

BACKGROUND

Mobile health (mHealth) applications are increasingly embedded in clinical workflows to support protocol compliance and streamline care. Adoption depends heavily on usability. In June 2024, the Department of Anesthesiology at MetroHealth implemented C8 Health, a digital platform designed to centralize protocols, checklists, and workflows. Early anecdotal feedback was positive, but a structured evaluation of user experience was needed to guide local quality improvement.

AIM

To assess the usability of C8 Health among anesthesia clinicians and identify opportunities for iterative improvement to better support workflow efficiency and adherence to best practices.

METHOD

Design: Quality Improvement survey initiative: (March 3 - 27, 2025).

Participants: All anesthesia clinicians (faculty, residents, and staff) were invited; participation was voluntary.

Tool: Modified Application Usability Questionnaire (MAUQ), a validated measure of usability in healthcare apps.

Domains assessed: Ease of use, information organization, and perceived usefulness in clinical practice.

Analysis: Descriptive statistics for survey items; thematic review of open-ended feedback.

Ethics: IRB exemption was obtained; participation implied consent.

RESULTS

Responses: 142 of 160 clinicians (88.8%).

Overall usability: High mean MAUQ score (5.73 ± 0.81 on 7-point scale).

Strengths:

- Easy to use and learn (mean > 5.7).
- Consistent navigation (mean 5.70).
- Strong satisfaction with design and accessibility of functions (mean 5.5).
- 84% felt time required to use the app was appropriate.
- 87% would use C8 Health again.

Areas for improvement:

- Offline access (mean 4.95).
- Error recovery (mean 5.28).

DISCUSSION

This QI project confirmed that C8 Health is highly usable and well accepted by MetroHealth anesthesiology clinicians.

The platform supports local goals of:

- Increasing adherence to perioperative best practices.
- Reducing cognitive burden on providers.
- Streamlining access to standardized protocols and checklists.

Opportunities for improvement (offline functionality, error handling, EHR integration) were identified and will guide the next cycle of platform development.

CONCLUSIONS

C8 Health demonstrated strong usability within the Department of Anesthesiology and is a valuable tool for supporting protocol-driven care. Continued iterative improvements will further enhance its role in advancing quality and safety in perioperative practice.

CONTACT INFORMATION

Faria Nisar
nisarfaria@metrohealth.org

Luis E. Tollinche
ltollinche@metrohealth.org

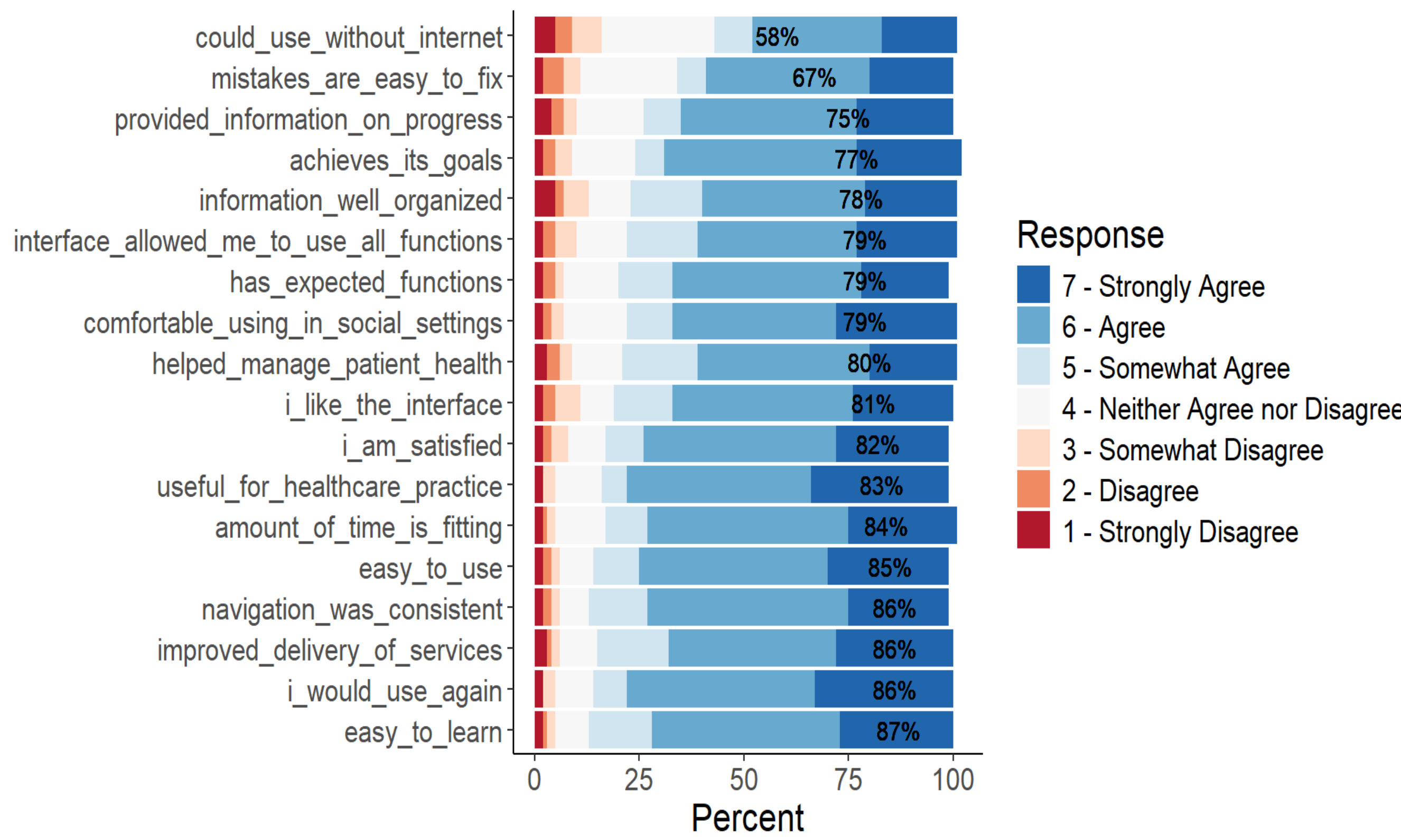


Figure 1: MAUQ survey results with percentages representing the summation of "agree" and "strongly agree" responses.

REFERENCES

- 1 Zhou L, Bao J, Setiawan IMA, Saptono A, Parmanto B. The mHealth app usability questionnaire (MAUQ): development and validation study. *JMIR Mhealth Uhealth*. 2019;7(4):e11500. doi:10.2196/11500
- 2 Cho H, Yen PY, Dowding D, Merrill JA, Schnall R. A multi-level usability evaluation of mobile health applications: a case study. *J Biomed Inform*. 2018;86:79-89. doi:10.1016/j.jbi.2018.08.005
- 3 C8 Health. C8 Health mobile application. Published 2025. Accessed September 3, 2025. <https://www.c8health.com>
- 4 Ogrinc G, Davies L, Goodman D, Batalden P, Davidoff F, Stevens D. SQUIRE 2.0 (Standards for Quality Improvement Reporting Excellence): revised publication guidelines. *BMJ Qual Saf*. 2016;25:986-992. doi:10.1136/bmjqs-2015-004411