

QC under the microscope project

To improve efficiency and effectiveness of quality control in NSW Health Pathology Chemical Pathology laboratories
(Pilot sites Kogarah, Liverpool, Tamworth, Westmead)

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Goal

To provide a Statewide Quality Control approach that delivers more timely and reliable diagnostic test results to assist in improving patient care by December 2020.

Objectives

- To eliminate release of inaccurate chemical pathology test results to Clinicians from 20 in 2017/18 to 0 in 2019/20.
- To reduce waste of QC material in four pilot laboratory sites from average of 25% to 10% by end of FY 2019/20.
- To increase clinician confidence in the reliability of chemical pathology results from 73% to 100% by December 2020.

Case for change

Quality Control (QC) is a statistical science that underpins laboratory tests and sets the scientific principles and rules to safeguard that all results being released from NSWHP labs are validated and reliable.

Review of QC related IIMS concerning incorrect results identified:

- delays in medical intervention and treatment/additional diagnostic testing to patients
- additional resources and cost to hospitals and NSWHP to investigate & mitigate error
- variation in approaches to QC processes and practices by staff
- variation in utilisation and disposing of QC material

Our why



I was so scared my kidneys were collapsing & stopping my cancer treatment

Lucinda a 32 year old mother of 2 young girls, being treated for breast cancer had bloods taken for biochemical analysis. The results released were abnormal.

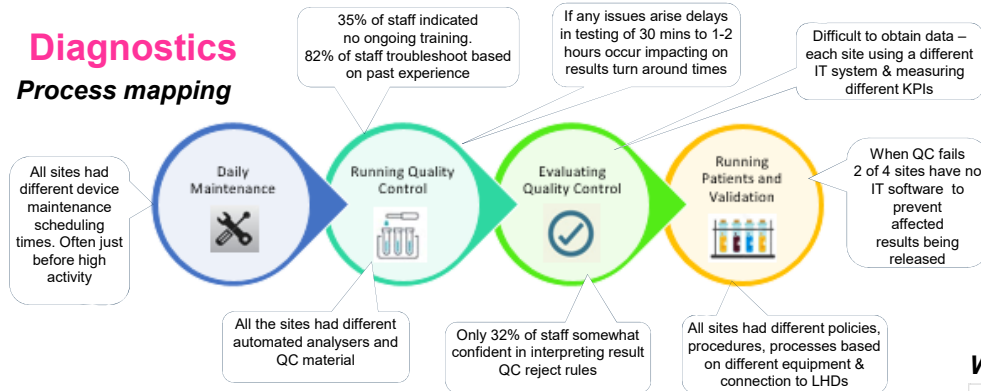
Her Doctor cancelled the scheduled chemotherapy treatment and instead admitted Lucinda to hospital for further testing for renal failure. The subsequent test results were normal. An investigation revealed the Lab had released inaccurate results due to QC not being undertaken correctly.

Staff said "Lucinda suffered severe psychological distress as a result of this experience"

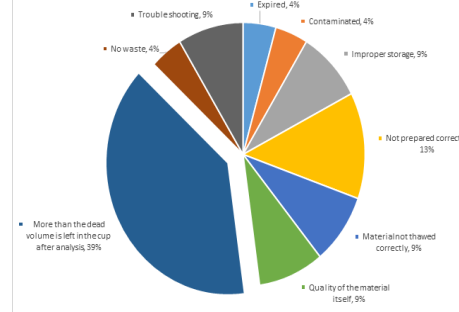
This QC incident cost approx. \$12,000 to the Health Service (NSWHP & LHD)

Diagnostics

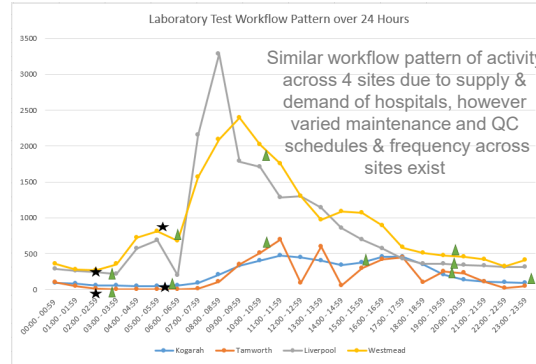
Process mapping



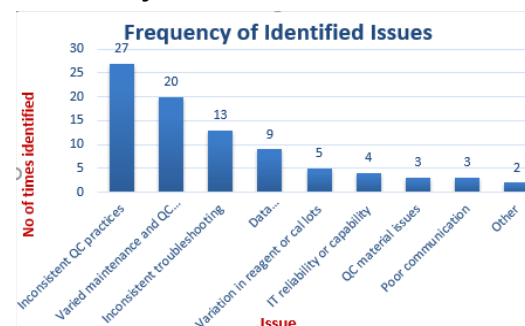
Staff said



Workflow analysis – variation in schedules



Staff survey



Clinician Survey

73% of clinicians were very confident with our results

- Reasons to query results with lab:
- Large variation to previous results
 - Results don't correlate with patient clinical picture

