

Interview summary

Interviewee: Mariana Meira

mHealth Practice: **myNHS Wallet** (*mySNS Carteira*)

Interviewers: Samuel Jacinto, Vanessa Mendes

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Topics

MyNHS Wallet has a successfully approach on the following topics:

- Planning:
 - Technical infrastructure required
 - **Interoperability with existing systems**
- Execution:
 - Technical integration with eHR and other systems
 - **Authentication, authorization mechanisms**
 - Collection and use of patient-generated data
 - Data security and legal framework

In bold are the two topics / areas which were handled especially well in the good practice.

Scope of the mHealth practice

Background info about the good practice

MyNHS Wallet (*mySNS Carteira* in portuguese) is a free of charge app that functions as platform to help patients to manage their health information. This app, developed by the Shared Services of the Ministry of Health, E. P. E. (SPMS), Portugal, provides all the health and administrative information of the patient on a modular way, like a wallet, where every bit of information is a card. Besides adding the cards, it allows for citizens to record their measurements and have access to a range of services. Currently, myNHS Wallet offers the following options:

- Vaccine card
- Treatment Guide
- ADSE Card
- Vital Testament
- Allergies
- Rare diseases
- New coronavirus
- Registration of measurements (steps, blood glucose and blood pressure)

Through the app, citizens can also contact their primary care centre, SNS24, and use RSE / Citizen Area, MyNHS, MyNHS Times, and Teleconsultation (through RSE Live) services.

The app is based on four principles: security, safety, portability and tailoring. On the security, several technical mechanisms provide a truly secure information exchange and storage. At the safety level, the digital identity of the patient is guaranteed. All citizens with a Digital Mobile Key can have access to the MyNHS Wallet, and to access all features, it is necessary to have a health user number, or otherwise the use is limited.

The app can be downloaded through a link on the NHS Portal, in the Health Apps area, or from the Play Store (Android system), or from the App Store (IOS system).

SPMS: The Shared Services of Ministry of Health, E. P. E. is a public enterprise created in 2010, functioning under the guardianship of the Portuguese Ministries of Health and Finance. Its aim is to provide shared services to organisations operating specifically in the area of health, in order to “centralise, optimise and rationalise” the procurement of goods and services within the NHS, in the area of Information and communication systems and technologies.

Summary of main interview ideas

Benchmarking to understand what is happening outside and within the country and then transpose it into our reality, considering our failures, our benefits so that it can meet our population needs.

Example: from the already existing Citizen Portal, statistics of usage of the main functionalities were used to design the mobile app, taking into consideration the differences between a computer-based and a mobile-based system.

Most used functionalities:

- Appointments, the most use functionality
- Request for chronic medication, since it is a process that does not necessarily requires for the patients to go to the consultation, because being a chronic disease, patients need their medication every 3 months.
- Vaccination records.
- Registration of symptoms, which depending on the citizen consent can be shared with healthcare professionals. For example, the citizen can be at home, on his / her computer or mobile and access and register their measurements, such as glycaemia, cholesterol, etc. Then he / she can choice to send this information to his / her doctor, or to just keep it in the portal just for their self-knowledge.
- Request exams and respective results.
- Consultation of prescription.

Barriers:

- Fragmentation of the information, due to the different systems in use, not completely centralized, with local systems still in place; differences on how data is structured.
- Use of digital services by citizens (partly, culture-related)
- Strong authentication method (partly, culture-related)

Enablers:

- International standards (SNOMED, HL7)
- Promote and disseminate the usage of digital services
- Well-structured digital system already in place (during the COVID-19 pandemic, they already had the tools to allow the interaction between patient and health professional at distance)
- Channel (direct or indirect) to get citizen feedback (e.g., SNS24, citizen cabinets/office in the healthcare units) (entry point in the system that allows to get a better understanding of the citizen’s needs). Important to obtain this feedback and collaborate with those that work directly with the citizen.
- Channel (direct or indirect) to get healthcare professionals' input
- Strong authentication method (Digital Mobile Key allows to access different platforms while safeguarding the concerns about the safety of accessing personal data)

Interviewee role: Mariana Meira is currently managing the team that is responsible for the developing of mobile apps within SPMS, which includes mobile app focus on the citizen (e.g., myNHS Wallet) and also focus on professionals.

Topic: INTEROPERABILITY WITH EXISTING SYSTEMS

- *What approach was considered for the interoperability with existing system when planning this solution?*

MyNHS Wallet is available in both Play Store and App Store since January 2017. Prior to this, SPMS had already developed the Citizen Portal, which is available since 2014.

