

Dot matrix printers were not designed to print bar codes; therefore, they are not necessarily a good choice in bar code applications. Dot matrix printers use a series of pins that strike a ribbon against the label stock to form characters. They use multiple pass ribbons and must be monitored very closely to maintain print quality. Print quality is critical in assuring “first-time” read rates. Remember standing in a supermarket checkout line as the clerk struggles to scan the bar code and finally ends up keying in information? This frustrates the user, frustrates the customer, subjects the system to errors — possibly costing the supermarket money — and reduces productivity. The same is true in the healthcare industry.

##### *Laser Printers*

Desktop laser printers can be used for bar code printing. Depending on the application, this may or may not be a good choice. Lasers can print very high-quality bar codes. Desktop laser printers have a curved paper path and difficulty accepting thick stock; therefore, the choice of label stock and adhesives is somewhat limited. These printers use 8.5” x 11” sheets. So you may waste labels if you need only a few labels or your label size does not easily configure to 8.5” x 11”. Laser printers are, however, an excellent choice for printing bar coded

menus — for example, a pick list.

### ***Thermal Printing***

There are two general types of thermal printers:

- ▼ Thermal direct printers
- ▼ Thermal transfer printers

Thermal printers use a computer-controlled print head with thousands of print elements that heat and cool very rapidly. Like conventional fax machines, thermal direct printers imprint the paper directly (no ribbon); thermal transfer printers imprint using a temperature-sensitive ribbon that transfers an image to paper or synthetic materials.

Both types are capable of producing high quality symbols and can be used to print as few as one label at a time or batches of labels. Some thermal printers can be used in both thermal direct and thermal transfer mode. Others are designed to be used in only one mode. Thermal printers are available as stand-alone units with their own keyboards for manually entering data, or they can be directly controlled by a PC, mid-range, or mainframe computer equipped with the necessary interfaces. Your materials management information system should be able to utilize a thermal printer.

### ***Thermal Direct Printing***

Thermal direct printers create high quality images on temperature-sensitive paper without using a ribbon. Some fax machines work in the same way, but the quality of paper used in thermal direct printers is much better than that used in fax machines.

The paper is chemically treated so that an image will be formed when exposed to heat from the print head. In addition to being temperature sensitive, thermal paper is also light-sensitive. It can darken if exposed to extreme temperatures, bright sunlight, or certain types of lighting commonly found in warehouses.

Several grades of thermal direct stock are available. The less expensive grades are more sensitive to light and may not be readable with infrared light sources. The more expensive grades are less sensitive to bright light and can be read with infrared light sources.

As a rule, thermal direct printers are not recommended for label printing applications in which the label needs to last two years or longer. However, thermal direct labels are used for a multitude of applications where the labels do not need to last very long and where the benefits of

low maintenance and no ribbon consumption are desired.

### ***Thermal Transfer Printing***

Thermal transfer printers create a high quality bar code label and do so quickly. Thermal transfer printers use a specially formulated wax- or resin-based ribbon and can print on a variety of paper and synthetic materials, satisfying a wide variety of applications.

### ***Bar Code Verifiers***

The key to a good bar code-based system is a high quality bar code — one that can be read the first time it is scanned. When printing bar codes, it is important to have a process in place to assure that every bar code is a high quality bar code. A bar code that looks good is not necessarily a good bar code. A device called a bar code verifier measures bar code quality. These measurements are based on ANSI Print Quality Guidelines (ANSI X3.182) established by the American National Standards Institute. If you decide to print your own bar codes, become familiar with these guidelines and consider purchasing a bar code verifier.

### ***Bar Code Scanners***

Sometimes the term “bar code scanner” is used interchangeably with the term “bar code reader.” A bar code scanner is the device that actually scans the bar code. A bar code reader is composed of a bar code scanner that is integrated with a decoder that links the scanner to the host computer. This is important to understand as you prepare to make purchasing decisions.

Once again, equipment decisions must be based on an understanding of your application. Questions to consider include:

- ▼ What is the distance between the label and the scanner?
- ▼ Is the label always in the same fixed position?
- ▼ What is the orientation of the label?
- ▼ What is the length of the bar code?
- ▼ Is the label durable enough to withstand frequent contact with a bar code wand?
- ▼ What is the light quality in the area where the bar code will be read?
- ▼ Do you need to gather information in real time or batch?

With these questions answered you are ready to explore bar code scanner options. Bar code scanners can be classified as contact (touching the bar code) or non-contact.



### *Bar Code Wands*

A scanner that touches the bar code is called a bar code wand. It is sometimes referred to as a light pen. Bar code wands are effective for scanning easily accessible bar codes on flat surfaces. They require minimum training and are easy to use as long as the person remembers to scan the entire bar code from quiet zone to quiet zone (the white space at either end of the bar code).

Wands are sometimes attached to portable data terminals (PDT) so



that variable information can be entered after the bar code is scanned. For example, to restock shelves, the UPN of an item may be scanned and the number of replacement items needed keyed into the PDT. When the process is completed, the information is loaded into the computer for reconciliation.

### *Charge-Coupled Device (CCD)*

A CCD scanner needs to be touching (or about six inches from) the bar code symbol. It uses image technology to sense all bars and spaces at one time. These contain no moving parts and therefore are quite rugged. It may not be a good choice for a warehouse application, but in areas where it is easy for the user to place the scanner over the bar code, it is an option to consider.

### *Laser Scanners*

An advantage of a laser scanner is its scanning range — from contact to distances of 15 feet or more. This is why laser scanners are used in medical centers for scanning patient wristbands and in medical center warehouses for scanning inventory. Lasers also may be attached to PDTs for additional data entry.

### *Labels*

Over the next year, more healthcare products will be bar-coded before they are delivered to medical centers. However, you must be prepared to do some labeling of products, especially at the unit-of-issue level. The tangible and intangible benefits of using bar codes on medical products far out weigh the initial expense, even if you have to apply labels yourself.

A very important part of a bar code-based system is the label. Think of the label as a vehicle for carrying information; it is not just a sticker. When selecting labels, you need to work with your label vendor to consider the material on which the information is printed and the adhesive to hold the label securely in place.

