

Product lookup for Patient-Facing Apps

Use Case

Request to renew a medication on the Medication List from a patient from Country A in Country B

*Nicole*



- **Instrument of Innovation**

Participants can share (or discover) important insights related to the practical aspects to realize IDMP-empowered digital health workflow

Thanks to the developed applications

Ground testing regarding digital health systems in Europe will inform the best directions to reach new solutions

- **Instrument of Implementability:**

The work of the lab is to move from theory to practice

For IDMP to go to scale, the change management and related specifications need to be practically implementable

The lab adds value upstream of conformance testing and helps highlight interoperability specifications

- **Instrument of Governance**

The lab will provide a trusted conformance-testing service

Testing capacity enables EU Member States to exercise governance over digital health actors to ensure their ability to interact with each other in the service of patient care workflows that depend on shared health data

The solution provided by the UNICOM project can represent a useful and necessary tool to help and **facilitate travelling citizens' lives and protect their health, eliminating barriers and personal fears** of forgetting their medication at home and discontinuing their therapies.

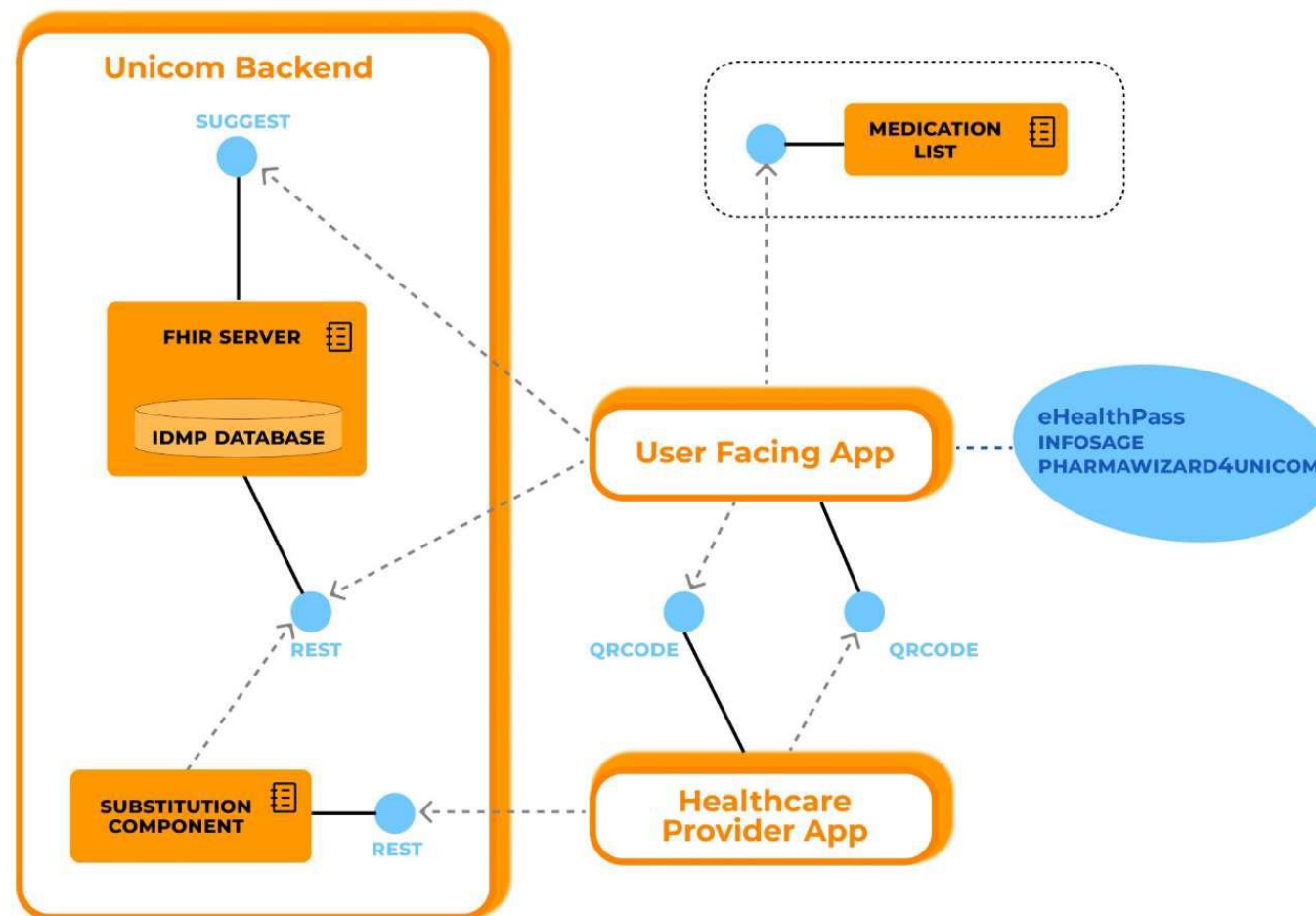
It presents benefits both for patients and healthcare providers.

**Patient's health is safeguarded**, since they gain information on the medications they take, no matter where they are. Moreover, their new applications are demonstrably interoperable and meet national and EU specifications.

**HCPs in foreign countries can see all this information**, and so they are put in a position to **rationally and safely dispense the medication** with awareness about the safety and health of foreign patients.

This use case represents a pilot within the UNICOM Project to test the usefulness of **ISO/CEN IDMP standards** for the **univocal identification of medicinal product in a private sector real-world scenario**.

This use case aims to demonstrate the possibility for patients from Country A who are abroad **without their medicine** to obtain a **similar substitute medicine** in Country B, in order to safeguard their health and ensure their adherence and continuity of treatment.



