Drug distribution in hospitals and barcoding

The needs of traceability of medicines in hospitals
Conflict of interest

Nothing to disclose
Agenda

- Definitions
- Medication process in hospitals
- Medication safety, single unit and traceability
- Brief history of EAHP activities
- The EAHP statement on barcoding
- Why bar coded single unit in hospitals
- The EAHP survey 2010 on barcoding use in hospitals
Definitions
(as agreed with GS1)

- **Multiple units blister/packages**
  - Package which fully encloses the drug
  - Each dosage form may be individually packaged. The individually blistered identical dosage forms are attached to each other to one strip.
  - The labeling is imprinted on the complete strip but not on the individual blistered dosage forms
Definitions
(as agreed with GS1)

**Unit dose package**

- A unit dose package contains the particular dose of the drug for a specific patient according to the patient-specific prescription.
- Unit-dose packages are dispensed for one or several days by a centralized supply service unit and are labelled specifically for a patient.
Definitions
(as agreed with GS1)

- **Single unit blister package**
  - (GS1 primary package) is the one that contains one discrete pharmaceutical dosage form. i.e. a tablet, a certain volume of a liquid or that is the immediate package for a medical device like a syringe. A number of single units might be attached to each other, but are easy to separate through a perforation.
  - **Each single-unit is individually and fully labelled.**
Medicines in the community pharmacy

Marketing Company → Distributor → Pharmacists → Patient

Verification of authenticity

Medication errors and patient safety

© Dr. Roberto Frontini
GS1 conference 25/10/12 Lisbon
Track and Trace ↔ Patient Safety

- Two aspects of the same problem with synergistic common interests
- The major interest of EAHP is on medication safety in the hospital setting
- By now counterfeited medicines only of less importance in hospitals but an increasing problem
History

- The General Assembly (GA) in June 2006 decided to ask the board of directors to promote single units for medicines used in hospitals

- Working group
  - Prof. Pascal Bonnabry, Switzerland
  - Dr. Steffen Amman, Germany
  - Sophie Verbeke, Belgium
  - Dr. Roberto Frontini, Germany

- Statement of EAHP after approval by the GA in June 2007, update in 2010
- Press release in April 2008 on the importance of single units in terms of patient safety
Information on the single units

- The printing must be easy to read, durable and clear.
- Each single dose (unit) must contain the:
  - trade name
  - application form
  - active substance(s)
  - quantity of active substance(s)
  - manufacturer’s name
  - expiry date
  - batch number
  - barcode including the identification of the drug (GTIN), the expiry date and the batch number.

When the production facility is incompatible with an on-line printing of variable data, the barcode can temporarily be limited to the identification of the drug.

- No serial number requested on the unit
Hospital pharmacists strongly recommend the use of a recognized international standard, like the GS1 (ex- EAN) identification system for bar codes.

The GS1-128 (ex- EAN-128) standard appears to be the best standard for the traceability of single dose units.

Taking into account the problem of the available space, we recommend printing it as a bi-dimensional barcode (i.e. datamatrix).

For ampoules and vials, the same information should be provided on a label (not engraved on the glass), with additional information regarding the

- Total amount and volume (x mg = y ml) and the concentration of the solution (z mg/ml).
Why bar coded single units in hospitals

Medication errors*

Prescription  Transfer  Logistic  Administration

39%  12%  11%  38%

Why bar coded single units in hospitals

- To guarantee the permanent identification of a pharmaceutical product and secure its traceability within the hospital medication chain essentially in order to prevent medication-related errors

- Barcode technology reduces errors by 41.4% (11.5% - 6.8% = 4.7 absolutely)*

- i.e. every 21st patient will have a benefit (NNT** = 21)

** NNT = Number Needed to Treat
Medication errors: effect of bar-coding

- Prescription: 39%
- Transfer: 12%
- Logistic: 11%
- Administration: 38%

Why bar coded single units in hospitals

- To alert faster and better manage medicines recalls
- To avoid risk of degradation of medical products from bulk containers (e.g. for unit-dose automats) because they could be sensitive to moisture, light or temperature
Why bar coded single dose in hospitals

- to reduce waste costs and raw material costs for repackaging in unit dose
- to reduce staff costs (time spending on repackaging and manually labelling)
Why bar code in hospitals

- To make the process of compounding and reconstitution more safe
The EAHP survey 2010 on barcoding use in hospitals

Use of EAN codes for stock management

© Dr. Roberto Frontini
GS1 conference 25/10/12 Lisbon
The EAHP survey 2010 on barcoding use in hospitals

Use of EAN codes for stock management

© Dr. Roberto Frontini
GS1 conference 25/10/12 Lisbon
The EAHP survey 2010 on barcoding use in hospitals

Use of EAN codes for stock management
The EAHP survey 2010 on barcoding use in hospitals

Use of barcodes at point of care

© Dr. Roberto Frontini
GS1 conference 25/10/12 Lisbon

n= 1000 (79.9%)

Estonia

66.7

© European Association of Hospital Pharmacists

22
The EAHP survey 2010 on barcoding use in hospitals

Use of barcodes at point of care

© Dr. Roberto Frontini
GS1 conference 25/10/12 Lisbon

n= 993 (77.4%)
The EAHP survey 2010 on barcoding use in hospitals

Use of barcodes at point of care

© Dr. Roberto Frontini
GS1 conference 25/10/12 Lisbon

© european association of hospital pharmacists
Take home messages

- The use of barcodes is useful in fighting counterfeited medicines as well as in enhancing patient safety.
- The use of bar coded single (dose) units reduces medication errors by 41.4% and is an important contribution to patient safety in hospitals.
- EAHP requests the regulators to make bar coded single units mandatory for hospitals.
- EAHP requests industry to pack all medicines for hospitals in bar coded single units.
- Bar code technology is sufficiently in use across European countries despite some regional differences.
Thank you very much for your attention!