

[2007][A1598] What Are They Saying? Device Logs Don't Tell Us as Much as They Could about Events

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Introduction: Modern infusion devices contain logs that track programming and operational activities. One possible application of stored programming data would be enrich accident investigation. We sought to understand the types of information that one device collected, and speculate about its possible application to accident investigation.

Methods: We studied the log file data from 28 infusion pumps in clinical use in an intensive care unit during August and September 2005. We assessed the usability of the logs for investigation-related searches. In order to collect data that might be useful to an investigation, we identified 10 specific queries that would be relevant to an accident investigation, identified data signatures that would support the specific queries, then searched the stored log data for these signatures.

Results: Log files could only easily be searched using customized software. The logs did not answer our queries well. Four were not answered by the device logs, and the remaining six were answered partially or ambiguously. We found the devices tracked starts and stops, but not the circumstances surrounding these activities. Although uninterrupted completion of a program was well tracked when it occurred (18.6% of infusions), stops that resulted from programming activities or alarms did not trigger sufficient records to explain the circumstances for stoppage or their resolution. The log files were very good at tracking time of use and alarm data. There were a total of 430 alarms in 812 recorded hours of pump infusion time, averaging 1 alarm for every 1.89 hours of running time. "Distal Occlusion" was the most frequent alarm (37.4% of alarms).

Conclusions: The device logs we studied very poorly support accident investigation because they 1) are difficult to search without a systematic electronic strategy, and 2) reveal little about the circumstances of a programming event. Because productive accident investigations often require deep contextual insight, these logs are not likely to enrich investigations. The logs may have a useful role in billing or use tracking.

References:

1. Samore MH, et al. JAMA, 2004;291:325-34.
9. Nunnally ME, et al. JI Pt Safety, 2006;124-31. Anesthesiology 2007; 107: A1598

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