

## Background

Point-of-care testing (POCT) is vital for the rapid management of acutely unwell patients in the hospital. To overcome the clinical risk caused due to non-laboratory staff using POCT devices and the lack of a governance/operation team for POCT, a dedicated operational team with a Biomedical engineer is set up in Cork University Hospital (CUH). The management of POCT devices, operators, stock, and quality measures at par with the ISO 22870 standards was extremely challenging with limited resources available.

## Objectives

- To implement measures and tools to provide a safe and reliable POCT service
- To manage POCT devices/services with adequate quality control measures
- To ensure the accuracy and traceability of results on which clinical decisions are made
- To facilitate better patient management and cost management

## What could go wrong?



## Method

Biomedical engineer has a key role in the planning, technological evaluation, procurement, installation, training, operations, safety, maintenance, repair, decommissioning, and disposal of POCT devices. The design and development of data management tools on the Excel platform for Equipment management, Stock management, and Operator management facilitate to consolidate the middleware data and the data taken manually to provide essential information for the overall management of the devices in a POCT setting.

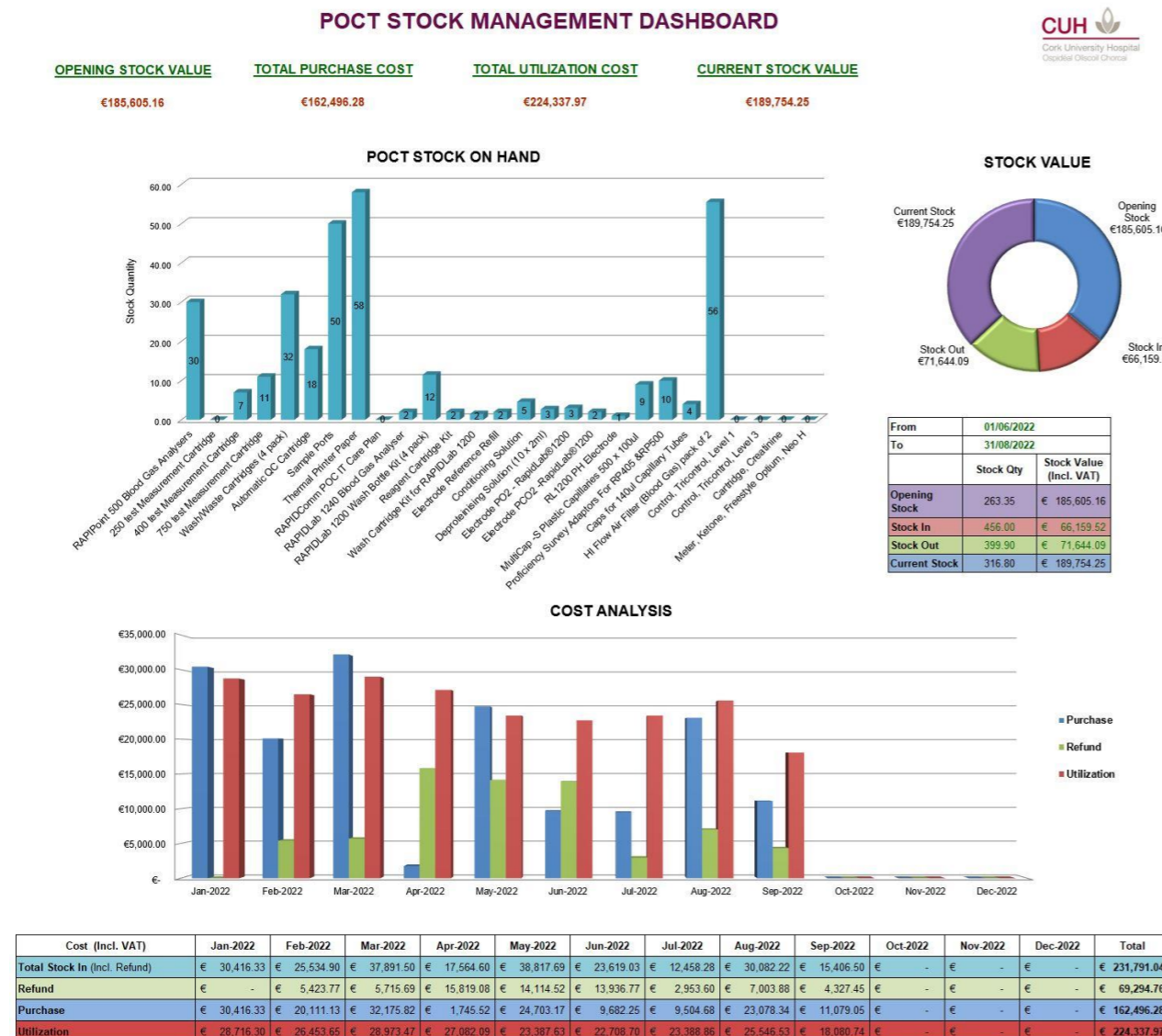


Figure 1: POCT Stock Management Dashboard

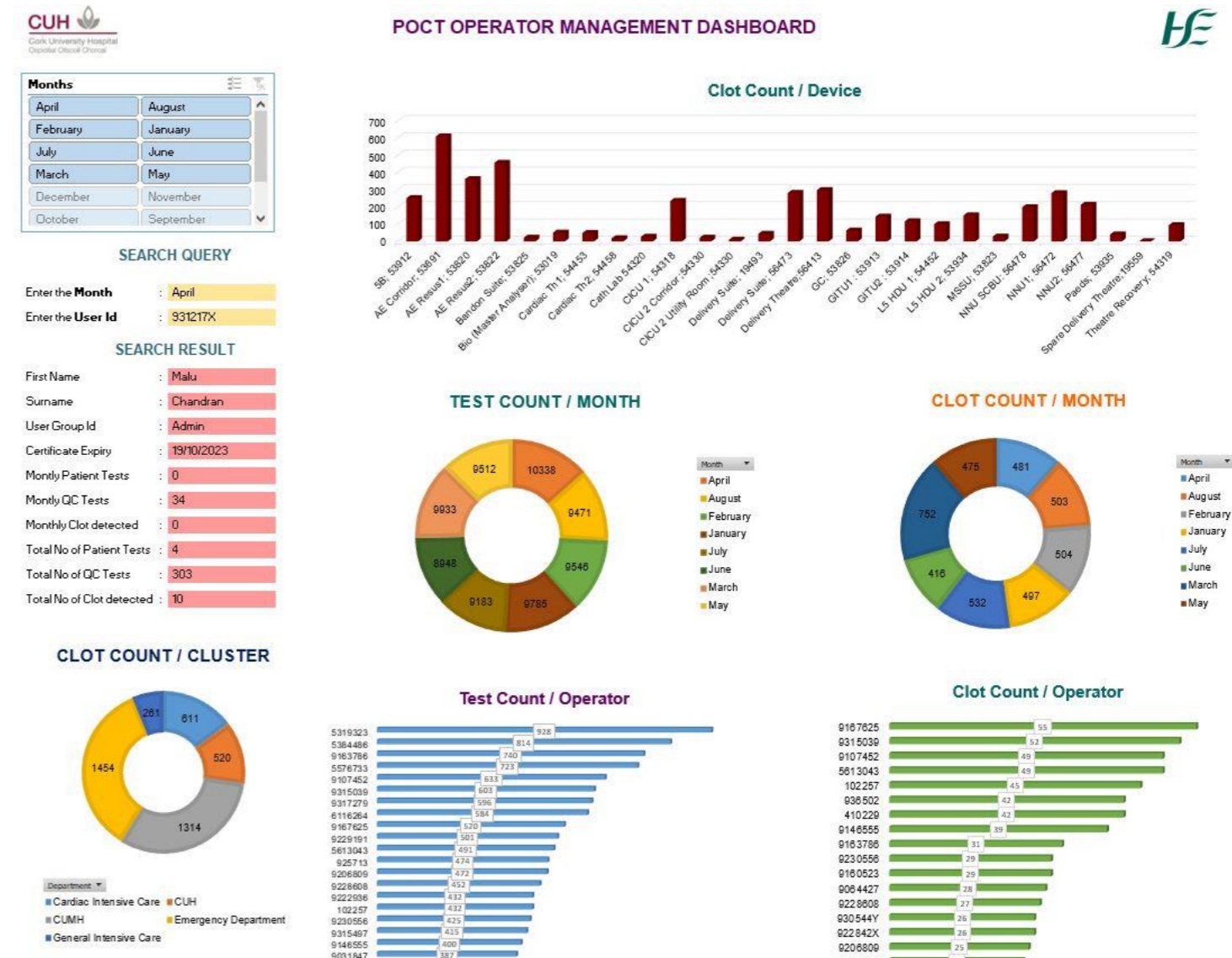


Figure 2: POCT Operator Management Dashboard

## Results

- Used the developed Excel files for data consolidation and analysis to obtain required Key Performance Indicators (KPIs) and Quality Indicators (QIs) and thereby manage POCT devices in a safe and effective manner
  - Rectified **99.9%** of the breakdown calls in 24 hours
  - Reduced the average external service downtime to **2 days**
  - Achieved **100%** Preventive maintenance completion
- Made a financial savings of € **72,907** (€3,613 in 2021 and € 69,294 in 2022) via replacement cartridges for the failed/faulty cartridges
- Better stock management through inventory control, lead time calculation, batch acceptance, shelf-life calculation, traceability, and cost-benefit analysis
- Improved the efficiency of operators by improvising the training contents, and deactivating operators who exercised password sharing