Making label decisions requires having answers to a lot of pertinent questions. Keep in mind that a label that works for human-readable information may or may not work for bar codes. When you have the answers to the following questions, your label vendor can identify the appropriate label and adhesive combination for your application. Note that some hardware providers include special deals for labels. Premier will consider such issues



as we negotiate hardware contracts for you.

***Questions to consider for each application:***

- ▼ To what textures and surfaces must the label adhere: paper, card stock, plastic, glass, metal, wood, other?
- ▼ How long does the label have to last? Days? Weeks? Months? Years?
- ▼ Will the label be applied to a flat, curved, or uneven surface?
- ▼ What will the labels be exposed to: heat, extreme cold, moisture, chemicals, autoclaving, liquids?
- ▼ Will the label be printed and applied in one environment and then stored in another (e.g. printed and applied at room temperature and stored in a refrigerator or freezer)?
- ▼ Should the label be permanent or removable?
- ▼ Will variable information be encoded or sequential numbers?
- ▼ What kind of bar code scanners will be used to read the bar codes — contact or non-contact? (Depending on the application you may or may not know the answer to this question, or, you may not have control over it.)
- ▼ Will the label be subject to abrasion, such as contact scanning or being rubbed against other items on a shelf?
- ▼ What kind of lead time is needed between producing and applying the label?

When your team has identified the label needs, the next consideration is acquiring the labels. Your choice is to buy preprinted labels or to purchase bar code printers and print your own. There are advantages to both approaches. You should not assume that buying a bar code printer and printing your own is the most expensive method.

Preprinted labels can be an excellent choice if the volume is high enough, the information is known ahead of time, the information is the same for every label (e.g., hundreds of labels with the same product number or sequential numbers), and there is adequate lead time between obtaining information to be printed and applying the labels. When considering preprinted labels, be sure to include the labor costs of inventory management.

On-site or demand printing has the advantage of giving you flexibility and control over the content and quantity of labels you print and use. Printing your own labels may be a good choice in a UPN environment where you may only be printing labels for certain products for an interim time, or the quantity of those products changes with each order. You can always use the printer for other applications when you no longer need to label incoming products.

## *Bar Code Printing Software*

Many people responsible for implementing a bar code labeling system find bar code printing software helpful. These packages, often called “label prep” packages, are developed to make it easy to design



and print a bar code label. The packages also may have a database capability that can help you build your list of UPN numbers. Some software labeling packages also can connect to databases on remote hosts. This is convenient if the database already has been established or is part of a larger system.

The capabilities of your software system or stand-alone UPN system will help you determine whether you should consider using one of these packages. Make sure the package you select is designed for UPN bar code labeling. Many packages will indicate that you can print health industry bar codes; however, that frequently means only that they can print bar codes in Code 128 or Code 39 symbology. Instead, you will want a package that helps you create bar codes in the HIBC LIC and UCC/EAN-accepted UPN formats, including appropriate flag characters and application identifiers.

**APPENDIX B**  
**MATERIALS PACKAGE TO MATERIALS MANAGERS**



May 14, 1998

**Dear Director, Materials Management:**

**Purpose:** Our purpose in writing is to keep you informed on the progress of implementation of universal product numbers (UPN) and on how implementation will affect you. We also request your commitment to the industry-wide action plan to implement UPN by July 1999.

**Background:**

The Efficient Healthcare Consumer Response (EHCR) Report, issued in 1996, predicts opportunities for annual savings of \$11.6 billion in healthcare supply chain costs. These projected savings are based substantially upon the industry's implementing a series of automated trading transactions and integrating the supply chain information stream across the healthcare industry, from point-of-manufacture to point-of-use. One of the highest returns on investment from these automated transactions results from standard use of UPN across the supply chain. This will result in efficiencies and cost savings for your medical center.

The UPN standard will become as important to the healthcare industry as the Universal Product Code is to the grocery industry or the National Drug Code is to the pharmaceutical industry. This will require industry-wide teamwork. Toward that goal, 20 major healthcare buying groups recently met to jump-start the industry-wide initiative to standardize product numbering and labeling through the use of UPN. These 20 groups represented over 90 percent of all healthcare group contract purchases in the nation. By February 23, 1998, all of these groups endorsed the enclosed joint communiqué to the healthcare industry supporting an industry-wide initiative to standardize product numbering and labeling by July 1999.

Accordingly, a series of initiatives and milestones were identified for group providers, manufacturers, distributors, and software companies. These will enable us to achieve our collective objective of implementing UPN by July 1999. The enclosed background paper titled "The UPN by '99 – Action Steps to Completion" was developed by the Healthcare EDI Coalition (HEDIC). This paper highlights these initiatives and milestones. It also serves as our road map. Premier's reporting of milestones will be rolled-up into reports by group providers, and ultimately to an industry-wide tracking of the initiative.

### ***What is Premier doing to help the membership?***

We assembled an internal steering team to help Premier develop and champion our UPN implementation plan. That team consists of:

Ron Brady, Director, Materials Management, Bon Secours Health System, Inc.  
Carole Hanon, Assistant Director, Materials Management Administration, Florida Hospital  
David Tiemeyer, Director, Materials Management, Lutheran Health Systems  
Robert Baker, V.P. & Administrative Associate, Penn State Geisinger Health Systems  
Donald Masser, EDI Coordinator, Penn State Geisinger Health Systems  
Robert Schuweiler, Director, Materials Management, Group Health  
Ted Lonitz, Director, IS/Distribution, Carilion Health System  
Scott Farrar, Vice President, Materiel Resource Group, Quorum Health Resources  
Elaine Yocum, Director, Materials Management, Mercy Health Services

### ***What are the Premier steering team's initial plans?***

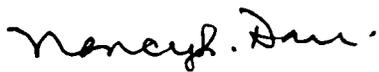
- ▼ We will do everything we can to assist you in implementing UPN by July 1999 so your medical center can reap the benefits of this initiative.
- ▼ Your RVP/PRM will help you implement and report the progress of UPN implementation at your medical center.
- ▼ We will keep you posted, through *Purchasing Partner News* and special mailings, on the development of Premier's UPN implementation plan.
- ▼ We have engaged an industry expert to guide us through this process.
- ▼ We will provide a handbook to guide you through the process. This is similar to the approach we took with the supplier diversity handbook you recently received.
- ▼ We will keep you informed of additional educational tools as they become available.
- ▼ We plan to provide contractual coverage for the hardware necessary to implement UPN.
- ▼ We emphasized our commitment to the use of UPN to our business partners in our letter of March 23, 1998 (see enclosed). We plan to emphasize contractual coverage for use of UPN in a second letter to our business partners. That letter is scheduled to be mailed this summer.