## Application for users Patient-Facing Apps (PFAs)

Three applications are provided to patients:  
**Pharmawizard4UNICOM, eHealthPass and InfoSAGE**

All present the same functionality:

- ✓ Ability of **searching for medicine** to gain information about it
- ✓ Ability of **adding medicines** to patients' Medication List
- ✓ Ability of selecting a medication from the Medication List to be refilled
- ✓ Ability of **creating a medicine data QR code** to be shown to the HCPs abroad to make them drug
- ✓ Ability of **adding the identified substituted drug** to the Medication List via the QR code generated by the HCP app.

The logo for UNICOM, featuring the word "UNICOM" in blue capital letters with a stylized red and white pill icon integrated into the letter "I".The logo for Datawizard, featuring the word "Datawizard" in a bold, dark blue font with a stylized "D" icon.The logo for gnomon INFORMATICS S.A., featuring the word "gnomon" in a blue serif font and "INFORMATICS S.A." in a smaller blue sans-serif font below it, with an orange circular icon to the right.

> BENEFICIARIES

Beth Israel Lahey Health   
Beth Israel Deaconess  
Medical Center



## Application for users Patient-Facing Apps (PFAs)

Patient-Facing Apps aim to **empower patients' access to medicinal information** and **find substitute drugs abroad**, adding them to their Medication List.

An important purpose of these applications is to provide patients with information about the medications they are taking, put them on their personal medication list, and have a secure tool with them when travelling abroad to find the similar medications in a foreign country.

This is possible because the apps are integrated with the **IDMP Database**, developed in Task 6.1, and the **Substitution Component**, developed in Task 6.2.

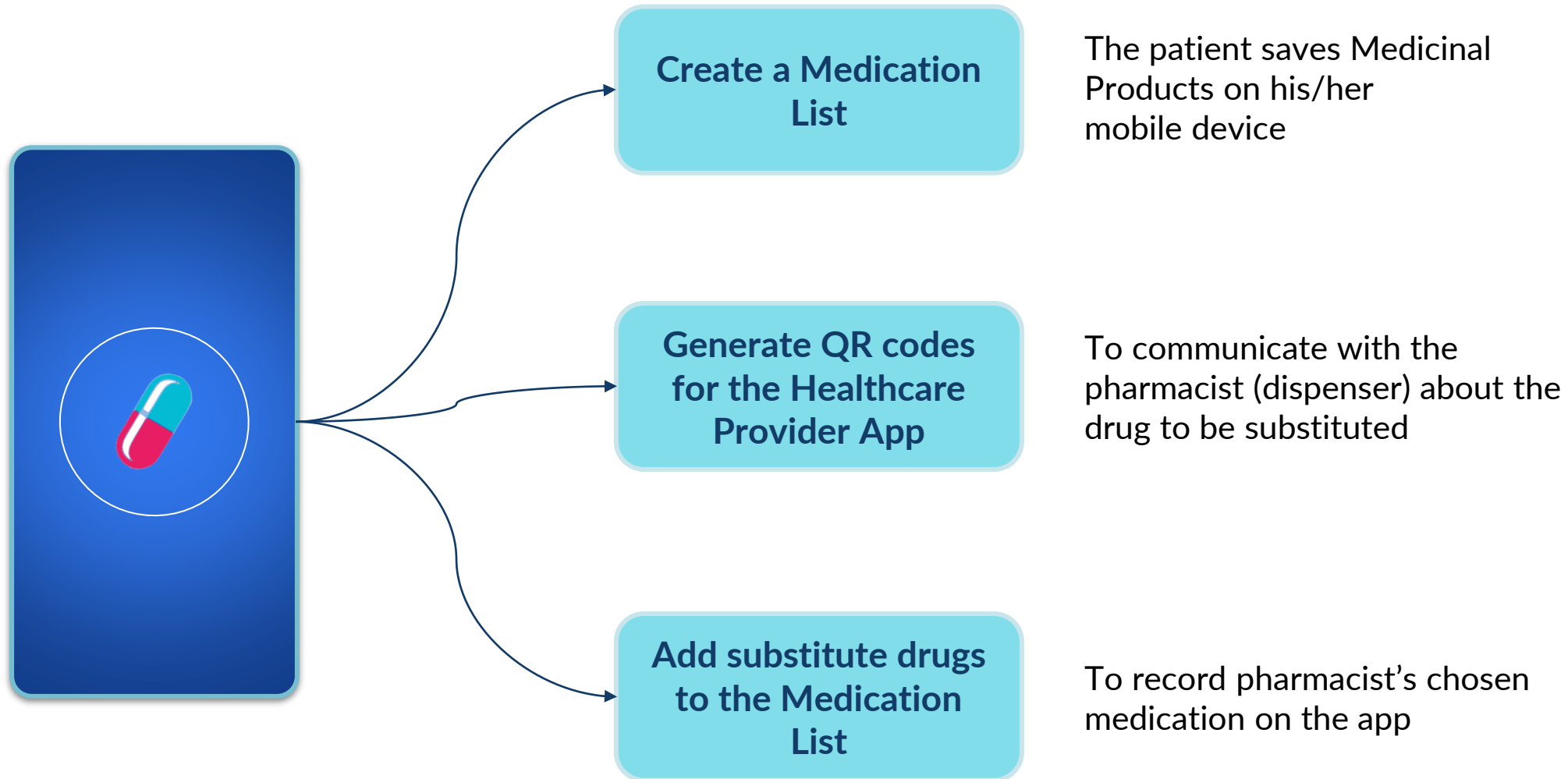
The apps carry the **Medication List** and **minimal clinical data** of the patient in the local language and with the local Medicinal Product Dictionary.

