THCS

2024 Annual Conference

Hosted by

European Committee of the Regions

THIRD SESSION: Friday 29th of November - 09:30 to 11:00

Presentation of THCS' JTC 2023 Funded Projects

Introduction

THCS Joint Transnational Calls 101 : how it works - ZonMw, THCS WP7 leader

Statistical analysis and impact assessment of the JTC 2023 - video

Interactive panel discussion

- ➔ *TransCare Project - Prof. Ionut Anghel (University of Cluj-Napoca, Romania)*
- ➔ *IDjaundice@home Project - Dr. Christian Hulzebos (University Medical Center Groningen, The Netherlands)*
- ➔ *ICAREWOUNDS Projects - Shaila Calvo Almeida (Gradiant, Spain)*
- ➔ *Digital-CACTUS Project - Prof Viet-Thi Tran (Université Paris Cité, France)*

Launch of the new JTC 2025

Moderator : *Annalisa Cartabia, Senior Executive Xjenza Malta, THCS WP8*

Joint Transnational Calls 101

How it works

Denice Moi Thuk Shung

ZonMw, THCS WP7 leader

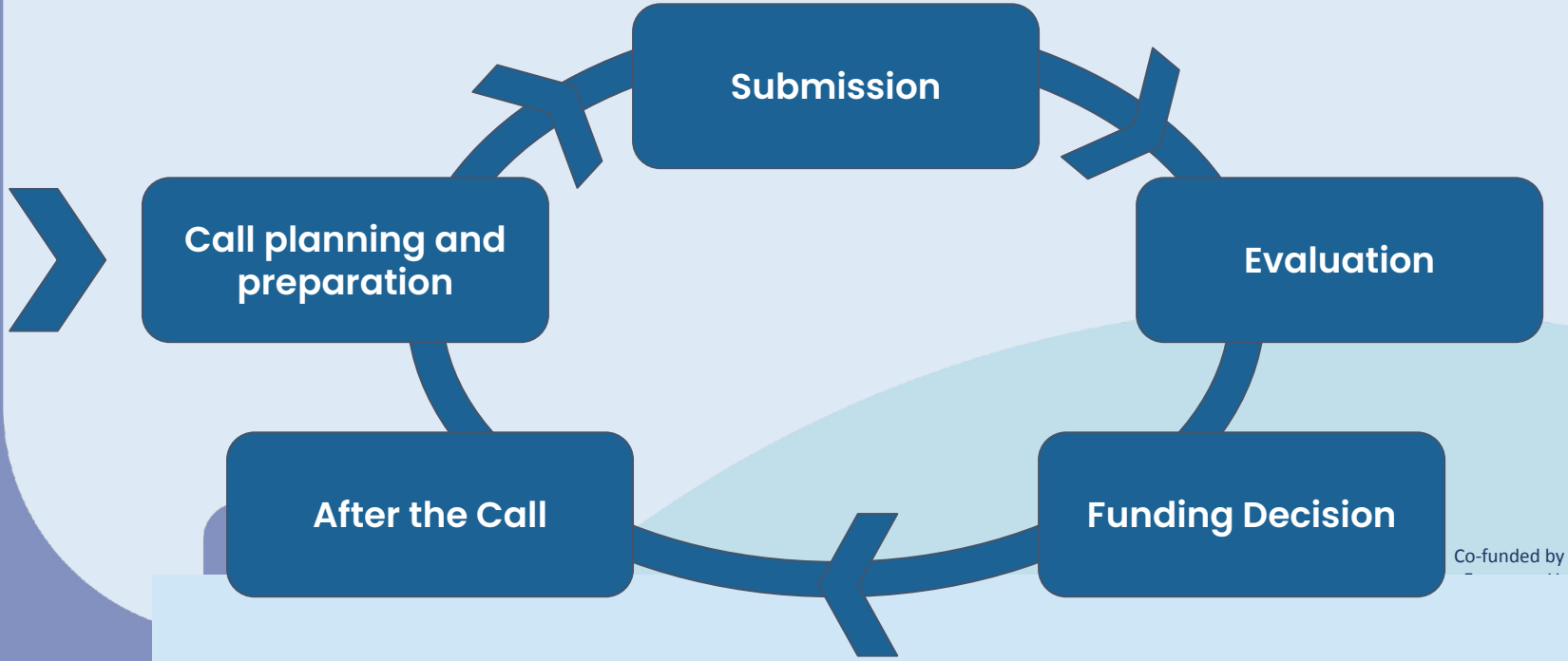
Co-funded by the European Union

Co-funded by the European Union

THCS
TRANSFORMING HEALTH AND CARE SYSTEMS

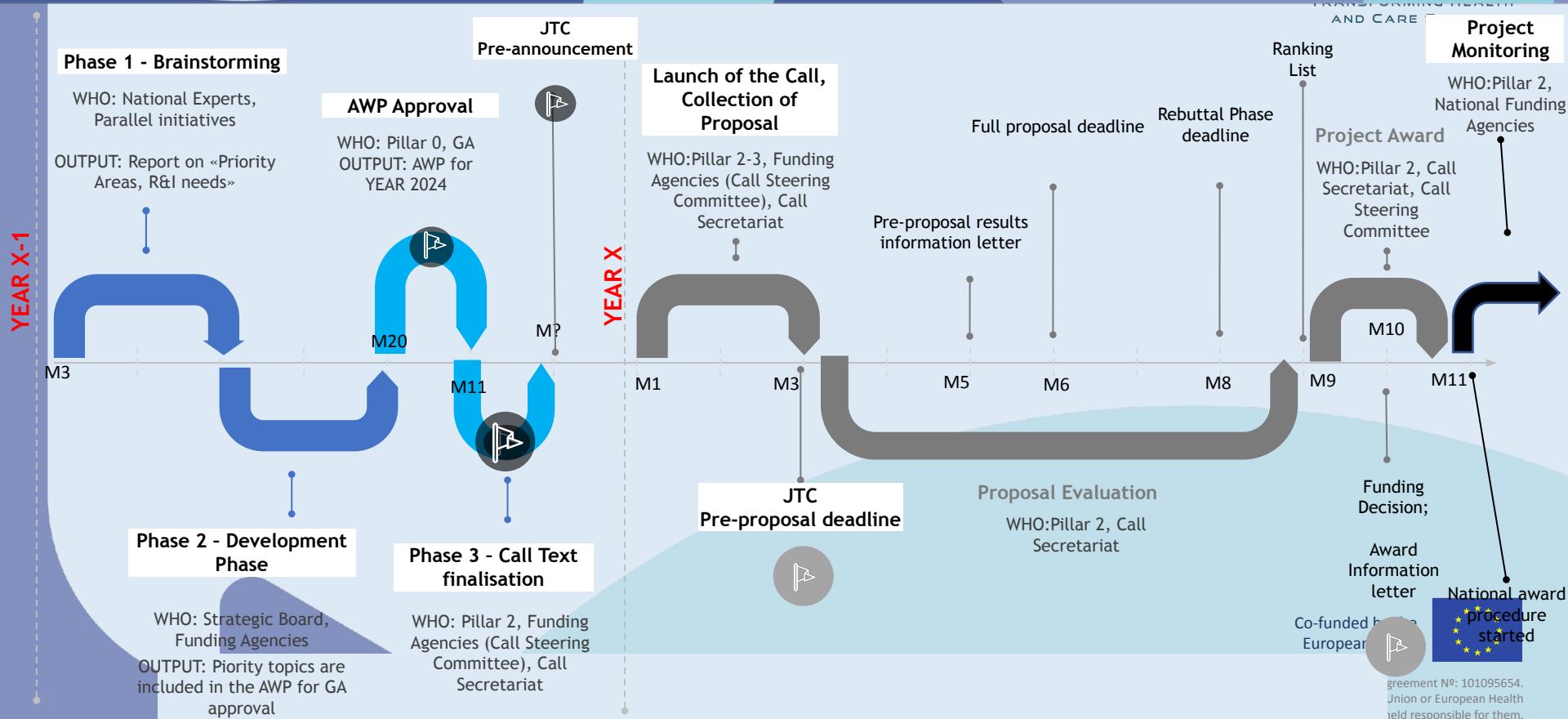
TRANSFORMING HEALTH AND CARE SYSTEMS

Joint Transnational Call flow



Co-funded by the

nt Nº: 101095654.
European Health
onsible for them.



greement Nº: 101095654.
Union or European Health
eld responsible for them.