Our vision

- Statewide Quality Control policy and procedures
- Faster results and meeting KPIs
- Accurate test results for our patients
- Clinicians use our results with high level of confidence in clinical decision making
- Reduce QC material waste and costs
- All staff troubleshooting certified
- QC Improved patient experience and clinical outcomes

Method

- Process mapping sessions x 4 (27 people)
- Root cause analysis workshops x 2
- Staff Survey x 25 responses
- Clinician Survey x 33 responses
- Observations x 4
- Review of Policy and Procedures
- Literature Review x 19
- Data analysis and interpretation
- Validation
- Solutions brainstorming and Power of 3 sessions x 7
- Prioritisation sessions x 7
- Blitz sessions x 6

Solutions

Quick Win: Display costs of QC material on vials and in preparation areas to educate staff on cost of material.
Test solution: Standardised measurement procedure for dispensing QC material.

1. Standardise Quality Control Policy and Procedures

- Standardised technical processes for QC management need to be developed for NSW Health Pathology ensuring a standardised approach that all sites will adopt
- Simplification of processes and flow charts that meet the needs of varied sizes and categories of NSWHP 61 Laboratories

2. Quality Control Training and Education Framework

- Standardise training resources/materials in equipment use and trouble shooting QC failures
- Compulsory QC training & competency of knowledge and skills in QC management and accreditation tools
- QC workshops/resources that allow staff to use case studies to discuss and work through QC issues

3. Standardised Quality Control Data and Governance

- Establish consistent standardised QC metrics across 4 sites
- Establish consistent data capture, report and monitoring process
- Establish routine auditing and monitoring of performance

4. Access to help and sharing of information

- Provide access to computer resources to better enable interactions for staff to obtain assistance or for supervisors to provide support
- Establish inter-lab networking and QC special interest groups to allow for communication between labs
- Provide Online chat tools for contact between sites overnight to obtain assistance

Results

The QC under the microscope project identified 4 solutions to be developed and tested in laboratories located at:

- Kogarah
- Liverpool
- Tamworth
- Westmead

If successful these solutions will be rolled out across all NSWHP Labs across the state.

Working groups have been established to develop the 4 solutions. It is anticipated the development and testing these solutions will take approximately six months, therefore, finalising this process by March 2020. An evaluation will be completed following the tests to confirm effectiveness and determine if appropriate for implementation across all 61 laboratories.

During this project, connections were made to other current initiatives that will have a significant impact on delivering on some of the solution recommendations. These were related to a standardisation of quality control material at all sites as well as software to document QC failures and actions.

Our Quick Win: has resulted in education of staff around cost of material and identified process improvements to reduce waste.

Sustaining the change

- The use of AIM tools will continue to support this project and the implementation of solutions.
- The development of standardised documentation with a supporting education framework will ensure consistency of practice and allow for ongoing monitoring.
- Development of standardised KPIs and governance structure will allow for routine reporting of results to local and statewide performance committees.
- Recognition and rewards for staff adhering to the new processes.
- Ability to share information through a central point and enhanced connectivity to other labs will enhance ongoing knowledge sharing.

Conclusion

These four pilot sites were selected because they representatives of the various characteristics across the 61 sites in NSW. These variations included size, activity function and geographical distribution.

This project took a deep dive into the QC processes to identify issues and the root cause. The project team identified a number of factors; including variation in policy & procedures as well as differing staff QC practices and expertise.

Implementation of the solutions will strengthen quality control practice, reducing variation, and therefore delivering better clinical outcomes for patients. It will also allow the realisation of commutable statewide data that will be used to monitor trends and inform Pathology Clinical leaders in decision making for QC.

The findings from this project confirmed the need for standardisation across NSWHP Chemical Pathology laboratories. Once implemented the solutions will also be evaluated for expansion into other clinical speciality areas with appropriate specific scientific adaptation.

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