### *How do you get started?*

- ▼ Review the enclosed materials.
- ▼ Appoint a champion or co-champions at your medical center to take the lead in implementing UPN (preferably with materials and information systems backgrounds).
- ▼ Send a letter to your business partners, including manufacturers, distributors, and software developers, similar to the one Premier Purchasing Partners sent on March 23, 1998. (See enclosed copy.)
- ▼ Use the implementation handbook that you will receive this summer to help you navigate the implementation process.
- ▼ Sign and return to the Healthcare EDI Coalition (HEDIC) the enclosed joint communiqué, indicating your commitment to support implementation of UPN by July 1999.
- ▼ Maximize the valuable up-to-date information on UPN by visiting the HEDIC website at [www.hedic.org](http://www.hedic.org). (Click onto UPN Initiative.) At that website, among other things, you can electronically sign the joint communiqué and learn how to plan for the resources necessary to implement UPN.
- ▼ Join HEDIC.
- ▼ Consider supporting the two items of proposed legislation identified in the enclosure and on the HEDIC website. These require manufacturers to use UPN by February 1, 2001; otherwise, they will not be reimbursed by the Healthcare Finance Administration.

As we embark upon the significant task of implementing UPN by July 1999, we will be challenged to learn and to work well together. We all have significant benefits to gain from this cooperative effort. I look forward to leading those efforts for Premier. Please feel free to phone me at 708.409.4526 or send an e-mail to [upnpremier@premierinc.com](mailto:upnpremier@premierinc.com) to share your perspectives or volunteer your services.

Sincerely,



Nancy L. Darr  
Vice President for Planning  
and Program Development

Enclosures

## *UPN Implementation and Standards Organizations*

### *I. Implementation and Education*

#### **Healthcare EDI Coalition (HEDIC)**

HEDIC national association of electronic trading partners in healthcare who are working together to expand and improve Electronic Data Interchange (EDI) and Electronic Commerce (EC) capabilities throughout the industry. Membership is open to all Healthcare Providers and their Trading Partners. HEDIC Provider members include all of the major multi-provider groups, as well as hundreds of individual provider facilities. Trading Partner members include healthcare plans, suppliers, data communications services, software developers, consulting services, employers and government agencies.

#### **MISSION:**

HEDIC's mission is to provide leadership in improving the efficiency of business interaction through the collaborative development and optimization of the EDI/EC infrastructure in the Healthcare industry. To accomplish this mission, HEDIC has adopted the following strategic objectives:

- ▼ Facilitate the electronic interconnection of the health industry trading partner community via EDI/EC by the year 2001.
- ▼ Educate health industry trading partners on the concepts, benefits, strategy, and architecture of EDI/EC, to facilitate implementation and development.
- ▼ Provide access to reliable, cost-effective EDI/EC resources, to optimize member's implementation and development efforts.
- ▼ Coordinate industry-wide EDI/EC implementation and development efforts, to improve EDI/EC efficiencies throughout the healthcare industry.

#### **MEMBER BENEFITS:**

HEDIC helps organizations optimize EDI/EC development efforts and minimize EDI/EC costs through cooperative efforts and sharing of information, experiences, and resources within the Healthcare EDI/EC community. Membership Participation—

- ▼ Gives you a central source for non-biased information on EDI/EC technology, applications, and developments in healthcare.
- ▼ Puts you in contact with peers, trading partners, and industry leaders who are involved in developing healthcare's EDI/EC capabilities.
- ▼ Provides you evaluation tools and guidelines for EDI/EC strategic planning, technology selection and implementation.
- ▼ Enables you to coordinate and benchmark your EDI/EC development efforts in with other healthcare industry initiatives.

- ▼ Offers you cost-effective, professional EDI/EC education through conferences, seminars, workshops, courses, and publications.
- ▼ Reduces your costs through discounts on data network services, software, databases, implementation guidelines, and books.
- ▼ Facilitates your participation in healthcare community dialog on EDI/EC issues and development efforts.

Call 1-800-905-4583 for membership information or connect via the Internet @ <http://hedic.org/>

## *II. Standards Development Organizations*

### **HEALTH INDUSTRY BUSINESS COMMUNICATIONS COUNCIL (HIBCC)**

HIBCC is an industry-sponsored, nonprofit Standards Development Organization (SDO), a fully accredited member of the American National Standards Institute (ANSI). Our mission is to facilitate electronic commerce by developing appropriate standards for information exchange among healthcare trading partners.

Our broad mission has involved HIBCC in a number of critical areas, including electronic data interchange message formats, bar code labeling data standards, universal numbering systems, and the provision of databases which assure common identifiers.

Call 1-602-381-1091 for information or connect to <http://www.hibcc.org/> on the Internet.

### **UNIFORM CODE COUNCIL, INC. (UCC)**

The Uniform Code Council, Inc. Is the central management and information center for manufacturers, distributors and retailers participating in the UPC System. This organization is not a government agency and is an administrative council which exists specifically to develop standard product and shipping container codes, control the issuing of company identification codes, provide detailed information, and to coordinate the efforts of all participants. Although membership in the UCC is voluntary, it is required to obtain a UPC Identification Number.

Call 1-937-435-3870 for standards information or connect to <http://www.uc-council.org/> on the Internet.

# H ♦ E ♦ D ♦ I ♦ C

## Healthcare EDI Coalition

1405 North Pierce • Suite 100 • Little Rock, Arkansas 72207  
Phone (501)661-9408 • Fax (501)661-0507  
Email:hedic@hedic.org

### *Joint Communiqué* February 19, 1998

To: All Healthcare Industry Trading Partners

From: HEDIC Provider Groups\*Amernet, Inc., Catholic Health Initiatives, Catholic Health Midwest, COHR/Purchase Connection, Columbia/HCA Healthcare Corporation, Covenant Health System, Daughters of Charity, Defense Medical Logistics Standards Support, Defense Supply Center Philadelphia (DSCP), Department of Veterans Affairs, Health Services Corporation of America, Holy Cross Health System, Kaiser Permanente, Mercy National Purchasing, Inc., Novation Supply Company of University Health Systems Consortium & VHA, Inc., Premier, Inc., Quorum Health Group, Inc., SSM-Diversified Health Services, Inc., St. Joseph Health System, and Tenet HealthSystem.

