



Gravitate-Health: putting ePI to work in the patient journey to drive better use of medicines

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DIA EUROPE 2022
ADVANCING HEALTH PRIORITIES



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Gravitate – Health

Empowering and Equipping Europeans with Health Information for Active, Personal Health Management and Adherence to Treatment

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The Gravitate-Health public-private partnership



39 partners in Europe and USA



60 months
11/20 – 10/25



18.5 mill €



European start
Global Outreach

ACADEMIA / RESEARCH INSTITUTES
 Universitet i Oslo (Coordinator)
 Karolinska Institute (KI)
 Universidad Polytechnica de Madrid (UPM)
 Empirica (EMP)
 Norwegian Center for eHealth research (NSE)
 The European Institute for Innovation through Health Data (i-HD)
 Università Cattolica del Sacro Cuore (UCSC)
 University of Copenhagen (UCPH)
 Trinity College Dublin (Trinity)

REGULATORS and PRODUCT INFORMATION PROVIDERS
 Norwegian Medicines Agency (NoMA)
 Spanish Drug Agency (AEMPS)
 Dutch Medicines Evaluation Board (CBG)

STANDARDIZATION and OTHER STAKEHOLDERS
 HL7 Europe
 Open Evidence*

PATIENT ORGANISATIONS AND CONSUMER GROUPS
 Forum Européen des Patients (EPF)



DISSEMINATION & COMMUNICATION
 European Connected Health Alliance (ECHA)
 HIMSS Europe
 Mindview*
 The Synergist*



HEALTH CARE PROVIDERS AND PAYERS
 Akershus University Hospital (AHUS)
 Shared Services of Ministry of Health (SPMS)
 Servicio Madrileño de Salud (SERMAS)
 Beth-Israel Deaconess Medical Center (BIDMC)
 Karolinska Institute (KI)

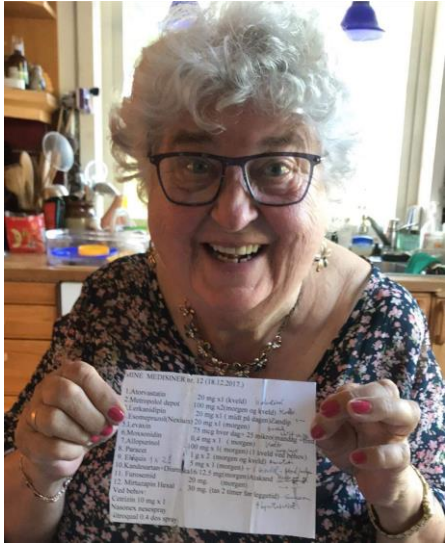
DIGITAL TECHNICAL EXPERTISE
 Datawizard SRL*
 GuardTime*
 Norsk e-Helse*
 FrisQ*
 Trifork

EFPIA and IMI2 Associated PARTNERS
 Pfizer Limited (Project Lead)
 Astra Zeneca
 Bayer
 Grünenthal
 Eli Lilly
 Medidata
 Viatrix
 Novartis
 Roche
 UCB Biopharma SRL
 Datapharm

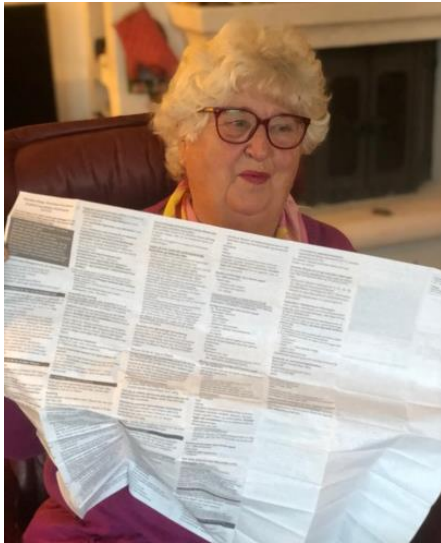
Legend: *SME (small and medium sized enterprises)

