Initiative summary

mHealth Practice: **MEGI app**, Croatia

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Topics

MEGI app (hypertension chatbot) has a successful approach to the following topics:

- Planning > **User centered design considerations**

Scope of the mHealth Practice

MEGI is an app (chatbot) developed for the tracking of blood pressure. The app was developed in collaboration between the start-up company *Mindsmiths* and the *Magdalena Clinic*, specialized for heart conditions.

The knowledge of experts, primarily cardiologists and nurses dealing with cardiology, was used in the production of MEGI. It was developed for six months, followed by 12 months of use. During this period, the system was tested by 74 patients. The initial number was 82, but four gave up because they did not need measurements, and four for some other reason.

One of the benefits that MEGI provides is a significant reduction in the time a doctor spends during an examination. The average examination lasts 22 minutes, of which the doctor gathers information for 15 minutes. If the patient has used MEGI, she will prepare information for the doctor based on the data collected and significantly shorten the time required to talk to the doctor to make communication more effective. In this case, instead of 15 minutes, it will take only four minutes to collect the data, and the excess time can be used to raise the quality of the examination or save money so that more patients can be examined.

It is similar with the application or change of therapy. For example, MEGI can graphically compare the movement of pressure before and after therapy and thus show whether the pressure is regulated thanks to medication. Thanks to MEGI, the time required to adjust therapy can be shortened from six months - which is usually the interval between two examinations in such a situation - to three weeks. Thanks to information about whether a patient's pressure is regulated, doctors can achieve much more efficient use of their time. Unnecessary check-ups for patients whose blood pressure is good can be delayed or canceled, while patients who currently have problems with blood pressure can get their turn faster, and thanks to relief, more time can be devoted to them than before.

Scope and timeline of the mHealth good practice implementation

- How long did it take for the mHealth practice to be implemented?

It took around 12 months and it was tested on 74 patients before it was put in official use.

- What are the key steps that were undertaken?

IT experts and medical staff defined the needs for the app and based on that IT experts started development. First generation was put in use without involving patients in the development. During the research phase, it was seen that most patients were not skilled enough with cell phone use. The most common problems are lack of experience with downloading and installing applications, long-term non-updated software on the mobile phone, difficulties in accessing web pages due to data settings or finding the application, and insufficient free memory. For this reason, it has been shown that the best choice is communication through text correspondence as it represents the lowest barrier to technology acceptance. Almost all users knew how to use SMS and almost all had some of the applications like WhatsApp and Viber. However, the less used Telegram was chosen as the ideal platform, because it is the most flexible, fully encrypted, more open to developers and therefore allows the easiest testing.

- What are the strengths and weaknesses of the implementation process?

For the first app main weakness was that not all stakeholders were involved in the process which caused problems in the use of the app, but now both sides are actively involved in the design and implementation of upgrades or when new apps are created

Main strength is that doctors now need significantly less time to adjust therapy – now it is done in 3 weeks, as before it was 6 months from first visit to follow up session and immediately response if needed as MEGI is constantly and automatically communicating with patients and doctors.

Stakeholder involvement

- What stakeholders needed to be involved for the good practice to work?

Doctors, IT experts, psychologist and patients needed to be involved in order for the practice to work.

- What are the stakeholders' roles and activities/effort?

Doctors gave inputs for all the features that app should have, type of data they need and outputs that app has to track.

IT experts: based on doctors inputs IT experts developed the app with all functionalities and features, main challenge was which communication platform to use and Telegram was chosen due to data security and stability.

Psychologist was involved from the side of IT team in order to "translate" IT and doctors language and to make the app patient friendly

Patients – they had to learn how to use the app - it was seen that most patients were not skilled enough with cell phone use.

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- How was involvement and buy-in of the stakeholders secured?

From the start, medical staff was interested in the app as it was obvious that it would significantly shorten the period of data gathering from the patient and would allow doctors to focus on therapy and needs of the patients that really need their expertise.

Patients quickly realized they would save time; there is no need for the waiting list, they are getting answers and therapy adjustments automatically.

Barriers

- Were there any obstacles you experienced? How were they overcome?

Main barrier was to explain to the patients they have to use smart phones (especially age group 70+) but with the help of family or relatives it was overcome.

Success factors

Main success factors are that with using MEGI all data are gathered and exchanged automatically, so waiting for the first exam or regular check-up is significantly shortened, also therapy adjustment is shortened from typically 6 months to 3 weeks. Initial data gathering takes only 4 minutes compared to on average 22 minutes that doctors would need plus waiting period for the first exam and time doctors has to spend.

Outcomes

- What were the main outcomes of implementing the mHealth solution?

Main outcome is higher satisfaction among doctors and patients, shorter waiting lists, significantly shorter period for response and therapy adjustments, lower costs and better quality of medical service.

- What is the status?

MEGI is a fully operational app and in daily use in Magdalena Clinic

Continuous learning and outlook

- What would you have done differently? What can still be improved?

App is under constant development and is regularly updated (data protection, added features)

- What are the future plans for exploiting the mHealth solution?

The app was tested in primary and secondary health care and it the future it will be widely used.

References (in Croatian)

- Meet MEGI, a digital assistant who takes care of pushers and shortens therapy settings from 6 months to 3 weeks: https://www.tportal.hr/tehno/clanak/video-upoznajte-megi-digitalnu-asistenticu-koja-brine-o-tlakasima-i-podesavanje-terapije-skracuje-sa-6-mjeseci-na-3-tjedna-20201208/print
- Megi: https://www.youtube.com/watch?v=1jlQChcLTAE
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