THCS Call Secretariat team

ZonMw The Netherlands	Denice Moi Thuk Shung
	Emma Wilckens
	Bianca Zanoni
	Ewoud vd Wal
ANR France	Michael Joulie
	Maria Tsilioni
NCBR Poland	Marcin Chmielewski
	Magdalena Krzystyniak
IT MOH Italy	Coordinating team

Co-funded by the European Union

Co-funded by the European Union

THCS
transforming health and care systems

TransCare

New care pathways for supporting TRANSitional CARE from hospitals to home using AI and personalized digital assistance

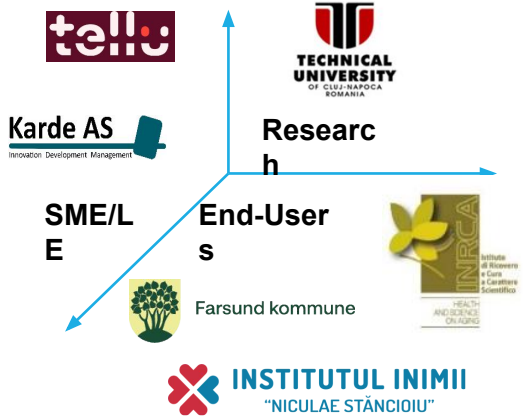
TransCare project overview

Prof. Ionut Anghel
Distributed Systems Research Laboratory, Technical University of Cluj-Napoca

THCS ANNUAL CONFERENCE 2024
29 November 2024 Committee of the Regions, Brussels

Project funded by Unitatea Executiva pentru Finantarea Invatamantului Superior, a Cercetarii, Dezvoltarii si Inovarii (UEFISCDI) (RO), The Research Council of Norway (NO), and Italian Ministry of Health (IT) under the framework the co-fund partnership of Transforming Health and Care Systems, THCS, (GA N° 101095654) of the EU Horizon Europe Research and Innovation Programme.

TransCare identify card and motivation

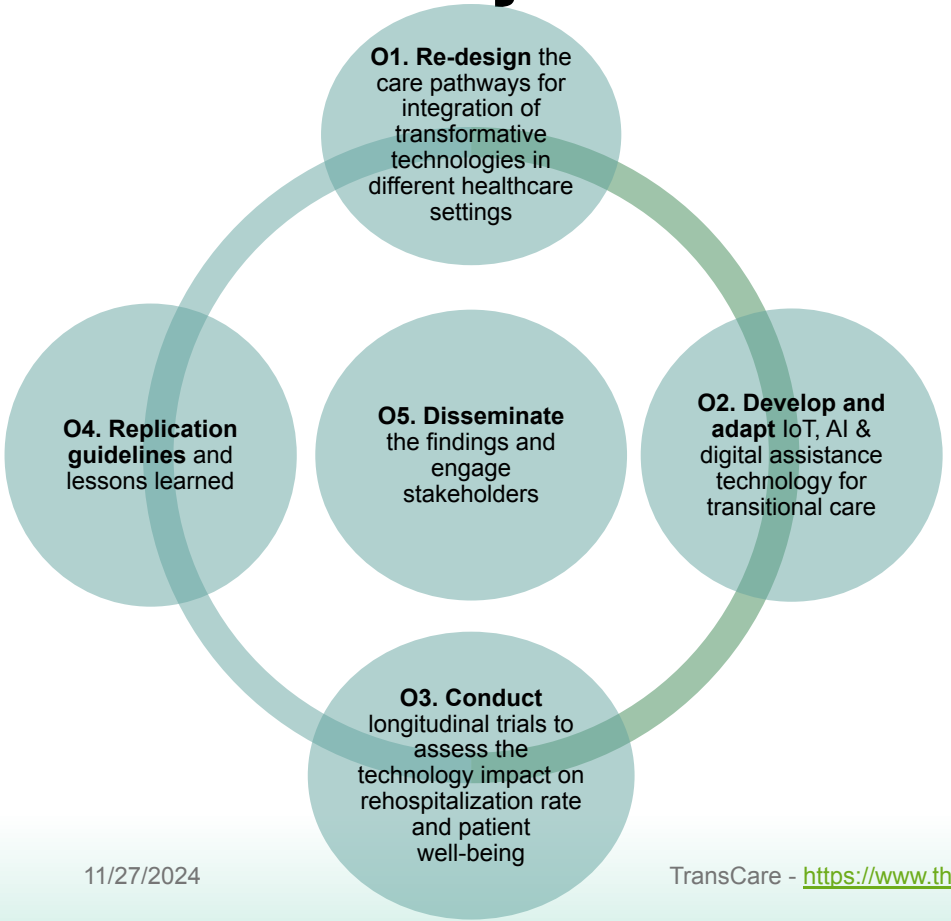


- **ID:** 1449
- **Coordinator:** Technical University of Cluj-Napoca (DSRL)
- **Title:** New care pathways for supporting TRANSitional CARE from hospitals to home using AI and personalized digital assistance
- **Lifetime:** 01.05.2024 – 30.04.2027
- **Budget:** **2.1 mil Euro**
- **Requested Contribution: 1.3 mil Euro**

TransCare

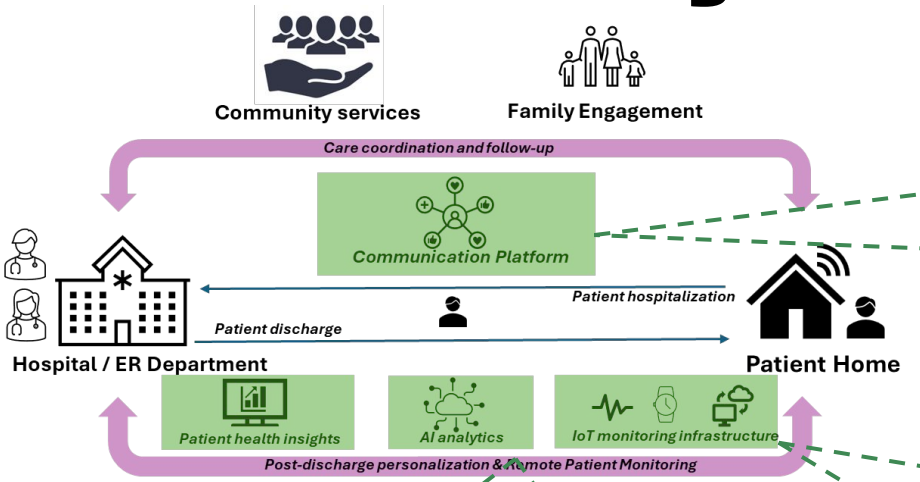
- **Issues and Needs**
  - **The adoption of digital solutions is rather limited**
    - ICT-based solutions are fragmented and address only specific cases of the transitional process
  - **Lack of holistic, multi-criteria assessment** (health, social, economic, etc.) at discharge
  - **Poor communication** with patients
  - **Inadequate planning**, and **community support**
  - **Different reimbursement practices, roles and responsibility sharing**

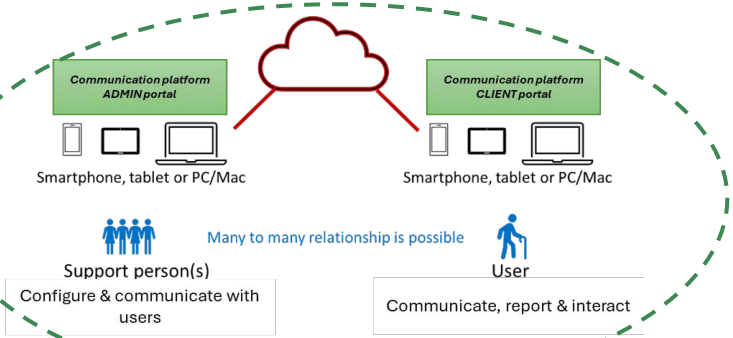
TransCare objectives, end-users & trials

