

Barcoding in healthcare

There is no question that barcoding technology has had a significant impact on the supply chain, particularly in the fast moving consumer goods [FMCG] industry. The ability to automatically capture product identification from a barcode, and to organise logistics functions incorporating barcode technology to streamline the flow of information - from manufacture and distribution to end consumer - has had a significant benefit to the FMCG business.

Against this background, the healthcare industry has to date viewed barcoding as a purely logistics tool for better supply chain management and cost containment. Traditional barcoding standards, and the vendors of software solutions have developed their products and services around supply chain management requirements - ie. inventory management, point of sale [POS], and other logistics applications. It is not to say that supply chain management functions are not important in healthcare, but by looking beyond the supply chain, we find benefits that extend to the care giving functions - the core business of healthcare.

Quality of care and patient safety

An issue in healthcare that has been brought to prominence is the high frequency of medical errors and the impact of this to patient safety. This issue has received much attention in the USA, and recently the Food and Drug Administration [FDA] proposed a rule whereby all drugs are to include a barcode label at the unit-of-use level packaging. Similar rules are also proposed for medical devices. The intention behind this is to integrate the care-giving with the supply chain functions in an effort to reduce errors and improve quality of patient care. And at the same time improve cost accounting and reporting at the patient level.

Care giving and business functions involved with the provision of healthcare, however, can be very complex and varied. To successfully create and deliver integrated automatic data capture systems to support supply chain and care-giving functions, requires industry wide acceptance and use of standards.

Healthcare standards

Industry wide standards for barcoding have been in existence for decades. The HIBCC Standards for Supplier Labelling and Provider Applications, for example, have been specifically designed for the health industry where patient safety is a critical requirement. However, an area that cannot be understated, and that is often inherent to barcoding applications, is the need for standard data structures. Data needing to be exchanged between the different operations of healthcare - particularly where supply chain and



Figure 1 - Data Matrix Barcode Example

care-giving operations are integrated - needs to be relevant to the intended business functions. Without this, we end up with disjoints between the different operations, and this leads to inefficiencies, errors, costs and frustration.

To help solve this problem, HIBCC AU is working with industry leaders in the development of a standard data structure for Australian healthcare medical and surgical products, and is creating a data synchronisation service - the Universal Product Number [UPN] repository.

HIBCC AU is also actively involved in the Standards Australia working groups for product identification and health supply chain electronic messaging, and is working with Standards Australia in identifying other areas in healthcare e-business applications that would benefit from standardization.

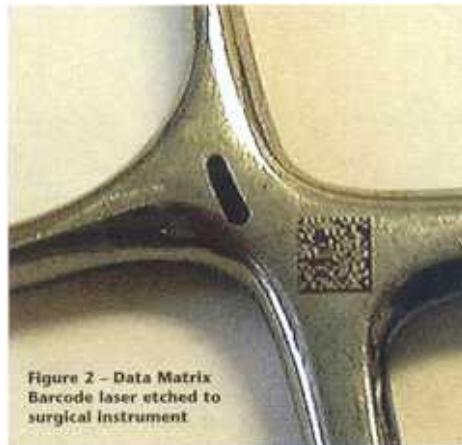


Figure 2 – Data Matrix Barcode laser etched to surgical instrument

for marking implantable devices, surgical instruments and small packages of medical products.

Barcode advancements

Barcoding standards have advanced considerably with the introduction of 2-D barcodes. 2-D barcodes are ideally used where the size of the package or the device is small, and the space is not available for printing a normal linear barcode. This is particularly relevant for healthcare products that are administered as a single unit within the hospital setting. For example, the Data Matrix barcode, shown in Figure 1, requires the least amount of label space than any other available barcode standard.

Data Matrix is also appropriate for marking products such as implanted medical devices that require a higher level of print durability than can be achieved adequately with standard labelling. Data Matrix can be marked or etched directly onto any surface, including low contrast or reflective materials such as metal, plastics and foil packaging, and still be read reliably [see Figure 2]. It is currently being used

Technology [Hardware and Software]

The other aspect to healthcare applications is technology in terms of computing hardware and software. The technology used in the care-giving environment needs to be easy to use and mobile so that the care-giver can move around the hospital facility freely without the technology becoming burdensome to their task.

Today in Australia, there are some very innovative applications being trialed and implemented. For example, a company based in Melbourne has developed a procedure costing application on a Palm Pilot platform, and offers a solution that enables the capture of product identification data [from barcodes on products] for medical devices used during a hospital procedure. The data is captured on a hand held device [PDA], and product information is linked to the patient. At the completion of the procedure, the theatre nurse synchronises the data captured back to a central database over the Internet. In this way, the hospital is able to better manage and account for costs, supplies used, and for high value prostheses and medical devices – accurately claim the reimbursement from health insurance funds. Suppliers, on the other hand receive information about product usage, and manage replenishment of stock and billing cycles more efficiently.

HIBCC AU is working pro-actively with software developers to trial various “point-of-use” applications within hospitals, and to identify and address standardization issues.

HIBCC

An organisation that has been developing standards specifically for the health industry since 1983 is the Health Industry Business Communications Council [HIBCC]. An affiliate HIBCC organisation was recently established in Australia, HIBCC AU, to work with the Australian healthcare industry in the implementation and further development of HIBCC standards.

The HIBCC standards are designed for the critical applications of healthcare, such as medical product identification and device tracking. The Health Industry Bar Code [HIBC] standard is accredited by the European Committee for Standardization [CEN] and the American National Standards Institute [ANSI].



Mr Kirk Kikirekov is President of HIBCC AU. For more information about e-business in healthcare, HIBCC AU can be contacted on 02 9258 7225, or email: kirk.kikirekov@hibcc-au.com.au