TRANSFORMING HEALTH AND CARE SYSTEMS

Introduction to THCS project

Funded by the European Union under the Horizon Europe Framework Programme - Grant Agreement №: 101095654. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Health and Digital Executive Agency (HADEA). Neither the European Union nor the granting authority can be held responsible for them.

Co-funded by the European Union

THCS
TRANSFORMING HEALTH AND CARE SYSTEMS

- One of the Partnerships under Horizon Europe (Pillar 2 - Global Challenges & European Industrial Competitiveness)
- Total budget of appr. € 305 million and an EC Contribution of € 91 million (30% of the total budget)

- **64 partners**
- **23 Member States and HE Associated Countries**
- **9 regions**

Start: January 2023
Duration: 7 years

THCS Partnership

Co-funded by the European Union

Funded by the European Union under the Horizon Europe Framework Programme - Grant Agreement Nº: 101095654. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Health and Digital Executive Agency (HADEA). Neither the European Union nor the granting authority can be held responsible for them.

THCS Vision and Objectives

High-quality, fairly accessible, sustainable, efficient, resilient and inclusive health and care systems for all

- **Increase funding opportunities and strengthen the research and innovation community**
- **Fill the knowledge gap**
- **Increase the ability to implement innovation**
- **Intensify cooperation among countries and beyond healthcare**
- **Increase stakeholders' involvement**

Co-funded by the European Union

Funded by the European Union under the Horizon Europe Framework Programme Grant Agreement N°101095654. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Health and Digital Executive Agency (HADEA). Neither the European Union nor the granting authority can be held responsible for them.

THCS **Approach**

Three main workstreams

- **Fill the knowledge gaps**
- **Implementation and Transfer**
- **Boosting Health and care systems**

Learn from practices

Problem and priorities definition

learning what, why and how

People-centred health and care systems

Implementation and Transfer

Boost health systems

Co-funded by the European Union

Funded by the European Union under the Horizon Europe Framework Programme – Grant Agreement Nº: 101095654. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Health and Digital Executive Agency (HADEA). Neither the European Union nor the granting authority can be held responsible for them.
Funded by the European Union under the Horizon Europe Framework Programme – Grant Agreement Nº: 101095654. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Health and Digital Executive Agency (HADEA). Neither the European Union nor the granting authority can be held responsible for them.

Pillars and Work Packages

PILLAR 1
Science & Innovation into Policy and Practice

- WP4 – Methodological and Assessment Framework
- WP5– Bridging evidence to policy

PILLAR 2
Research and Innovation funding

- WP6 – Calls texts definition of R&I topics
- WP7 – Joint Transnational Calls Secretariat
- WP8 – Project Monitoring and Assessment of Projects' results and impacts

PILLAR 3
Support transferability & strengthening ecosystems

- WP9 -Strengthening ecosystems
- WP10 –Knowledge hub to support the transferability of good practices

PILLAR 0
Programme management

- WP1 – Governance and Annual Work Plan
- WP2 – Coordination and Management
- WP3 – Strategic relationship and Impact maximisation

Co-funded by the European Union

Funded by the European Union under the Horizon Europe Framework Programme - Grant Agreement Nº: 101095654. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Health and Digital Executive Agency (HADEA). Neither the European Union nor the granting authority can be held responsible for them.

THCS
TRANSFORMING HEALTH AND CARE SYSTEMS

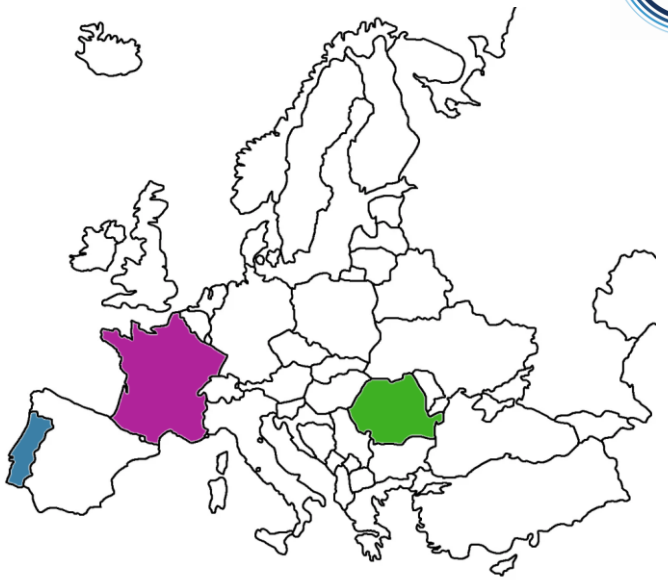
For more information about THCS project

https://www.thcspartnership.eu/

The webinar recording and presentations can be accessed via THCS Knowledge Hub:
https://knowledgehub.thcspartnership.eu/login

Re-STAGE

Integrative Decision Making in Rectal Cancer Care: Advanced Imaging, Predictive Models, and Patient-Centered Digital Tools



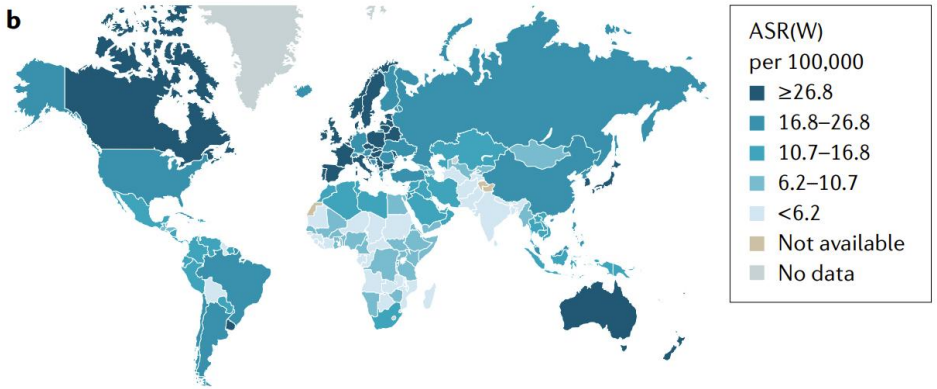
Andrada Ianuş

King's College London, UK
Algarve Biomedical Centre, Faro, Portugal
Champalimaud Foundation, Lisbon, Portugal