The Medication List is **IDMP-compliant**, so that can produce for each medicine on the list:

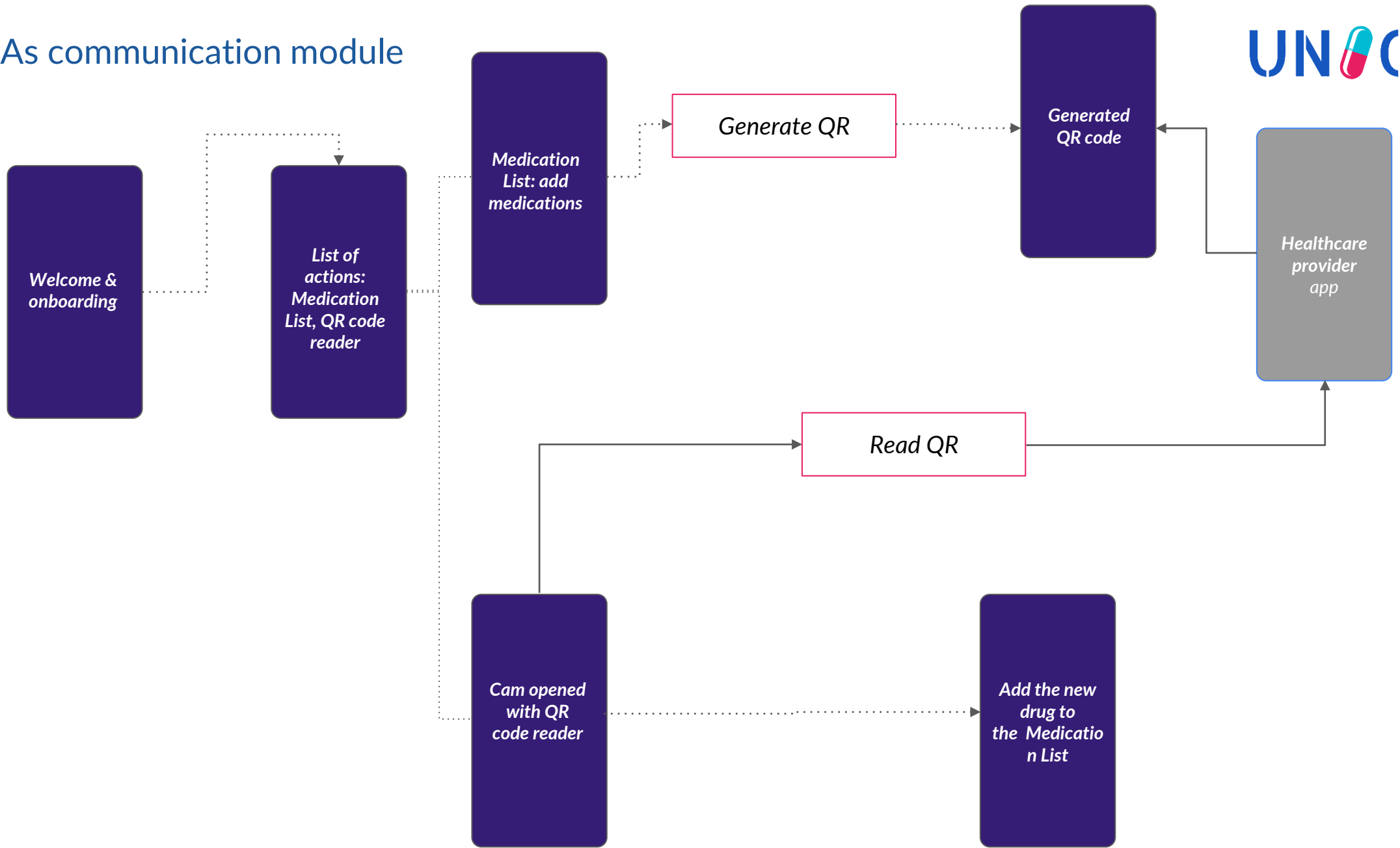
- ✓ the Pharmaceutical Product Identifier (label PhPID)
- ✓ the substance with the role of precise active ingredient
- ✓ the granular EDQM administrable dose form
- ✓ the normalized expression of strength



With the **Patient-Facing App** the user is able to:



# PFAs communication module



## Application for users

### Healthcare Provider App (HCPA)



One interface is provided to healthcare professionals (physicians, pharmacists.), with the following functionalities:

- ✓ **Scanning** the Patient-Facing App generated QR code
- ✓ **Connecting to the Substitution Component of the UNICOM server** to get a list of equivalent or similar drugs from which to choose the most appropriate medication
- ✓ **Generating a new QR code** containing the substitute drug data and information to be sent back to the Patient-Facing App



## Application for users

### Healthcare Provider App (HCPA)

Other interesting functionalities present in the interface are:

- ▶ Language settings (currently Italian and English)
- ▶ Font scaling and contrast management
- ▶ Substitution country settings

