

Interview summary

Interviewee: Miren Garrastatxu Landaluce-Oqueranza and Jose Manuel Perales García.

mHealth Practice: **Mugitzen**

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Topics

Mugitzen has a successful approach to the following topics:

- Planning > **Workplan development** (implementation strategy)
- Planning > **Technical infrastructure requirements**
- Execution > **Integration with eHR**

Scope of the mHealth Practice

Background info about the good practice

Osakidetza (Basque Country Health Service) has created an innovative healthcare system for nurses that allows them to care for the patients in the most agile, efficient and safe manner. The new system is part of a clinical care and management project launched by Osakidetza (*Osakidetza Mugitzen*, a mobility strategy aimed at professionals), which combines patient safety, nursing care, mobility and the collection and recording of information at the point of care (primary care at home and in hospital), in real time.

The system consists of 5 applications based on the identification of the patient by reading their wristband (hospital environment) or selecting them from a census (home environment). The new Osakidetza applications are designed for lightweight tablets, with a size that allows them to be carried in a uniform pocket, and have been developed from the existing information systems at Osakidetza (Electronic Medical Records, Osabide Global, Osanaia, eosabide...), adapting and selecting the necessary information to the mobile device, improving functionality and thus offering simple and safe care.

This new information access and management system has been initially developed for five daily use applications in nursing:

- *Constant capture:* allows both consultation and recording of different clinical constants. The recording is reflected immediately and is archived in the patient's health record, as the application is integrated with Osakidetza's electronic health record.
- *Administration of medication:* this allows a patient's prescription chart to be consulted and medication to be administered. The application shows the patient's current treatment and pharmacological history. It also incorporates safety filters such as alerts and allergies in the treatments and allows the medication to be consulted by time periods. The application is integrated with hospital pharmacy (eosabide).
- *Devices and wounds:* allows for the complete registration of clinical devices. The application is integrated with nursing care (OsaNaia).
- *Blood draws:* allows for the reconciliation of the flyers with the draws. Furthermore, it allows to cross and verify the patient's data, the request data and the sample data, confirming to the

nursing professional that the procedure is appropriate. The application is integrated with Osakidetza's Laboratory (GestLab).

- *Bed map*: it shows the occupation of the nursing units, as well as the care to be provided to each patient. The information is accessible through various filters. The application is integrated with eosabide, osanaia, and allergies and alerts from Osabide Global.

One of the most outstanding advantages of these applications and devices is the security they offer in terms of care, since the tablet has a scanner that reads the barcode on the patient's wrist, performing an automatic verification, thus avoiding identification errors, and allowing access, through the code, to their clinical data.

In addition to reinforcing clinical security, these applications allow the information collected in real time to be uploaded to the patient's electronic medical record, thus avoiding any possibility of error.

Scope and timeline of the mHealth good practice implementation

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

Mugitzen, Mobility Nurse, started in 2013, with the first steps, which were more technical. They became pilots in Galdakao (OSI BARRUALDE GALDAKAO): they began to identify needs for access to information, at the bedside; this experience was done with mobiles, it was a laboratory.

Next step: How to bring it to all Osakidetza users? The entire technical environment was set up and operational by October 2015. From 2015 the first pilot of the first application was started. A solicitation document was drawn up, with an external company and 5 applications. An architecture was established to see how these applications could work on a large scale; it was seen to be viable and a tender was issued and awarded to a company. The first milestone was the implementation of these 5 applications in production for all users in the hospitalisation area.

The portfolio of services has been extended to areas other than hospitalisation, also at home, and accessible via the internet. In May 2020, tablets were deployed for Primary Care and Home Care. The apps were adapted to work in these areas: apps for constants, extractions, medication for home hospitalisation (under development); the app for devices and wounds is currently being adapted for the home environment and a specific app has been developed to cover priority needs in home care: one for scales and forms, which allows access to the type of scales used in chronic care.

- What are the key steps that were undertaken?