Re: Establishment of Industry-wide use of Universal Product Numbers (UPN) for all Healthcare Products

Opportunities for \$11.6 billion dollars savings in healthcare supply chain costs identified by the Efficient Healthcare Consumer Response (EHCR) Study in 1996 are predicated substantially upon automation and integration of the product information stream from point-of-manufacture to point-of-use across the industry. Creating an integrated supply-chain information stream depends upon industry-wide acceptance and use of uniform information standards, Automatic Data Capture technology and Electronic Data Interchange (EDI). The establishment and use of standard Universal Product Numbers (UPNs) for all healthcare products is fundamental (key) to the automation and integration of the supply-chain information stream. While the retail, apparel, and grocery industries in the USA have successfully established use of universally accepted standard product identifiers throughout their markets, the healthcare industry has yet to take this critical step toward supply-chain efficiency. Successful establishment of UPN's as the universally accepted product identifiers in the healthcare marketplace, as well as achieving the additional supply-chain cost savings identified by EHCR, will require industry-wide support.

As multi-facility buyers who are charged with the responsibilities of reducing supply chain costs and improving supply-chain efficiency, we are committed to work with industry trading partners (within applicable laws and regulations) to establish use of Universal Product Numbers throughout the healthcare industry by July 1999. We call on all healthcare trading partners (manufacturers, distributors, software and technology developers and healthcare providers) and trade associations to work with us in an industry-wide UPN Initiative to foster universal implementation and use of:

- A. UPN standard identifiers as the industry accepted key reference to product information in all business documents and communications;
- B. UPN standard compliant bar-code labels on all products at each unit of inventory; and
- C. Automatic Data Capture technology, software functionality to process UPN product information and EDI connectivity throughout the healthcare supply chain.

To facilitate and support this UPN Initiative we will work with industry trading partners to establish consensus on the following:

- 1. Understanding of Definition of the UPN:** The industry accepted definition of the UPN is as follows: "The Universal Product Number (UPN), uniquely identifies healthcare products. It is derived from either the HIBCC-LIC or UCC/EAN bar-code labeling data structures. The HIBCC-LIC UPN includes the manufacturer LIC assigned by HIBCC, the manufacturer assigned item number, and the package level (or inventory unit) indicator. The UCC/EAN UPN consists of a package level (or inventory unit) indicator, UCC/EAN assigned manufacturer number, manufacturer assigned item number, and a check character. The definition specifies that a unique UPN should be created and assigned to each packaging level (or inventory unit) of each product. The term "Universal Product Number" means that the UPN is to be universally used as the key identifier on each inventory unit of all products and also used as the key identifier to communicate product information between all trading partners in the supply chain. The Health Industry Business Communications Council (HIBCC) publishes the HIBCC-LIC primary data structure. The Uniform Code Council (UCC) publishes the UCC/EAN primary data structure."

ture. Both HIBC and UCC bar-code standards are accredited by the American National Standards Institute and recognized by the industry.

**2. UPN Implementation Compliance Definitions:** We believe that for a manufacturer's product identification to be compliant with the above definition and satisfy technological requirements for industry-wide information stream automation and integration:

- A. Manufacturers must create UPNs and associated bar-codes in accordance with specifications outlined by either HIBCC or UCC/EAN (not both). The UPNs and bar-codes must be tested for compliance with these specifications;
- B. Manufacturers must create a unique UPN for each inventory unit (carton, case, box, each, et.al.) and label each inventory unit with a machine readable bar code (or automatic data capture input device such as radio frequency chip); and \*
- C. All unique UPN's for each inventory unit relating to a specific product along with relevant static product information for that unit must be accessible to industry trading partners through an "industry accepted" central database or repository.

**3. Industry-wide Support and Use of a Single Central Industry Accepted UPN Database to Collect, Communicate, and Maintain the Accuracy, Currency, and Integrity of UPNs and Associated Product Information:** A single central industry accepted UPN database is defined as a database or repository recognized by \*bonafide trade associations of healthcare supply chain trading partners as the primary source for certifying accuracy, currency, and integrity of all UPN's and associated basic product information. While other industry-sector-specific and commercial UPN databases may be developed and maintained for different industry needs, we believe that industry trading partners and associations should agree to support a single central database to maintain the integrity of UPNs and basic product information in all databases. We recommend that the HIBCC UPN Repository be accepted as the single central database.

**4. Understanding of UPN Cost Savings and Efficiencies Afforded Each Stakeholder in the Supply Chain:** We believe that industry acceptance of the UPN will benefit all stakeholders. Individual stakeholders may also wish to consider the effects and costs associated with not using UPNs to label products and communicate product information.

**5. A Target Date for UPN Establishment as the Accepted Key Identifier for Business Communications and Product Labeling in Healthcare:** While we realize that the time required for implementation and use of the UPN and bar-codes will vary for each trading partner across the industry, we believe that an aggressive industry target date should be established to engender change. We believe that no later than July 1999 is a reasonable target date for implementation of UPN processes and we will strive for this goal.

We are confident that this UPN Initiative can help to move the healthcare market place quickly towards establishment and use of the UPN as the accepted key identifier for product information. The entire industry and the general health-consuming public will benefit through cost savings and improved efficiencies in: Contract Item File Communication, Contract Compliance Management, Contract Evaluation, Purchasing, Inventory Management, Invoicing and Payment, Hospital Item File Communication, Product Tracking, Utilization Review, Outcomes Evaluation, Continuous Replenishment, Market Analysis, Manufacturing Production Planning, Product Evaluation, Product Recalls, Distribution and Logistics Management, Implant Tracking, Claims, and Auditing, et.al. Success in establishing use of the UPN will enable the healthcare industry to realistically pursue the \$11.6 billion savings of EHCR.

