

## ASHRM Patient Safety Tip Sheet: Technology and Patient Safety



**Situation:** Technology plays a critical role in the delivery of care and prevention of adverse events. Health care organizations must maximize the benefits of patient safety technologies through carefully designed processes, efficient implementation and ongoing monitoring to ensure use of technology as intended.

**Background:** In June 1998, the Quality of Health Care in America project aimed at addressing quality related issues and re-designing the health care delivery system for the 21st century. Shortly thereafter the Institute of Medicine published *To Err Is Human* highlighting the need to understand the learnings from high-risk industries regarding safety and developing 5 key principles for safe health care: (1) leadership (2) respect for human limits in the design process (3) promoting effective team functioning (4) anticipating the unexpected and (5) creating a learning environment.

### Assessment:

- Technology has been described as a potential barrier in promoting safer health care due to a number of pitfalls that may occur when introducing new technology:
  - Poor design not adhering to human factors and ergonomic principles of the end-user
  - Poor interface with the patient or the environment
  - Inadequate plans for implementation of the new technology into practice
  - Inadequate maintenance of the implementation plan
- Unintended consequences of new technology such as “workarounds” or temporary fixes due to poor distinction between the ‘work that is imagined’ and the ‘work that is actually done’, causing potential for an increase in the opportunities for errors over time
- The most optimal equipment/technology, if not well integrated into the current delivery system or implemented in a chaotic way, can result in unexpected costs and increased errors.

### Recommendation:

- Utilize ergonomics and human factors engineering (HFE) in the design/ implementation
- Ensure clinical and subject matter experts are included in design and testing of new technology
- Integrate HFE with existing workflows to make interfaces easy to learn and use high-stress situations
- Involve direct care providers in the policies and processes for maintenance, training, monitoring and reporting of adverse events related to technology
- Examine performance of technology use through simulation of challenging scenarios
- Mentor and oversee temporary staff during first-time use of new technology
- Ensure users evaluate technology to identify and communicate problems early

### References:

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