Motivation

Colorectal cancer is a major global health burden:

- Globally[1,2]:
  - 3rd most diagnosed & 2nd leading cause of cancer deaths
  - ~1.9 million new case annually
  - Lifetime risk: ~1 in 23 for men, ~1 in 25 for women

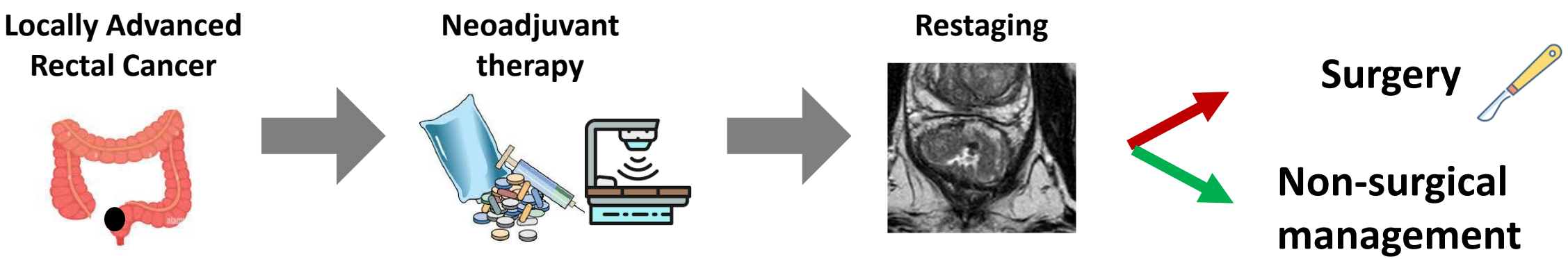


- Incidence rising in younger adults[3] (< 55 years)
  - 1 in 10 in 1995 vs 1 in 5 in 2019
  - Projected to further increase

- ~ 40 % case are rectal tumours
  - Unique diagnostic and treatment challenges
  - More aggressive in young adults, higher recurrence risk
  - Proximity to other pelvic organs – challenge for surgery and radiotherapy

[1] GLOBOCAN 2020; [2] Keum & Giovannucci Nat Rev Gastroenterol Hepatol 2019, [3] ACS Colorectal Cancer Facts & Figures (2024)

Motivation



- Watch and Wait is an established approach after neoadjuvant therapy in rectal cancer with undeniable advantages regarding QoL
- Pressure on adequate patient selection is building up, as evidence emerges on regrowth being associated with a higher rate of distant metastases

- MRI is essential for patient selection and to plan surgery in incomplete responders
- Response assessment on MRI has substantial variability of interpretation, and accuracy regarding response may be disappointing

- Uncertain time for patients, with many questions

Re-STAGE pillars

Basic research

- MRI biomarker development
- Tumour cells vs fibrosis vs muscle
- High resolution ex-vivo diffusion MRI
- Whole TME specimens
- 9.4T in Lisbon, 3T in Montpellier

Re-STAGE pillars

Basic research

- MRI biomarker development
- Tumour cells vs fibrosis vs muscle
- High resolution ex-vivo diffusion MRI
- Whole TME specimens
- 9.4T in Lisbon, 3T in Montpellier

Clinical translation

- Preclinical results - inform clinical protocols
- New MRI protocols added to the staging and restaging examination
- Evaluation of added value
- 1.5T and 3T , across all sites

Re-STAGE pillars

Basic research

- MRI biomarker development
- Tumour cells vs fibrosis vs muscle
- High resolution ex-vivo diffusion MRI
- Whole TME specimens
- 9.4T in Lisbon, 3T in Montpellier

Clinical translation

- Preclinical results - inform clinical protocols
- New MRI protocols added to the staging and restaging examination
- Evaluation of added value
- 1.5T and 3T , across all sites

Imaging repository

- Make the data available
- Enable future training of ML for outcome prediction

Re-STAGE pillars

Basic research

- MRI biomarker development
- Tumour cells vs fibrosis vs muscle
- High resolution ex-vivo diffusion MRI
- Whole TME specimens
- 9.4T in Lisbon, 3T in Montpellier

Clinical translation

- Preclinical results - inform clinical protocols
- New MRI protocols added to the staging and restaging examination
- Evaluation of added value
- 1.5T and 3T , across all sites

Imaging repository

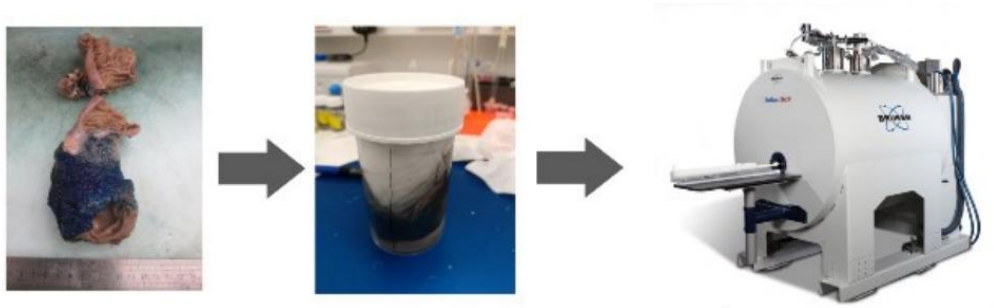
- Make the data available
- Enable future training of ML for outcome prediction

Patient centred digital tools

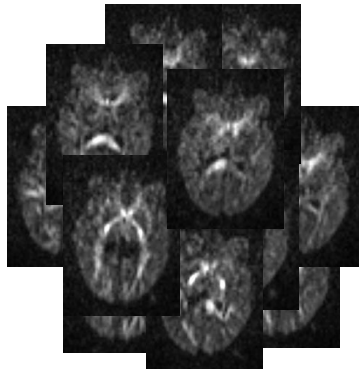
- Mobile app to facilitate QoL questionnaires
- Provide information about the disease and treatment options
  - increase the knowledge, decrease anxiety