We ask manufacturers, distributors, software and technology developers, providers and trade associations to respond to this Communiqué and work with the Healthcare EDI Coalition (HEDIC) to accomplish the goals of this UPN Initiative. Please communicate your questions, comments and suggestions to the HEDIC, 1405 N. Pierce, Suite 100, Little Rock, AR 72207-5378, Email: < hedic@hedic.org >, Fax: (501) 661-0507, or Telephone (501) 661-9408. Please do not call Provider Groups individually.

#### Communiqué Response

\_\_\_\_\_ supports the business objectives of the UPN Initiative.  
(Organization Name)

Signed.

\_\_\_\_\_ Date

\*Bonafide Trade Associations of Healthcare Supply-Chain Trading Partners would include, but not be limited to, the Healthcare EDI Coalition (HEDIC), the Health Industry Distributor's Association (HIDA), the Health Industry Manufacturers Association (HIMA), and the Health Industry Group Purchasing Association (HIGPA).

# H ♦ E ♦ D ♦ I ♦ C

## Healthcare EDI Coalition

### THE UPN BY 1999 – ACTION STEPS TO COMPLETION

#### 1. Why Healthcare Must Have The UPN

The Current Confusion =

- ▼ Wasted Resources and Egregious Error Rate (11.6 Billion = TOI) (24% FTE Time Wasted)
- ▼ Risks to Public Safety
- ▼ Use of Automatic ID and Data Capture is Limited
- ▼ Electronic Data Interchange Development is Stymied
- ▼ Efficient Supply Chain is Impossible

#### 2. What The UPN Will Do For Healthcare

- ▼ Eliminate Errors, Waste and Fraud
- ▼ Reduce Risk of Mistakes and Loss of Control
- ▼ Facilitate Broad Use of Auto ID and Data Capture Technology
- ▼ Drive Development and Growth of EDI (Retail-CFAR) (Grocery CRFP)
- ▼ Facilitate Deployment of EHCR Strategies for Supply Chain Efficiencies

#### 3. Objectives And Goals Of The UPN Initiative

- ▼ *The Vision* = EHCR = Supply Chain Efficiency  
Integrated Supply Chain Information Stream
  - Efficient Information Management
  - Effective Management Information
  - Enables Efficient/Effective Healthcare Consumer Service
- ▼ *The Enablers*
  - E-Commerce Partnerships
  - Information Standards (UPN, HIN, EDI)
  - Computer Applications
  - Automatic Identification and Data Capture (AIDC)
  - Electronic Data Interchange (EDI)
  - Shared Databases (UPN repository, HPIS, et al)
- ▼ *UPN is the "Cornerstone"* = Critical for Data Integrity/Automation/Integration

#### 4. The UPN Initiative Objectives

Universal Product Numbers Must Become Ubiquitous in Healthcare

- ▼ UPN = Industry Accepted Product Information Key in All Business Communications
- ▼ UPN = Industry Accepted Label on All Healthcare Products
- ▼ UPN = Used in AIDC, Software Applications, Databases, and EDI Throughout Healthcare Supply Chain
- ▼ UPN = Accessible to Everyone Through Central Database = UPN repository

## 5. UPN Initiative Ingredients For Success

- ▼ Market-Driven
- ▼ Consensus Process
- ▼ Defined Process
- ▼ Participatory Process
- ▼ Target Date

## 6. UPN Stakeholders

- ▼ Providers/Consumers
- ▼ Provider Groups/Brokers
- ▼ Payors/Sponsors
- ▼ Manufacturers
- ▼ Distributors
- ▼ Regulators
- ▼ Technology Partners
- ▼ Associations

## 7. Where UPN is Today

(1997 HIDA Survey)	<u>1995</u>	<u>1997</u>	<u>Change</u>
▼ All Packages	39.8%	52.3%	+31%
▼ Cases	38.6%	70.0%	+81%
▼ Boxes	55.1%	77.3%	+40%
▼ Eaches	27.7%	26.4%	- 4.8%

## 8. Where Stakeholders Are Today

- ▼ Provider Use
- ▼ Provider Group
- ▼ Payor
- ▼ Manufacturer
- ▼ Distributor
- ▼ Regulators
- ▼ Technology Partners
- ▼ Associations

## 9. The Question = How Do We Make The UPN Ubiquitous?

- ▼ Target Date Begin With the Buyers/Brokers
  - Providers Too Many and Too Small
  - Manufacturers Need to See Major Market Trend to Justify Change
  - Manufacturers Need Uniform Production Expectations/Standards
  - The Questions Manufacturers Ask:
- ▼ Does it Benefit the Customer?
  - Does it Affect Sales?
  - Does it Affect Profits?
  - What Does it Cost?
- The Bottom Line = The Consumer Pays Or Saves*  
In Healthcare Supply, *Provider Groups Are (or Represent) the Consumer*
- ▼ Secure Endorsement and Participation of Manufacturers
  - Confirm UPN and Compliance Definition
  - Confirm Industry Objectives and Benefits
  - Set Realistic Goals and Plan of Action
  - Provide Education and Guidelines for Implementation and Maintenance
- ▼ Secure Endorsement and Participation of Distributors
- ▼ Secure Endorsement and Participation of Providers
- ▼ Secure Endorsement and Participation of Technology Partners

- ▼ Secure Endorsement and Participation of Payors/Sponsors
- ▼ Secure Support of Regulators
- ▼ Secure Support and Participation of Associations

#### 10.Actions Needed From Stakeholders:

##### ▼ Provider Groups Need to:

- Establish Consensus With Other Groups On Joint Communiqué, Definitions, and Expectations
- Program UPN Capability Into Information Systems
- Elicit Participation and Consensus From Consumers, Suppliers, Software Technology Partners, Manufacturers and Distributors
- Include UPN in Business Negotiations
- Use UPN to Manage Business Processes
- Educate Consumers (Providers) On Uses and Benefits of UPN/AIDC/EDI
- Ask Manufacturers to Assign UPNs and Maintain Information in UPN Repository
- Ask Manufacturers to Label All Units of Each Product With Bar-code
- Educate Management and Departments
- Encourage Regulatory Bodies to Use UPN in Administration
- Subscribe to UPN Repository
- Participate EDI/EC Development Efforts