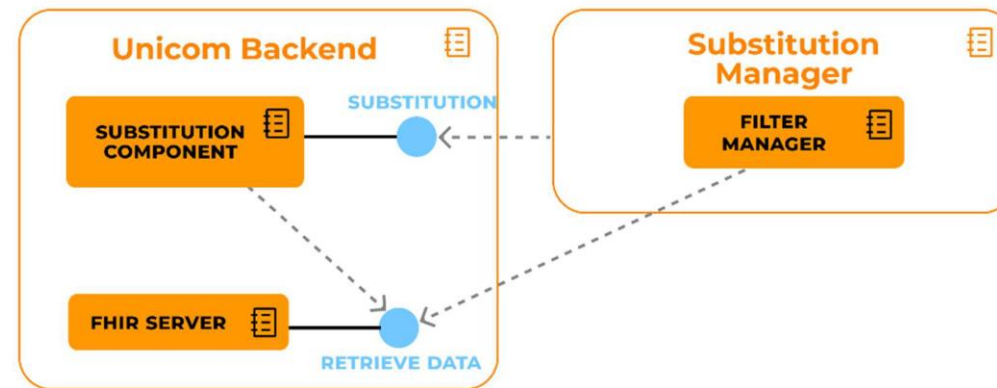
## Application for users

### Healthcare Provider App (HCPA) - Software components and architecture

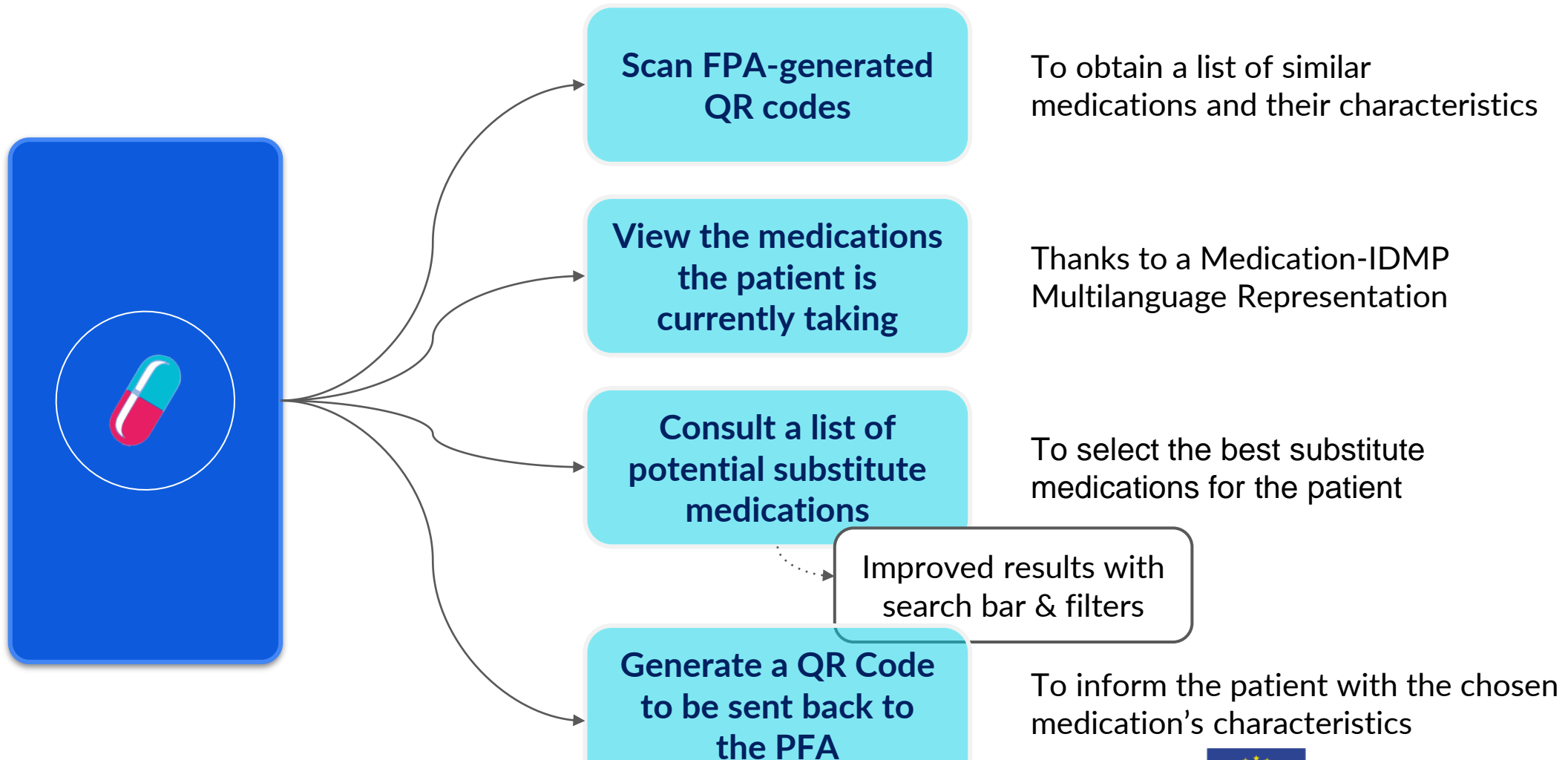
The HCPA is developed in Flutter and consists of two basic components:

- A. **Substitution Manager:** an application module responsible for the integration of APIs with the Substitution Component.
- B. **Filter Manager:** an internal component of the Substitution Manager making it possible to filter the results obtained by the Substitution Component