Gravitate-Health in a nutshell

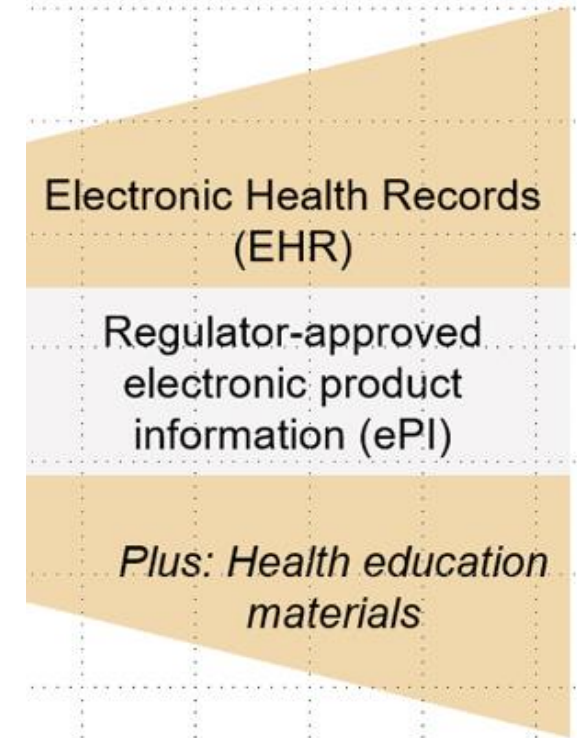
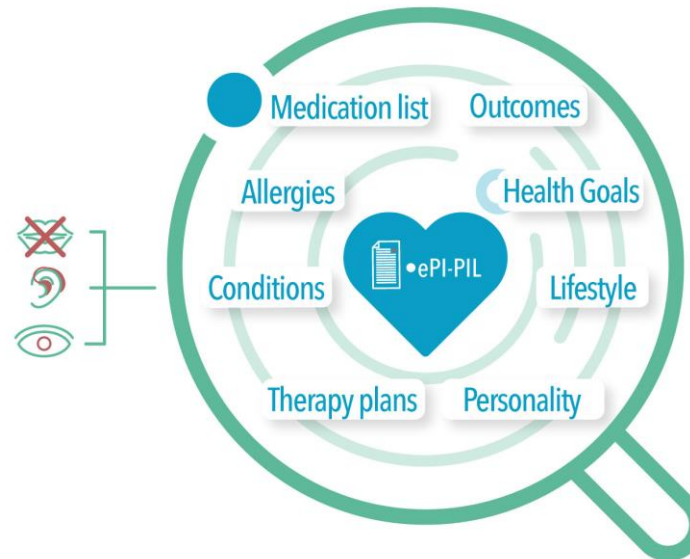
Maria and her medicines



Picture: Line H. Linstad, NSE



Picture: Hanne Bjertnes, UiO



How can we apply an Open Access Digital platform with trusted Digital Health Information to transform the way patients Access and Understand health information, and apply this in Personal Health for Adherence to treatment, Risk minimization and Quality of life ?

Project timeline and iterative development



Testing scenarios / test beds to pilot and evaluate → towards sustainable outputs

- Provide requirements for focused information solutions for patients and their support network, according to their needs
- Enable “Patient Voice” and extensive stakeholder engagement

Technology development – Open Source Platform & G-lens → towards innovation enablers

- Provide technological development and support,
- Suggest innovative digital solutions, architecture and interoperability capabilities
- Use trusted information Sources – ePI, IPS/EHR– trusted health education material

Some our initial outcomes

- Requirements – personas – information resources for testing scenarios
- ePI / e-labeling project under the HL7 Accelerator VULCAN → FHIR Connectathons for EU and global reach

Defining the G-Lens design methodology - Personas




Amália
Age: 77 years old, widow, I live with my daughter and her husband.
I used to work in a supermarket, but now I'm retired.

Personality and interests
I like to cook and embroider, and see soap operas, but lately my eyesight is getting worse.

ORGANIZED 1 DISORGANIZED
EXTROVERT 2 INTROVERT
EMOTIONAL 3 RATIONAL

“ My eyesight is worsening, and I feel guilty for how much worry I give to my daughter. To handle the health can be alone already problematic, I don't understand why they need to change medications boxes.



Health Conditions
Type 2 Diabetes Mellitus
Ocular cataract in both eyes
Reduced mobility
Minor hearing impairment
Anaemia
Hypertension
Risk of diabetic foot related-issues.