Where we are now: basic research

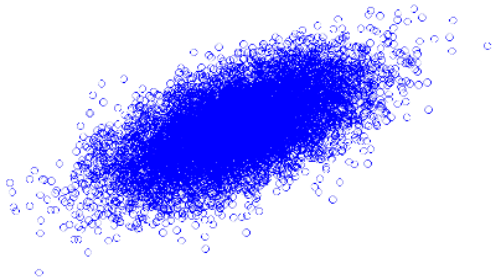
- **Ex-vivo high-resolution MRI of rectal cancer specimens and comparison with histology**
  - Resolution 0.5 mm^3
- **Diffusion MRI vs standard contrasts**
  - Non invasive probe of tissue microstructure
  - E.g. cellularity, fibre orientation, etc



MRI images



Measure

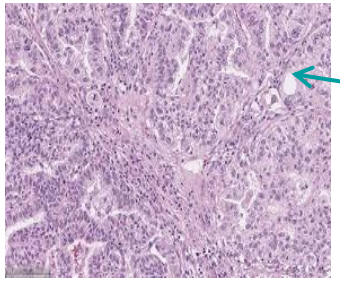


Model

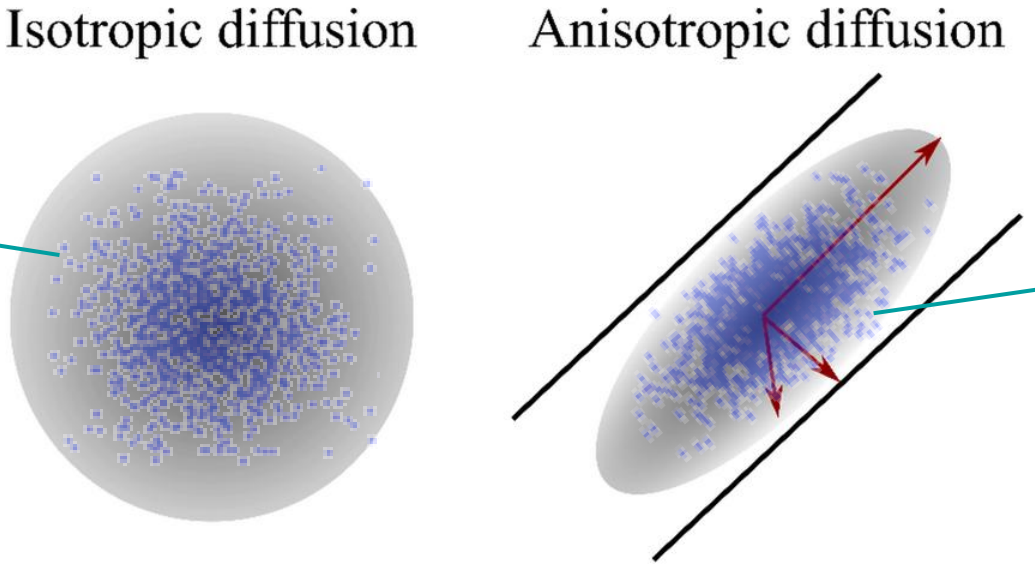
Tissue Microstructure

Where we are now: basic research

- **Diffusion tensor imaging:**
  - A simple model to describe diffusion in the tissue

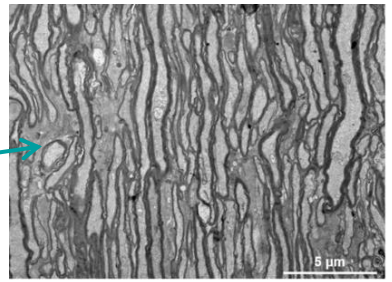


e.g. some tumours, gray matter



Same in all directions

Easier along fibers

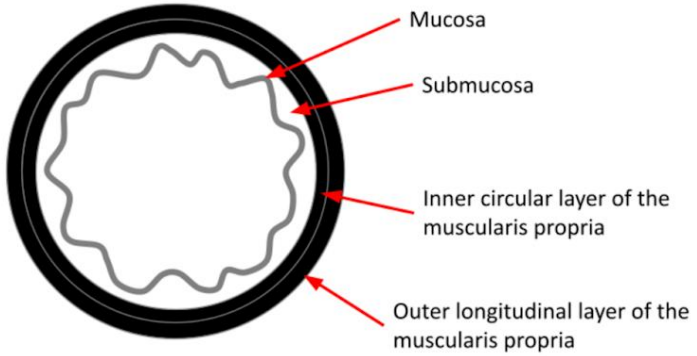


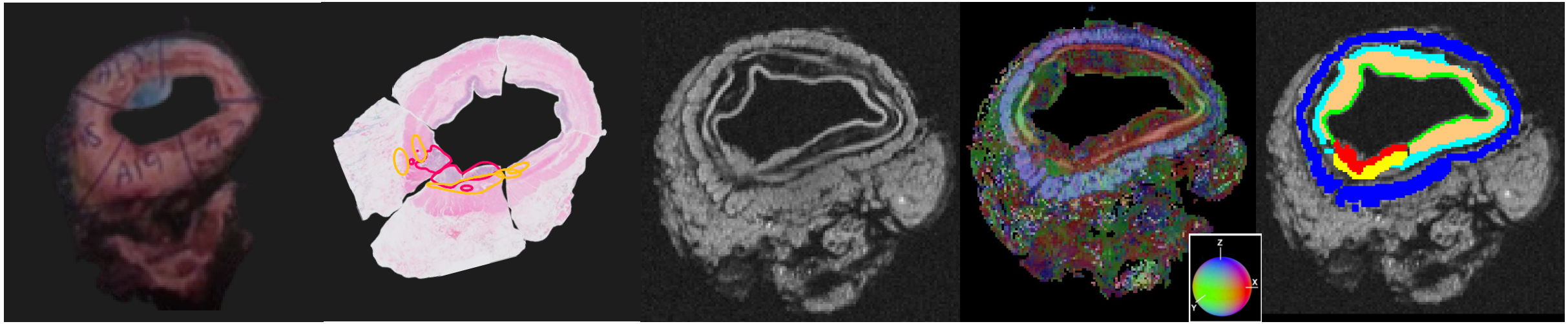
e.g. white matter, muscle

  - DTI metrics:
  - Mean diffusivity (MD) – how fast the water molecule diffuse
  - Fractional anisotropy (FA) – how anisotropic the diffusion pattern is