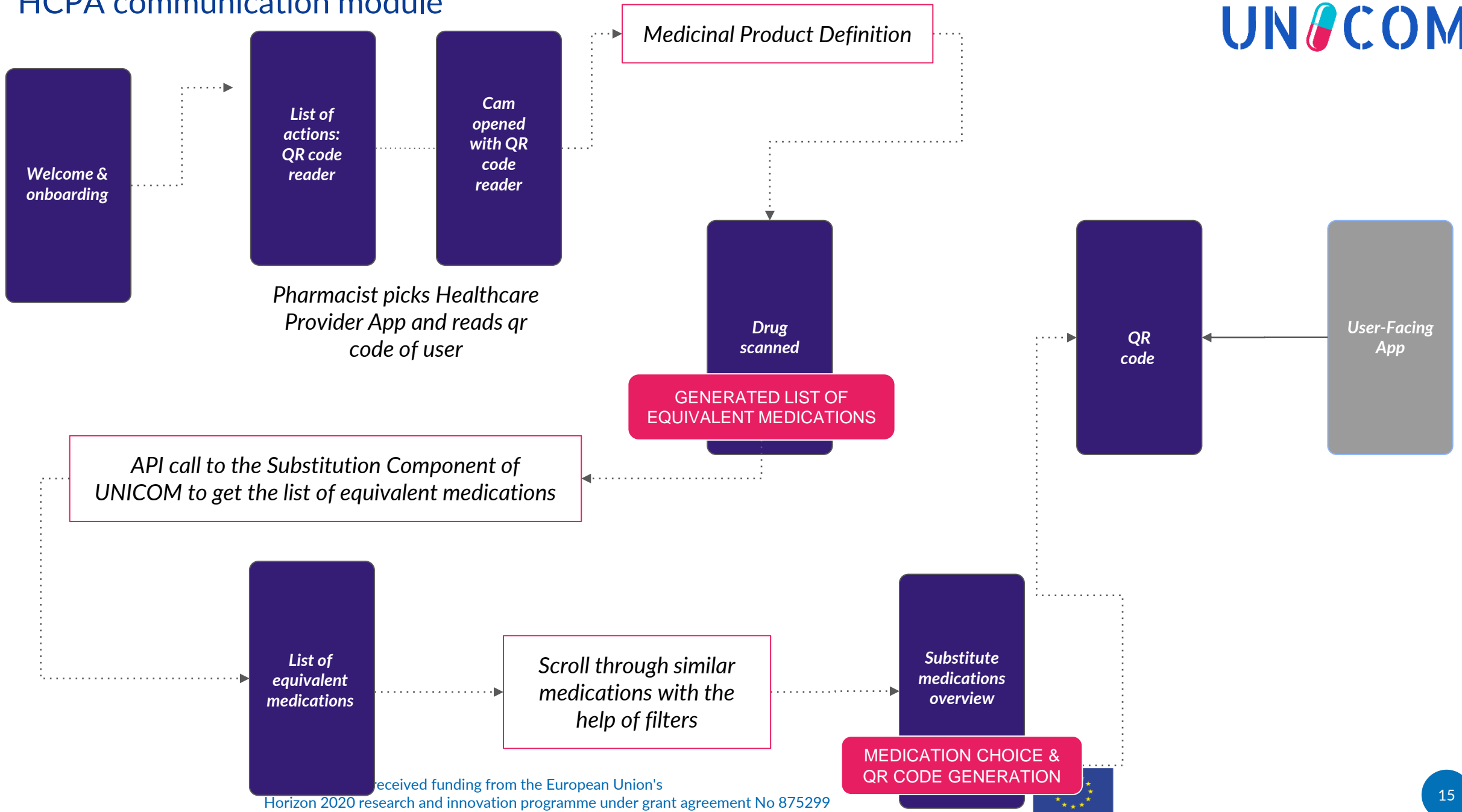
These two components combined with the UNICOM backend enable drug substitution between different countries.



With the **Healthcare provider app** the dispenser (or prescriber) is able to:

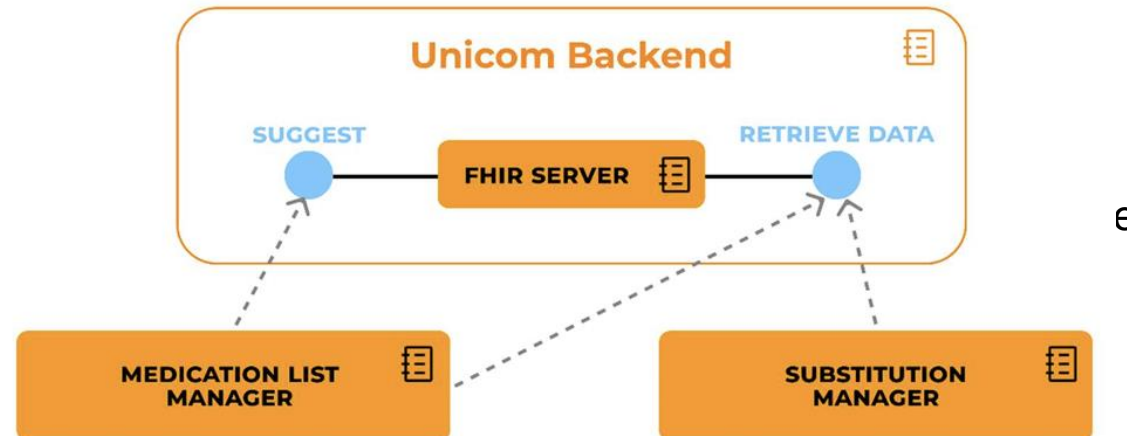


# HCPA communication module



The system back-end architecture consists of two main systems

- A. **FHIR server** exposes the APIs for:
  - ✓ the IDMP to get medicinal data
  - ✓ Medication suggestion component
- B. **Substitution component module** to get data on substitutions of the identified drug for different countries





- A. A patient from Country A, travelling to Country B can select a medication from the Medication List that needs refilling and present the corresponding QR code to the healthcare provider in Country B
- B. The HealthCare Provider Application (HCPA) can read the PFA-generated QR code, to send information via API to the UNICOM T6.1 database and receive back a list of similar medications available in Country B, applying the local substitution rules
- C. The healthcare provider makes an informed choice and provides the patient with the identifier of the chosen medication (and its labelling information) via an HCPA-generated QR code to be sent back to the PFA
- D. The patient from Country A can now gain information about the similar medication available in Country B

Data represented via **JSON** (JavaScript Object Notation) format provide Patient-Facing and Healthcare Provider Applications with the ability to read or generate medication identification.