So, when the mobile app was created the first statements that were made, was to take into the consideration the usage of the citizen portal.

So, we made an analysis and a study based on the experience of the prior 3 years with Citizen Portal in order to understand what kind of functionalities and services our citizens were using the most, and with that in mind, we started to create a set of functionalities, but taking into account that not all of this that is possible in computer-based system is possible in a mobile. So, in addition to the statistics of usage by the citizens, we also took into consideration the fact the mobile phone will not have the same behaviour as the computer. This was the main analysis that we did and still do, in order to decide what is important to include in our app for users, and we always use the Portal as a reference since it is available for a longer period of time (based on statistics and usage).

- *Can you give us some example of what services citizens used the most?*
 - Appointments, the most use functionality
 - Request for chronic medication, since it is a process that does not necessarily requires for the patients to go to the consultation, because being a chronic disease, patients need their medication every 3 months.
 - Vaccination records.
 - Registration of symptoms, which depending on the citizen consent can be shared with healthcare professionals. For example, the citizen can be at home, on his / her computer or mobile and access and register their measurements, such as glycaemia, cholesterol, etc. Then he / she can choose to send this information to his / her doctor, or to just keep it in the portal just for their self-knowledge.
 - Request exams and respective results.
 - Consultation of prescriptions.
- *How long does it take to have one of these services implemented in the app?*

It is a trick question, considering the concept of integration, it always depends on the entity that develops the service, and then its availability to present it to citizens, so the time varies. While some are faster, others are more complicate and takes more time.

Additionally, Portugal has a lot of local systems that are spread over primary care units and hospitals entities. So, we have some sort of decentralized health systems in hospitals and primary care units, so sometimes it is difficult to aggregate in a consistent way data from our patients, because they are registered locally. So, it has also been a difficulty and a great challenge in order for us to be able to present information to the citizen in a structured way, because in some cases this data is being collected in irregular formats.

Barriers: Fragmentation off information, with different systems in use; differences on how data is structured.

- *How do you overcome this?*

In order to tackle this, we use International standards, such as SNOMED (in terms of semantics) and HL7 (in terms of technical aspect) in order to normalize and give consistency to the data.

Enablers: international harmonization standards.

- *Are there any more barriers found during the development and implementation of myNHS Wallet?*

In terms of organization there is always few barriers, but these have been easily surpassed. One barrier is to convince some of our citizens to refer to digital services.

The recent COVID-19 pandemic in a certain way instructed patients to connect with the health systems, as well as finance, etc, in a more digital way. However, in some aspect is still difficult to do it, because considering the culture aspect, Portuguese citizens like to go to their healthcare centre and talk to their doctors. Even though it is a barrier, we are doing a great work in order to promote and disseminate the usage of digital services, to pass the message that we are not ending the direct contact with their doctors - citizens are still going to their doctor - but see it as an alternative way of doing, they are encouraged to use the digital systems.

If we did not have had a well-structured digital system, it would had been even harder to deal with the current pandemic than it is in fact, because we already have tools that allows us to allow interaction between patient and health professional at distance. So, I believe in this point, we were well prepared.

- *What can still be improved concerning the interoperability aspect?*

It always a question of continuous learning, and sometimes this is difficult when we are dealing with the citizen. When we are dealing with healthcare professionals-focus apps, it is easier for us to talk with them or representatives (primary care, hospitals units) and to get their inputs, so it is easier to establish targets of the systems. When we are dealing the citizens-focus apps, we have 10 million possible users, so sometimes it is a bit difficult to establish the target and the focus of the mobile app, because we really need to envision what will be important for the biggest part of the population and that it is not always clear, because there are a lot of needs.

- *Following this last point, people engagement. How is this implemented / tackle in this project?*

To answer this, it is important to mention that SPMS has a another set of areas that focus on the citizen, so apart from the myNHS and citizen Portal, we also have the National Contact Centre (SNS24), telephone-line that is available for anyone that wants to call. They can ask for administrative services, such as to schedule an appointment, for example when they do not have internet, cannot access the Portal, etc. They can also call to request renovation of chronic disease-related medication, after ensuring the citizen identity.

This is a big entry point in the system that allows us to get a better understanding of the citizen's needs.

