

# Infusion Pump and Ventilator Alert System Software

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## Technology description

This patented method of managing IV infusion pump errors allows healthcare personnel to be notified immediately when potentially unsafe levels of medication are accidentally programmed into infusion pumps. The warning alarms installed in commercially available infusion pumps are often ignored in hospital settings, leading to potentially fatal medication errors. A serious medication error occurs once every 8 patient days. Studies show that harmful medication errors occur every 78 patient-days, and fatal errors occur once every 750 patient-days. In a 20-bed ICU, this conservatively translates to one preventable death due to a medication error every 6 to 8 weeks. Intermountain Healthcare's "Smart System" alert has been successfully used at Intermountain Healthcare's Intensive Care Units to reduce adverse events and has resulted in a significant cost savings. The system currently encompasses the use of 22 highly potent drugs (toxic at high doses or certain rates of infusion), while additional drugs and paradigms may be added. Alerts are set based on start rates by programmed drug dosing standards, as well as by magnitude of rate of change in dosing concentration. The system can be used with "smart pumps" and will not override the software of pre-programmed pumps. The same software architecture can also be used to rapidly alert personnel when a ventilator disconnects. Currently, the working software module integrates with Intermountain Healthcare's electronic medical records database to adjust for specific individual patient circumstances, but can be developed such that it could be compatible with other hospital electronic management systems. Study results showing prevention of harmful adverse drug events have been published by the inventors. A patent has been issued on the Smart System Alert, US 7,551,078, issued June 23, 2009. This technology is available for license from Intermountain Healthcare.

## Institution

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