TUTELA™
monitoring systems

Multi-Site Wireless Remote
Temperature Monitoring
Maximising Inventory Protection at Berkshire & Surrey Pathology Services

As a major provider in NHS Group Pathology Laboratories, Berkshire and Surrey Pathology Services provides a complete range of lab services to a population of over 2.2 million and performs in excess of 27 million tests a year at a multiple sites and hubs.

This newly formed pathology service, originally established in 2012 as the Surrey Pathology Service, provides four NHS Trusts and five acute hospitals with a combined, integrated modern pathology function; currently serving to Frimley Health NHS Foundation Trust, Ashford and St. Peter's Hospitals NHS Foundation Trust, Royal Surrey County Hospital NHS Foundation Trust and Royal Berkshire NHS Foundation Trust.

Compliance drives the monitoring need at Berkshire and Surrey Pathology Services facilities, and rigorous temperature monitoring to ISO15189 standards was mandated in this project across multiple sites throughout the 4 Trusts' locations where laboratories need to operate within the regulatory guidelines of MHRA, UKAS ISO15189, HTA.

Patient's samples, blood, human tissue, drug, vaccines, and many other costly and highly sensitive inventory are stored in temperature-controlled environments, such as fridges and cold-rooms, throughout the numerous hospital locations, where the environmental condition of this inventory is paramount to the operation of the departments.

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Targeting Increased Compliance with Reduced Overheads

With Berkshire & Surrey Pathology Service's commitment to quality and efficiency, they sought to acquire a wireless remote temperature monitoring system that would simultaneously meet 3 key objectives; the compliance requirements of ISO 15189, free up resources and reduce cost.

The search began for a system to replace the existing hardware, that could cope with the particular specifications and disciplines in Pathology, including:

- Blood transfusion
- Biochemistry
- Microbiology
- Immunology,
- Histology
- Genetics
- Cytology

Pathology operations require 24/7 alarm coverage, with real-time alarms to resolve excursions to pre-set time limits for each monitored unit.
A new system would need to have the capability to manage, locally and centrally, a large number of geographically separated sites.

The Trusts' Quality Control department is centralised at Frimley Park Hospital, so it was important that the system offered scalability and future proofing, but importantly the ability to display all hospital site data onto a single web user interface centrally.

Additionally, in terms of alarming functionality, QC required notification calls, SMS and email notifications be delivered to the correct personal responsible at each individual monitored location, so that action to resolve any temperature or system breaches could be taken accordingly.

The Tutela Monitoring Solution Selected

BSPS took the decision to deploy the Tutela Genesis 3 hardware technology across all sites in the group; covering ambient, fridge, freezers, cold rooms, incubators, water baths, door contacts, power relays, CO_2 gas and other specialist monitoring requirements.

Full alarm monitoring services, including provision of voice, text and email notifications, are an integral part of the system along with secure data retrieval, storage and archive, web interface hosting and remote system support.

The decision to use the Tutela system largely came down to long term experience with the Tutela Monitoring System with several subsequent upgrades and roll-out across locations within Surrey Pathology Services. This experience validated the selection of Tutela for the wider project, on the basis of their ability to provide a turn-key, validated, cloud-based monitoring solution but also the ability to handle multiple sites with ease.

Multi-Site Project Delivery and Roll-out

Once given the green light, Tutela then rolled out supply, installation, ISO17025 calibration maintenance, and training across 7 Surrey and Berkshire locations including Frimley Park Hospital, Royal Surrey County Hospital, Wexham Park Hospital, Guilford Science Park, Ashford Hospital and St Peters Hospital.

The Tutela site schedule detailed the complete system specification plan, supported by annotated floor plans for each site with photographs of the locations where appropriate. The Tutela project delivery team follows an evolved and tested quality process to deliver all site installation works efficiently and accurately. Controlled under ISO9001:2008 QMS, this quality process is applied to all installation and implementation projects undertaken by Tutela.

The Tutela Genesis 3 wireless monitoring system hardware is now used across all BSPS sites to collect and monitor all data reliably.

Meeting the widest brief and tightest user needs

BSPS operate to all medical Pathology Laboratory disciplines including Category 3 containment where over 300 probes are monitored, alarmed, and serviced by Tutela Systems. The website user interface is the standard platform allowing multi-user, multi-tasking and simultaneous access to over 100 users assigned to the system. The BSPS specification was been fully met with the web user interface platform's ability to have a user specifically assigned to their relevant department view and permissions.

Currently the BSPS are working on the next phase roll out for Royal Berkshire Hospital as an addition to the Genesis 3 system plus other satellite locations like Aldershot Hospital, Heather wood Hospital and Pathology 2 at Royal Surrey.

Calibration, Validation and Training

During each installation phase, ISO17025 calibration, commissioning and QQ validation was carried out by the Tutela Projects team. Comprehensive training was provided for the Clients onsite to level one - general user and level two – administrator level access. Training was carried out onsite and included hardware and website software illustrations.

Highest Levels of Accreditation and N3 Cloud Compatibility

Because Tutela are licenced to use the NHS N3 network for VPN connectivity, BSPS saved a large unnecessary cost by using Genesis 3 Ethernet repeaters rather than adding more WARP units.

Tutela are accredited to the following relevant standards:

- **ISO17025 Laboratory Calibration accreditation**
- **ISO9001:2008 Quality Management System**
- **ISO27001 Data management and Storage**

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Extensive Range of Sensor Probes

A variety of probe types are installed across the sites, from dual purpose ambient and humidity probes to wide range variant fridge, freezer and cryogenic probes are used. BSPS also use Tutela's power failure and door contact connectors to ensure that the system delivers an early warning to any avoidable incidents. In total Tutela monitor and alarm over 300 probes across the BSPS sites.

Highly Secure Data Transmission and Storage

The sites are connected via dedicated IPSEC to IPSEC VPN for two-way data and alarm traffic. Because Tutela are licenced to VPN tunnel via the NHS network (BT-N3) we use hardwired cat 5 cable direct into the facilities ethernet ports. All data to and from the site travels directly through the secure VPN and is encrypted on both ends for ultimate lockdown.

The system is connected via the various trust networks back to the Tutela off site server centre based in Fleet UK. From the Tutela server centre, all aspects of alarming, data gathering, audit trails and system data backup is managed.

Summary

• Remote alarming by real people is crucial for maximum inventory protection.

• Web-based operation over secure IP allows remote activation and assessment.

• Secure web access to the user interface allows isolated units to be addressed.

• Specialist providers offer more focussed solutions.

• The importance of a calibrated system to meet MHRA and UKAS compliance.

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