

Height, weight and... vision?: Should automated vision screening become routine in general paediatric clinics?

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1. BACKGROUND

- Approximately 20% of children have eye or vision conditions, many of which are treatable with early detection^{1,2}.
- Data from the ALSPAC study has demonstrated that socially disadvantaged children are more likely to develop refractive errors and strabismus³.
- In the UK, school-entry vision screening is recommended but not statutory, leading to regional inconsistencies in provision. Up to 75,000 children miss screening annually⁴.
- DigiVis is a validated test of distance visual acuity (DVA), suitable for home or kiosk-based self-testing from four years of age
- Children attending general paediatric outpatient clinics may represent a higher-risk group, highlighting an opportunity for opportunistic vision screening using digital tools such as DigiVis^{5,6}.

2. OBJECTIVE

To evaluate the feasibility and acceptability of implementing DigiVis kiosk-based VA screening as part of pre-consultation assessments in general paediatric outpatient clinics.

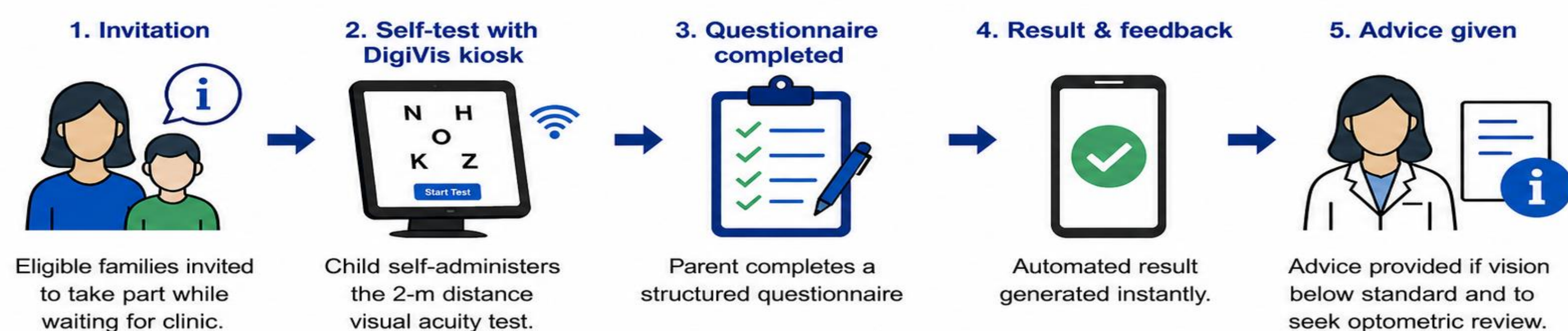
3. METHODS

Design: Prospective service evaluation.

Setting: General paediatric outpatient clinic waiting rooms, Cambridge University Hospitals NHS FT.

Participants: Children aged ≥ 4 years were invited to self-test their distance visual acuity (DVA) using the DigiVis kiosk while waiting for their clinic appointment.

Exclusions: Children < 4 years, those with significant learning difficulties, and families requiring a translator.



MEASURED OUTCOMES



Feasibility:
Proportion completing the test



Clinical outcome:
Proportion with substandard VA ($> +0.20$ logMAR)



Screening history:
Proportion recalling previous school-entry vision screening



Acceptability:
Parent/child Likert scores and free-text feedback

4. RESULTS

Patient Characteristics

- A total of 115 families were invited to participate. Testing was completed by 113 (98.3%) families – 2 children were called into consultation prior to test completion.
- Patients were aged 4-16 years (mean 9.8; IQR 6.5)
- Of the 113, 37 (32.7%) children had known refractive error and 26 (23.0%) had received hospital eyecare (for refractive error / amblyopia / other eye conditions).

Figure 2. Of the 113 surveys received, only 21 (18%) families recalled previous school-entry vision screening.