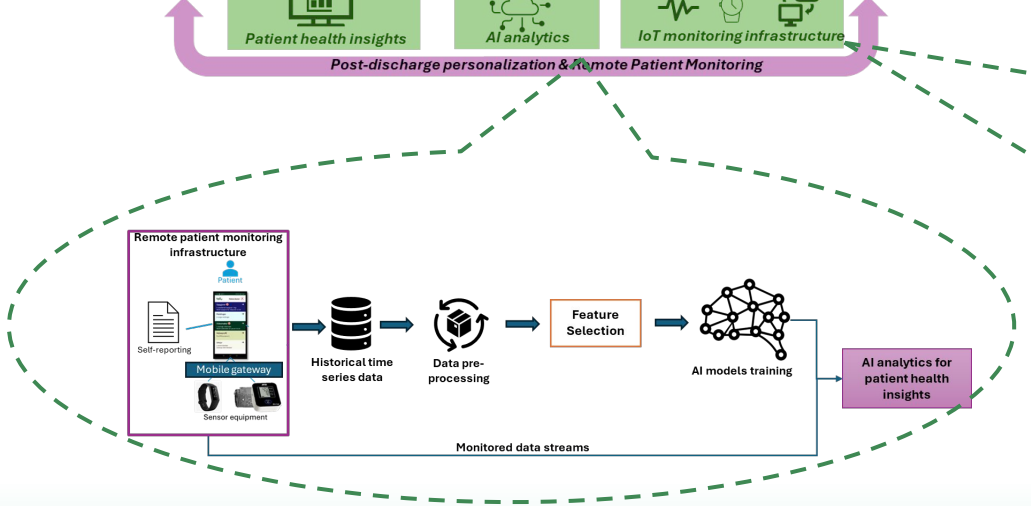


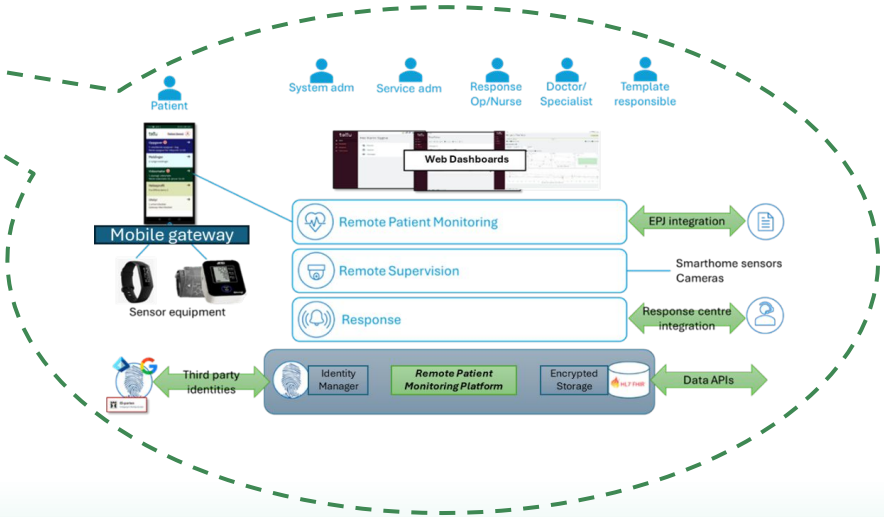
- **PRIMARY**
  - **Older adults' frailty patients with increased vulnerability to adverse events that may lead to frequent re-hospitalizations**
- **SECONDARY**
  - **Doctors**
  - **Informal / Formal caregivers**
- **TERTIARY**
  - **Healthcare organizations**: care centers, hospitals, etc.
- **Trials participants:**
  - **Around 200** older patients aged 65 years in **3 pilot sites** over at least **3-months trial**

TransCare technological view







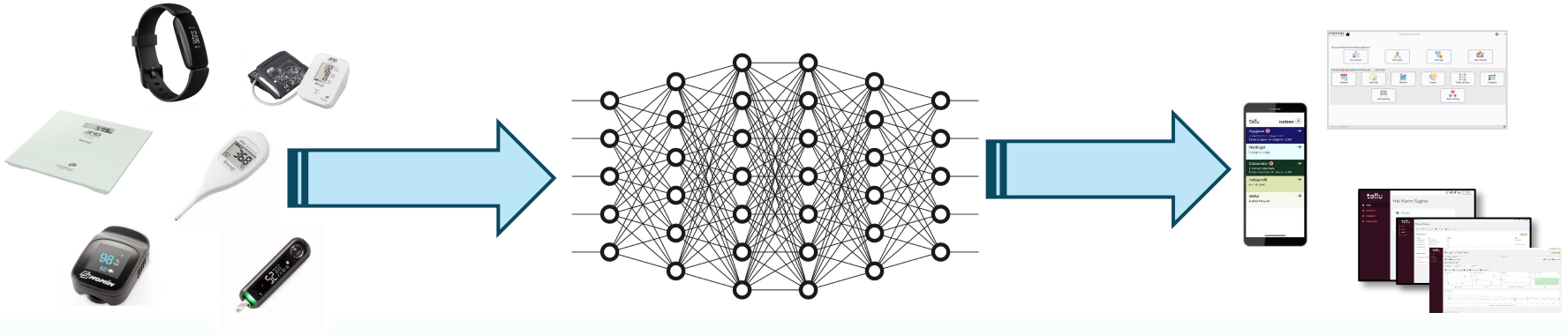


TransCare envisioned impacts

New patient-centered and digitalized transitional care models

1. How does TransCare contribute to the transformation of health and care systems?

- Integration of **transformative technologies** into transitional care process
  - IoT devices for non-invasive and customizable RPM
  - AI-enabled data analytics for better assessment and insights post-discharge enacting timely care
  - Digital assistance and virtual communication for personalized intervention



2. How does TransCare take into consideration the relevant ecosystem that is necessary for putting in place the transformation addressed in the project?

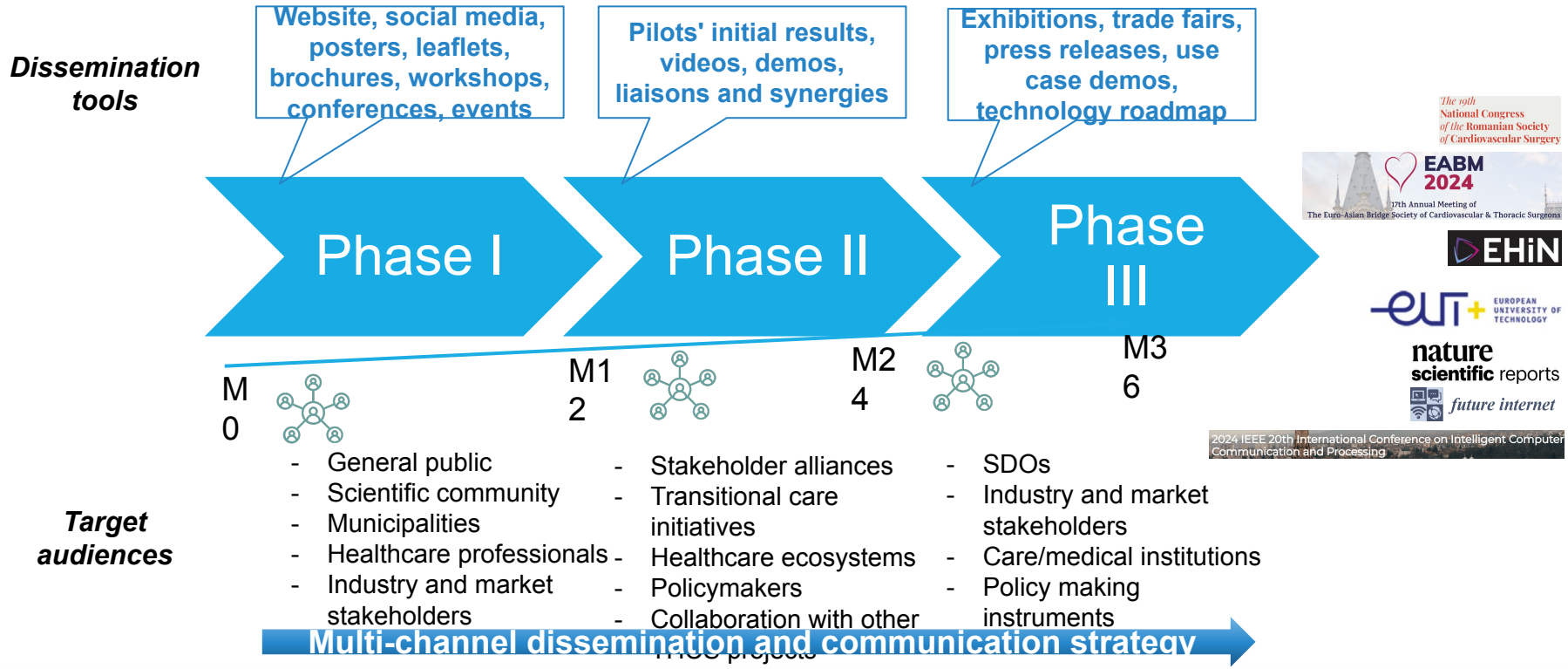
- Multidisciplinary research and innovation (R&I) ecosystem
- Stakeholders covering the entire care continuum
- Northem, Eastern and Southern EU contexts