In the past few years, there has been a better entanglement among the teams that are developing information systems and the people that are actually dealing with (answering the phones) the citizens, in order for us to understand what are the main needs of the citizen. Because they will actually call asking if it is possible to this or that in the line and in the website, so with that we can more easily understand what the patient would like to do digitally and cannot do at the moment.

In addition, it is also articulated with Primary care units and Hospitals institutions. In many of these, they have citizens cabinets / offices where the patient can go to clarify questions, so we also contact these offices in order to better understand what are needs of the patient.

Enabler: there is an opportunity for citizen to go the institution to ask for their needs.

Topic 2: AUTHENTICATION AND AUTHORIZATION MECHANISMS

- *What were the key steps and timeline to approach the Authentication, authorization mechanisms?*

As I mentioned, myNHS Wallet mobile application was launched Jan 2017. At the time, the authentication was in an intermediate level of security. The citizen would enter his / her date of birth, beneficiary number for the health system and the mobile phone registered in the national system. If all these 3 parameters were correct, he / she would receive a code in the registered mobile phone to enter in the system – this was the authentication mechanism.

By the end of 2018, we implemented the digital mobile key as an alternative method, meaning authentication mechanism were kept.

Since Jan 2020, the first authentication mechanism was removed, and now the authentication process is exclusively done via digital mobile key.

The digital mobile key is strong authentication method developed by Administrative Modernization Agency, I.P, which is governmental entity in Portugal that is responsible for the modernization of the administration. This strong authentication mechanism made available to the citizens when they get their ID Card. The ID Card, which is digital, comes with codes that allows to access multiple governmental and other platforms. In addition to this, they have developed a Digital Mobile Key, which is a sort of alternative and highly secure authentication method to the citizen ID Card itself. The Digital Mobile key is used in several governmental and non-governmental platforms and it is recognized by the Portuguese state as a strong authentication.

- *Possible advantages and barriers to this authentication mechanism?*

In terms of advantages, it can be used in multiple platforms. When you start to use it, you do not have to memorize different codes and passwords for the different services, and you access different platforms with this authentication mechanism.

However, as a barrier, it is a process that is still a little difficult to implement when the population is still not completely used to digital services.

- *Is this authentication mechanism seen as a barrier or enabler for the use of myNHS Wallet?*

It is a working in progress, this is the question that we make ourselves every day. It always depends on the population that we are considering. For example, we already have many citizens who are concern with the security of their data, especially if it is health data, because there is always a fear that the data may be spread over persons or entities that they do not wish to happen. So, we already have many people that truly concerned about the security and privacy of their data. So, for this part of the population, this is a great authentication method, because it is a two-factor authentication, you have one code that only you know, that it is sent to you that moment. So, it is a strong authentication method.

For people that are not so keen in these questions of technology, it can be a bit hard to leave the common user credentials, user / password method to have this more complex authentication mechanism. So, it is a question of measuring and we truly believe that the future is to grant security, even if this means that at first it will be a little more difficult for people to access our services, but in the mid-time that will be surpassed.

- *Do you have a way of measuring the number of users throughout the time of the app, meaning you mentioned the two types of authentication mechanism, do you have numbers of one solution compared to the other?*

Yes, the prior authentication method was more used because it was easier for citizens to use that method. However, we have started to see that we were receiving requests of people when we

removed the prior authentication method. We saw an increase interest in knowing and understanding what is the Digital Mobile Key, so it is a question of evangelisation, I guess. In the first month, the utilization decreased because many people did not have the Digital Mobile Key, but now we are again coming back to our usual numbers of access. We also received feedback from some citizens offices / cabinets. When people start using the Digital Mobile Key, for example in myNHS wallet, because they do not have any alternative, when they go to other platforms (financial, social security, etc), they usually tell us that now they only use the Digital Mobile Key; before when I had options, I went for the option, but now that I have the Digital Mobile Key, I will never memorize 3 or 4 alternative passwords, I will always use this method.

- *Do you have any recommendation for an organization that is trying to implement a similar solution as the myNHS Wallet?*

First of all, benchmarking is always very important. As I mentioned in the beginning of this interview, we have done some benchmarking regarding our Citizen Portal, it is also important to referred that we had also done it for other mobile apps in Europe, in order to better understand the needs, the dynamic associated with this. So, benchmarking is always important to understand what is being done outside and inside, and then probably the most difficult part is to adapt the results from that benchmarking analysis to our own reality, because the same solution will not have the same impact / utilization in different cultures.

Understand what is happening outside and then to be able to transpose into our reality, considering our failures, our benefits in order to satisfy our population.