QR code generated by the Patient-Facing App



```
{  
  "medication": "NORVASC-tablet-5mg--65-ITA-MPD",  
  "substitution": null  
}
```

QR code generated by the Healthcare Provider App



```
{  
  "medication": "NORVASC-tablet-5mg--65-ITA-MPD",  
  "substitution": "amlodipine-maleate-GENERICS-TAB-10MG-TAB-173-GRC-MPD"  
}
```

The medication key will correspond to the PhPID label of the user-selected medication

The substitution key will correspond to the PhPID label of the substitute medication selected by the healthcare provider.

- A. **Patient from Country A:** a user with the Patient-Facing Application (PFA) in need for a medication refill in Country B
- B. **Healthcare provider (HCP) from Country B:** a dispenser (pharmacist) able to hand over the information of the equivalent medication to the patient and possibly dispense an OTC medication or a prescriber (physician) who can prescribe an equivalent medication, according to the local rules (Country B local rules)



- A. Selection of the medicinal product for which a refill is needed
- B. The PFA connects through an API with the IDMP database and retrieves the IDMP description of the national Medicinal Product from Country A.
- C. PFA-generated QR code
- D. Capture of the request for refill by the HealthCare Provider App (HCPA), which sends an API request to the FHIR server, requesting equivalent medicinal products from Country B
- E. The FHIR server sends back the information to the HCPA
- F. List of similar medicinal products, described both with national identifiers and labels and with international IDMP Ids and labels
- G. After the selection of the best equivalent medication, the HCPA generates a QR code to be sent back to the PFA
- H. PFA reads the HCPA-generated QR code and integrates the equivalent medicinal product to the existing Medication List

The use case presented involves **Haris**

- Male
- 45 years old
- 90 kg
- 175 cm
- **Hypertension**



Patient medication list:

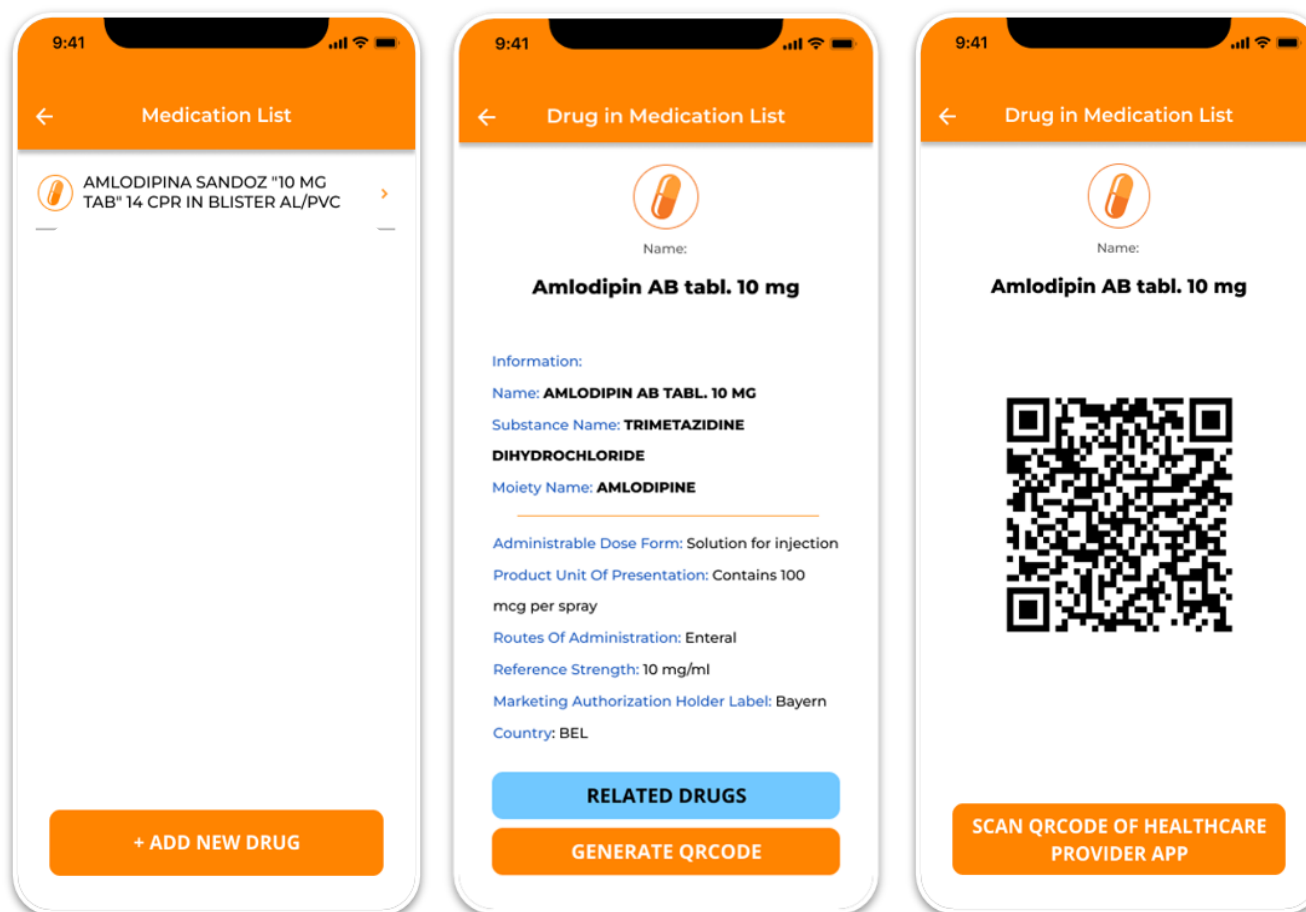
**Amlodipine 5mg 1DDD (Brand Zocor)** to treat **hypertension**

During an unexpectedly extended stay in a foreign country, the patient is in need of a **refill** of **amlodipine**. He shows the pharmacist the **QR code** for the drug needed.

