Equipment-related incidents in the operating room: an analysis of occurrence, underlying causes and consequences for the clinical process

escrito por Ana Miranda | 16 de dezembro de 2014

Background Equipment-related incidents in the operating room (OR) can affect quality of care. In this study, the authors determined the occurrence and effects on the care process in a large teaching hospital. Methods During a 4-week period, OR nurses reported equipment-related incidents during surgery procedures in both locations of the hospital. The incidents were reported using a separate form for each incident. A structured analysis (PRISMA) was used to analyse incidents that resulted in serious delays (>15 min). Results Forms were returned for 911 out of 1580 surgeries (57.7%). In total, 148 incidents were registered, relating to a total of 29 h and 45 min of extra
work. In addition, 12 h and 9 min of operational delay was registered. Most incidents involved instruments (46%) or medical devices (28%). 68% occurred during surgery and 32% during the preparation phase. No direct physical harm was reported, although indirect harm, like
longer anaesthesia, did occur and can be defined as an adverse event. 10% of the incidents led to a delay of over 15 min. For these incidents, ‘management decisions’ (eg, inventory capacity, planning procedure) was the most encountered root cause. Only six out of the 148 incidents found corresponded with the blamefree reporting database. Conclusions Equipment-related incidents occurred frequently in the involved hospital

sites (up to 15.9%) and resulted in some extra work and additional minutes of delay per event. Management decisions have considerable influence on the occurrence of equipmentrelated incidents. There was serious under-reporting of incidents.

Literature suggests that adverse events in hospitals occur at unacceptably high rates and that a considerable percentage are preventable the exact number of (near) incidents in hospitals is unknown, as good incident-reporting systems are lacking or are used inconsistently. With respect to incidents in the operating room (OR), Cooper concludes in two studies that 14% of incidents during anaesthesia procedures are the result of overt equipment failure. In addition, 'equipment design was indictable in many categories of human error, as were inadequate experience and insufficient familiarity with equipment.'8 This distinction in error causation can be related to active and latent failures. Active failures are the unsafe acts committed by people who are in direct contact with the patient or system, and latent conditions are the weaknesses in defence mechanisms created by designers, builders or management. Also government agencies stress the importance of adequate equipment management. In addition, equipment is an important factor to be considered in OR scheduling. Equipment-related incidents are listed among the most common causes of delay in the OR, after the late arrival of surgeons or anaesthetists. Furthermore, many interruptions that were found in previous studies are related to equipment. As interruptions during surgery might lead to adverse events,streamlining all processes involving equipment will reduce risks by reducing the number of interruptions. We could not find any literature reporting on prospective inventories of equipment-related incidents, irrespective of nature or background, and its effect on continuity and safety of the operating room processes. This study sought to determine the occurrence of equipment-related incidents in the OR, the effect of these

incidents on the continuity of the clinical process and the underlying causes of these incidents.

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