



Salivary Diagnostics, Chairside Testing and Risk Assessment

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Introduction

Saliva has emerged as a valuable diagnostic medium in modern dentistry due to its accessibility, noninvasive collection, and rich biological content. Salivary diagnostics involves analyzing biomarkers in saliva to detect oral and systemic diseases, monitor treatment outcomes, and assess overall health. Chairside testing allows clinicians to obtain rapid, on-site results, enhancing patient management and preventive care. By integrating salivary diagnostics with risk assessment, dental professionals can identify individuals at high risk for conditions such as caries, periodontal disease, and systemic disorders, enabling early intervention and personalized care [1,2].

Discussion

Saliva contains a wide range of biomarkers, including enzymes, proteins, hormones, antibodies, and nucleic acids, which reflect both local and systemic health. For oral diseases, biomarkers such as C-reactive protein, interleukins, and bacterial DNA can indicate inflammation, microbial load, and tissue breakdown. In systemic conditions like diabetes, cardiovascular disease, and certain cancers, salivary components such as glucose, cortisol, and tumor-specific markers provide valuable diagnostic insights [3,4].

Chairside salivary tests have revolutionized clinical practice by providing immediate, actionable data. These point-of-care tests are simple, rapid, and minimally invasive, allowing dentists to make informed decisions during a routine visit. Examples include caries risk tests measuring mutans streptococci or lactobacilli levels, periodontal risk assessments detecting inflammatory markers, and glucose monitoring for diabetic patients. Such tools enhance preventive strategies, patient education, and treatment planning by allowing real-time assessment of risk factors [5].

Risk assessment in dentistry integrates salivary diagnostic results with clinical, behavioral, and demographic data to predict disease susceptibility and progression. Personalized risk profiling enables clinicians to tailor preventive measures, recall intervals, and treatment modalities to individual patient needs. For example, a child with high salivary levels of cariogenic bacteria may receive intensified fluoride therapy, dietary counseling, and frequent monitoring, while an adult

with elevated inflammatory markers may be targeted for periodontal intervention.

Despite its potential, challenges remain in standardizing salivary biomarker assays and interpreting results across diverse populations. Variations in saliva composition due to age, hydration, diet, and circadian rhythms must be considered, and ongoing research is necessary to validate new biomarkers for routine clinical use.

Conclusion

Salivary diagnostics and chairside testing represent a promising approach to risk assessment and personalized dental care. By providing rapid, noninvasive, and reliable insights into oral and systemic health, these tools enable early detection, preventive intervention, and tailored treatment strategies. Incorporating salivary diagnostics into routine practice has the potential to improve patient outcomes, enhance preventive care, and support evidence-based dentistry in both clinical and community settings.

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