EVALUATING THE IMPACT OF CLINICAL DECISION SUPPORT SYSTEMS ON DIAGNOSTIC ACCURACY IN PRIMARY CARE

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Abstract - Clinical Decision Support Systems (CDSS) are increasingly incorporated into primary care settings to enhance diagnostic accuracy, reduce preventable medical errors, and support evidence-based clinical decision-making. With the growing patient load and rising complexity of chronic diseases, CDSS offer clinicians structured guidance that can standardize diagnostic pathways and minimize variability in clinical judgment. This study presents a focused review of current evidence assessing the performance, benefits, and limitations of CDSS in primary care, particularly in the management of high-prevalence conditions such as respiratory infections, diabetes mellitus, and cardiovascular disorders. Findings from recent trials and implementation analyses demonstrate that CDSS can improve diagnostic precision by integrating patient data with validated clinical algorithms, thereby reducing cognitive burden and enhancing clinician confidence in decision-making. Significant improvements have been observed in early detection of complications, reduced diagnostic delays, and better guideline adherence. Despite these advantages, real-world adoption remains inconsistent due to barriers such as limited system interoperability, workflow disruptions, inadequate clinician training, and suboptimal user interface design. Resistance from clinicians who view CDSS as intrusive or time-consuming further limits integration into daily practice. The review highlights the need for user-centered system design, streamlined interfaces, localized clinical pathways, and continuous training programs to maximize the effectiveness of CDSS in diverse primary care environments. Strengthening these areas can contribute to more accurate diagnoses, improved patient outcomes, and a more efficient healthcare system capable of handling rising clinical demands.