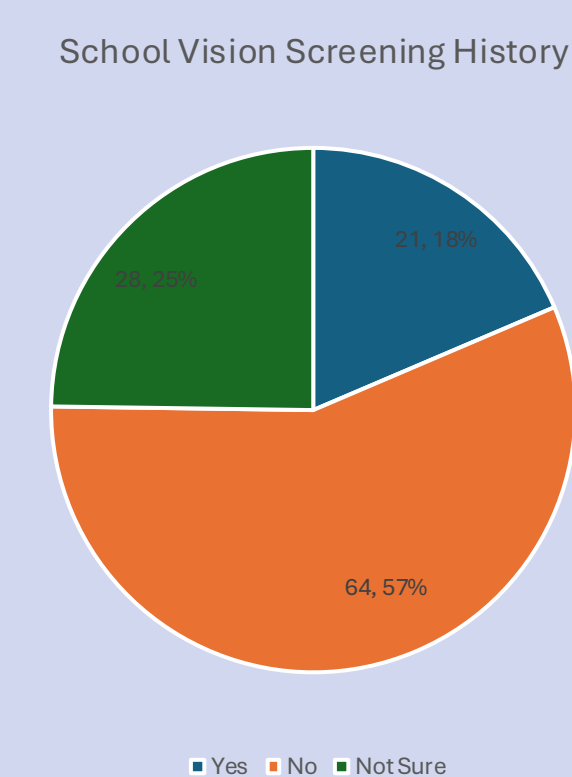
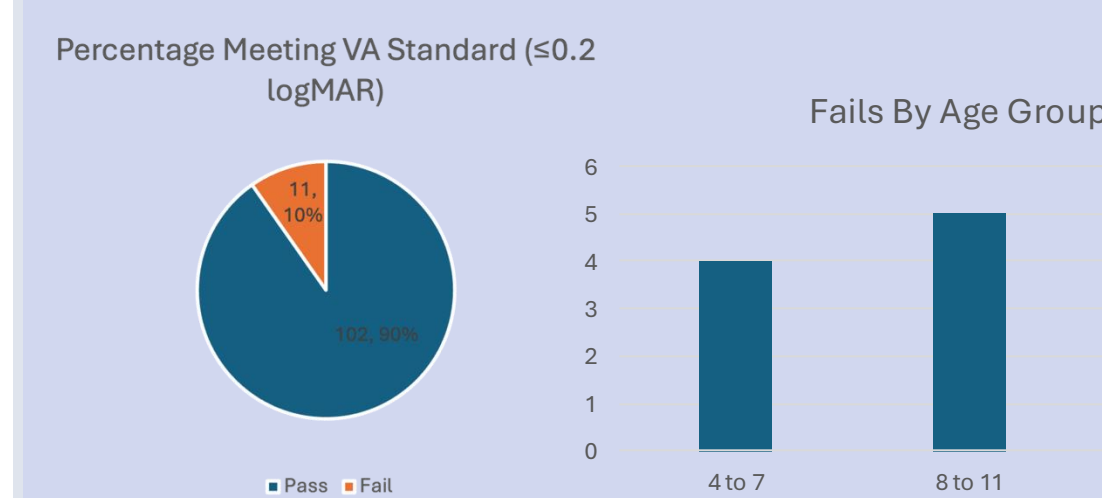


Figure 3. Percentage meeting VA standard (≤ 0.2 logMAR) and fails by age group.



Visual Acuity Outcome

- Substandard DVA was identified in 11 (9.7%) children.
 - Standard not met in either eye in 6 (54.5%)
 - 9/11 had known refractive error and/or amblyopia
 - 2 were not wearing prescribed glasses
- Two children (aged 4 and 8) were newly identified with sub-standard vision:
 - The 8-year-old was later found to have refractive error.
 - The 4-yr-old was referred to hospital services after NHS sight testing.

Test Acceptability

- Kiosk testing was rated good / excellent by 106 (93.8%) parents.
- The same proportion (93.8%) agreed / strongly agreed that routine childhood vision screening should be universally available.
- Free-text comments emphasised:
 - Ease of use
 - Child engagement
 - Suitability for neurodivergent children

Figure 4. Mean parental acceptability feedback (Likert Scores).