Where we are now: basic research

- **Correlation of MRI parameters with histology**





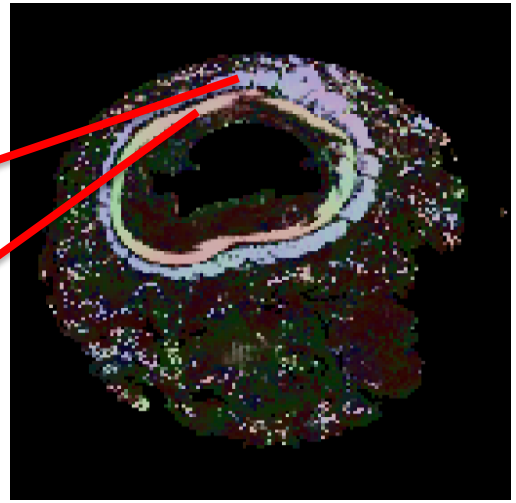
Grossing | H&E | Averaged b3000 | Color-coded FA | ROIs

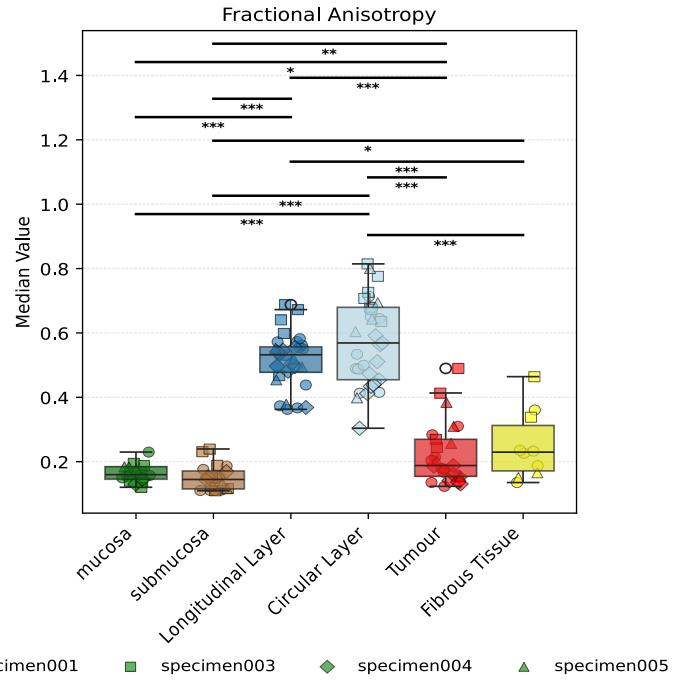
Where we are now: basic research

- **Diffusion tensor imaging**
  - Fractional anisotropy

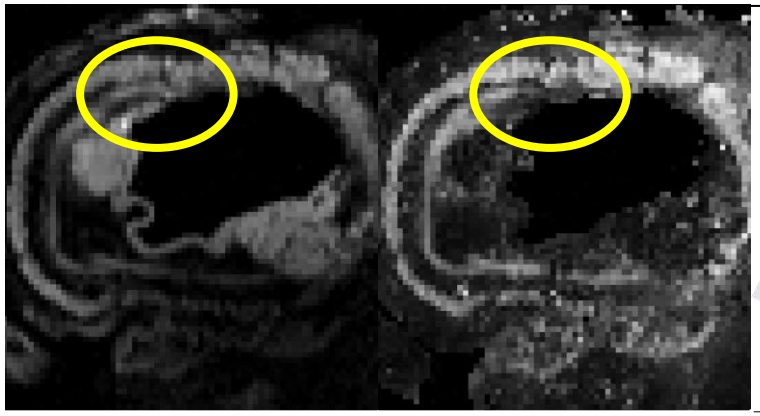
Longitudinal Muscle Layer

Circular Muscle Layer



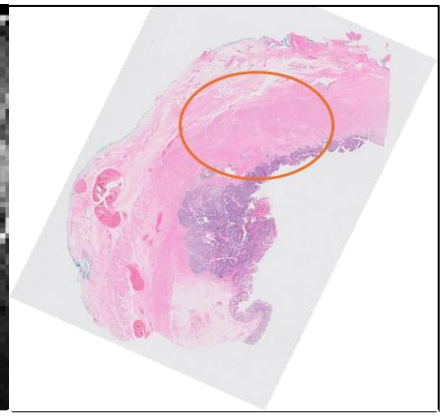


- **Sensitive to microscopic tumour pockets**

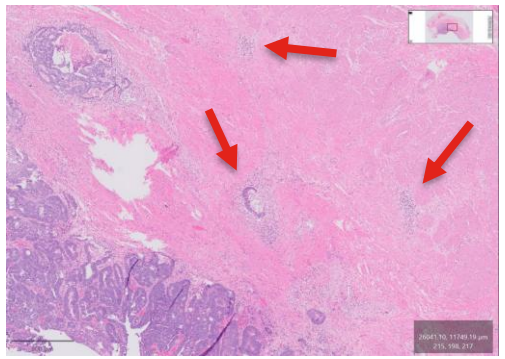


b3000 DWI

FA



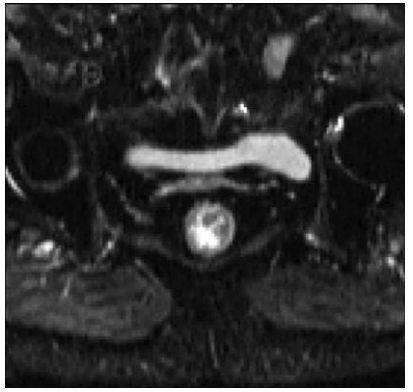
H&E



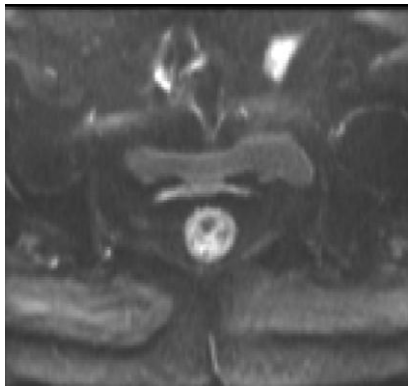
Where we are now: clinical translation

- **Imaging protocol**
  - A high-res Diffusion Tensor Imaging protocol
  - Sequences with strong diffusion weighting
  - Quantitative relaxometry