The screenshot displays the eHealthPass mobile application interface. On the left, there is a login/sign-up section with a 'SIGN IN' button and a 'REGISTER NOW' button. Below this, a message states: 'The logging information is credentialed and recorded in a safe environment.' with an 'Instructions' link. The main content area is divided into two parts. The top part shows a patient profile for 'Καλωσήρθατε Mary Karena' with a notification for '1 εκκρεμής δραστηριότητες από 1'. Below this are two cards: 'Η Υγεία μου' and 'Φαρμακευτική αγωγή'. The bottom part shows a list of medications under 'Φαρμακευτική αγωγή' with status buttons 'Ενεργό', 'Άκυρο', and 'Ολοκληρωμένο'. The list includes: αμλοδιπίνη (15/09/2023), atorvastatin, amlodipine and per... (04/08/2023), αμλοδιπίνη (04/08/2023), almasilate (22/06/2023), and Agni casti fructus (20/06/2023). On the right, a 'Φάρμακο στη λίστα φαρμάκων' screen shows details for 'LODIPIN 10 mg καψάκια, σκληρά'. It includes a QR code and the following information: Όνομα: LODIPIN 10 MG ΚΑΨΑΚΙΑ, ΣΚΛΗΡΑ; Όνομα Ουσίας: AMLODIPINE BESILATE; Δραστικό Τμήμα: -; Μορφή Χορήγησης Δόσης: Capsule, hard; Μονάδα Παρουσίασης Προϊόντος: Capsule; Τρόπος Χορήγησης: Oral use; Ισχύς: 10 mg; Ετικέτα Κατόχου Άδειας Κυκλοφορίας: Iasis Pharmaceutica Is Hellas S.A.; Χώρα: Hellenic Republic. At the bottom right, there is a note: '\*ΣΑΡΩΣΗ QR CODE ΤΗΣ ΕΦΑΡΜΟΓΗΣ ΠΑΡΟΧΟΥ ΥΓΕΙΟΝΟΜΙΚΗΣ ΠΕΡΙΘΑΛΨΗΣ'.



During an unexpectedly extended stay in a foreign country, the patient is in need of a **refill** of **amlodipine**. He shows the pharmacist the **QR code** for the drug needed.



The pharmacist recognizes that the medicine comes from a foreign country. Thanks to the HCPA, he/she can identify the similar medicine marketed in his/her country. He/she shows the patient the new drug.



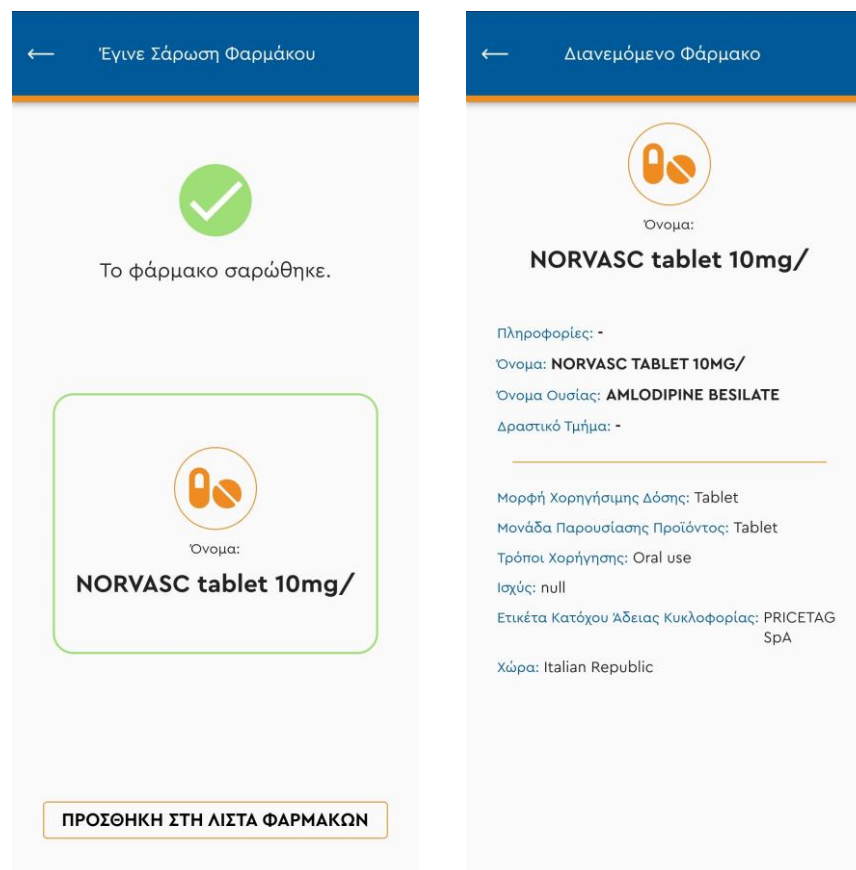
The screenshots show the following steps in the application:

- Medicinale trovato:** Displays details for 'amlopidine maleate/GENERICS TAB 5MG/TAB'. Information includes: Nome: **AMLODIPINE MALEATE/GENERICS TAB 5MG/TAB**; Nome Sostanza: **AMLODIPINE MALEATE**; Nome Moiety: [blank]; Forma Della Dose Somministrabile: Tablet; Unità Di Presentazione Del Prodotto: Tablet; Via Di Somministrazione: Oral use; Reference Strength: 5 milligram(s) / 1 Tablet; Azienda: GENERICS PHARMA HELLAS EFE; Nazione: Hellenic Republic. A button at the bottom says 'GENERA LISTA DI MEDICINALI SIMILI'.
- Lista dei medicinali simili:** Shows a search bar and a list of 10 results. The first result is 'AMLODIPINA ABC tablet 5mg/'. Other results include 'NORVASC tablet 10mg/', 'NORVASC tablet 5mg/', 'ANTACAL tablet 5mg/', and 'AMLODIPINA ZENTIVA ITALIA tablet 10mg/'.
- Medicinale selezionato:** Shows details for 'AMLODIPINA ABC tablet 5mg/'. Information includes: Nome: **AMLODIPINA ABC TABLET 5MG/**; Nome Sostanza: **AMLODIPINE BESILATE**; Nome Moiety: [blank]; Forma Della Dose Somministrabile: Tablet; Unità Di Presentazione Del Prodotto: Tablet; Via Di Somministrazione: Oral use; Reference Strength: 5 milligram(s) / 1 Other; Azienda: ABC FARMACEUTICI SpA; Nazione: Italian Republic. A button at the bottom says 'GENERA QR CODE PER L'UTENTE'.
- Medicinale selezionato:** Displays a large QR code. Below it, text reads: 'Mostra il codice QR all'utente, in modo che possa scansionarlo e vedere la sostituzione selezionata.'

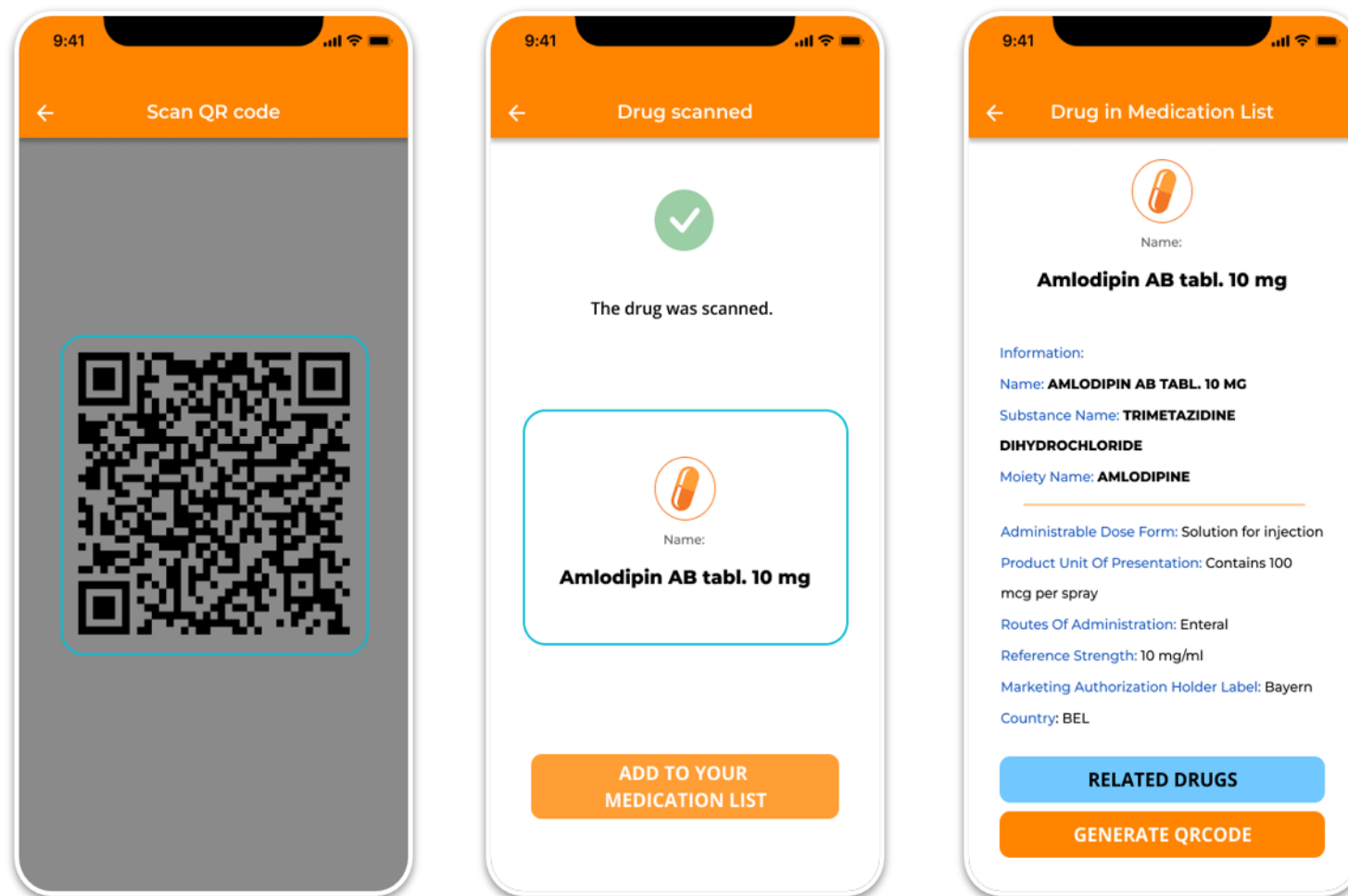




# The patient scans the pharmacist's QR code and add this drug to the Medication List



The patient scans the pharmacist's QR code and add this drug to the Medication List



**T8.3**  
IDMP and Patient  
Empowerment Apps

PILOT

25 PATIENTS



4 ACTIVE  
INGREDIENTS

AMLODIPINE  
CARBAMAZEPIN  
IBUPROFEN  
SIMVASTATIN

D8.6 DEMONSTRATION OF PATIENT  
EMPOWERMENT APPLICATION

D8.10 RESULTS OF  
PERSONALISED MEDICINE PILOT  
(T8.5) (FORTH)

**T7.5**  
Pilot deployment  
and operation  
(ARIA)

Patient Empowerment  
Application validated with  
about **500** patients



Questions and Answers – further discussion

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