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The Bottom Line

**Member Spotlight:
Scarborough General
Implements Temperature
Monitoring Contract**

Pharmacy Buyer
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Member Satisfaction
Survey Results

Member Spotlight: Scarborough General Implements Temperature Monitoring Contract

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The Value of Automated Temperature Monitoring Systems

Hospitals are under increasing pressure to comply with many standards and requirements for product safety and efficacy, while also reducing costs and mitigating risks.

Accreditation Canada requires that pharmaceutical products are stored to ensure quality. Laboratory Accreditation organizations, such as the Ontario Laboratory Accreditation (OLA) and Public Health Food Safety have strict requirements for the storage and handling of products within their jurisdiction. Information Systems have specific temperature requirements for server rooms to maintain the viability of sensitive equipment required to maintain the electronic infrastructure.

Monitoring of refrigerator temperatures within hospital pharmacy departments has long been a standard practice; however, only in recent years has Public Health in Ontario mandated the close monitoring of temperatures in all vaccine storage refrigerators in order to assure vaccine potency (“Cold Chain Management”). Similarly, some research studies also require temperature monitoring and documentation, for both room temperature and refrigerated products.

Cost restrictions in hospitals may result in implications for the safe storage of medications beyond the direct control of pharmacy, e.g., the decision to purchase unit based refrigerators. These units are often purchased with minimal funding, without pharmacy input and may or may not be guided by standardized criteria. It is common to see household refrigerators on patient care units, yet these do not have the consistent temperature control that is achieved with more expensive scientific refrigerators.

Prior to implementing an automated web based temperature monitoring system, The Scarborough Hospital (TSH) found that temperature records were poorly documented on the patient care units, record logs would often go missing or substantial gaps would be present. TSH had also experienced several refrigerator failures in various departments leading to the costly loss of product.

TSH made the decision to invest in Integrated Monitoring Solutions’ web based temperature monitoring system to automate the environmental monitoring for vaccine storage, laboratory and food products, and the Information Systems Server Room. Temperature sensors placed in locations to be monitored, communicate wirelessly with the provider network and record temperatures continuously throughout the day. Password controlled access to the user website permits review of current temperatures and trends during user defined date/time periods. Colour coding provides a quick view of high, low or normal temperatures. Customer defined parameters determine the alert triggers, the

TABLET TIMES

allowable temperature range, and the permissible duration outside of the range. The system is capable of sending alerts to users through e-mail, text messages to a phone, cell phone or alpha-numeric pager to enable timely troubleshooting. Documentation of troubleshooting actions is done directly on the website. During power/refrigerator failures, the monitoring alert system can enable a timely response to ensure power is restored, or product moved, prior to the deterioration of quality. The data provided by the system also ensures that the organization can make evidence-based decisions on product viability.

On initial set up, TSH found that the many unit based refrigerators were extremely inconsistent in their temperature ranges, often exceeding the designated acceptable range. Use of the system enabled TSH to adjust refrigerator settings as necessary, while a couple of refrigerators had to be replaced. Over time the standardization of temperature ranges was greatly improved, and has become more consistent throughout the hospital.

Benefits Summary:

Current environments and quality assurance processes in hospitals may not be sufficient to maintain product quality and may not be able to accurately measure level of compliance. The installation of an automated temperature monitoring system has allowed TSH to:

- Align quality assurance activities with Accreditation and Public Health Standards.
- Enable remote alerts and troubleshooting, avoiding unnecessary call backs.
- Facilitate early troubleshooting to avoid product deterioration.
- Avoid high cost losses due to wasted product during refrigerator failures.
- Ensure product quality.
- Enable the identification of potentially problematic refrigerators through trending, facilitating risk mitigation and the capital renewal process.

In summary, an automated temperature monitoring system can facilitate greatly improved temperature controls, response times to abnormal conditions, the quality control of temperature sensitive products, a reduction in unnecessary product waste and the reduced need to employ human resources to perform repetitive manual monitoring tasks.