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Working Group on Clinical Decision Support

Background

Improving test utilisation is a key healthcare priority, as both the under-use and over-use of laboratory tests lead to diagnostic errors and unnecessary costs. The underlying drivers of inappropriate testing are complex and involve clinician education, rapid advances in technology, and professional incentives. Clinical decision support (CDS) refers to a collection of tools that layer clinically relevant information over standard healthcare data interfaces (for example, electronic health records and computerised physician order entry systems) to enhance patient care and improve clinical workflows. Common examples include critical value alerts, medication interaction warnings, and duplicate order notifications. CDS has been successfully deployed in diverse clinical settings, ranging from outpatient clinics to intensive care units. In addition, CDS has been shown to improve test utilisation throughout laboratory medicine. However, many CDS interventions fail to meet their objectives or have unintended consequences, and understanding these failure modes is critical for designing effective applications. By building expert knowledge directly into healthcare data interfaces, well-designed CDS has the potential to play a central role in improving test utilisation. In addition, given their expertise in both quality improvement and quality assurance, laboratory professionals have an opportunity to be leaders in this space. By allowing clinical laboratories to

directly access the pre- and post-analytical phases of testing, CDS has significant potential to drive further reductions in errors.

CDS tools appear to be most effective when deployed as part of broader quality improvement initiatives focused on defined goals. In this context, CDS is a continuous process similar to the Plan-Do-Study-Act model that was originally developed for industrial manufacturing and has since been widely adopted in healthcare. Building on this analogy, the life cycle of CDS tools consists of four phases i.e. design, launch, evaluate, and maintain. By identifying tasks required for implementation as well as maintenance, this framework promotes the development of CDS interventions that are both effective and durable. CDS is not an end in itself, and successful implementation requires developing teams and processes to build and maintain applications that address clinically relevant problems.

References:

1. Hughes AEO, Jackups R. Clinical Decision Support for Laboratory Testing. *Clin Chem*. 2022 Mar 4;68(3):402-412. doi: 10.1093/clinchem/hvab201. PMID: 34871351.
2. Wright A, Sittig DF, Ash JS, Bates DW, Feblowitz J, Fraser G, Maviglia SM, McMullen C, Nichol WP, Pang JE, Starmer J, Middleton B. Governance for clinical decision support: case studies and recommended practices from leading institutions. *J Am Med Inform Assoc*. 2011 Mar-Apr;18(2):187-94. doi: 10.1136/jamia.2009.002030. Epub 2011 Jan 20. PMID: 21252052; PMCID: PMC3116253.

Objectives

1. Understand clinical gaps in clinical decision support tools for laboratory testing
2. Develop guidance documents on selection and validation of clinical decision support tools
3. Development of clinical decision support tools for pathology testing

Members (To be updated)

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