Evaluating the Real-World Impact of an AI-Powered Clinical Documentation Assistant

Jonathan Tan Yue En[1], Iffat Mohd Rafi[1], Eileen Lew[2], Xiang Yi[2], Michelle Loke[2], Ajeet Kumar[2], Jessica Soo[3], Leong Jiawei[3], Faith Ng[4], Tan Qiao Wen[5], Tan Suat Boon[5], Chia Kuok Wei[1], Geoffrey Gui[1], Mark Heng[2], Eugene Sim[4]

[1]Future Health System, SGH; [2]Office of Insights & Analytics, SingHealth; [3]Office of Patient Experience, SGH ; [4]Specialist Outpatient Clinic, SGH; [5]Office of Clinical Services, NNI

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Background

Ambient scribes use AI to convert verbal clinician-patient interactions into structured clinical documentation. This has proven to be one of the fastest adopted uses of Generative AI in health systems globally. Recent US studies report improved clinician wellbeing and reduced cognitive load, but time-savings vary considerably, with some hospitals finding no productivity gains at all. Our work breaks new ground as the first study on the impact of ambient scribes in Asia, utilizing Note Buddy, an ambient scribe solution developed in-house by SingHealth. We evaluate its real-world impact in outpatient clinics at SGH Campus. This study will provide the first insights into the effectiveness of this technology in Asia, potentially informing future implementations across the region's healthcare systems.

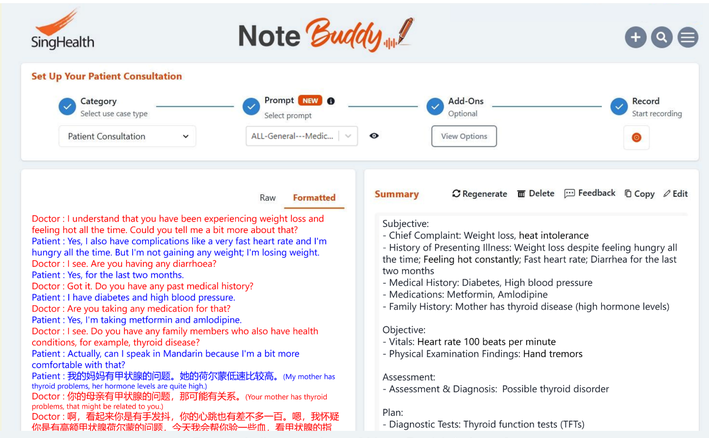


Figure 1: Screenshot of Note Buddy's Interface

Aims

To measure the impact of Note Buddy on:

1. Time spent by clinicians documenting patient encounters
2. Clinician-patient eye contact during consultations
3. Consultation duration
4. Patient perceptions of visit quality and AI acceptability

Methodology

1. **Design**: Within-clinician crossover time-motion study
2. **Participants**: **9 clinicians** who are regular Note Buddy users
3. **Sessions:** Each doctor observed during 2 matched clinic sessions, 1 with and 1 without Note Buddy
4. **Data captured:** consultation duration, documentation time, eye contact time, patient type (new or follow-up)
5. **Observers:** 5 observers trained to ensure consistent data definitions; same observer paired with each doctor
6. **Sample size: 169** consultations measured (**78** with Note Buddy, **91** without)
7. **Patient surveys: 39** post-consultation surveys conducted with patients of participating clinicians
8. **Analysis:** Linear mixed-effects models (random intercept = doctor; fixed effects= Note Buddy use, new or follow-up patient) in SPSS

Results

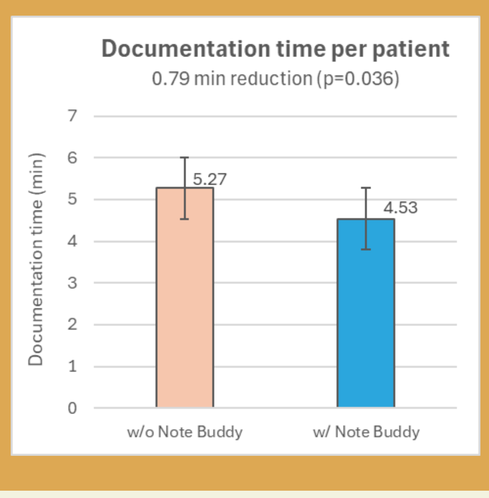
Characteristics of the 9 Doctors Studied

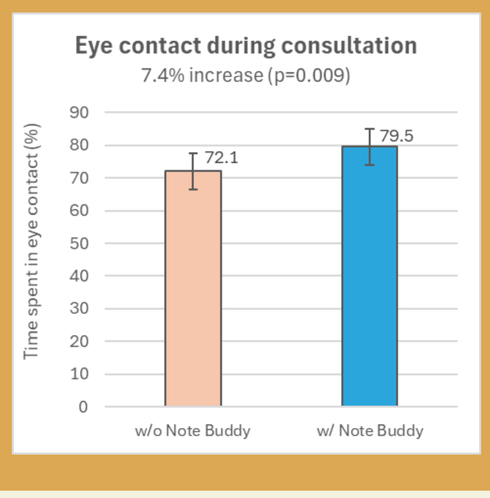
7 Senior Consultants, **2** Associate Consultants

