



Christian Hay

# Reducing risk through accuracy

An innovative bar-code system is greatly improving the tracking and tracing of medical products in the hospital environment.

THE ABILITY TO TRACK AND TRACE MEDICAL PRODUCTS IN THE supply chains to hospitals and related organisations is now at the top of the management agenda. The need to improve logistic processes, the fundamental requirements to improve information about patient care and the need to reduce medical errors are all driving health authorities and hospitals to focus increased attention on the use of bar code solutions in their business processes. Different initiatives have been launched in many places around the world, but an important common factor is that they are all based on the same system and must address a number of key questions.

## One bar code or one system?

In the USA, the Food and Drug Agency (FDA) established an initiative to require manufacturers to bar code health-care items down to the unit of use. As part of the process, one of the key issues was to encourage the FDA to choose either one identification system (including bar-code solutions) or only one bar code.

Bar codes were first developed decades ago to carry information to be read by automatic data capture (ADC) systems. Several bar-code types have been standardised and are available on the market. Although these data carriers have been standardised, the data content has not.

Bar codes can carry any information, with any data structure. But to be effective there has to be an 'identification system'. Such a system can be adopted globally, on a voluntary basis and not limited to any single market segment, region or process and are the roots of the EAN•UCC system (Figure 1).

The EAN•UCC system consists of a set of secure tools that are used in electronic commerce to manage the supply chain and related business processes:

- Standards for identifying products, services, assets and locations in an unambiguous manner, globally
- A standard system for tracking and tracing products and shipments — these include data structures for encoding information about a product/shipment, such as batch

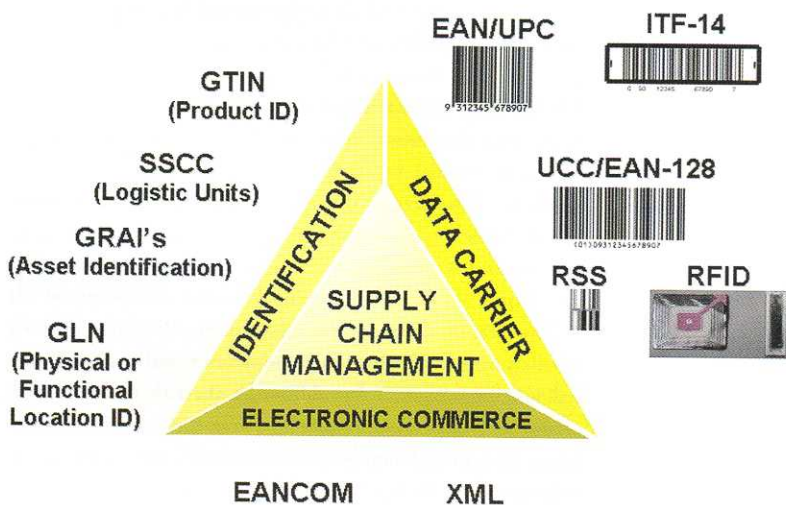


Figure 1. EAN•UCC is not limited to one market segment, region or process.

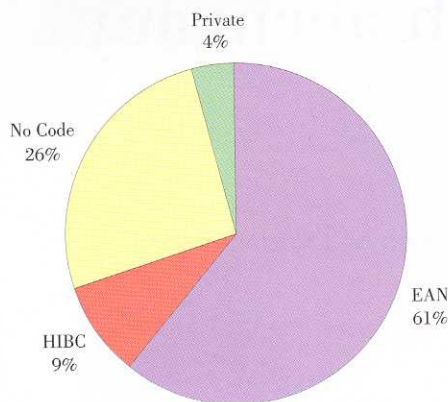
number, expiry date and Serial Shipping Container Code

- A set of secure bar-code systems that support a diversity of business operations — these include simple bar codes that are used in retail pharmacy outlets to more complex ones used upstream in the supply chain
- Standard electronic business messages, for example Quotation, Purchase Order, Dispatch Advice, Receiving Advice, Invoice, Inventory Report and Announcement for Returns

As hospital operations become more inter-linked (through procurement, logistics, financial accounting, administration and so on) and less specific, the requirements call for global standards that enable the efficient use of information systems. This is being recognised increasingly by medical administrations.