Farsund Kommune Norway (Community-based care organization supporting rehabilitation and independent living)

Heart Institute Niculae Stăncioiu Romania (Hospital, leading center for cardiovascular care)

Istituto Nazionale di Ricovero e Cura per Anziani Italy (Care recovery institution for patients transitioning in different healthcare settings)

3. How does TransCare plan to communicate the scientific evidence generated by the project to the public and policymakers?



Thank you!

IONUT
ANGHEL

Professor of Computer Science
Distributed Systems Research Laboratory
Computer Science Department
Faculty of Automation and Computer Science
Technical University of Cluj-Napoca

DSRL Distributed Systems Research Laboratory

+40723353899
ionut.anghel@cs.utcluj.ro
https://dsrl.eu/
Cluj-Napoca, Romania

THCS
Transforming Health and Care Systems

ZonMw

Co-funded by the European Union

Early recognition of neonatal jaundice – application of novel preventive strategies in different health systems

IDjaundice@home

Christian Hulzebos, MD, Assistant Professor

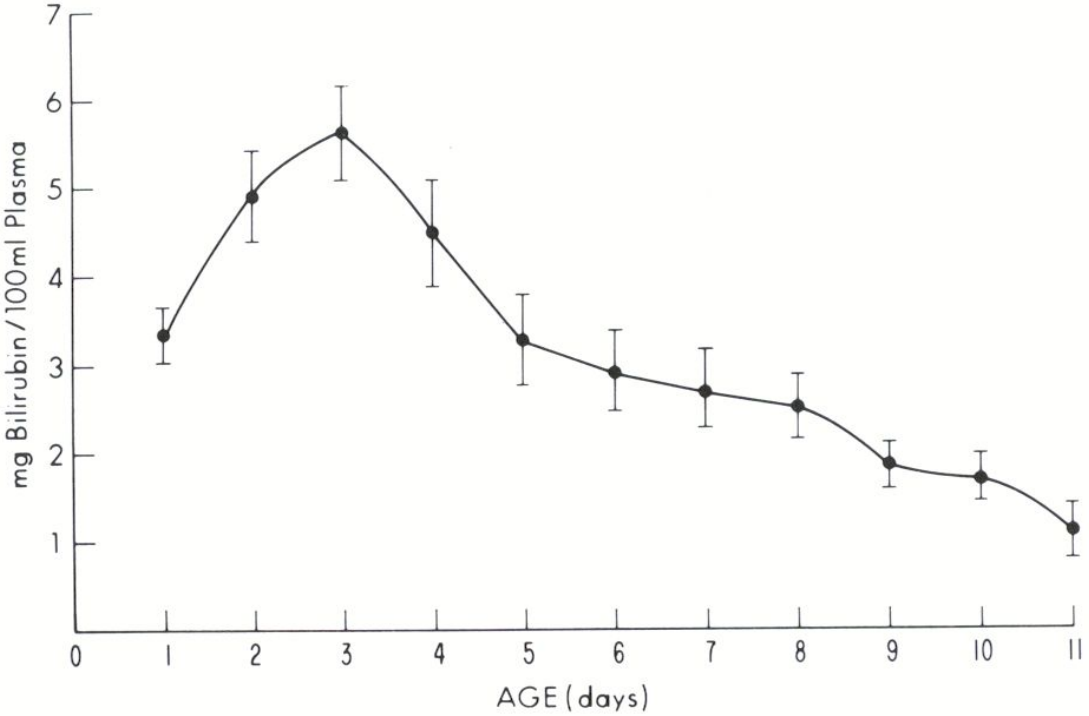
SHAMIR MEDICAL CENTER

picterus

Erasmus MC Sophia Children's Hospital

umcg Beatrix Children's Hospital

The problem: neonatal jaundice



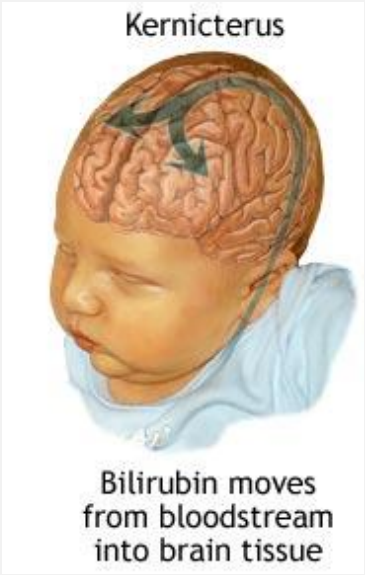
SHAMIR MEDICAL CENTER

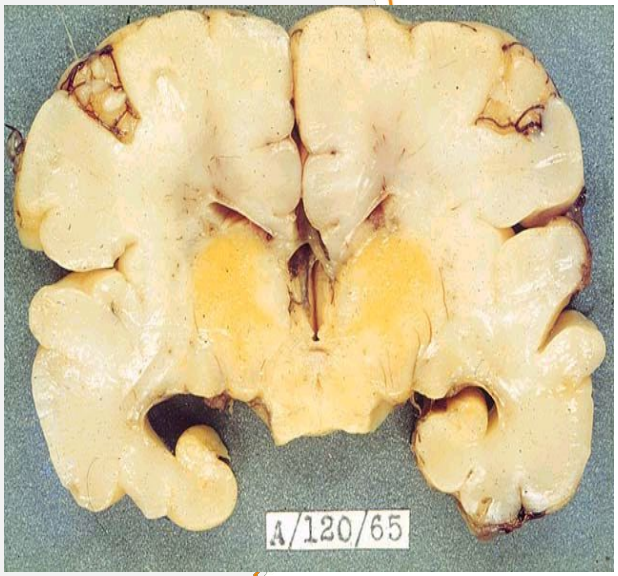
picterus

Erasmus MC Sophia Children's Hospital

umcg Beatrix Children's Hospital

The danger: acute brain damage





SHAMIR MEDICAL CENTER

picterus

Erasmus MC Sophia Children's Hospital

umcg Beatrix Children's Hospital

Neonatal jaundice may cause mortal

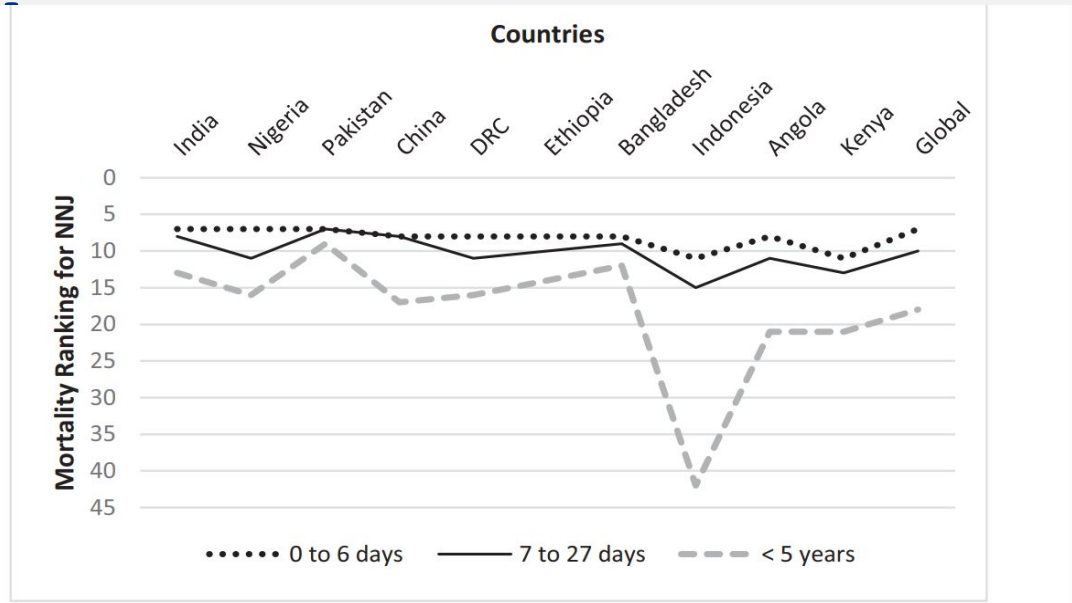


FIGURE 1
Mortality ranking of hemolytic disease and other NNJ in 2016 globally and in the 10 countries with the largest neonatal mortality. DRC, Democratic Republic of the Congo.