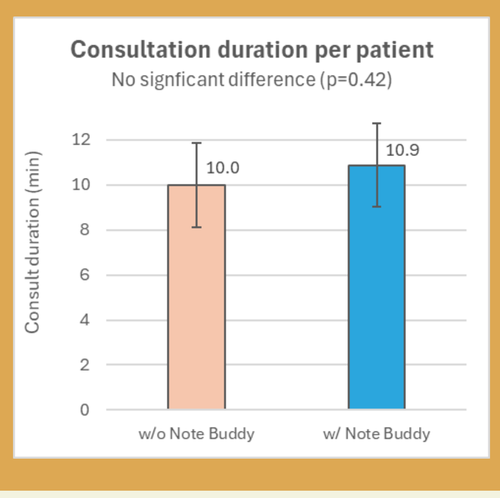
Respiratory Medicine | *Gastroenterology* | *Neurology* | *Rehabilitation Medicine* | *Neonatology* | *Endocrinology* | *General Surgery*

Findings from **169** consultations:

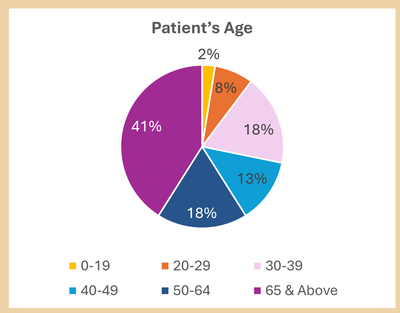
- ↓ **0.79 min** documentation time per patient, representing a 14% reduction from baseline
- ↑ **7.4%** in proportion of consult time with eye contact
- No significant change in consultation duration
- Effects of Note Buddy did not differ significantly between new & follow-up patients

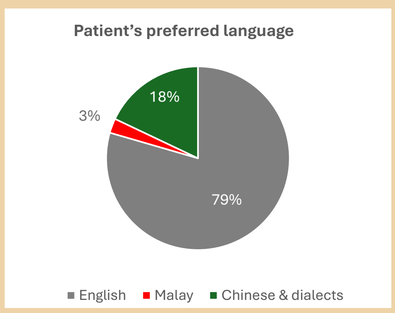


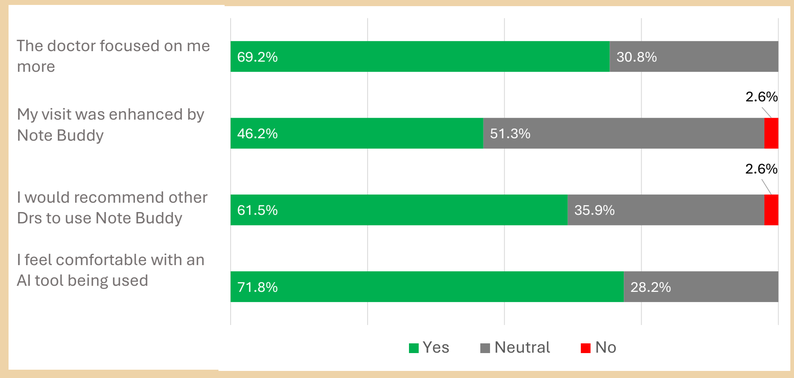




Findings from 39 Patient Surveys:







Discussion

Note Buddy usage was associated with **reduced documentation time** and **increased eye contact**, while consultation duration remained unchanged. This suggests Note Buddy enables clinicians to redirect time from clerical tasks toward patient engagement rather than simply shortening consultations. Patient survey data corroborates this, with 69% of **patients agreeing that their doctor focused on them** more during Note Buddy-assisted consultations.

Our study was limited to 9 clinicians due to the time-intensive nature of direct observation. By only studying regular Note Buddy users, this shows the technology's effectiveness under optimal conditions. Given that literature indicates only 30% of clinicians will become high adopters in most successful implementations, our findings can be extrapolated to estimate organisational benefits based on the proportion of clinicians who become high adopters.

Patient feedback was positive despite the older demographic (41% over 65 years). All patients reported feeling neutral to comfortable with AI use in their consultation, 62% **would recommend Note Buddy** to other doctors, and 46% felt their **visit was enhanced**. This addresses potential concerns about patient acceptance of AI.

Strengths and Limitations

- ✓ **First study** of ambient scribes in Asian healthcare setting
- ✓ Incorporation of Singaporean **patients' perspectives**
- ✓ Direct time-motion observation provides **more accurate measurement** than EMR timestamp analysis
- ❖ Selection bias for clinicians
- ❖ Hawthorne effect possible due to direct observation
- ❖ Does not consider patient complexity or casemix, which would affect documentation time

Conclusion

This study demonstrates the real-world impact of ambient scribes among experienced users, showing **significant reductions in documentation time, improved clinician-patient engagement through increased eye contact, and positive patient acceptance**. These encouraging results support continued implementation and adoption of such tools within Singapore's healthcare system. Note Buddy had no effect on consultation duration, suggesting it should be viewed as a **quality-of-care and clinician wellbeing intervention rather than merely a productivity tool**. Operations leaders should not expect it to enable higher outpatient volumes or additional appointment slots. This study also identified specific characteristics of clinicians likely to be high users. Future work will develop profiles of clinicians most likely to benefit from Note Buddy, guiding strategic onboarding to maximise implementation impact.