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Interview summary

Interviewee: Lorenzo Gios, Autonomous Province of Trento
mHealth Practice: **TreC Diabetes**
Interviewers: Marzia Lucianer, Journalist, Head of Media Relations and Digital Communication at TrentinoSalute4.0
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Summary of main interview ideas:

- TreC Diabetes aims at implementing a new organizational asset to manage patients with diabetes type 1 and type 2, supported by new technologies.
- The core target are mainly pregnant women affected by diabetes, including Gestational Diabetes Mellitus (GDM).
- TreC Diabetes has been piloted and fine-tuned from 2015 to 2018.
- The systems (App for patients and dashboard for healthcare staff) is used as part of the standard service delivery.
- The App includes a messaging system to facilitate communication with healthcare staff.
- The App includes an AI component enabling a virtual coach system to support healthy lifestyles and behaviour changes.
- Healthcare staff members (nurses and doctors) can monitor patients through the online medical dashboard.
- The dashboard was conceived as an easy-to-use console, allowing proper management of clinical and non/clinical information collected through different sources (medical history, personal data, laboratory data, self-reported information) and allowing to keep the healthcare staff and the patients in touch (chat).
- The communication between patients and health care staff was significantly improved, as well as the quality of both monitoring and management of the patients.
- Associations/NGO have been involved in the App design and piloting.
- The platform is used as part of the standard care for specific segments of the target population.

Description

TreC Diabetes is a project developed by the joint laboratory APSS/FBK/PAT of TrentinoSalute4.0 (partners: Autonomous Province of Trento – PAT, Provincial Healthcare Trust of Trentino - APSS, the Bruno Kessler Foundation – FBK). Based on previous experiences gained through TreC and TreC_FSE projects, this initiative aims at implementing a new organizational asset to manage patients with diabetes type 1 and type 2, supported by new technologies. The core target of TreC Diabetes is mainly pregnant women affected by diabetes, including Gestational Diabetes Mellitus (GDM).

The project was launched in 2014 with a preliminary piloting. Particularly in the case of GDM, the management of diabetes during pregnancy is a sensitive issue, and the impact on the (perceived) quality, acceptability and easiness of the service delivery is a vital aspect of any potential innovation. TreC Diabetes has been piloted and fine-tuned from 2015 to 2018: currently, the

systems (App for patients and dashboard for healthcare staff) is used as part of the standard service delivery.

The first step was to conduct a formative research (including sociological assessment) to identify and to structure requirements and procedures to develop a technological asset supporting both patients with diabetes and healthcare staff. Following this phase, the TreC Diabetes platform has been developed including (i) a mobile app for patients and (ii) a web dashboard for health care staff. The TreC Diabetes App is an application designed to incorporate medical and lifestyle recommendation, as well as allowing the patient to record in a mobile diary disease and health-related information. The App includes also a messaging system to facilitate communication with healthcare staff, as well as an AI component enabling a virtual coach system to support healthy lifestyles and behaviour changes.

Healthcare staff members (nurses and doctors) can monitor patients through the online medical dashboard. The dashboard was conceived as an easy-to-use console, allowing proper management of clinical and non/clinical information collected through different sources (medical history, personal data, laboratory data, self-reported information) and allowing to keep the healthcare staff and the patients in touch (chat). An intuitive menu allows doctors to set up specific triggering patterns to collect specific data and to activate reminders, where settings and limits can be personalized in light of the specific patients' conditions.

The project constructively brings together both technological innovations and organizational aspects, to promote healthy lifestyles in and efficient management of patients with diabetes. Through the project and the related app/dashboard, the communication between patients and health care staff was significantly improved, as well as the quality of both monitoring and management of the patients. From a citizens' perspective, this has enabled patients to easily access health documents and to manage their contacts with the health care staff. From a health care team viewpoint, this technology has promoted prompt and smooth management of patients (so far, pregnant women with diabetes).

Considering weaknesses of the platform, the core one is related to the scalability and exportability of the model to other types of patients with diabetes. This is also due to missed integration of the platform with automated devices currently in use by the patients (e.g. glucometers).

Specific studies have been implemented over the years to assess the platform usability, confirming that TreC Diabetes platform could be an effective tool when used to support patients's self-management and patients monitoring (Osmani 2017) (Miele 2015) (Eccher 2020).

Additional strength is related to the active involvement of NGO/patient associations at province level. Associations have been involved in the App design and piloting. They were invited by the Provincial Healthcare Trust of Trentino – APSS / Governance. Proper qualitative research has been conducted also to collect needs and requirements from the main stakeholders, namely, patients and MD/nurses.

APSS supervised the contents related, FBK developed the technology to support the initiative. Associations provided inputs for app development. The core stakeholders, namely, patients and MD/nurses, provided inputs for the system development, and contributed to the piloting. FBK was also responsible of the sociological/qualitative assessment of the initiative.

A digitally enabled, patient-centred approach adopted since the beginning of the project and an active involvement of all the stakeholders were key success factors within this initiative. The engagement of patients and the support of self-monitoring/self-management appeared to be a

key factor in improving patients' health and the perception of the quality of the service received, particularly during pregnancy.

More than 100 patients per year have been enrolled using this platform (mainly pregnant women with diabetes). mHealth technologies have been shown to have an increasing level of acceptance, both from patients' and healthcare staff's side. The perceived quality of the patients has been assessed through qualitative analysis and it has been reported as very high.

The platform has been piloted and tested in the past years. Currently, the platform is used as part of the standard care for specific segments of the target population, whereas other functionalities (advanced functionalities) are still under development and piloting.

As described above, the core issue is related to the scalability and exportability of the model itself to other types of patients with diabetes, and the lack of integration with patient automated devices. Contacts and agreement with the private companies and related integration could have been an action to pursue adopting different approach.

Future plans are to further assess the use and efficacy of the platform through specific evaluation project (clinical trial). In addition, further studies are under elaboration with the view of: piloting advanced functionalities/tools (particularly for monitoring specific steps of the patients' journey, as example: first diagnosis, change of therapeutic plan); scaling up of the platform for patients with diabetes 1 and 2 within specific phases of the patients' journey.

References

Project website
https://smks.fbk.eu/en/results/app-diabete/
Project video
https://www.youtube.com/watch?v=OoIsqaGdHng&t=2s