A Low-Code Application to democratise medical app development: the case of an app for Supporting Self-Management of Non-Dialysis Chronic Kidney Disease (CKD)

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Medical professionals often employ apps in healthcare, particularly for chronic disease management, streamlining work and improving patient care. Customized health apps from medical experts provide tailored solutions, integrating seamlessly with records, prioritize privacy/security, and foster innovation. However, app development traditionally requires advanced programming knowledge.

Bubble.io, a low-code platform (https://bubble.io/), simplifies app creation with visual interfaces and drag-and-drop components, enabling both professional developers and non-technical users to build software applications. This study utilized Bubble.io to design an app for the management of non-dialysis-dependent CKD, as an example of how clinicians can be empowered to create apps with minimal technical input.

The requirements for the app were drawn from research and medical experts. The app was designed by a Bournemouth University masters student in Health and IT (NA) and was based on knowledge acquired during the masters. It was based on the assumption that no extensive knowledge of app development was required and it would identify and incorporate the medical professional's requirements for these type of platforms. The development process used Bubble.io's visual interface and drag-and-drop components for rapid prototyping. With the platform's low-code capabilities, a user-friendly interface was designed, incorporating key CKD management features such as hypertension control.

The use of bubble.io as a low-code platform proved instrumental in the successful completion of the project. The clinicians, without extensive coding knowledge, were able to actively participate in the development process, drawing on medical guidelines to define the application's functionalities. This democratization of app development facilitated a collaborative approach between the researchers and healthcare professionals, ensuring the application met the specific needs of CKD management.

This work demonstrates the potential of clinicians using low-code platforms to develop apps themselves, which has significant potential for use in a wide variety of clinical areas.

REFERENCES

Divall, P., Camosso-Stefinovic, J. and Baker, R., 2013. The use of personal digital assistants in clinical decision making by health care professionals: a systematic review. *Health informatics journal* [online], 19 (1), 16-28.

Hamine, S., Gerth-Guyette, E., Faulx, D., Green, B. B. and Ginsburg, A. S., 2015. Impact of mHealth chronic disease management on treatment adherence and patient outcomes: a systematic review. *Journal of medical Internet research* [online], 17 (2), e52.

Ventola, C. L., 2014. Mobile devices and apps for health care professionals: uses and benefits. *Pharmacy and Therapeutics* [online], 39 (5), 356.

Woo, M., 2020. The rise of no/low code software development—no experience needed? *Engineering (Beijing, China)* [online], 6 (9), 960.

Yan, Z., 2021. The Impacts of Low/No-Code Development on Digital Transformation and Software Development.