## Re-labelling versus the use of existing bar codes

The FDA initiative also raised a question about the value of bar codes printed at the point of manufacture as opposed to re-labelling as a separate process.



*Popularity of bar-coding methods used in a Swiss university hospital.*

It has been estimated that up to half the annual US patient deaths are associated with errors involving the use of FDA-regulated medical products. The FDA considers bar-coded products, with the certainty of identification, significantly contribute to the improvement of patient safety.

A statement from Baxter Healthcare Corporation makes the point: 'Re-labelling products creates the potential for adding labelling errors to the system. Products already labelled with bar codes save time, money and reduce potential labelling errors.' In addition to the risk of introducing errors into the process, re-labelling in hospitals is often undertaken in a proprietary way; for example, the identification code carried in the bar code relates to a tailor-made, non-standard structure and definition.

A main reason for re-labelling medical products in hospitals is that bar codes are not attached by manufacturers. This is highlighted by a survey undertaken in a Swiss university hospital in the summer of 2002. The survey demonstrated that 26 per cent of the products of 6932 items were not labelled. The survey also provided evidence that within the non-labelled products, a large number were specifically customised for the hospital. It would be possible for the hospital to require from its suppliers that they use the EAN•UCC system on these products.

The commonly accepted conclusion is that product identification and labelling must be provided by manufacturers. In order to achieve this, hospitals need to encourage their suppliers to adopt the EAN•UCC system for numbering and labelling their products. Items should be identified with a unique number and bar-coded right from the logistic units down to the unit dose. The bar code must also carry useful traceability information, such as the lot number and the expiry date, data items that are increasingly being seen as a mandatory requirement.

Apart from the benefits accruing from medication error reduction, there are also significant cost saving gains to be made as well as more efficient use of skilled staff that are becoming increasingly scarce and expensive. Furthermore,

the replacement of the traditional and archaic paper systems by modern IT process-based solutions enhances the morale of staff, as it is estimated that hospital doctors and nurses spend between 30-40 per cent of their time on paperwork. The adoption of the EAN•UCC messaging system, EANCOM®, can also enable the error-free, electronic, paperless link in the future between hospitals and third parties.

### Initiatives benefiting from a global identification system

Several large public hospitals in Spain have followed the example of the Vall d'Hebron Hospital in Barcelona. They requested their suppliers to label the logistic units with the EAN•UCC system. This has enabled better stock control, and the ability to track and trace medical products that enter the hospital and are distributed in the wards.

In the UK, the use of robotics based on the EAN•UCC system for stock management and dispensing in hospital pharmacies is growing rapidly. Guys Hospital in London and Arrowe Park in the Wirral are just two examples where better utilisation of stock space and personnel time has delivered major savings. By adopting electronic prescribing processes coupled with robotic dispensing at Arrowe Park, medication errors have been virtually eliminated and has freed up pharmacy staff to perform more valuable and rewarding work in clinical guidance.

### Functionality of tracking and tracing

The ability to automatically track and trace hospital supplies, of all kinds, as they flow through the entire supply chain — from manufacturer to patient — is now recognised as a fundamental requirement for reducing risk and increasing certainty, ultimately for better and safer patient care. The function of tracking and tracing can be delivered by using the EAN•UCC system.

Today, there are almost a million user organisations around the world that depend upon the EAN•UCC system to conduct over five billion transactions daily. EAN International and its member organisations are continually developing standards and applications that are identified and required by their users to facilitate the tracking and tracing of medical products throughout the entire hospital supply chain. +

### Author and Company profile

*Christian Hay is a lawyer who implemented several applications of the EAN•UCC System in Swiss healthcare over the last decade (covering areas such as narcotic control and logistics). EAN International is a not-for-profit organisation and operates through 99 member organisations covering 101 countries.*