##### ▼ Manufacturers Need to:

- Join UPN Initiative/Provide Input
- Become UPN Compliant ASAP — Unique UPN for Each UOI — Label All Products -
- Incorporate UPN Into Catalogues and Business Processes
- Communicate and Maintain UPN Information in UPN Repository
- Support and Participate in Industry EDI Activities and Initiatives
- Use UPN for MSDS/Product Recall References
- Plan to Use UPN/AIDC/EDI to Gather Market and Production Information
- Participate in Industry EDI/EC Development Efforts
- Use UPN in Orders and Invoices

##### ▼ Providers Need to:

- Join UPN Initiative
- Educate Management and Staff On Potential Benefits of UPN/AIDC/EDI
- Create UPN Database Cross-Reference to Item Master File
- Subscribe to UPN Repository
- Begin to Populate Database Cross-Reference
- Request the Suppliers Use UPN As Key Product Reference ASAP
- Request That Distributors Mark Pallets With Bar Code License Plate
- Install Bar Code Reader At Receiving Dock
- Ask Software Application Vendors to Incorporate UPN
- Analyze Processes to Discover Opportunities for AIDC/EDI
- Participate in Industry EDI/EC Development Efforts

##### ▼ Technology Partners Need to:

- Join UPN Initiative
- Investigate and Develop Applications to Leverage UPN/AIDC/EDI
- Develop Solutions to Incorporate UPN Use in Installed Base
- Work With Customers to Re-tool for UPN Use
- Subscribe to UPN Repository
- Develop UPN Databases to Meet Industry Sector Needs
- Participate in UPN and EDI Development Activities
- Support Open Systems Architecture to Help Integrate Information Stream
- Participate in Industry EDI/EC Development Efforts

▼ Distributors Need to:

- Join UPN Initiative
- Include UPN in Item Master File
- Subscribe to UPN Repository
- Reference MSDS to UPN
- Provide UPN to Consumers
- Accept UPN From Consumers for P/Os
- Encourage Manufacturers to Use UPN
- Prepare to Use UPN for Orders and Invoices
- Label Pallets With Bar-code License Plate
- Participate in Industry EDI/EC Development Efforts
- Educate Consumers On Benefits of UPN/AIDC/EDI

▼ Regulators Need to:

- Specify UPN As Key Reference
- Require UPN for Product Approval and Recall Management
- Require UPN for Reimbursement
- Require UPN Data Collection for Regulatory Administration
- Work With Industry to Develop Reasonable Regulations
- Use UPN Repository As Primary Source for Product Data

▼ Payors/Sponsors Need to:

- Endorse UPN Initiative and EDI Standards
- Use UPN Data for Managed Care Review
- Require UPN for Reimbursement
- Participate in Industry EDI/EC Development Efforts

▼ Associations Need to:

- Join UPN Initiatives
- Coordinate UPN Education and Resources Development Efforts
- Develop UPN Curriculum for Executives
- Support Legislative Efforts to Require UPN
- Include UPN/AIDC/EDI As Business Strategy in Publications

## 11. HEDIC UPN Initiative Action Steps To July 1999 Target Date

- ▼ Secure Broad Industry Endorsement of UPN Initiative
- ▼ Survey Industry to Determine UPN/AIDC Penetration
- ▼ Develop and Publish UPN Readiness Lists
  - Manufacturers
  - Technology Partners
  - Provider Groups
  - Consumers
  - Distributors
- ▼ Educate Grass Roots On UPN/AIDC/EDI Advantages and Benefits
- ▼ Develop UPN Compliance Guidelines – Committee
- ▼ Develop System for Determining UPN Compliance – Committee
- ▼ Develop Benchmarks for UPN/AIDC/EDI Cost Savings
- ▼ Develop UPN/AIDC Implementation Guidelines for Consumers
- ▼ Develop Timeline Benchmarks to Measure and Report Progress of UPN Initiative

## 12. UPN Timeline Initiative Benchmarks

### A. Reports:

- ▼ First Report on UPN Readiness May 31, 1998
  - Manufacturers – Endorsed? Name, Number of Products, UPN?, Compliant # of Products, POA?
  - Technology Partners New Applications UPN/AIDC/EDI Ready? POA? Retrofit Solutions for Installed Base? POA? UPN Capable? Integration Systems?
  - Provider Groups – Endorsed? Contract Language? Database Ready? Subscribe to Repository? Using UPN? POA?
  - Consumers – Endorsed? Using UPN/AIDC/EDI? Database Ready? Contract Language? Applications Installed? Subscribe to repository? POA?
  - Distributors – Endorsed? UPN Database? UPN Capable in P/O Invoice? Subscribe? POA?
  - Regulators – Report On Congressional Bills and Agency Actions – Payors – Endorsed? Educated? POA?
- ▼ Second Report On UPN Progress August 31, 1998
- ▼ Third Report On UPN Progress November 31, 1998
- ▼ Fourth Report On UPN Progress February 28, 1999 Next UPN National Meeting March, 1999
- ▼ Fifth Report On UPN Progress April 30, 1999
- ▼ Sixth Report On UPN Progress July 31, 1999

### B. Education:

- ▼ Develop UPN/AIDC/EC Curriculum for CEOs and Managers
- ▼ UPN/AIDC/EDI Education of Consumer CEOs At Provider Group Meetings  
(Dates Determined By Groups)

▼ UPN/AIDC/EDI Education By HEDIC

- June 1998
- August 1998
- October 1998
- January 1999

▼ UPN Education By Other Associations

- HIBCC/UCC June 22-23, 1998 - Chicago (Mfg. & Dist.)
- HIDA Annual Meeting
- HIBCC Annual Meeting

**13. Goals By July 1999**

- ▼ Critical Mass Involved in UPN Initiative
- ▼ 90% of Medical/Surgical Products UPN Compliant
- ▼ 100% of Distributors Using UPN As "Key" Product Identifier
- ▼ 100% of Group Buyers Using UPN in Contract Management
- ▼ All Key Product Info Related Software Packages UPN Capable
- ▼ 300 Large Hospitals Using UPN/AIDC/EDI
- ▼ Government Regulations Requiring UPN for Administration Within Two Years (2001)

**14. What Happens If We Don't Make All Goals By July 1999**

- ▼ We'll Still Be A Long Way Down the Road to Efficiency
- ▼ We Continue to Work At it
- ▼ We Continue to Pay for it Until it's Done (Pay Now/Pay Later)

**HEDIC**

1405 North Pierce Suite 100  
Little Rock, AR 72207-5378  
Phone: (501) 661-9408  
Fax: (501) 661-0507

March 20, 1998

**POLICY ON UNIVERSAL PRODUCT NUMBERS (UPN)**

Purchasing Partners strongly supports industry-wide implementation of UPN as the universally accepted standard product identifiers in the healthcare marketplace. We invite manufacturers, distributors, software development companies, trade associations, purchasing groups, and health care providers to work together to collectively achieve industry-wide implementation of UPN by the target date of July 1999. Because we recognize significant benefits to our membership and the entire medical care supply chain in implementing UPN as soon as possible, we signed the attached joint communiqué that specifically defines our expectations.