Olusanya BO, et al. Pediatrics 2018

SHAMIR MEDICAL CENTER

picterus

Erasmus MC Sophia Children's Hospital

umcg Beatrix Children's Hospital

Chronic brain damage

SHAMIR MEDICAL CENTER

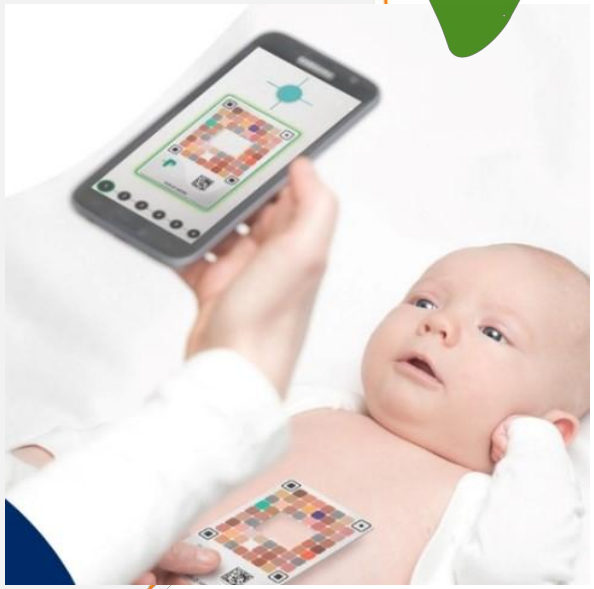
Beatrix Children's Hospital

Early detection is essential!

Visual

Transcutaneous

Smartphone App



SHAMIR MEDICAL CENTER

picterus

Erasmus MC Sophia Children's Hospital

umcg Beatrix Children's Hospital

IDJaundice@home - Workpackages

Workpackages	Country	Setting	Stakeholders	Picterus use	Study type/ group size
WP 1.0	Israel	Outpatient clinic	Parents and nurses	Nurses	Implementation N=788
WP 2.0	NL, Israel	Hospital	Parents and midwifes	Parents	Mixed methods N=120
WP 2.1.	NL, Israel	Home	Parents, midwifes, paediatricians	Parents + consultation by paediatricians (Israel) or midwifes (NL)	Implementation N=2780
WP 3.0	Europe	Screening practices	Paediatricians from Europe	Not applicable	Survey
Iterative enhancement of Picterus functionality + EHR integration Norway					

SHAMIR MEDICAL CENTER

picterus

Erasmus MC Sophia Children's Hospital

umcg Beatrix Children's Hospital

IDJaundice@home – GANTT chart

	Y1Q1	Y1Q2	Y1Q3	Y1Q4	Y2Q1	Y2Q2	Y2Q3	Y2Q4
1-2	BEAT-1 analysis							
1	Control phase	Intervention phase			Data analysis + dissemination			
2.0		Mixed methods study parental use in hospital			Data analysis + dissemination			
2.1					BEAT-2 study			Data analysis + dissemination
1-2	Iterative enhancement of Picterus functionality + EHR integration							
3		European-wide survey of jaundice screening			Data analysis + dissemination			Overarching recommendations

Netherlands | Israel | Norway

Netherlands + Israel

Netherlands + Israel + Norway

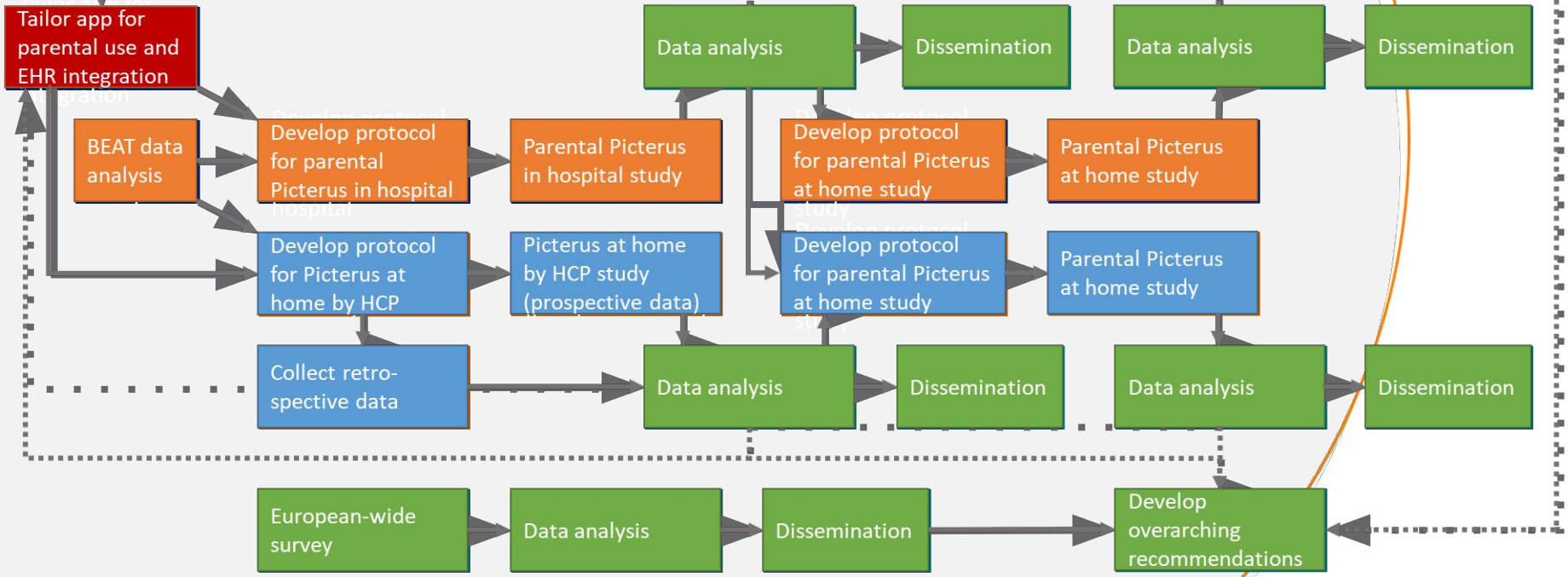
picterus

SHAMIR MEDICAL CENTER

Erasmus MC Sophia Children's Hospital

umcg Beatrix Children's Hospital

IDJaundice@home – PERT diagram



SHAMIR MEDICAL CENTER

picterus

Erasmus MC Sophia Children's Hospital

umcg Beatrix Children's Hospital

IDJaundice@home contributes to the transformation of health and care systems

Alleviate the burden of severe jaundice on neonatal health, and hospital resources

Empower parents to take a more active role in their child's health

Make healthcare more accessible, patient-centered, and efficient, potentially reducing dependency on in-hospital visits

Expand telehealth capabilities and integrate more at-home screening tools into neonatal care systems

SHAMIR MEDICAL CENTER

picterus

Erasmus MC Sophia Children's Hospital

umcg Beatrix Children's Hospital

IDJaundice@home takes into consideration the relevant ecosystem

Involve key stakeholders—parents, midwives, pediatricians, and healthcare organizations