Medication & Therapies
Prescribed by doctor –
Long-acting and rapid-acting insulin and respective pen
Vilvagliptine 50 mg (tablet)
Folic acid 5 mg (tablet)
Sertraline 100 mg (tablet)
Perindopril 5 mg/indapamide 1.25 mg/amlodipine 10 mg (tablet)
Permadeze 1g (tablet)
Acetylsalicylic acid 100 mg (tablet)
Mirtazapine 15 mg (tablet)
Eye drops
Glucometer and respective blood glucose strips

Additional (non prescribed)
Glicose or snack (in case there is a hypoglicemic episode)
Diabetic foot cream (for prevention).

Care Professional Concerns
Diabetes type 2 complications, such as retinopathy (eye problems), diabetic foot problems, slow healing process, kidney disease, neuropathy and blood vessels in general.

How I prefer to interact with Healthcare providers
I like to visit them in person, normally accompanied by my daughter.
I only use the phone to schedule appointment, otherwise I prefer to interact with my healthcare providers, doctors, nurses, pharmacists and so on, in-person. I find it easier to understand the information this way, and my audition is not as good as it used to be.

Sharing my health information
VERY WILLING 2 VERY UNWILLING

Health routines
Medication list
I don't have a list; my pharmacist writes on my medication boxes what the medication is for and the times to take it.

Number of daily therapies
5 medicines in the morning, 4 at night, and rapid-acting insuline if needed. Cream for feet 2 x /day.

Frequency of routines (daily, weekly, monthly)
GP: 6x / year
Hospital HCP: 2x / year
Appointment Diabetic Foot: 2x / year
Lab work: 3 - 4x / year
Pharmacy: 1x / month
Blood glucose level: 3x /day

Most time consuming or difficult activities
Adjusting insuline intake according to the blood glucose values; what to do when having a hypoglycaemia episode, and eating 2 in 2 hours for my blood sugar level to be stable. Also, the different boxes that keeps changing.

My most trusted advisors
My family doctor, my diabetes doctor at the hospital and my local pharmacist. They are very knowledgeable and advice me and my daughter as needed.

No of HCP that I interact with: 4

Pain Points/Problems
Medical
Eye sight, mobility, audition, risk of diabetic foot.
Social
My eyesight makes it difficult to recognize my friends from distance.
Psychological
Feeling the effect of some medication makes me feel less reative.

How I feel about these problems?
I trouble my daughter with my difficulties.
My eyesight has hindered my ability to embroider, I used to like to make gifts to give to my family and friends, and now it takes a lot of effort to complete one gift.

Patient Health Engagement Model - Status
Disillusioned 1 Disoriented 2 **Adaptation** 3 Frustrated/Resistant

Autonomy
Impairment
eyesight, mobility (cane), audition
Self care ✓ Self-management ✗ Mental impairment ✗

VERY INDEPENDENT 4 VERY DEPENDENT

Health Literacy
VERY HEALTH LITERATE 5 VERY HEALTH ILLITERATE

Digital Literacy
PC 6
MOBILE 7
SOCIAL MEDIA ✗
ICT SUPPORT ✗
CONNECTIVITY ✗

Support Network
My daughter helps to manage my medication and diet, due to the restrictions my HCP recommended. I also have mobility issues, so my family helps me to go to my HCP.

In case of emergency
I carry my diabetes card. In case of emergency, my doctor has taught me and my family how to act in case of low or high blood glucose level; if too serious I need to call an ambulance.

Use of a personal health navigation tool
Not for me, but for my daughter that manages my medication.