w/o diffusion weighting



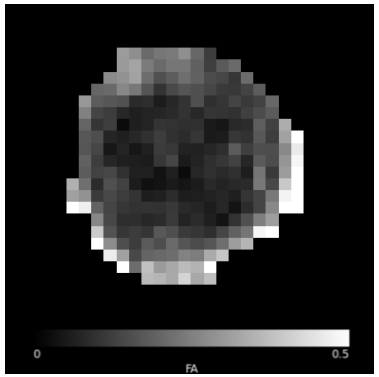
w diffusion weighting



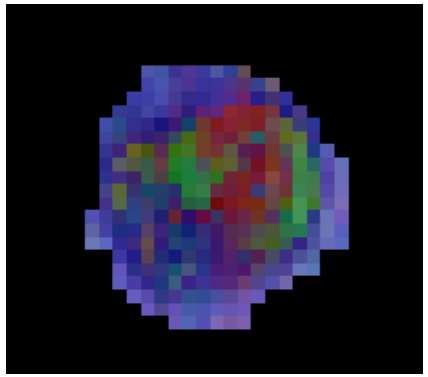
Preliminary diffusion tensor maps

- Resolution
- 1.4 x 1.4 x 4 mm

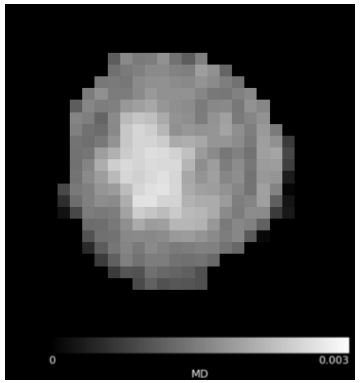
FA



Colour-coded FA

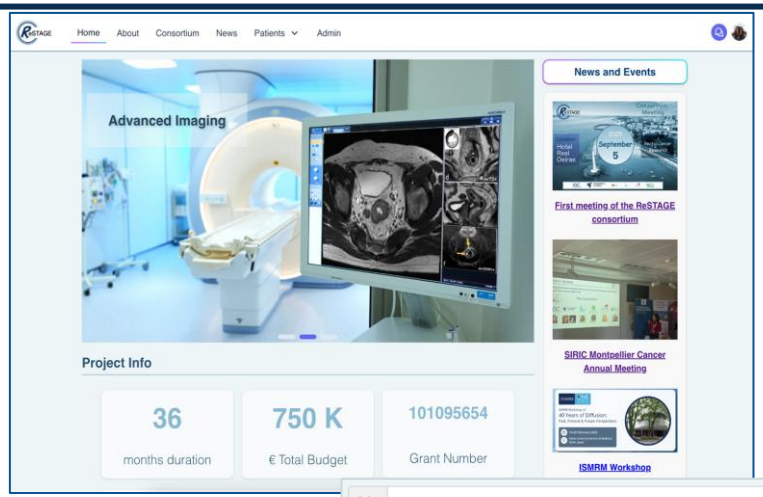


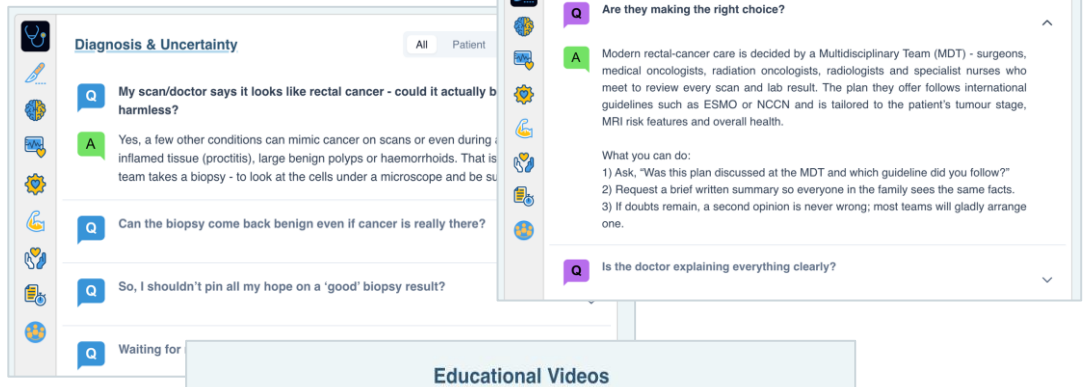
MD

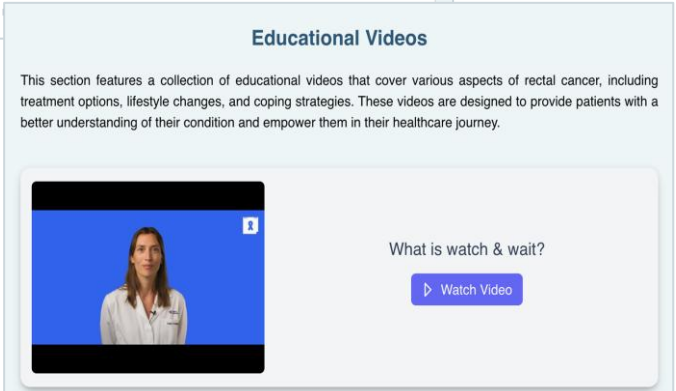


Where we are now: digital tools

- **Website**
  - Digital platform to support rectal cancer research and patient education: www.re-stage.eu
    - Basic information about the project
    - Consortium map and members
    - News and events
  - Patient section with FAQ and Educational videos
    - Designed based on major guideline recommendations
    - Common patient concerns
    - We worked together with patients

