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Utility of point of care ultrasound for identifying dental abscesses in emergency department patients presenting with dental pain

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Introduction: Computed tomography (CT) is the current gold standard for diagnosing dental abscesses in the Emergency Department (ED). There are limitations to using CT, including high cost, radiation exposure, and lengthy time to diagnosis. Point of Care Ultrasound (POCUS) is an alternative imaging modality that does not have these limitations, and is already used to diagnose other soft tissue abscesses. The efficacy of POCUS for diagnosing suspected dental abscesses has never been investigated. The purpose of this project is to compare the utility of POCUS to CT in diagnosing suspected dental abscesses in the ED.

Methods: A convenience sample of patients presenting to the ED with dental pain were enrolled into a prospective observational cohort study design, when trained providers were available. Patients were eligible for enrollment after a CT was ordered. The ability of POCUS to identify dental abscesses was compared to CT in each patient. Data was collected using REDCap, and analyzed testing for non-inferiority.

Results: Preliminary results indicate that POCUS is non-inferior to CT at diagnosing dental abscesses (p=0.002, n=31). Additionally, the time to diagnosis is significantly shorter for POCUS compared to CT (p<0.0001).

Conclusions: These results suggest that POCUS may be an adequate tool for evaluating suspected dental abscesses in the ED. Due to decreased time to diagnosis, patients with suspected dental abscesses receiving POCUS instead of CT as an initial diagnostic imaging study may receive treatment and disposition significantly earlier. This could potentially lead to improved outcomes in patients.