VERY WILLING 3 VERY UNWILLING

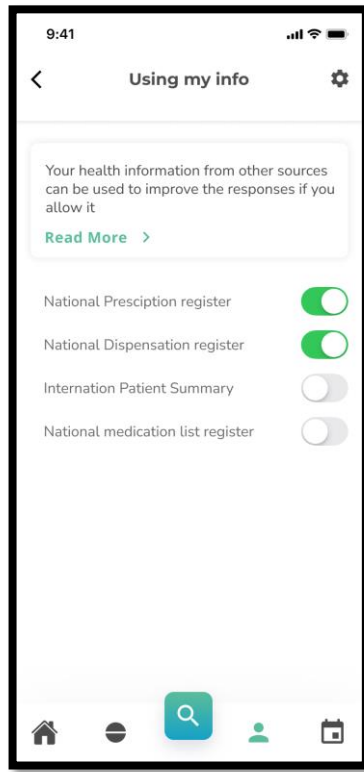
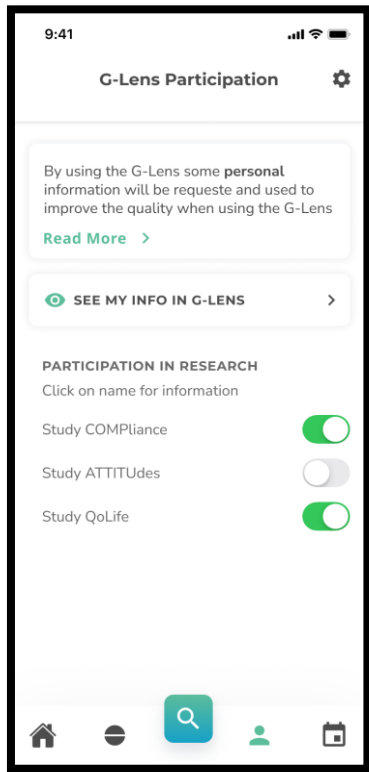
- A robust persona template has been defined in an iterative process
- Tested with real data
- 6 different personas produced so far

Read more in the [IMI Newsroom](#) about our work to improve the patient information journey

A taste of our work (2)

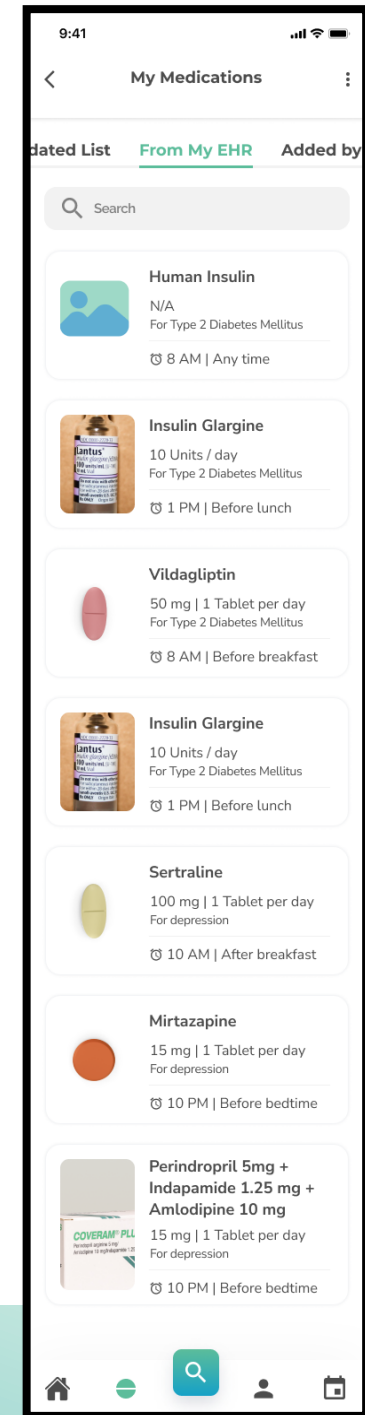
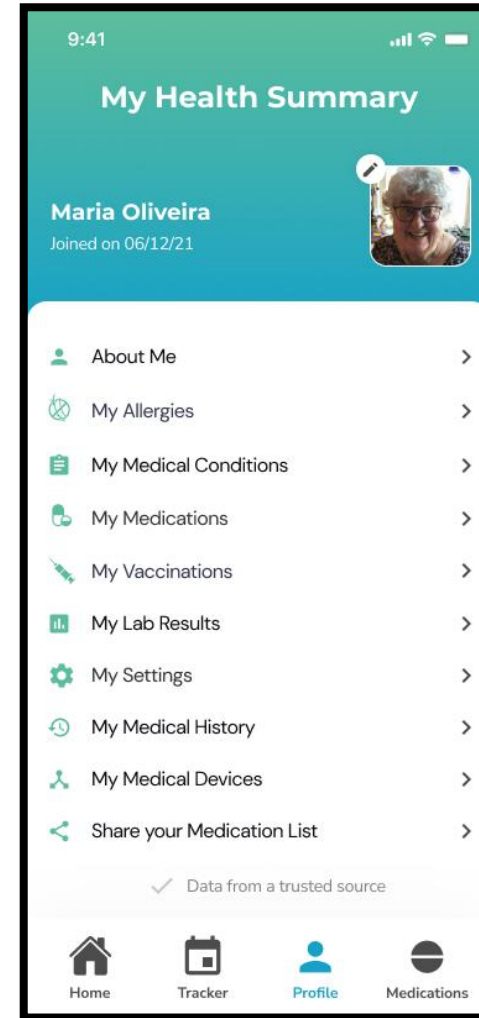
User Experience – apps / service