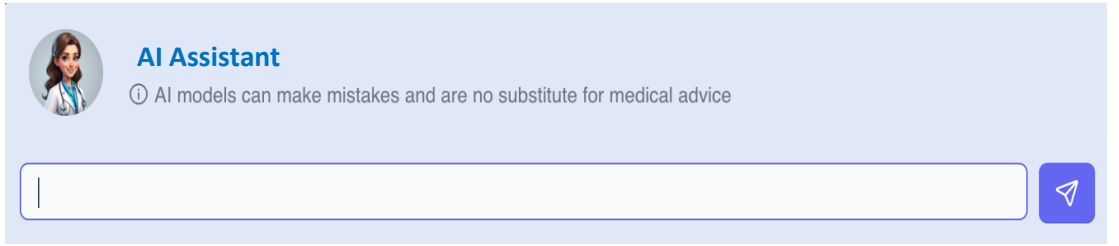


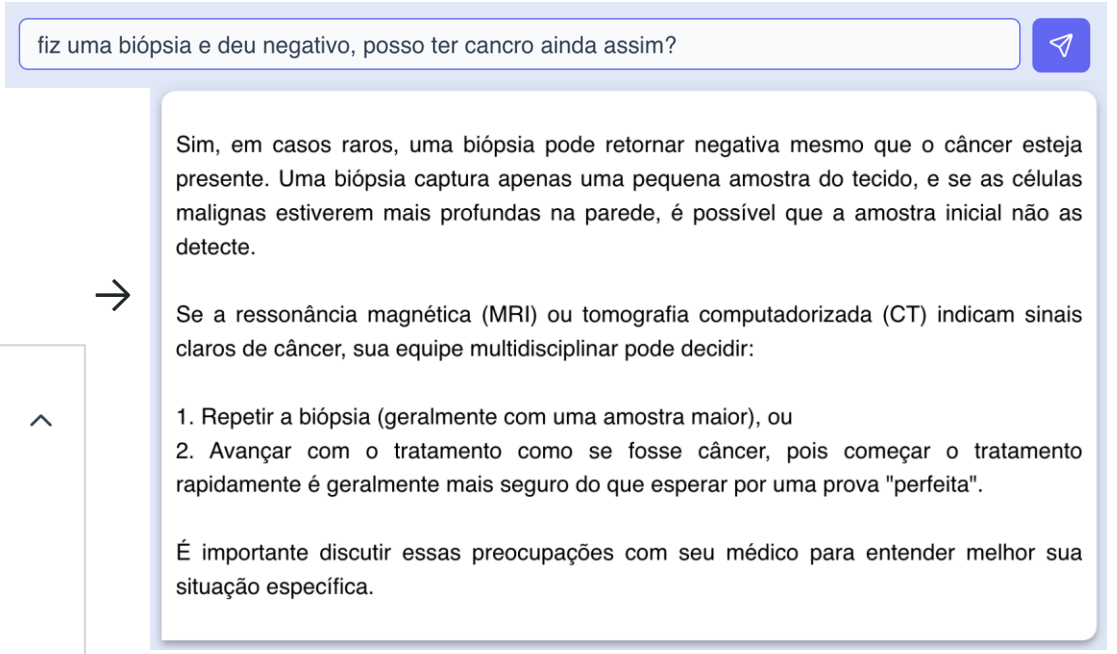




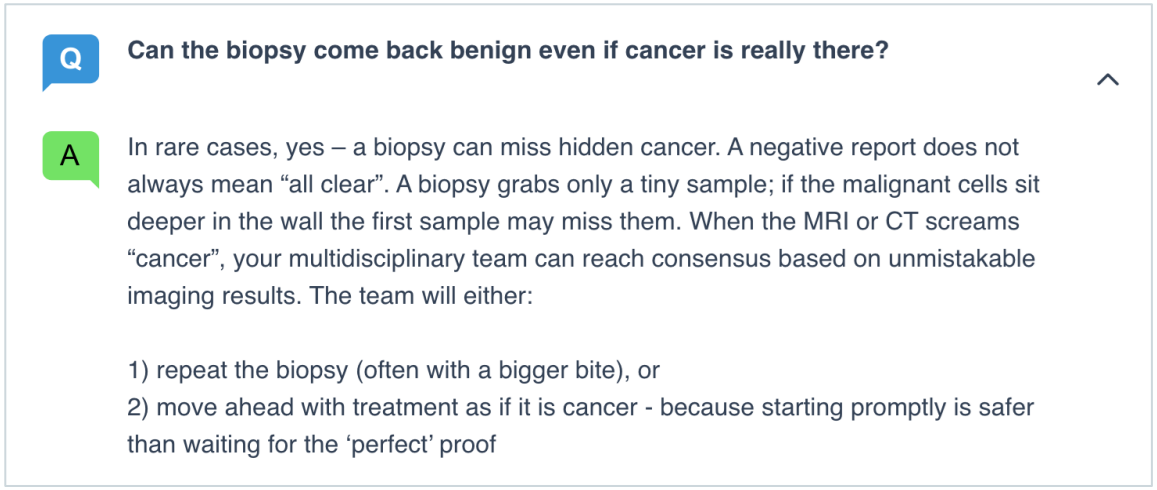
Where we are now: digital tools

- **Integrated AI chatbot – to be released soon**
  - Acts like a rectal cancer expert assistant
  - Powered by RAG + LLM (Retrieval Augmented Generation + Large Language Model)
  - Provides context-aware answers, trained on FAQ
  - Allows users to ask personalized questions (in any language)
  - Receive reliable, guideline-based answers





Answer from RAG + LLM →



- **Mobile application – industry partner in France**

Ultimate goals of Re-STAGE

- Improved and more reliable MR imaging in rectal cancer
- Better patient selection for Watch-and-Wait
- Faster decision to operate and more confident surgery planning for incomplete responders
- Better understanding of response variability to neoadjuvant therapy
- Happier, more informed patients

Thank you!


Champalimaud Foundation
HOSPITAL DA LUZ
Institutul Oncologic Prof. Dr. Ion Chiricuță
ICM Institut régional du Cancer Montpellier | Val d'Aurelle
Centro Hospitalar Universitário do Algarve
ABC
MARIE CURIE ACTIONS
fct Fundação para a Ciência e a Tecnologia
THCS TRANSFORMING HEALTH AND CARE SYSTEMS
erc

MDR in AIS

Introduction to MDR in AIS

Minimizing Door to Reperfusion Times in Drip and Ship Model for Patients with Acute Ischemic Stroke

SYNYO GmbH

Alexander Nikolov | Research Manager & Project Coordinator

This project is part of the European Partnership on Transforming Health and Care Systems (THCS), which has received funding from the European Union under the Horizon Europe Framework Programme – Grant Agreement No. 101095654 (FFG grant agreement No. 50773503).

