Laboratory Medicine Best Practice: Methods for Evidence-Based Patient-Centered Quality Improvement
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Objectives: The study objectives are to apply and test newly developed systematic review methods designed to evaluate published and unpublished evidence of the effectiveness of clinical laboratory pre- and post-analytic quality improvement practices. These practices, which included nursing protocols in the completed pilot studies will support the development of new evidence-based recommendations and guidelines in laboratory medicine leading to improved healthcare quality outcomes consistent with the Institute of Medicine's aims (safe, timely, effective, efficient, equitable, and patient-centered).

Methods: The Laboratory Medicine Best Practices (LMBP) 'A-6' systematic review methods were applied (A-6: ASK, ACQUIRE, APPRAISE, ANALYZE, APPLY, ASSESS) by several multi-disciplinary teams, expert panels and the LMBP Workgroup as described in detail in a 2010 technical report (www.futurelabmedicine.org).

Results: The pilot test application of the LMBP A-6 methods produced systematic reviews of 7 quality improvement practices in three distinct quality improvement topic areas: patient specimen identification (barcoding systems and point-of-care test barcoding), critical value test result communication (automated notification and call centers), and blood culture contamination (venipuncture, phlebotomy teams and pre-packaged prep kits) used to support evidence-based recommendations. Preliminary systematic review results, including meta-analyses of each practice, support a 'best practice' recommendation for 4 of these practices (barcoding systems, point-of-care test barcoding, venipuncture, phlebotomy teams) based on sufficient evidence of practice effectiveness for improving patient-related outcomes.

Conclusion: The LMBP A-6 systematic review method for evaluating and recommending laboratory quality improvement practices has been demonstrated to be a robust and reliable method for implementing evidence-based quality improvement linked to improved patient outcomes. It is anticipated that by focusing on pre- and post- analytic processes, clinical laboratory practitioners will positively interact with nursing staff in a manner that improves patient outcomes.