Recognize the different healthcare infrastructures in the Netherlands and Israel

Tailor studies to each system, with midwives supporting parents (NL) and pediatricians providing support in Israel

Gain insights, helping us to develop implementation strategies that are adaptable to diverse healthcare settings

SHAMIR MEDICAL CENTER

picterus

Erasmus MC Sophia Children's Hospital

umcg Beatrix Children's Hospital

Communication of the results of IDJaundice@home to public and policymakers

Publish results in open-access scientific journals

Present at healthcare and neonatal conferences

Create visually engaging content, such as infographics and video summaries to share on social media and parent-focused platforms

For policymakers: prepare reports on the effectiveness, cost-savings, and potentially reduction in hospital burden

SHAMIR MEDICAL CENTER

picterus

Erasmus MC Sophia Children's Hospital

umcg

Beatrix Children's Hospital

ICAREWOUNDS

Co-funded by the European Union

THCS
TRANSFORMING HEALTH AND CARE SYSTEMS

Intelligence and integration of CARE for smarter chronic **WOUNDS** management

ICAREWOUNDS

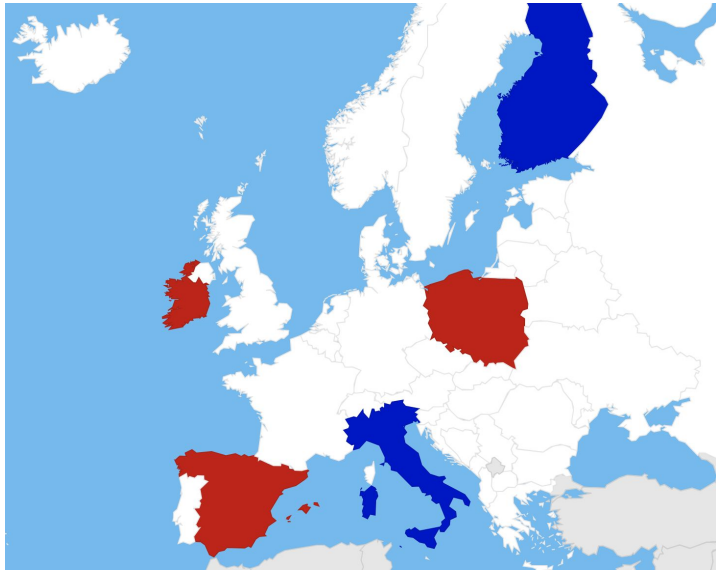
ICAREWOUNDS project has received funding from the European Commission, ISCIII, NCBR, HRB, AKA and MUR under the framework the co-fund partnership of Transforming Health and Care Systems, THCS, (GA N° 101095654 of the EU Horizon Europe Research and Innovation Programme.

ICAREWOUNDS AI

Co-funded by the European Union

THCS Transforming Health and Care Systems

CONSORTIUM ...LE



TECH PARTNERS

gradiant

sigoria SECURITY SOLUTIONS

CLINICAL PARTNERS

IIS Galicia Sur

MEDICAL UNIVERSITY OF LODZ

UCD DUBLIN — University College Dublin, An Coláiste Ollscoile, Baile Átha Cliath

SOCIOECONOMIC PARTNER

LUT University

LEGAL & ETHICS PARTNER

CyberEthicsLab.

Ministero dell'Università e della Ricerca

Instituto de Salud Carlos III

HRB Health Research Board

ACADEMY OF FINLAND

NCBR National Centre for Research and Development

ICAREWOUNDS

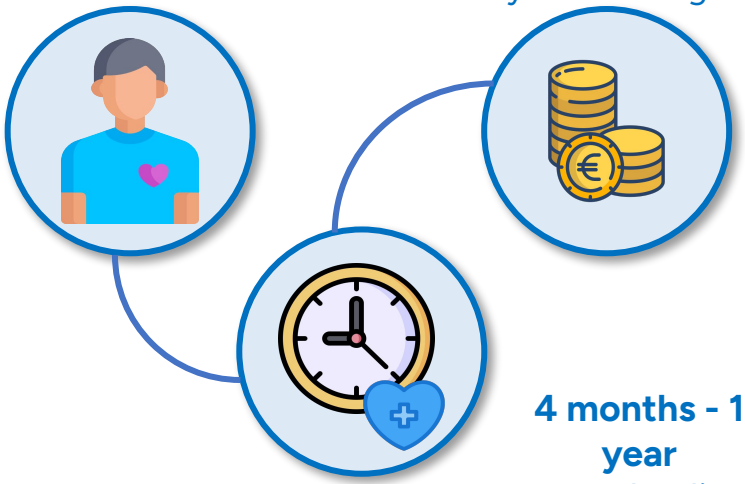
Co-funded by the European Union

THCS Transforming Health and Care Systems

CHRONIC WOUNDS (CW) BURDEN IN THE EU

4'4 - 6'6M people/year

5% total healthcare systems budget



4 months - 1 year mean healing times

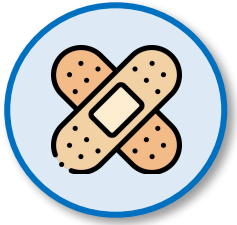
PATIENT-RELATED CHALLENGES

Low quality of life

Adverse events

PROFESSIONAL-RELATED CHALLENGES

Heterogeneous CW and patients



Many treatment options

Lack of specialists

Ministero dell'Università e della Ricerca

Instituto de Salud Carlos III

HRB Health Research Board

Academy of Finland

NCBR National Centre for Research and Development

ICAREWOUNDS AI

SOLUTION

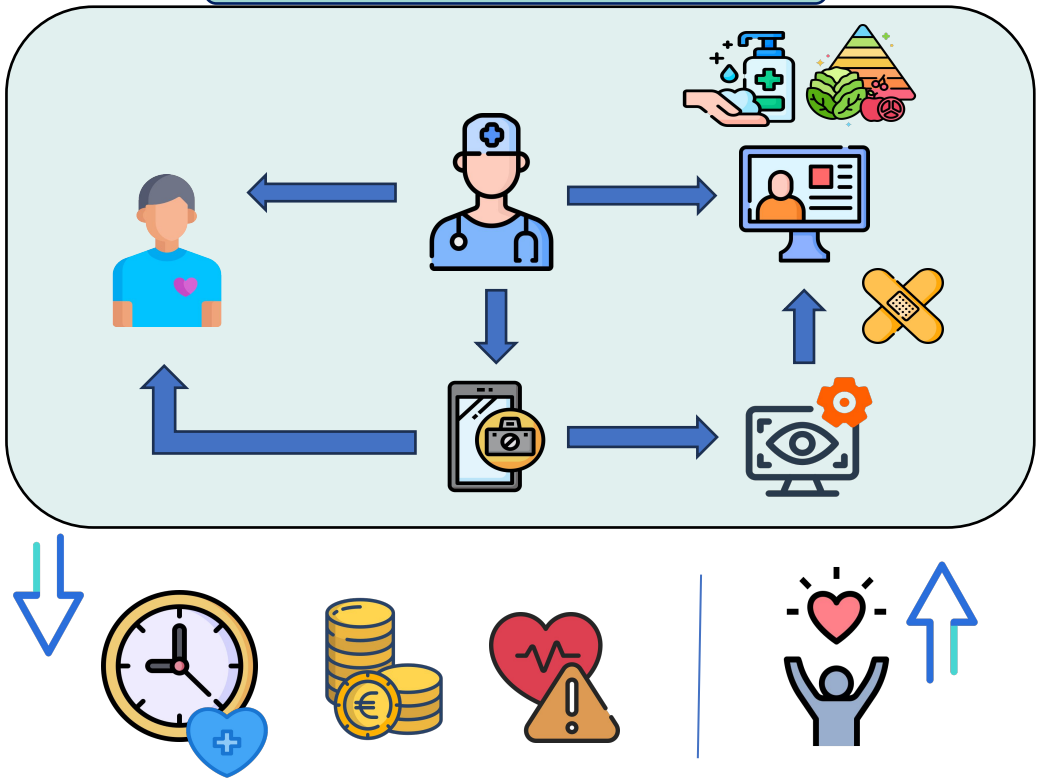
Co-funded by the European Union

THCS Transforming Health and Care Systems

INTEGRATED CARE MODEL

- Patient-centred care
- Healthcare professionals empowerment
- Holistic approach to care
- Coordination between care levels
- Enhanced monitoring and follow-up
- Adverse events prevention