FACTS AND FIGURES

MDR in AIS

PROGRAMME

European Partnership on Transforming Health and Care Systems (THCS): European Union under the Horizon Europe Framework Programme – Grant Agreement No. 101095654 (FFG grant agreement No. 50773503).

PROJECT DURATION

03/2024 to 03/2027 (36 month)

IDENTIFICATION CODE

FP-1127

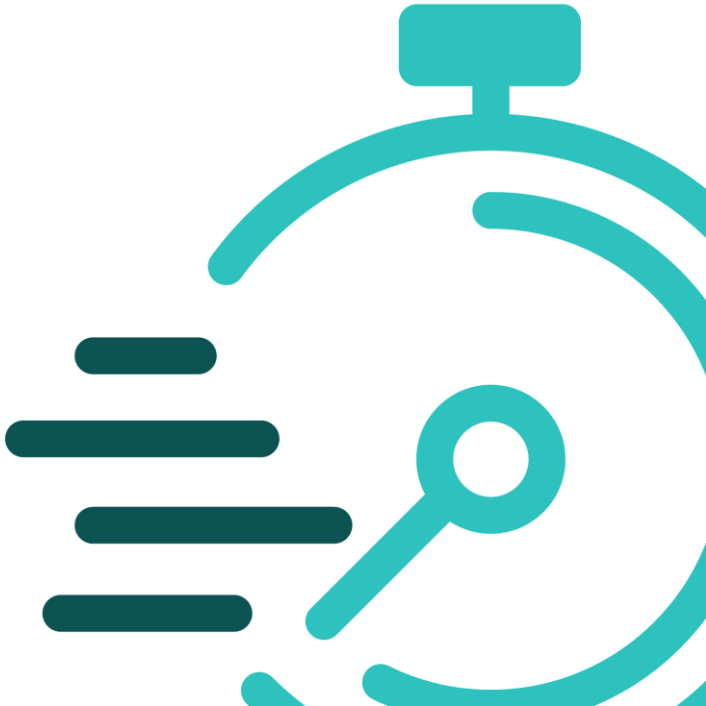
COORDINATOR

AZIENDA OSPEDALIERO UNIVERSITARIA SENESE (AOUS)

PARTNERS

6 from 5 countries (Austria, Switzerland, Italy, Spain & Latvia)

Co-funded by
the European Union



CONSORTIUM

Partners map

AZIENDA OSPEDALIERO UNIVERSITARIA SENESE 1

Siena
Italy

USL TOSCANA SUD-EST 2

Arezzo
Italy

CENTRE HOSPITALIER UNIVERSITAIRE VAUDOIS 3

Lausanne
Switzerland

BIOMEDICAL RESEARCH INSTITUTE OF MALAGA AND PLATFORM IN NANOMEDICINE 4

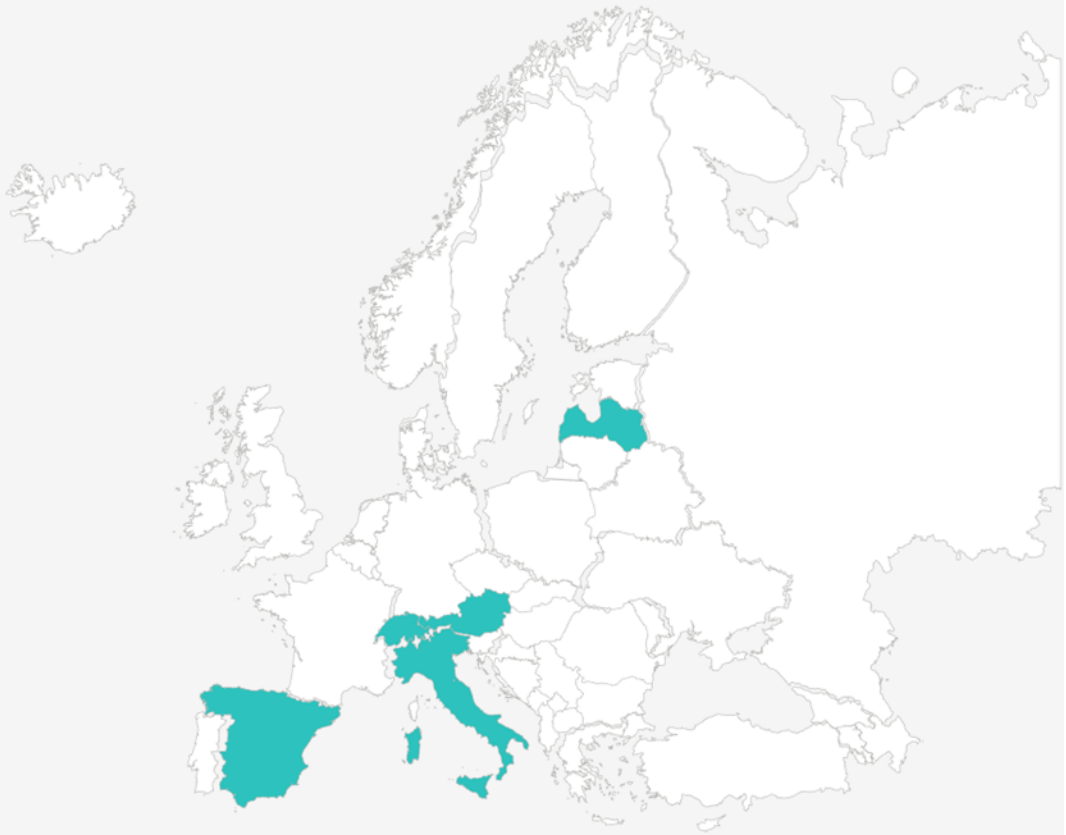
Malaga
Spain

RĪGA STRADIŅŠ UNIVERSITY 5

Riga
Latvia

SYNYO GMBH 6

Vienna
Austria



CHALLENGES

Treatment Timeliness

Streamlining the workflow for secondarily transferred patients minimizes time to treatment, preserving brain function, reducing disability and long-term costs.

Complex Time-Dependent Stroke Networks Implementation

Optimizing coordination between primary stroke centers (PSCs), CSCs, and healthcare system. Addressing delays in recommended time targets for MT.

Feasibility and Implementation of Streamlined Pathways

Proposing a direct transfer pathway bypassing CSC's ED to reduce door to-groin(DTG)time and improve outcomes.