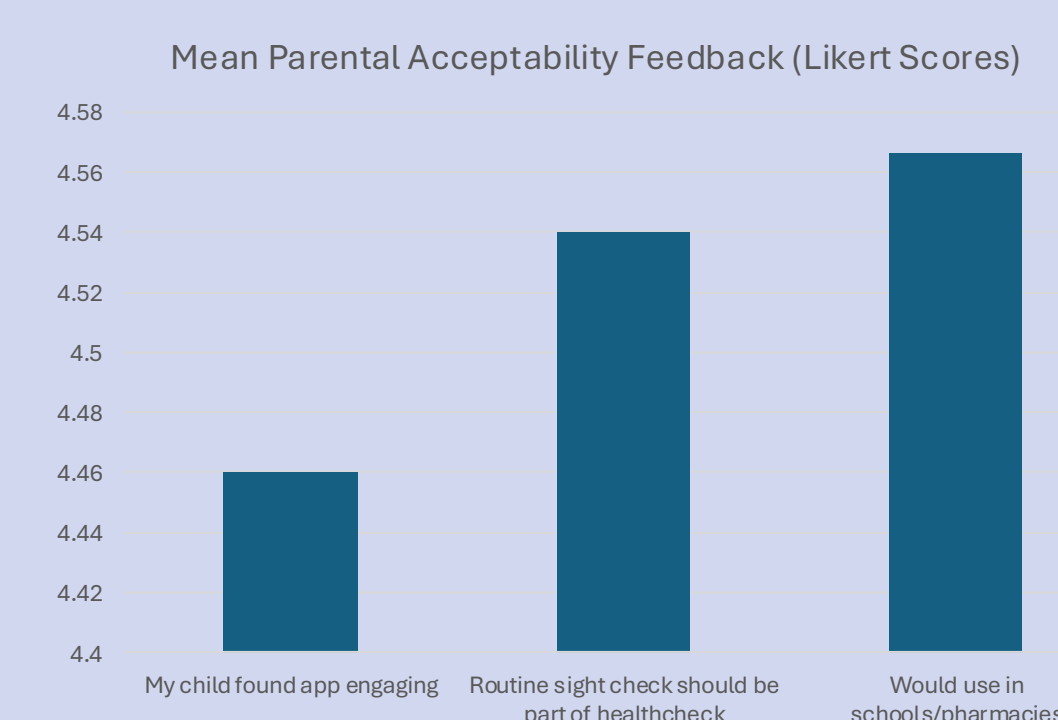
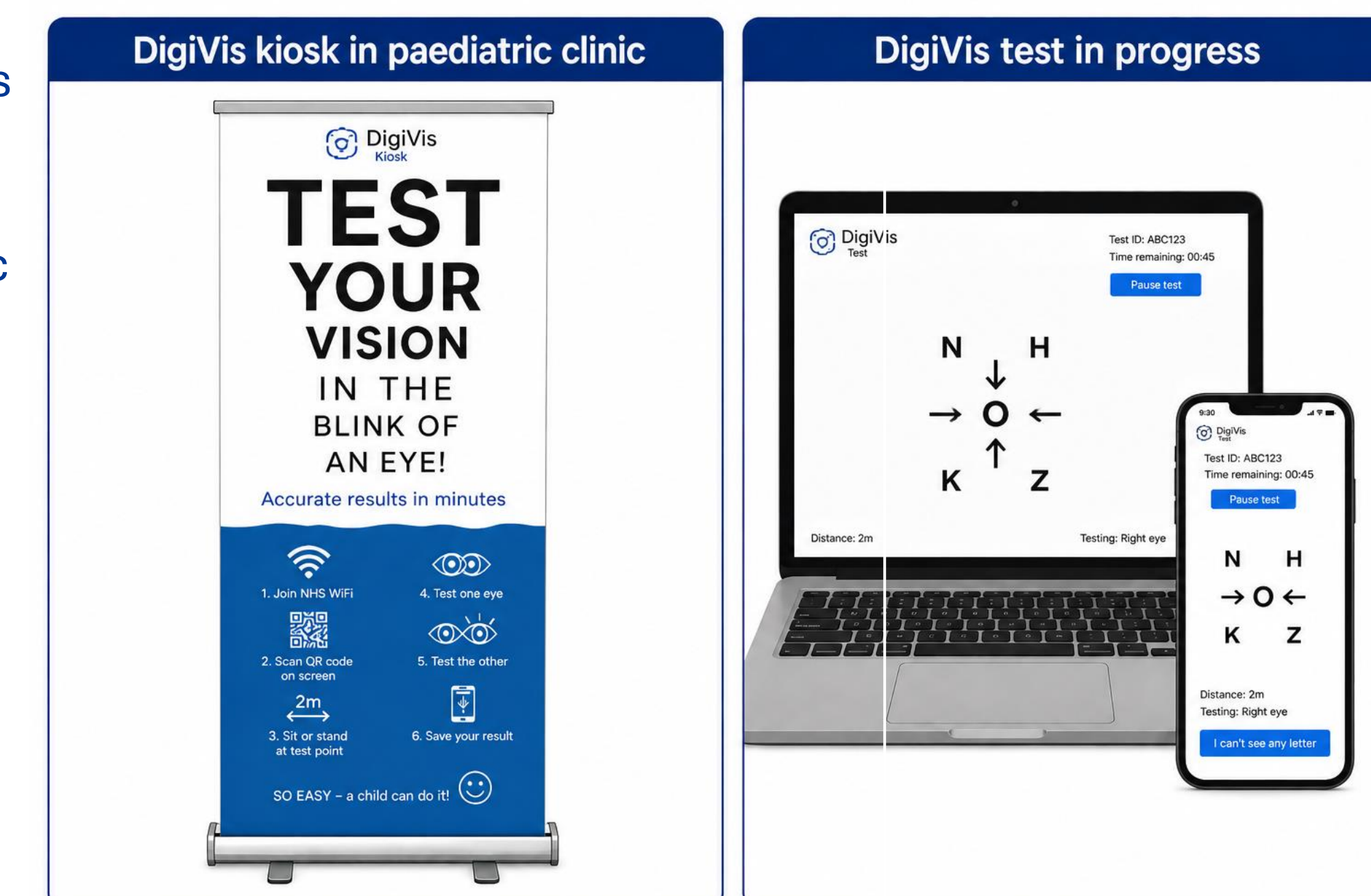


Figure 1. DigiVis kiosk and test set-up in paediatric clinic waiting room.



5. CONCLUSIONS

- This study demonstrates that DigiVis automated DVA screening is feasible, efficient, and highly acceptable within paediatric outpatient settings.
- School-entry vision screening recall was poor, highlighting gaps in current provision and awareness.
- Paediatric clinics provide an ideal setting for opportunistic vision screening, complementing school entry programmes.
- Given the inequitable access to school vision screening and the prevalence of visual conditions in this high-risk population, targeted screening with this technology could mitigate inequalities in school screening and be considered an adjunct to routine paediatric assessments.**

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CONFLICT OF INTEREST STATEMENT: Louise Allen is the developer of the DigiVis web-application and unsalaried director of Cambridge Medical Innovation Ltd, the manufacturer of DigiVis.

Images created with ChatGPT.