

Improving Clinical Efficiency using Artificial Intelligence scribe for Documentation (ICE-AID study): A retrospective-prospective cohort study at a quaternary children's hospital and health service.

Vishal Kapoor^{1,2}, Catherine Skellern^{1,2}, Pauline McGrath¹, Stephanie Brosnan¹, Linda Thorburn¹

1. Children's Health Queensland, 620 Stanley street, Brisbane 4101

2. University of Queensland, St Lucia QLD 4072

Abstract

Introduction: Digital AI scribes are increasingly being used to decrease documentation burden for medical professionals.

Aim: To evaluate impact of an artificial intelligence medical scribe (AIMS) on clinical documentation efficiency, clinician well-being, consumer perspectives, healthcare costs in a paediatric setting.

Methods: Retrospective-prospective study of AIMS project cohort including medical, allied health and nursing practitioners at a quaternary children's hospital and health service (HHS). Outcome measures included survival analyses of time-to-finalise outpatient correspondence (6 months), clinicians' Reflections survey (1 month), document quality survey (3 months), patient/consumer experience surveys, overtime and cost analyses (6 months).

Results: Total 131 participants including 89 medical, 36 allied health and 6 nurse practitioners used AIMS showing significant reduction in median time-to-finalise outpatient letters from 7.9 days [Interquartile range (IQR) 19 days] in pre-AIMS era to 14 minutes (IQR 6 days) ($P < 0.001$). In the Reflections survey participants reported improved: patient engagement (62/71, 87%), well-being (80%, 57/71) and work-life balance (66%, 47/71). The document quality survey showed acceptable document quality with median score 4, in 9 of the 10 survey domains (scale 1-to-5, n=77). Study showed transcription cost savings of 16,903 AUD, but no definitive impact on overtime claims. Patient/consumer feedback (n=333) was highly positive with over 90% reporting improved clinician-patient interaction and welcoming future use of AIMS.

Conclusions and Relevance: This study showed significantly improved documentation efficiency, acceptable document quality, reduced transcription costs with significant benefits to clinician well-being and clinician-patient interaction with use of an ambient AI medical scribe in a quaternary paediatric setting.

vishal.kapoor@health.qld.gov.au

catherine.skellern@health.qld.gov.au