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Abstract:

Reduction of clinical alarms is a priority due to alarm fatigue and the high incidence of nonactionable alarms, especially those generated from physiological monitors. However, research on infusion pump alarm types and frequencies is limited. The purpose of this study was to establish a baseline for infusion pump alarm frequencies and duration in the hospital setting. Frequency and duration of alarms across 29 hospitals using 11,410 infusion pumps revealed 987,240 alarms associated with 568,164 infusions during a consecutive 60-day period. Pump alarms accounted for only 0.8% of infusion time, with an average of 1.74 alarms per delivery and 0.18 alarms per hour. Average alarm duration was 0:02:38 (h:min:s), with 60% of alarms being addressed within 0:01:08. The most frequent alarms were keep vein open (33.77%), hold expired (27.18%), and downstream occlusion (22.94%). The medical/surgical and intensive care unit (ICU) care areas had the highest number of alarms (41.66% and 39.70% of total alarms, respectively), but pediatrics/neonatal ICU had the highest frequency of alarms per delivery (4.91). Intravenous fluids accounted for 47.16% of total alarms, with an average of 3.03 alarms per delivery, whereas parenteral nutrition and

propofol had 6.77 and 6.74 average alarms per delivery, respectively. A higher average number of alarms per delivery occurred on Saturdays (1.74) and Sundays (1.73) compared with weekdays. Infusion pump alarm data collected and analyzed were sufficient to establish a reasonable baseline of infusion pump alarm types and relative frequencies for the device.

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Reference:

Vitoux, R.R., Schuster, C., Glover, K.R. and Dekker, M. (2018) Frequency and Duration of Infusion Pump Alarms: Establishing National Benchmarks. *Biomedical Instrumentation & Technology*. 52(6), p.433-441.

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