

Medication Safety Forum

Design and implementation of a hospital-wide tracking system for medical devices



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St James's Hospital noticed that a system was needed to enable the tracking of faulty infusion pumps in its organisation. In response, a process was introduced to ensure that appropriate quality checks on medical devices are undertaken. Does your hospital have a similar system in place?

Background

Infusion pump-related events comprise a significant proportion (7–8%) of the total number of medication incidents reported

in St James's Hospital (SJH) annually. Pumps suspected of being faulty must be quarantined at ward level and returned to the Medical Physics & Bioengineering

Department (MPBE) for screening. SJH's infection control policy requires pumps to be cleaned and/or disinfected after each patient use and prior to return to MPBE, in order to prevent the spread of infection.

The lack of a tracking system for infusion pumps within SJH was found to present a number of risks including:

- Re-distribution of faulty equipment to another ward without it first being screened by MPBE, as there was no standard means of indicating a pump was in quarantine.
- Exposure of staff and patients to potentially contaminated equipment.
- Lack of a means of cross-checking data between medication safety and MPBE meant that valuable information regarding the root causes of such errors was being lost.
- Wasted resources in investigating the source of the problem, as no structured process for communicating the details of the equipment fault to the MPBE was in place.

Objective

To design an intra-hospital tracking system for infusion pumps and other medical devices, suspected to be faulty and for return to MPBE.

Methods

Key Steps

A multidisciplinary working group was established to identify requirements for the tracking system.

A tag was designed (see Figure 1) for attachment to any medical device intended for return to MPBE, which included the following features:

Figure 1: Final tag design

SJH MPBE Faulty Equipment Tag

Tag must be completed & attached to all equipment to be sent to MPBE for repair/service. Contact MPBE at Ext: 2645

EQUIPMENT DETAILS
 SJH Asset No. of equipment:
 Describe what happened or what went wrong with equipment:

INFECTION CONTROL (Tick the relevant box below)
 Equipment has been cleaned
 Equipment must be cleaned with detergent and warm water, so that it is ready for re-use on another patient
 Equipment has been cleaned & disinfected
 Equipment that has come in contact with blood, body fluids or a patient with a transmissible organism must be disinfected following cleaning, according to the SJH *Environmental Cleaning & Disinfection Policy*
 Equipment cannot be cleaned/disinfected

Please specify why:

MEDICATION SAFETY
 Where a medication error has occurred as a result of malfunctioning equipment (e.g. an infusion pump), this must be reported by completing a medication safety event form.

Reference No. of Online Medication Safety Event Form:
 (*Appears on screen following online submission of a medication safety event form*)

CONTACT DETAILS

Date: / / 20 Ward/Dept: Contact no:
 Name: Job Title:

Signature:

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- Details of the suspected fault.
- Confirmation that the pump has been cleaned and/or disinfected appropriately.
- Reference number of the medication safety report forwarded to the medication safety office (where applicable).
- Signature and contact details of the staff member completing the form.

Time frame

The tag design was piloted for six months on three wards.

The tracking system was then evaluated by surveying the opinions of the end users, i.e. the nursing staff. The tag design was then reviewed and amended.

Results

There was almost universal agreement amongst the survey respondents (n = 21) that all sections of the tag were easy to comprehend and complete. There was a high level of agreement that the tagging

system fulfilled its four main functions, i.e. enabling the tracking of equipment; ensuring decontamination of equipment; acting as a reminder to staff to report any medication-related event to the medication safety office; and alerting staff that a piece of equipment was faulty and for return to MPBE.

The overwhelming majority respondents (19 of 21; 90%) considered the tagging system to be a worthwhile initiative in terms of improving patient safety in SJH.

Conclusion

This tagging system introduced a number of additional quality control checks into the management of faulty equipment at ward level. The tags are easily recognisable and can be securely attached to medical devices reducing the risk that faulty equipment will be re-distributed without first undergoing a quality check. Staff have been made more accountable by having to provide writ-

ten confirmation of the decontamination of devices.

In addition, the tracking system facilitates the root cause analysis of medication errors related to infusion pumps: pump test data can now be cross-checked between medication safety and MPBE.

Following completion of a successful pilot, the tracking system was extended hospital-wide in September 2008.

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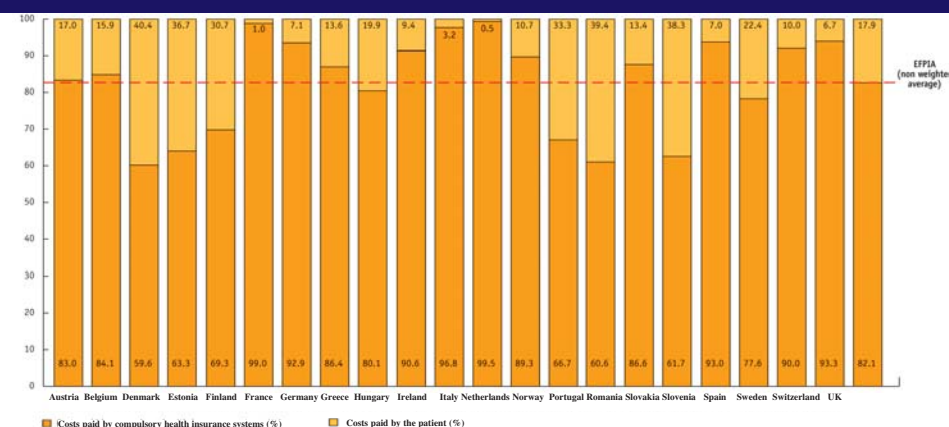
HEALTH DATA

Pharmaceutical reimbursement

Pharmaceutical reimbursement refers to the share of medicine costs paid by the state through a compulsory social security system or by health insurance funds, according to the statutory national system.

In most European countries only prescribed products are reimbursed, although arrangements differ widely from country to country (see Figure 1). Not all medicines are reimbursed, and few are reimbursed in full (except, in most countries, when they are dispensed in hospitals). Some countries limit reimbursement to a proportion of the price of the prescribed medicine whilst others reimburse a flat-rate amount according to packaging or prescription. Most countries operate a co-payment system, which requires patients to meet part of the cost of their prescribed treatment. There are also over-the-counter products, which are bought by patients at their own initiative and expense.

Figure 1: Percentage paid by the patient of the total cost of reimbursed medicines 2006



France: costs paid by compulsory health insurance system include costs paid by supplementary insurance (mutual or private), which amount to about 20.1% of total costs. Hungary: 2004 data; Greece: 2005 data
EFPIA calculations – Estimate
Source: EFPIA member associations