

Enhancing Operational Efficiency Through Smarter Facilities & Automation at Core Laboratory, Sunway Medical Centre, Sunway City

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Background & Objectives

Sunway Medical Centre (SMC) is a leading quaternary care hospital in Kuala Lumpur, operating 858 beds, 230 consultation suites, and more than 60 specialties, including oncology, cardiology, and orthopaedics. Its Core Laboratory holds accreditation under MS ISO 15189 and CAP, serving both local and international patients annually. Despite this standing, pre-automation workflows in the Immunoassay and Clinical Chemistry (IACC) departments were characterised by significant manual touchpoints, fragmented specimen tracking, and suboptimal turnaround times — compounded by steadily rising test volumes.

In response to these operational pressures, SMC entered a strategic partnership with a vendor to co-develop and implement a state-of-the-art Total Lab Automation (TLA) solution. The initiative centred on the GLP System Track — an automated specimen-management track integrated with the Alinity ci analyser platform, a new Laboratory Information System (LIS), and the Hospital Information System (HIS) middleware.

The primary objectives of this study were to:

- ✓ Achieve full end-to-end specimen traceability from receipt to result release.
- ✓ Substantially reduce manual handling and pre-analytical errors across the testing workflow.
- ✓ Improve laboratory turnaround time (TAT) in the face of growing demand.
- ✓ Enhance staff productivity and satisfaction through digital transformation.
- ✓ Contribute to environmental sustainability by reducing paper use, plastic consumption, and redundant processing steps.
- ✓ Establish a scalable, future-ready laboratory model capable of absorbing projected workload growth over the next seven years without proportional manpower increase.

This initiative represents not only a technology upgrade, but a fundamental reimagining of how a high-volume diagnostic laboratory can operate — safely, efficiently, and sustainably — in alignment with SMC’s vision as a digitally enabled, forward-thinking healthcare leader.