1. Patient gains access to G-lens via mobile device



2. Patient integrates the G-lens with their ePrescriptions and/or Medication List from the IPS - EHR,

and with the PIL (from ePI) for each respective medicine on that list



A taste of our work ⁽³⁾

- Connectathon – example of Basic G-lens focusing

Capable Maria Personnas

Allergies and intolerances

Bivirkning av legemiddel Remove

Laktoseintoleranse Remove

Medical conditions

Sykdom i fordøyelsessystemet IKA Remove

Legg til nytt klinisk forhold

See versions

Capable.healthcare Language: English Feedback

Capable.healthcare prototype

Applied G-lens criteria:
Demographics, conditions, allergy and intolerance

Pregnancy related - suppressed

Lactose Intolerance related - highlighted

Capable Maria Personnas

Skilarence Enterotab 30 mg

G-lens [Åpne ekstern lenke](#)

Highlighted

- Pasienten bruker medisiner
- Obs for Skilarence: Pasienten har intoleranse svarende til kode T99
- Obs for Skilarence: Pasienten har tilstand svarende til kode D94, D97, D98 eller D99

Suppressed

- Pasienten er kvinne over 50 år
- Pasienten er over 18 år

Andre legemidler virker kanskje ikke så bra som de bør hvis du får alvorlig eller langvarig diaré med Skilarence. Rådfor deg med legen dersom du har kraftig diaré, og er bekymret for at andre legemidler du tar kanskje ikke virker. Spesielt hvis du tar et prevensjonsmiddel (p-piller) kan virkningen reduseres, og du må kanskje bruke andre barrieremetoder for å forhindre graviditet. Se anvisningene i pakningsvedlegget til prevensjonsmidlet du tar.

Rådfor deg med legen hvis du trenger en vaksinasjon. Visse typer vaksiner (levende vaksiner) kan forårsake infeksjon hvis de brukes under behandling med Skilarence. Legen kan gi deg råd om hva som er best.

Inntak av Skilarence sammen med alkohol
Unngå sterke alkoholholdige drikkevarer (mer enn 50 ml brennevin som inneholder mer enn 30 vol. % alkohol) under behandling med Skilarence, da alkohol kan påvirke dette legemidlet. Dette kan forårsake mage- og tarmproblemer.

Graviditet og amming
Bruk ikke Skilarence dersom du er gravid eller prøver å bli gravid, da Skilarence kan skade fosteret. Bruk effektive prevensjonsmetoder for å unngå å bli gravid under behandling med Skilarence (se også "Andre legemidler og Skilarence" ovenfor). Unngå amming under behandling med Skilarence.

Kjøring og bruk av maskiner
Skilarence kan ha en liten påvirkning på evnen til å kjøre bil og bruke maskiner. Det kan hende at du føler deg svimmel eller trett etter å ha tatt Skilarence. Hvis du påvirkes, vær forsiktig når du kjører eller bruker maskiner.

Skilarence inneholder laktose
Dersom legen din har fortalt deg at du har intoleranse overfor noen sukkertyper, bør du kontakte legen din før du tar dette legemidlet.

Skilarence inneholder natrium.
Dette legemidlet inneholder mindre enn 1 mmol natrium (23 mg) i hver tablett, og er så godt som "natriumfritt".

Capable.healthcare Feedback

ePI from Felleskatalogen

Case:

- Highlight and suppress ePI sections based on patient information

Approach:

- Identifiable ePI sections from Felleskatalogen
- Manually extracted knowledge, coded by ICPC-2, linking sections, represented as *FHIR ClinicalUseIssue*
- Patient information, coded as ICPC-2, represented as *FHIR AllergyIntolerance* and *Condition* resources
- Demographic information
- Software for highlighting and suppressing text

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Thank you!

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