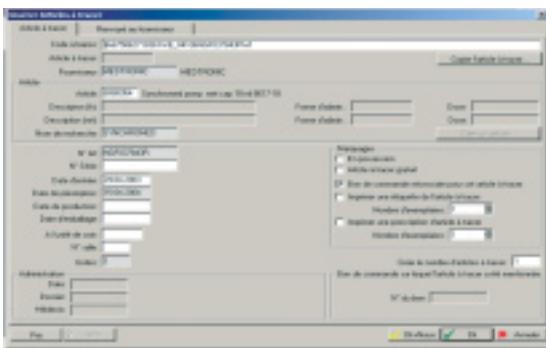




Automated Identification: Optimizing the Hospital Pharmaceutical Distribution

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DISTRIBUTION AND PRESCRIPTION FLOW

A.Z. St. Jan has for many years dispensed its medication in Unit-Dose packing. Each single dose is identified by a removable label. This label is stuck on the patient's medication sheet when the medication is administered. These records are sent daily to the pharmacy, where the information is manually keyed into the pharmacy's data base, providing both the record of treatment administered and the pharmacy's inventory control. The ward stocks all frequently used medicines. The minimum stock levels are set by the pharmacy according to the need. When the minimum levels are reached, medicines are replenished by the central pharmacy. A 5-day supply is given of non-stock medication.

Currently, nurses receive medication instructions in the traditional manner: written prescriptions. As the patients records are transmitted to the pharmacy after 24 hours of medication administration, this interim measure provides retrospective control only.

IMPLEMENTATION OF BARCODING

In order to reduce errors and workload, the pharmacy decided to implement barcoding. The objective was to choose a barcode system that would be useful for all hospital services. A multidisciplinary workgroup created an inventory of all barcode users, the different codes in use in the hospital, the pro-

ducts labelled with barcodes, the essential information, the software applications. As result of the search, the workgroup unanimously chose the EAN structure. The problem of generating "In-store" numbers was solved by integrating the existing article code into an EAN-13 structure. Beside the article number, arrangements were made fixing the prefixes defining patients, personnel, physicians, locations, etc.

Description of in "In-store" number pharmacy department:

20P1P2A1A2A3A4A5A6A7A8A9C

Example: Diphantoine caps 10 mg in the pharmacy may be stored as 203006901734 Where:

Σ 20: is the internal EAN number, here at St-Jan reserved for articles.

Σ 30: is the prefix of the pharmacy.

Σ 0690173: is the internal number for Diphantoine caps 10 mg.

Σ 4: is the check digit calculated according to the modulus 10 algorithm.

A manufacturer on the other hand can unambiguously identify his product by giving it a unique EAN-13 number.

TRACEABILITY

The health industry is using EAN-128 or HIBC symbology to add variable data to the barcode. The product's expiry date and batch/serial number are possible data. The ability to enter data automatically into an information system is the added value. The underlying process control

needs dedicated software. The pharmacy at Sint-Jan's hospital is using software developed by Infohos-IHC. This program is the Belgian standard for hospital pharmacies and is used in more than 50 hospitals. The barcode is integrated into it from ordering till administration. When products are received the barcode is scanned. If the product is already known in the system a unique record is produced with all details as batch, expiry date, etc. Otherwise the unknown barcode is linked to the internal article number. If the manufacturer's code does not conform to the standards (missing FNC-1, no data, etc.) a label with the unique record number is produced by the system according to the EAN-13 standard with a specific prefix. This barcode can be read instead of the incomplete/missing product code. The dose is recorded by scanning the manufacturer's barcode or the internal bar-code. The patient ID, doctor, date of administration, person responsible, etc. are entered into the database. The benefit is a traceable system plus a permanent inventory. Reports are comprehensive. The system can also handle articles on which there is a deposit.

CONCLUSION

Implementation of Unit Doses and an international barcode system for identification and traceability would improve practice in health care and should be promoted by the European Community. Manufacturers should be urged to adopt the standards.

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