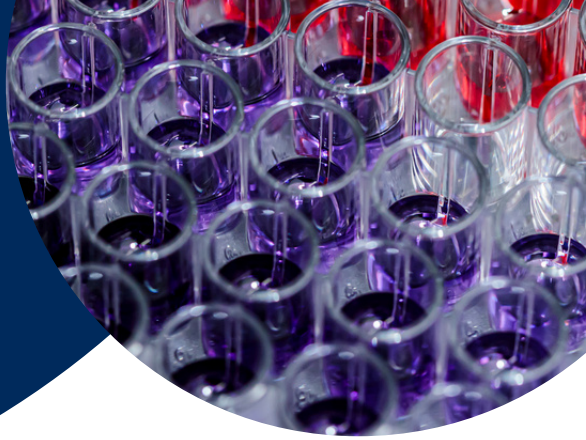
Laboratory Medicine & Pathobiology
UNIVERSITY OF TORONTO

Key Core Laboratory Quality Indicators

Recommendations from the UofT LMP Quality Council



April 2022

Survey of Current Practices for Quality Indicators in the Core Laboratory within the GTA

Quality indicators (QIs) are systematically measured data collected to monitor laboratory performance. They are an essential part of the quality management system that leads to process improvements and good decision-making. The International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) has established the IFCC Model of Quality Indicators (MQI) framework to harmonize laboratory metrics, thereby informing better practices to improve patient safety.

The LMP Quality Council sought to understand current practices within Greater Toronto Area (GTA) hospitals regarding QIs in the core laboratory environment (i.e. routine biochemistry and hematology testing).

A preliminary consensus of 10 core laboratory QIs spanning the total examination process was the result of a survey in 2020. The data will allow the Council to make recommendations for laboratories to align their QIs and enable benchmarking among peers.

Responses from 15 laboratories are summarized as follows:

- The monitoring of turnaround time (TAT) was employed by all (100%) of respondents that included testing for troponin (93%), INR (93%), WBC / CBC panel (86%), and potassium / electrolyte panel (86%). However, the individual definitions of TAT may be influenced by the timing interval within the examination process, the percentile threshold for test results, the locations monitored, and the target TAT itself.
- The majority of laboratories reported the inclusion of QIs for: misidentification errors (93%), performance in EQAS-PT schemes (100%), hemolyzed samples (80%), incorrect fill levels (73%), notification of critical results (80%), and clotted samples (80%). However, the quantitative definition of individual QIs varied across users with few reflecting the IFCC recommended practice to express metrics as a percentage of a total number. Responses suggested that some of the above QIs were monitored informally or by an alternative means.
- The full adoption of all 10 QIs should be considered by GTA hospital laboratories, which are considered high priority by the IFCC for their impact on patient safety. At the same time, metrics need to be standardized before meaningful assessment of quality can be made using quantitative QI data. Therefore, the LMP Quality Council recommends that laboratory stakeholders collaborate to achieve harmonization of these quality indicators.

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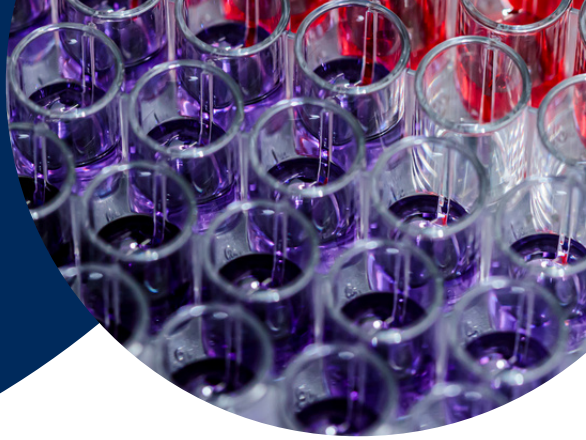

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Draft Recommendations for Key Core Laboratory Quality Indicators

This document summarizes the interim practice guidelines for clinical laboratory quality indicators as a result of surveys and engagement with laboratory professionals from the academic teaching hospitals affiliated with the University of Toronto. A standardized approach in this guideline will allow common benchmarks and identify priority areas for improvement efforts across hospitals in the GTA.

Key messages

Laboratories should include all of the following high-priority quality indicators for regular monitoring of critical processes that impact patient care.

Pre-Examination Phase

- Misidentification errors
- Incorrect fill level
- Hemolysed samples
- Clotted samples

Intra-Examination Phase

- Unacceptable performances in EQAS-PT schemes

Post-Examination Phase

- Inappropriate turnaround time (TAT) for STAT potassium
- Inappropriate TAT for STAT INR
- Inappropriate TAT for STAT WBC
- Inappropriate TAT for STAT troponin
- Notification of critical results

Laboratories should report the quality indicators according to the IFCC harmonization model to enable comparability with performance benchmarks.

Pre-Examination Phase

- Percentage (number of events / total number of orders)

Intra-Examination Phase

- Percentage (number of EQAS-PT flags / total number of survey challenges)

Post-Examination Phase

- Percentage (number of released results outside the specified TAT / total number of released results)
- TAT: Time (minutes) at the 90th percentile (STAT)

Quality Indicator Performance Reports.

Detailed reports should be prepared for laboratory monitoring on a monthly basis.

Overall performance reports should be shared with stakeholders on a quarterly basis.

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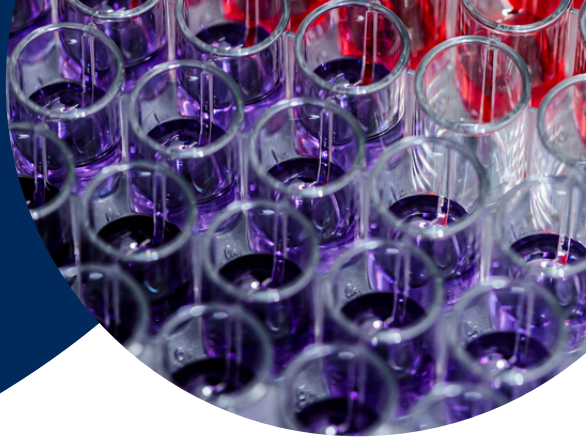

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References

- Current Practices for Quality Indicators in the Core Laboratory within the GTA.
- IFCC model of quality indicators (MQI). Clin Chem Lab Med. 2017;55(10): 1478-1488. Defining a roadmap for harmonizing quality indicators in Laboratory Medicine: a consensus statement on behalf of the IFCC Working Group "Laboratory Error and Patient Safety" and EFLM Task and Finish Group "Performance specifications for the extra-analytical phases"

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