- Dossier and specifications for allocating a portfolio of mobile applications.
- Development of the 5 applications that were considered a priority at that time: constants, extractions and samples, medication administration, device and wound registration, and bed mapping.

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

Strengths:

- to provide a new tool that allows a quality record to be made, online in real time;
- security: to ensure that there are no mistakes;
- the errors detected coincide in the data with studies already carried out;
- instead of macro-developments, we have tried to cover the needs with mini-applications that resolve very specific business scenarios and where they contribute a lot of value.

Weaknesses:

- technology is advancing very quickly and forces us to be constantly evolving, especially tablets; we have opted for consumer products that are not very expensive, for sustainability, but they are not for professional use; when changes are made to these devices, they affect them; they seek balance in the evolution of applications and at the same time to be able to support their use;
- the speed with which technology evolves and the needs of professionals associated with that technology.

- **What are the strengths and weaknesses of the solution?**

Strengths:

- the applications that have been designed, which respond to needs detected by the professionals themselves;
- benefit to the patient, benefit to the professional in their daily practice; it facilitates easy and simple access to very important information; it represents an unquestionable improvement in terms of security and quality of information.
- communication capacity between nurses and technical partners (solid and fruitful alliance).

Weaknesses:

- the difficulty of responding to the new needs identified by the good practice.

Stakeholder involvement

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

- Nursing, which is the figure that needs the utility.
- Technical part: developer, interoperability, security communications.
- Project supported, defended by the Sub-directorate of Nursing, within the Directorate of Health Care, and the Directorate of Information Technology.

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

- Nursing: identification of needs, improvements to be made, definition of the scope that the tools must have, their functionality, usability of the designs.
- Technical: development, security, interoperability.

- **How was stakeholder participation and engagement ensured?**

- A first experience was made in Galdakao. It was seen that the device was viable and was the lever to start the project. The Directorates of Nursing and Information Technology understood the need and bet on it.
- A steering group was set up, which is still in place, and which met once or twice a month. It is made up of members of the Information Technology Services of the Osakidetza General Directorate, the Sub-directorate of Nursing, representatives of some of the organisations that began and of large organisations where many needs arise. The group collects the initiatives that arise (improving scope, functionalities, development of new apps...).
- In addition, in nursing there is a reference group, with 1-2 people from each health organisation. It is in this forum that needs for implementation, user experience and incidents arise.

- These two groups are currently articulated in order to promote the project.

Barriers

- [Were there any obstacles you experienced? How were they overcome?](#)
- People's natural resistance to changing habits. In some points it is easier than in others to break these barriers; for example, in hospitalization it is usually easier to introduce changes because it is easier to reach the end user, who has to use the resources; there is a figure of the supervisor, who is given the task of implementing and who is present in the unit, checking how things are done. But in other settings, such as Primary Care or Home Hospitalization, it depends much more on the interest or experience of the nurse.
- Lack of technical resources, lack of tablets; the pilot model has been out of stock and while others are being obtained, there are units that are undersupplied.
- The hardest part is the device itself.
- The infrastructure also changes very quickly, but we are able to adapt very quickly.
- Patient identification: how to scan patient barcodes with a device that was not intended for that. Today there are areas where this difficulty is not solved because the patient does not have a bracelet.
- Bracelets were not originally intended to be read with a device; bracelets, barcodes, QR codes.
- Nowadays, if the camera disappears or the component used to scan disappears, it is one of the weakest points, which affects all security.
- First steps: find suppliers that develop these platforms. It is difficult to find technicians with this knowledge.

Success factors

- Nursing is a highly disciplined professional body. It may take more or less time to work through the barriers, but they usually end up joining the initiatives.
- Having established a network of references, who take the lead in implementing the project, who are interlocutors between the users and the driving group; they take on the training in cascade towards the rest of the users, reinforce those who have difficulties, transfer incidents, are a fundamental element in achieving the success of the projects. They are permanently on site.
- 100% open-source platform (device and infrastructure), maintenance is very easy.
- MEM is the only thing that is not free.
- The performance of this architecture is very good and can be used for other types of developments.
- A lot of performance and everything is very light.