Lynn Detlor  
President  
Premier Purchasing Partners, L.P.

Attachment: Joint Communiqué, February 16, 1998

[Copy of Joint Communiqué executed on behalf of Purchasing Partners, L.P. by Lynn Detlor, President, effective February 16, 1998.]

# S.1362

105TH CONGRESS 1ST SESSION

To promote the use of universal product numbers on claims forms used for reimbursement under the Medicare program.

IN THE SENATE OF THE UNITED STATES  
NOVEMBER 4, 1997

MR. GRASSLEY (for himself and Mr. BREAUX) introduced the following bill: which was read twice and referred to the Committee on Finance

## A BILL

To promote the use of the universal product numbers on claims forms used for reimbursement under the Medicare program. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

### SECTION 1. SHORT TITLE.

This Act may be cited as the "Medicare Universal Product Number Act of 1997".

### SEC. 2. UNIVERSAL PRODUCT NUMBERS ON CLAIMS FORMS FOR REIMBURSEMENT UNDER THE MEDICARE PROGRAM.

(a) ACCOMODATIONS OF UPNS ON MEDICARE ELECTRONIC CLAIMS FORMS.-Not later than February 1, 2000, all electronic claims forms developed or used by the Secretary of Health and Human Services for reimbursement under the Medicare program under title XVII of the Social Security Act (42 U.S.C. 1395 et seq.) pursuant to part C of title XI of the Act (42 U.S.C. 1320d et seq.) or any other law shall accommodate the use of universal product numbers (as defined in section 1897 (a) (2) of that Act (as added by subsection (b)) for covered items (as defined in section 1834 (a) (13) of that Act (42 U.S.C. 1395 (b) REQUIREMENT FOR PAYMENT OF CLAIMS.----Title XVII of the Social Security Act (42 U.S.C. 1395 et seq.) (as amended by section 4015 of the Balanced Budget Act of 1997(Public Law 105-33; 111 Stat. 337)) is amended by adding at the end of the following: "USE OF UNIVERSAL PRODUCT NUMBERS "SEC. 1897.

(a) DEFINITIONS.----In this section:

"(1) COVERED ITEM.----The term 'covered item' has the meaning given that term in section 1834 (a) (13).

"(2) UNIVERSAL PRODUCT NUMBER.The term 'universal product number' means a number that is-----

"(A) affixed by the manufacturer to each individual covered item that uniquely identifies the item at each packaging level; and

"(B) based on commercially acceptable identification standards established by the Uniform Code Council----International Article Numbering System and the Health Industry Business Communication Council.

"(b) IN GENERAL.-----No payment shall be made under this title for any claim for reimbursement for any covered item unless the claim contains the universal product number of the covered item".

(c) DEVELOPMENT AND IMPLEMENTATION OF PROCEDURES.----From the information obtained by the use of the universal product numbers (as defined in section 1897 (a) (2) of the Social Security Act (as added by section 2 (b)) on claims for reimbursement under the Medicare program, the Secretary of Health and Human Services, in consultation with interested parties, shall periodically review the covered items billed under the Health Care Financing Administration Common Procedure Coding System and adjust such coding system to ensure that functionally equivalent covered items are billed and reimbursed under the same codes.

EFFECTIVE DATE.----The amendment made by subsection (b) shall apply to claims for reimbursement submitted on and after February 1, 2001.

### SEC. 3. STUDY AND REPORTS TO CONGRESS.

(a) STUDY.----The Secretary of Health and Human Services shall a study on the results of the implementation of the provisions in subsections (a) and (c) of section 2 and the amendment to the Social Security Act in subsection (b) of that section.

(b) REPORTS.----Not later than 6 months after the date of enactment of the Act, and annually thereafter, the Secretary of Health and Human Services shall submit a report to Congress that contains a detailed description of the results of the study conducted pursuant to subsection (a), together with the Secretary's recommendations regarding the use of universal product numbers (as defined in section 1897 (a) (2) of the Social Security Act (as added by section 2 (b) of the Act)) and the use of data obtained from the use of such numbers.

# H. R. 3255

105TH CONGRESS 2D SESSION

To amend title XVIII of the Social Security Act to require universal product numbers on claims forms submitted for reimbursement of durable medical equipment and other items under the Medicare Program.

IN THE HOUSE OF REPRESENTATIVES

February 24, 1998

Ms. SLAUGHTER (for herself and Mr. HOUGHTON) introduced the following bill; which was referred to the Committee on Commerce, and in addition to the Committee on Ways and Means, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

## A BILL

To amend title XVIII of the Social Security Act to require universal product numbers on claims forms submitted for reimbursement of durable **medical equipment and other items under the Medicare Program**.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

### SECTION 1. SHORT TITLE

This Act may be cited as the "Medicare Universal Product Number Act of 1998".

### SEC. 2. UNIVERSAL PRODUCT NUMBERS FOR CERTAIN ITEMS OF DURABLE MEDICAL EQUIPMENT ON CLAIMS FORMS FOR REIMBURSEMENT UNDER THE MEDICARE PROGRAM

(a) IN GENERAL.--Section 1842 of the Social Security Act (42 U.S.C. 1395u), as amended by sections 4315(a) and 4432(b)(4) of the Balanced Budget Act of 1997, is amended by adding at the end the following new subsection:

"(u)(1) Each request for payment, or bill submitted, on or after February 1, 2001, for a covered item (as defined in paragraph (3)) for which payment may be made under this part shall include a universal product number under the system established by the Secretary under paragraph (4) for such covered item.