E-HEALTH PLATFORM



Ministero dell'Università e della Ricerca

Instituto de Salud Carlos III

HRB Health Research Board

ACADEMY OF FINLAND

NCBR National Centre for Research and Development

ICAREWOUNDS AI

Co-funded by the European Union

THCS Transforming Health and Care Systems

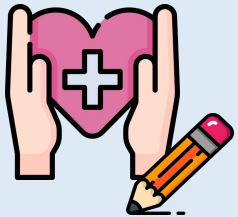
STEPS IN SOLUTION DEVELOPMENT

3 PILOT SITES: SPAIN, POLAND AND IRELAND

1

Review on current CW management across EU

2



Integrated care model co-design

3

AI-based platform design and implementation

4

Model testing through a multi-centre pilot study

Ministero dell'Università e della Ricerca

Instituto de Salud Carlos III

HRB Health Research Board

ACADEMY OF FINLAND

NCBR National Centre for Research and Development

ICAREWOUNDS

Co-funded by the European Union

THCS Transforming Health and Care Systems

How ICAREWOUNDS will contribute to the transformation of health and care systems

Early detection and enhanced decision making

- Earlier identification of risks
- Preventive interventions for educating patients with use of technology
- Standardized assessment protocols
- Optimized CW strategies
- Reduced healing times

Resource optimisation

- Reduced length of hospital stays
- More efficient use of healthcare resources
- Lower overall treatment costs

Patient care integration

- Coordinated care across healthcare settings
- Better patient education and engagement
- Better education and knowledge transfer for the staff
- Improved communication between care teams
- Enhanced support for caregivers

Quality of life improvement

- Faster return to normal activities
- Reduced psychological burden
- Shorter recovery periods
- Improved patient satisfaction

Ministero dell'Università e della Ricerca

Instituto de Salud Carlos III

HRB

ACADEMY OF FINLAND

NCBR National Centre for Research and Development

ICAREWOUNDS

Co-funded by the European Union

THCS Transforming Health and Care Systems

How ICAREWOUNDS is taking into consideration the relevant ecosystem for putting in place the transformation

- **ICAREWOUNDS model co-designed** by CW expert healthcare professionals, care providers and patient groups.
- Project integrated care model is being based on a **deep analysis of the evidence-based medicine and the current treatment plans in CW across the EU.** These analysis has been done by ICAREWOUNDS healthcare providers.
- Research innovation and methodology will drive the design and development of user **interfaces within present ecosystem practices and targeted patient groups** across regions in Ireland, Spain and Poland.
- Within this ecosystem, **personalisation of care will shift** towards a more proactive, patient-engaging and preventive care approach.
- To create **opportunities for innovation and technology transfer beyond the project,** and with **wider patient groups** across Europe.

Ministero dell'Università e della Ricerca · Instituto de Salud Carlos III · HRB · Academy of Finland · NCBR National Centre for Research and Development

ICAREWOUNDS

Co-funded by the European Union

THCS
TRANSFORMING HEALTH AND CARE SYSTEMS

How to communicate the scientific evidence generated by ICAREWOUNDS to the public and policymakers

PUBLIC

- Using various channels such as **social media** and **videos**.
- Publishing **press releases**.
- Hosting **online events**.

POLICYMAKERS

- **Specific policymakers** who can influence CW care policies.
- Generating **insights** to be used to **define new health policies**.
- Providing **specific recommendations**.
- Using **intermediaries.**

Ministero dell'Università e della Ricerca

Instituto de Salud Carlos III

HRB

ACADEMY OF FINLAND

NCBR
National Centre for Research and Development

ICAREWOUNDS

Co-funded by the European Union

THCS
TRANSFORMING HEALTH AND CARE SYSTEMS

Shaila Calvo Almeida

scalvo@gradiant.org

icarewounds_coordinator@gradiant.org

Ministero dell'Università e della Ricerca

ACADEMY OF FINLAND

NCBR National Centre for Research and Development

ICAREWOUNDS project has received funding from the European Commission, ISCIII, NCBR, HRB, AKA and MUR under the framework the co-fund partnership of Transforming Health and Care Systems, THCS, (GA N° 101095654 of the EU Horizon Europe Research and Innovation Programme.

Université Paris Cité

THCS transforming health and care systems

CRESS Epidemiology Statistics

Digital - CAre Contributution to User Services (Digital - CACTUS)

Pr Viet-Thi Tran

Centre d'Epidémiologie Clinique, Hôpital Hôtel-Dieu, AP-HP, Paris

Centre de Recherche Epidémiologie et Statistiques (CRESS), Inserm / Université Paris Cité

Université Paris Cité

Unsustainable

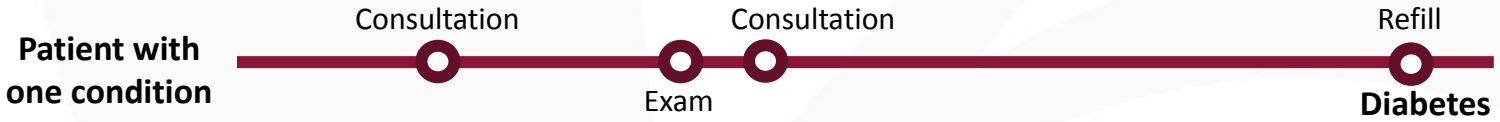
About **40%** of adults have a chronic condition, 25% have multiple chronic conditions

90% of the USA's **$4.5 trillion** in annual health care expenditures are for people with chronic conditions and multimorbidity.

Experts predict that no society will be able to sustainably care for patients with chronic conditions in the next **20 years**

RAND Corporation, 2017
Thuemmler, 2017

Université Paris Cité

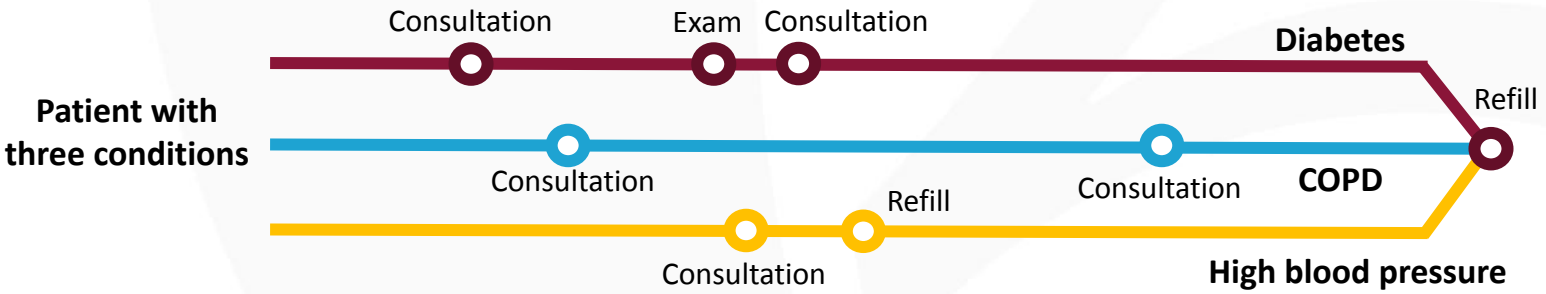


A patient spends 15 minutes with his physician and **5000 waking hours** every year caring for his disease at home

Patients with type 2 diabetes managed with oral agents should spend **143 min daily** in recommended self-care.

Russell, J Fam Pract, 2005
Ash, NEJM, 2012

Université Paris Cité



8 interactions with the care system, involving travels, parking, waiting times, etc.

- Uncoordinated care
- Risk of harmful drug interactions
- High burden of treatment

38% patients report that they would be unable to continue the same investment of energy, time, and money in healthcare lifelong.

