St. Vincent's University Hospital
A Case Study

KELSIUS

ST. VINCENT'S UNIVERSITY HOSPITAL
Elm Park

Introduction

St. Vincent's University Hospital (SVUH) is a Level 4 hospital and is part of the HSE Dublin and South East health region.

It is one of the world's leading academic teaching hospitals and is home to several national centres, including the National Centre for Cystic Fibrosis, National Cancer Control Programme (NCCP), National Liver Transplant Programme and the National Pancreas Transplant Programme.

The hospital's services span acute, chronic and emergency care across more than 50 specialisms.

SVUH has over 90 medication fridges on its campus that require continuous monitoring. This is needed to ensure that medicines are stored under conditions that safeguard their quality and stability until the point of administration.

The Challenge

The challenge facing the pharmacy department in SVUH was to introduce an efficient system to record medication fridge temperatures and to ensure that temperatures remain within the licensed range for storage of medication.

The aim was to install continuous remote temperature monitoring of all medication fridges in SVUH. The installed system must send real-time alerts for all temperature excursions. It was also a requirement of the system to record the corrective actions taken hospital wide.

Previously, pharmacy medication fridges were monitored remotely, and nurses were responsible for manually recording fridge temperatures in clinical areas. As all areas in SVUH do not have 24-hour cover, some fridges were not monitored out of hours or at weekends.

The Kelsius Solution

Kelsius provided a remote, wireless and paperless temperature monitoring system, with sensors placed in fridges, incubators and freezers throughout the hospital to monitor temperatures. Data is sent to the Kelsius portal where it is presented in a user-friendly dashboard with full reporting functionality.

Network controllers, which can only be accessed by trained and authorised members of staff, are located at staff bases and display information from the sensors. Where a medication fridge is temporarily taken out of service, the network controller can be used to suspend alarm notifications for that unit. This ensures that unnecessary alerts are avoided while the fridge is not in operation.

A policy was developed to support the system, with clearly defined roles and responsibilities for core working hours and out-of-hours periods. In additional, an operational flowchart was created and displayed on all medication fridges to guide staff responding to alerts.

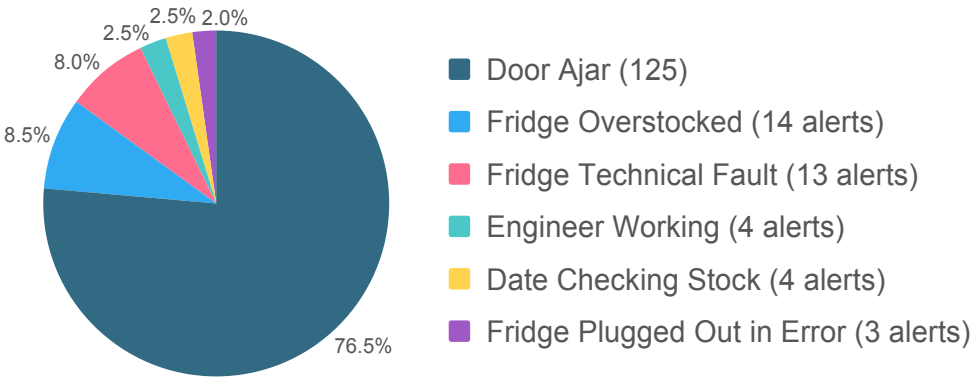
During working hours, temperature alerts are sent to a designated pharmacy technician via mobile phone. Outside these hours, alerts are directed to the Assistant Director of Nursing. SVUH requires that a corrective action must be recorded on the Kelsius system for all alerts. A senior pharmacy technician manages the hospital–wide fridge monitoring system during core hours and follows up on out-of-hours excursions on the next working day.

Results

All fridges, freezers and incubators containing medication in SVUH are now monitored on a continuous basis and alerts acted upon immediately. Alerts received and corrective actions are stored within the Kelsius portal. These can be reviewed and reports can be created at any time from any location by authorised staff.

As shown below, automated reports showed that over a three-month period the main reason for alerts was doors ajar (Fig. 1). Reports also highlighted that most alerts were received out of hours (62% - Fig. 2).

Fig. 1 *Cause of Alerts over a Three-Month Period*



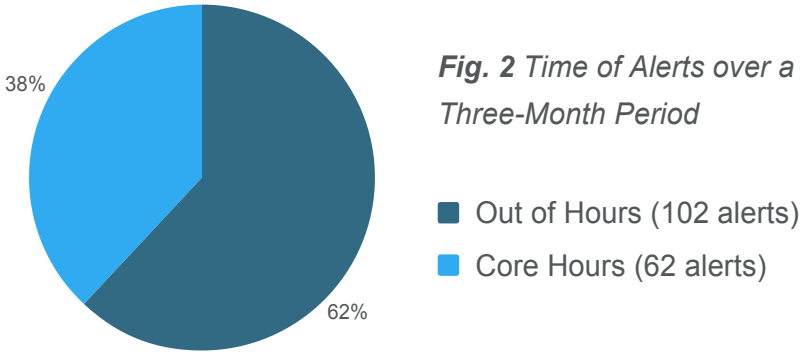


Fig. 2 *Time of Alerts over a Three-Month Period*

Potential saving over three months - €120,000

The potential maximum financial savings within the three-month period analysed was approximately €120,000 if all stock affected had to be discarded.

Outcome

The Kelsius system has provided reliable temperature monitoring in the 90+ medication fridges across the hospital and makes 24-hour monitoring possible in all areas.

The system has ensured rapid responses to deviations from recommended temperatures and provides important data about fridges, allowing trends to be identified.