Lessons learnt

- Talk to the people who are going to use it, identify users to help define. At the beginning you could have worked more with them in defining the functionalities and scope.

- Now we are in production and the changes need to be thought through and analysed a lot, because they affect many users.
- Always look to the future, to what is on the market. Now we are thinking of taking these applications to mobile phones instead of tablets, because they are designed for other things.

Outcomes

- **What were the main outcomes of implementing the mHealth solution?**
- Thanks to the applications, identification errors have been detected (obtaining samples, administering medicines...).
- A data console has been built to provide information on the activity carried out with the apps, in a secure and agile manner.
- Creation of a digital culture in the use of resources; a culture of security and care.
- If the user sees benefits, he is successful.
- The fact that nurses perceive as necessary to access components of the medical history, consult information to provide care, that needs arise associated with the resources they already have, is a success.
- Nurses already trust and rely on the applications, previously they did not trust and had to check.
- The size of the tablet has been taken into account (if it fits in the pocket of the suit, or gown).

Continuous learning and outlook

- **What would you have done differently? What can still be improved?**
- Different, no. The project was born at a point where the end user (nursing) and IT were ready for it. Two years earlier it would not have been technically possible.
- To be more ambitious with the scope of some of the applications that have been developed; some developments have been left just short of scope, mainly due to technical issues.
- **What are the future plans for exploiting the mHealth solution?**
- Evolution of the device issue. They usually go in tow of what is needed. At the same time, applications have been developed for the citizen, which are 100% assistance.
- Pending in the schedule: Extension to medical day hospitals, emergency rooms and emergency rooms. The development of new applications has also been considered (e.g. warning map for primary and home care).

Other clarifications

- **Is the initiative integrated with any patient portal or government repository?**
- It is integrated with the Osakidetza patient repository. Interoperate 100% with Osakidetza systems, no integration with other health services. Integrated with the large systems of Osakidetza: E-OSABIDE, OSANAIA, AND Osabide Global. The environment is 100% intranet.

- **How does the nursing procedure for administering medicines change?**
 - It has occurred in all processes that require bracelet reading, not only in medication. As a result of using this medication administration app, the identification of the person is secure. In order to access the app, the sticker on a medication cart corresponding to a specific patient must be read and the patient's wristband must be scanned in order to sign the medication. If there is no match, there is an error. If there is a match, the medication administration can be signed. The process is a little slower, but it provides security.
 - The same applies to the extraction of samples; the bracelet is traced with the patient and the sample.
- **Have interoperability standards been adopted?**
 - No interoperability standards are used. They have adopted rest services because they are lighter and give more performance.
- **Does the initiative generate evidence/results on patient safety?**
 - We have a console where security-related errors are monitored. The errors are recorded and you have the success rate over the error rate.
- **What are/were the main obstacles encountered in the design and development of the initiative; how were they overcome?**
 - The network of references that has been created has helped to overcome these obstacles. They have assumed the leadership in the implementation of the project, they act as interlocutors between the users and the traction group and they transfer everything that is being done, there is constant contact.
- **How were the technical problems solved? (e.g. connectivity between the devices and the hospital's Wifi).**
 - There is no technical support on the device side, with connectivity problems encountered.
 - The manufacturer (Samsung) was contacted and a patch was made, but it took time. They are now working with Huawei. They have been approached to stop certain device updates and this is how it works best.

Other additions and highlights of important aspects identified

- If they use devices of this type, taking into account the low number of devices we are talking about, for a manufacturer it is as if they do not exist; they are drifting away from what the manufacturer considers.
- The application is sustainable because the device is cheap, but they are not going to support you.
- Not only do we have to take into account the real needs of the users, but we also have to make a clear commitment to bring the medical record closer to the point of care. It is not necessary to have a total scope, nor to carry all the information systems, but it is key that it feels useful and that it becomes essential.