"(2) No payment may be made under this part on or after February 1, 2001, for a covered item if the request for payment or bill submitted does not include the universal product number of the covered item. "(3)(A) Except as provided in subparagraph (B), for purposes of this subsection, the term 'covered item' means the following items:

"(i) A covered item (as defined in section 1834(a)(13)).

"(ii) An item described in paragraph (8) or (9) of section 1861(s).

"(iii) An item described in paragraph (5) of section 1861(s).

"(iv) Such other items as the Secretary determines appropriate.

"(B) Such term does not include a customized item for which payment may be made under this title.

"(4) The Secretary, in consultation with appropriate experts, shall establish a system under which a covered item under this subsection is assigned a universal product number that permits the Secretary to--

"(A) identify the covered item;

"(B) develop appropriate data to adjust rates of reimbursement for the covered item as appropriate; and

"(C) review the covered items billed under the coding system established under this title and adjust such coding system to ensure that functionally equivalent covered items are billed and reimbursed under the same codes."

(b) ACCOMMODATION OF UPNS ON CLAIMS FORMS.--Not later than February 1, 2000, any claims form developed or used by the Secretary of Health and Human Services for reimbursement for a covered item (as that term is defined in section 1842 (u) (3) of the Social Security Act (42 U.S.C. 1395 u (u) (3)), as added by subsection (a)) furnished under the Medicare program under title XVIII of such Act (42 U.S.C. 1395 et seq.), shall accommodate the use of universal product numbers.

(c) REPORT.--Not later than December 31, 2001, and annually thereafter through 2003, the Secretary of Health and Human Services shall submit to Congress a report that describes--

(1) the additional information made available to the Secretary from the use of universal product numbers on covered items furnished under part B of the Medicare program, as that term is defined in section 1842(u)(3) of the Social Security Act (42 U.S.C. 1395u(u)(3)), as added by subsection (a);

(2) any change by the Secretary in reimbursement rates for the items by reason of the information; and

(3) the Secretary's recommendations for additional items appropriate for the use of universal product numbers.

<b>Name</b>	<b>Address</b>	<b>Phone</b>	<b>Fax</b>	<b>Email</b>	<b>Web Site</b>
Louise M Slaughter Congresswoman	2347 Rayburne(HOB) Washington, DC. 20515	1-202-225-3615	1-202-225-7822	www.house.gov/ slaughter	<a href="http://www.House.gov/slaughter/bio.htm">http://www.House.gov/slaughter/bio.htm</a>
Bob Hankin HIBCC	5110 North 40th St. Suite 250 Phoenix,AZ 85018	40th1-602-381-1091	1-602-381-1093	Info@hibcc.org	<a href="http://www.hibcc.org">http://www.hibcc.org</a>
Chuck Grassley Senator	G31 Dirksen Senate Office Building Washington, DC 20510	1-202-224-5364	1-202-224-8660	mailbox@aging.senate.gov	<a href="http://www.senate.gov/~aging/urisdic.htm">http://www.senate.gov/~aging/urisdic.htm</a>
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# H ♦ E ♦ D ♦ I ♦ C

## Healthcare EDI Coalition

1405 North Pierce • Suite 100 • Little Rock, Arkansas 72207  
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April 1, 1998

The Honorable Charles Grassley  
Chairman  
Special Committee on Aging  
United States Senate  
Washington, DC 20510

The Honorable John Breau  
Ranking Minority Member  
Special Committee on Aging  
United States Senate  
Washington, DC 20510

Dear Senators Grassley and Breau:

The Healthcare Electronic Data Interchange Coalition (HEDIC) applauds your initiative to require the use of Universal Product Numbers (UPNs) in Medicare billing and reimbursement for home healthcare medical products. The timing of your bill (S.1362) coalesces with our Industry-wide Initiative to foster the use of UPNs throughout the healthcare supply chain. The attached "Joint Communiqué" from HEDIC Provider Group members calls for cooperative efforts among all stakeholders in healthcare to establish the use of UPNs across the industry by July 1999. These organizations combined account for 90% of all group contract purchases in healthcare. We believe that as the largest payor in healthcare the US Government has a significant stake in facilitating automation of the healthcare information stream through its use of standard product identifiers. Thanks for your leadership in positively addressing this issue in the Senate.

Sincerely,

Garren E. Hagemeyer  
Executive Director

Enclosures

GEH/jla



March 11, 1998

Honorable Louise M. Slaughter  
U.S. House of Representatives  
2347 Rayburn House Office Building  
Washington, DC 20515

Dear Representative Slaughter:

On behalf of Premier, Inc., the nation's largest healthcare alliance, I am pleased to support H.R. 3255 Medicare Universal Product Number Act. H.R. 3255 requires the use of universal product numbers (UPNs) for all durable medical equipment Medicare purchases.

Premier represents more than 240 owner hospitals and hospital systems that own or operate 700 healthcare institutions and have purchasing affiliations with another 1,100. Premier owners operate hospitals, HMOs and PPOs, skilled nursing facilities, rehabilitation facilities, home health agencies, and physician practices. Through participation in Premier, healthcare leaders can access cost reduction avenues, delivery system development and enhancement strategies, technology management, decision support tools, and a variety of opportunities for networking and knowledge transfer.

Premier welcomes federal government leadership in requiring manufacturers to label their products at each unit of inventory with a universal product number by February 1, 2001. This requirement will not only aid the Medicare program, but also will help the private sector reduce healthcare costs. A recent study conducted by Efficient Healthcare Consumer Response on improving the efficiency of the healthcare supply chain concluded that \$11.6 billion could be saved through automation and integration of the product information stream from point-of-manufacture to point-of-use across the industry. UPN is a major component within that potential remarkable savings stream. Therefore, we believe that UPN will become as important to the medical industry as other bar code standards have become to grocery and other retail industries for many years.

This bill represents a common sense approach to reducing healthcare costs in the United States. Thank you Representative Slaughter, for your leadership on this issue and we look forward to assisting you with your efforts to enact this legislation into law.

Sincerely,

A handwritten signature in black ink that reads "Jim Scott". The signature is written in a cursive, flowing style.

Jim Scott  
President, Premier Institute

*Premier, Inc. and related companies*

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