LETTER OF COMMENTARY

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Recommendations and considerations for central laboratory and point of care testing performed by medical laboratory assistants

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ABSTRACT

Clinical laboratories are facing severe shortages of qualified medical laboratory technologists (MLT). Given the vital role of the laboratory within the healthcare system, patient care in acute care settings, especially within emergency departments, are at risk if there are insufficient MLTs available to staff hospital laboratories. To mitigate this human resource challenge and reduce the overall risk to laboratory operations, clinical laboratories are exploring novel strategies to ensure continuous services that are crucial to patient care.

One strategy being employed is leveraging medical laboratory assistant (MLA) staff to perform certain laboratory testing under the direction of MLTs. Options include testing in the central laboratory and point of care testing (POCT). Here, several recommendations have been developed by consensus of the authors, who are several clinical biochemists from across Canada and members of the Canadian Society of Clinical Chemists (CSCC) POCT Special Interest Group, with expertise in central laboratory and POCT oversight.

These recommendations are aimed at clinical laboratory and healthcare system clinical and administrative leaders who are exploring alternative staffing models. The recommendations refer to two models of testing performed by MLAs, one whereby MLAs perform a menu of lower complexity tests within the central laboratory and one in which MLAs perform POCT outside of the laboratory in a true point of care setting.

INTRODUCTION

Clinical laboratories across the country are facing a shortage of qualified medical laboratory technologists (MLTs). In 2018, the Canadian Society for Medical Laboratory Science (CSMLS) reported to the Canadian House of Commons Committee on Finance that Canada would be facing a severe shortage of MLTs with approximately half of all MLTs at that time eligible for retirement by 2028.[1] MLT retirements are currently outpacing the supply of new MLT graduates, and shortages are being felt in clinical laboratories across Canada. Laboratories are now finding it necessary to explore mitigation strategies to ensure crucial laboratory services can still be provided within an environment of severe MLT shortages.

Human resource challenges in healthcare are not unique to clinical laboratories. There are also critical nursing and physician shortages,[2,3] prompting multiple initiatives that include reducing licensing barriers for internationally educated healthcare professionals, development of mentorship strategies for nurses, a review of funding for primary care physicians, and creation of additional training spaces for nurses and physicians.

Laboratories are critical for supporting and sustaining patient care within acute care settings, such as hospital emergency departments. Innovative solutions are necessary to ensure that laboratory services can be sustained and closures of patient care services are prevented. MLT shortages are especially felt in rural, remote and underserved regions where attracting qualified healthcare staff can be a challenge. Nursing and physician shortages are also felt most acutely in such areas.[4]

Members of the Canadian Society of Clinical Chemists POCT Special Interest Group have developed

recommendations for leveraging the use of medical laboratory assistant (MLA) staff to help mitigate the shortage of MLTs. The authors, a group of Canadian clinical biochemists, have experience with oversight of central laboratory and POCT across Canada. This guidance is aimed at clinical and laboratory leaders exploring options for more sustainable laboratory services, considering the current MLT shortages.

One mitigation strategy for the MLT shortage is to leverage MLA staff to their full scope of practice. According to CSMLS, an MLA works under the supervision of an MLT, performing practical components of sample analysis. This is a similar model to that of nurse aides, who work under the supervision of nurses. As examples, nurse aides can take patient blood pressure and temperature, report fluid output and collect some specimens, such as urine or feces, as directed by nurses.[5] MLAs often perform phlebotomy and are laboratory professionals that often interact directly with patients.[6] MLAs are also trained to register laboratory tests into the laboratory information system (LIS) and are trained in the importance of controlling pre-analytical sample errors. MLAs sort, prepare and sometimes process samples that will be tested by an MLT. Within the CSMLS MLA competency profile, MLAs can perform POCT procedures, identify sources of interference, and initiate corrective action as delegated.[7] POCT refers to clinical laboratory testing that is performed outside a clinical laboratory, nearer to the patient.[8] Of note, the MLA competency profile assumes an MLA is trained by an accredited program and certified by the CSMLS.[9] MLAs cannot interpret laboratory results or validate laboratory results unless delegated to do so by an MLT (or other authorized healthcare professional).[7]

Two scenarios for MLA-performed testing are described. The first is for MLAs performing POCT and refers to collection, performance and reporting of POCT outside the laboratory. The second scenario involves MLAs performing a limited menu of laboratory testing including collection, performance and reporting of low and moderate complexity tests within the central laboratory, as defined previously by the CSCC POCT Special Interest group.[8] The recommended menu of laboratory tests that can be performed by MLAs includes qualitative and semi-quantitative assays employing single-use cassettes or strips, and assays that employ relatively simple instrumentation. Examples include lateral flow immunoassays, urinalysis instruments, and glucose meters. Herein, this will be called laboratory testing to differentiate from testing performed at the point of care.

In the case of MLA-performed POCT, there are benefits to this model over implementation of POCT performed by clinical staff, such as nurses or physicians. MLAs are typically laboratory staff and report to laboratory leadership. This accountability and targeted training helps ensure that quality assurance practices are followed consistently, and accreditation requirements are met. MLAs can safely perform specimen collection and registration and, as per the CSMLS competency profile, these tasks are within their scope. This should help limit pre-analytical sample errors that can be associated with POCT performed by clinical staff. With healthcare institutions also struggling with nursing and physician shortages, MLA-performed POCT can ensure the availability and sustainability of some laboratory services without placing an increased burden on these other healthcare professionals. Recognizing healthcare staff shortages are not limited to laboratory staff, models that include MLAs performing POCT or laboratory testing alongside nurses and other healthcare professionals performing POCT may be highly effective and appropriate.

RECOMMENDATIONS AND CONSIDERATIONS

1. Provincial authorities and regulatory colleges should review local MLT and MLA scopes of practice and modify them as appropriate. This is key to facilitating MLA-performed POCT or central laboratory testing models. Clear information related to scope of practice will help to increase endorsement by laboratory operational and medical/scientific leadership.

2. MLA training programs are preferably accredited by a CSMLS-approved agency and should include training on performing a certain menu of POCT and central laboratory tests. Training must cover aspects of quality assurance, such as quality control, external quality assessment, competency assessment/audit and results verification/documentation. In jurisdictions where specimen collection and processing are not part of MLA scope of practice, training on these aspects must also be included. For MLAs who are trained in specimen procurement and processing, allowing them to perform POCT or laboratory testing may mitigate some pre-analytical challenges commonly associated with testing performed by non-laboratory healthcare professionals and providers.

3. MLAs can support quality assurance programs for POCT or laboratory testing.

4. Laboratory operations must ensure that MLA staffing is suitable for the workload and that MLT and medical/scientific oversight is available to support MLAs performing POCT and low-to-moderate complexity laboratory testing. This support can be provided remotely.

5. Consideration of the onsite test menu and complexity of the testing methodology must be given to situations where MLTs and MLAs are available to work some shifts, while other shifts are only filled by MLAs.

6. Where laboratory staff are unionized, clear scope of practice documentation will be key to ensure staff accountability and support safe, consistent POCT.

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