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Safely Integrating Health Information Technology and Medical Devices

The Joint Commission (JC) in the December 11, 2008 *Sentinel Event Alert* published additional patient safety and quality of care recommendations for implementation by health care organizations actively involved in the integration of health information technology (HIT) and medical devices. More specifically, JC addressed the safety issues that arise and the adverse events that result from human-machine interfaces and/or organization/system design. Because the effectiveness and value of this interface depend on the expertise and efficiency of the professionals charged with utilizing the technology, quality and safety potentially can be negatively affected. Therefore, JC considered it prudent: (1) to highlight some of the factors that contribute to adverse events as a result of the misuse of information technology; and (2) to suggest preventative actions.

Primarily, technology-related safety issues arise from the use of the following: infusion pumps, ventilators, patient-controlled analgesia, tubing misconnections, and MRIs. Adverse events most commonly result from inappropriate use of the following: computerized provider order entry, automated dispensing cabinets, electronic medical records, clinical decision support, bar coding or radio frequency identification, virus infiltration to information security, computed axial tomography, scanning technology, and loss of patient data.

JC identified some major contributing factors of unsafe practices such as inadequate technology planning, excluding key personnel (*i.e.*, clinicians) in product selection, insufficient testing/training, inadequate allocation of resources to maintain and upgrade products, omission of third-party oversight of vendors, and the inability to identify and correct flawed processes and/or latent product problems/defects.

Adverse effects also occur when the interaction between technology and the human element are not considered in the care processes. For example, the impact of technology differs depending on whether it is a doctor, nurse, clinician, or staff person who is utilizing the technology. Lack of consideration of the impact to the human element can result in over processing, complicate and slow workflow, create additional work, and create stress for individuals trying to learn and implement new practices. All of these factors can ultimately affect how the individuals perceive their roles and effectiveness in the processes as well as result in increased errors/adverse events.

Because patient safety is always compromised when technical problems are not identified, addressed, and appropriate solutions implemented in

health care information systems, proper integration is of paramount importance. JC warns that one of the most serious offenses is the use of a "workaround" to "correct" a systemic problem as it perpetuates a deficit practice and can potentially contaminate an organization's entire information network.

Therefore, to ensure continued and future patient safety and quality care, JC encourages health care organizations to focus on the following standards:

- IM.1.10 (IM.01.01.01) addresses planning the management of information;
- IM.2.20 (IM.02.01.03) requires the safeguarding of data and information against loss, destruction and tampering; and
- IM.2.30 (IM.01.01.03) requires a disaster recovery plan for information systems and the periodic testing of the plan to ensure its effectiveness.

If you would like additional information on this *Sentinel Event Alert*, please contact Todd J. Selby at (317) 977-1440 or tselby@hallrender.com or Brian D. Jent at (317) 977-1402 or bjent@hallrender.com,

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