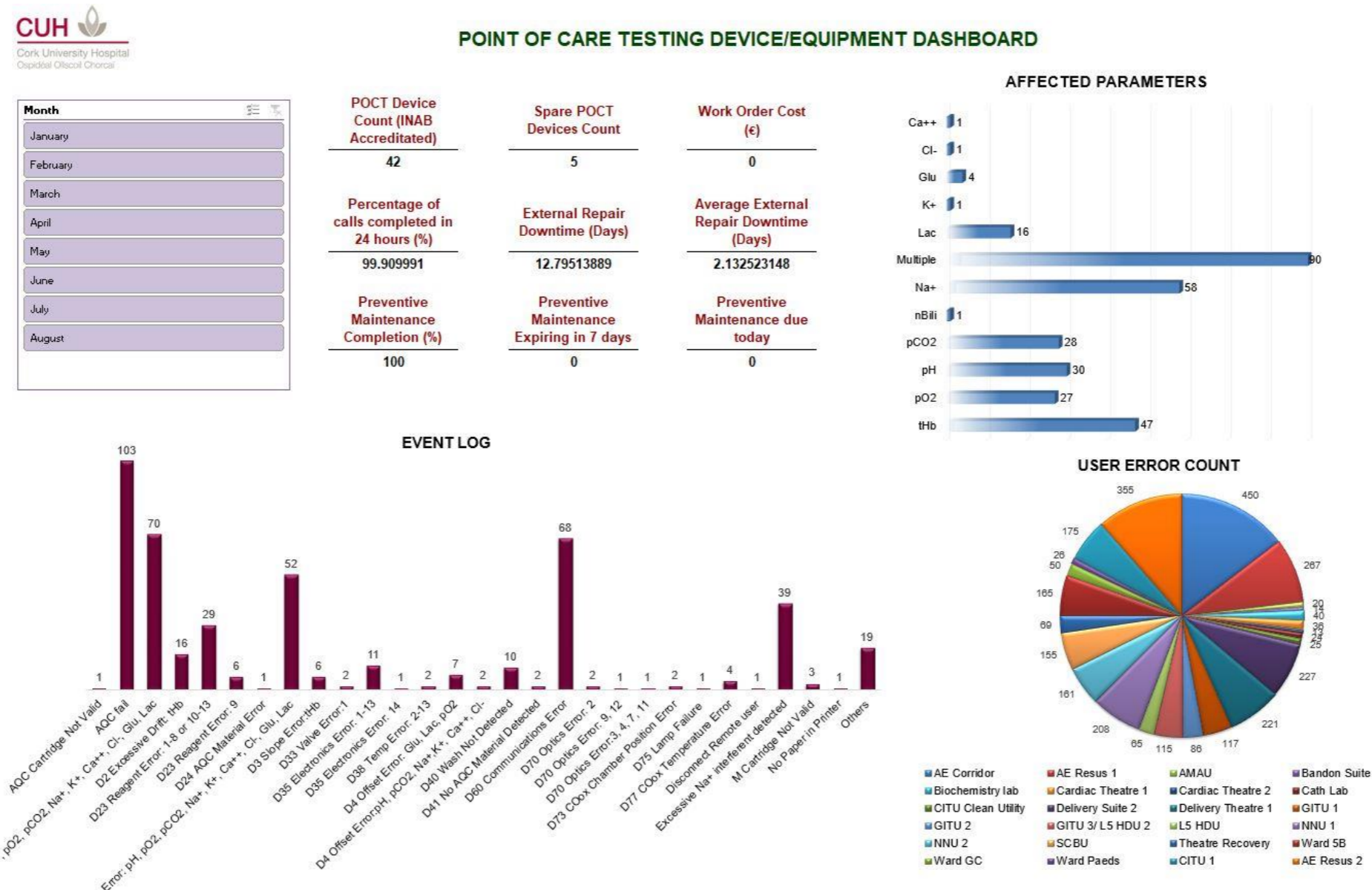


Figure 3: POCT Equipment Management Dashboard

## Conclusion

There are beneficial aspects to having a Biomedical Engineer directly involved with a POCT team. By using their engineering perspective to understand the operational aspects of POCT service in a hospital and using their technical expertise to design and develop complex Excel-based systems that are **easy to use** by the POCT team for the management of the devices and associated consumables; it is possible to quickly achieve INAB accreditation of POCT under **ISO 22870 standards** and at the same time identify **financial savings** and provide **better patient care**.



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