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

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Objective:

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

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

The lack of a tracking system for infusion pumps within SJH highlighted a number of risks including:

- Re-distribution of faulty equipment to another ward without it first undergoing screening by MPBe, as standardised means of indicating a pump was in quarantine, existed.
- Exposure of staff and patients to potentially contaminated equipment.
- Lack of a means for 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.

Methods:

Key Steps: A multidisciplinary working group was established to identify requirements for the tracking system. A design for a tag for attachment to any medical device, intended for return to MPBe, was developed which included the following features: Details of the suspected fault with the infusion pump, Confirmation that the pump has been cleaned and/or disinfected appropriately, Reference number of the medication safety report form forwarded to the medication safety office, Signature and contact details of the staff member completing the form. The tag design was piloted for six months on 3 ward areas. 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 amendments made as necessary.

Results:

There was almost universal agreement amongst the survey respondents that all sections of the tag were easy to comprehend and complete. There was a high level of agreement amongst respondents 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 considered the tagging system to be a worthwhile initiative in terms of improving patient safety in SJH.

Conclusions:

This tagging system has introduced a number of additional quality control checks into the management of faulty equipment at ward level. The risk that faulty equipment will be re-distributed without first being screened by MPBe, is considerably reduced with the use of easily recognisable, standardised tags, which can be securely attached to medical devices. Furthermore, a greater degree of accountability has been introduced, in that staff are required to provide signed confirmation that equipment has been decontaminated appropriately and that the event has been reported to the medication safety office, where applicable. In addition, the tracking system facilitates the root cause analysis of medication errors related to infusion pumps in SJH: a formal means of cross-checking data, regarding the outcome of testing on such pumps, is now possible between medication safety and MPBe.