Tran, Mayo Clinic Proc, 2019

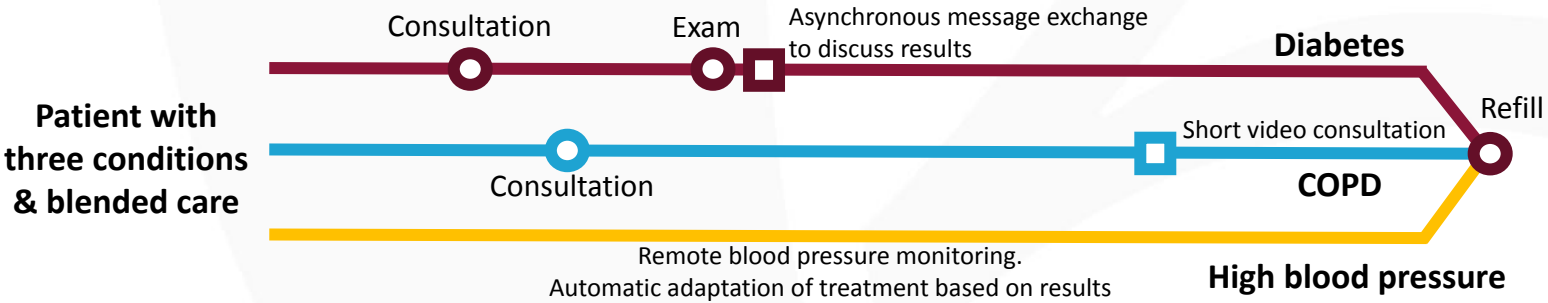
Université Paris Cité

Promises of digital technology

Advances in technology may facilitate coordination, automate some tasks, reduce unnecessary interactions and improve the efficiency of the system

- **Active communication tools between patients and clinicians** (Video consultations / asynchronous message exchanges)
- **Online services** (Patient portals / Online refills)
- **Remote patient monitoring** with or without **just-in-time adaptive interventions (JITAIs)**

Université Paris Cité



4 in-person interactions with the care system
Could still improve with better integration

30% of patients with chronic conditions can imagine replacing >50% of their consultations by teleconsultations

>50% of patients with chronic conditions can imagine their treatment adaptations being driven by continuous remote monitoring

Oikonomidi & Tran, JAMA Network Open, 2022

Université Paris Cité

CACTUS project

Provide evidence and develop tools to **help care systems** (at hospital, regional or national level) **prioritize the digital solutions** that should be implemented to improve the life of patients.

WP1: Anticipating how the digital transformation of care may change the patient–clinician relationship
WP2: Developing a novel validated patient-reported tool to identify when and where care could benefit from digital solutions
WP3: Estimating the type and volume of face-to-face interactions that could be avoided, replaced, or enriched by technology-mediated solutions

How does the project contribute to the transformation of care systems?

- Current development of digital medicine is **anarchic**
  - **Hundreds of solutions** are developed, disease-by-disease
  - Implementation is **dictated by the appetence of physicians / managers** rather than the need of patients

- Implementation of digital medicine should prioritize “pain points” in patients’ journey to create a “**care that fits**” their lives -> there is a need for robust evidence-based tool to assess patients’ journey (WP2)

- We will field test the tools developed in the project in a sample of **>15 000 European citizens** (WP3)
  - Comparison between countries, care systems and organizations
  - Comparison between different conditions and groups of conditions

- Development of digital medicine should respect the **humanistic values of care** (WP1)

How does your project take into consideration the ecosystem ?

Healthcare is a complex adaptive system […]. No other system is more complex: not banking, education, manufacturing, or the military. No other industry or sector has the equivalent range and breadth—such intricate funding models, the multiple moving parts, the complicated clients with diverse needs, and so many options and interventions for any one person's needs.

Braitwhaite, BMJ, 2018

Our project will involve **multidisciplinary** teams (epidemiologists, clinicians, patients, designers, sociologists, etc.) to develop tools to **drive and inform the transformation of the ecosystem**

Design of tools will involve **end-users** (hospital managers, decisionmakers at national or European level)

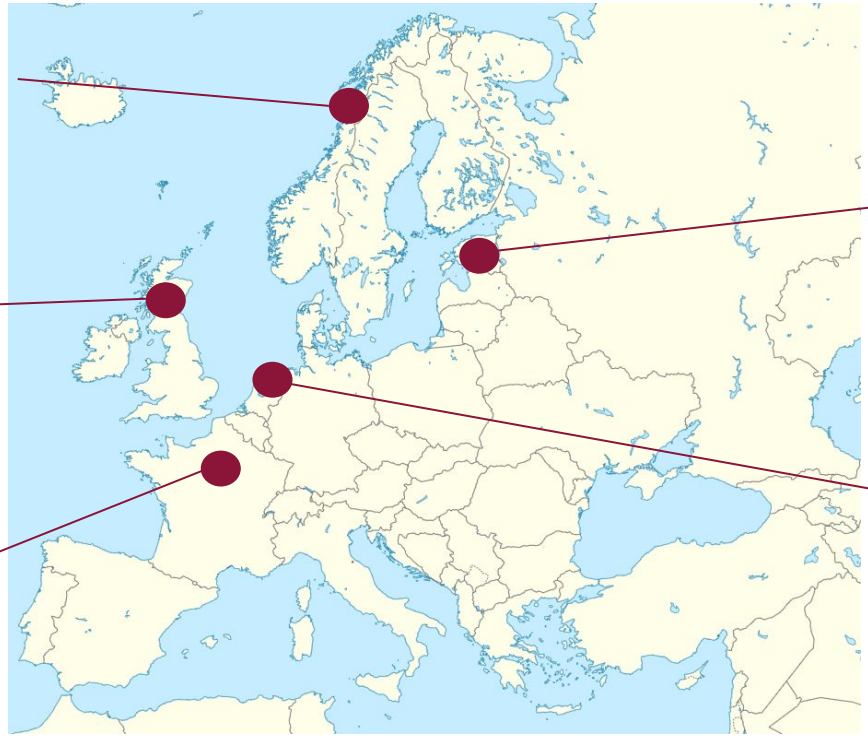
How do you plan to communicate the scientific evidence generated by your project to the public and policymakers?

- Our project develop tools to drive and inform the transformation of the ecosystem. It is **aimed to be used by policymakers.**
- Tool will be **co-created** with end-users, including patients, clinicians and decision makers

- Beyond scientific publications, we aim for a "**beyond the tool**" approach with
  - Stakeholder meetings to ensure that the tools and findings answer the needs of the public and policymakers
  - Tutorials on how to use and interpret findings

Consortium

UNIVERSITETSSYKEHUSET NORD-NORGE
DAVVI-NORGGA UNIVERSITEHTABUOHCCEVIESSU



North Estonia Medical Centre

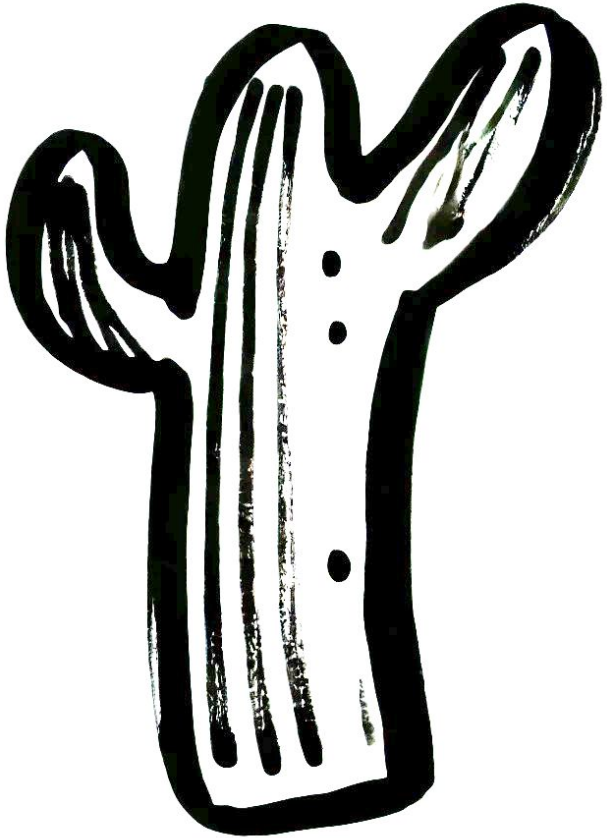
University of Glasgow

Universiteit Leiden

Université Paris Cité

SKE21

Be CACTUS



mail :thi.tran-viet@aphp.fr

X handle: @thitran3