Variations in Healthcare Systems and Practices

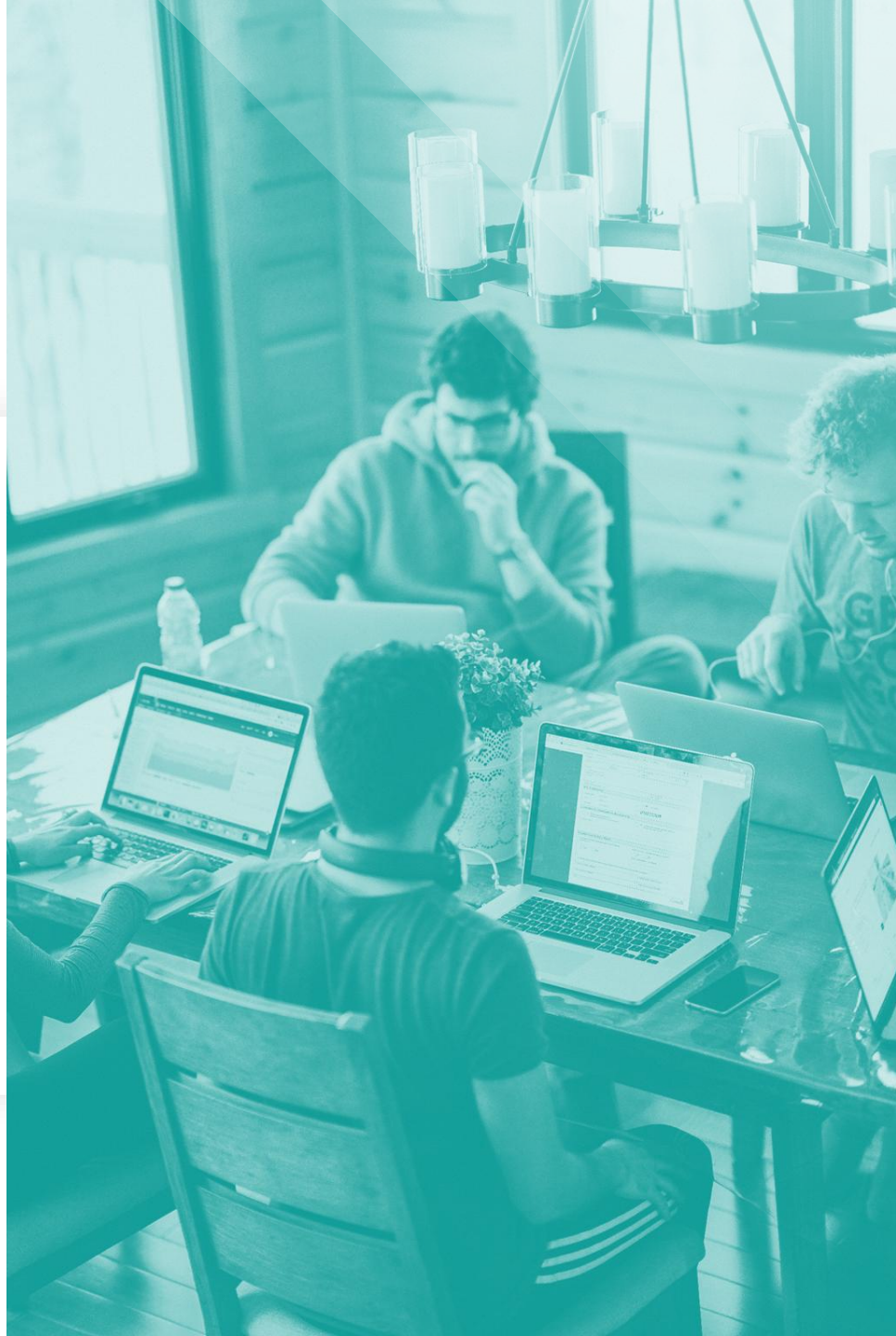
Recognizing unique challenges due to variations among different healthcare systems, and considering evidence-based strategies adaptable to diverse settings.

Technological Advancements and Implementation

Acknowledging telemedicine potential in streamlining AIS care workflows.

Resource Allocation Optimization

Implementing distributed health and care models to optimize resource allocation in time-sensitive and critical settings such as stroke care.



OBJECTIVES

IMPROVE

the in-hospital workflow for LVO AIS patients to minimize treatment delays and optimize outcome

ASSESS

the efficacy and safety of the streamlined in-hospital workflow compared to the standard pathway

IDENITFY

challenges and issues in stroke management and implementation of telemedicine

COMPARE

the outcomes and feasibility of the optimized workflow in different clinical settings and partner countries

EXPLORE

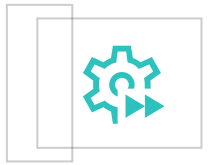
the potential application of streamlined pathways for other time-sensitive morbidities and improving services for all patients

MDR in AIS

EXPECTED PROJECT IMPACTS

Key information

MDR in AIS

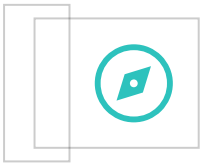


Implementing an optimized pathway for LVO AIS patients

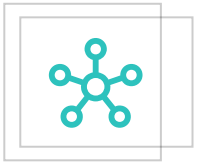
Minimizing treatment delays and optimizing outcomes

Advancing stroke management protocols

Improving Stroke Management



Exploring challenges and opportunities in telemedicine for stroke management



Addressing communication and coordination needs

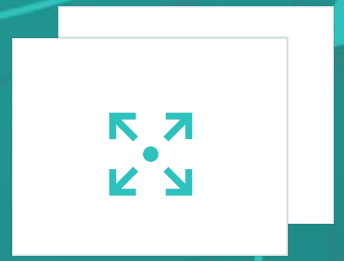
Integrating telemedicine into existing workflows

Telemedicine Implementation

BROADER IMPACTS AND BENEFITS

Key information

MDR in AIS



Multicenter Collaboration

- Evaluating the optimized pathway across different clinical settings
- Sharing knowledge and improving stroke management on a broader scale

Economic Sustainability

- Assessing efficacy, safety and economic sustainability of the optimized workflow
- Providing evidence for cost reduction and resource optimization

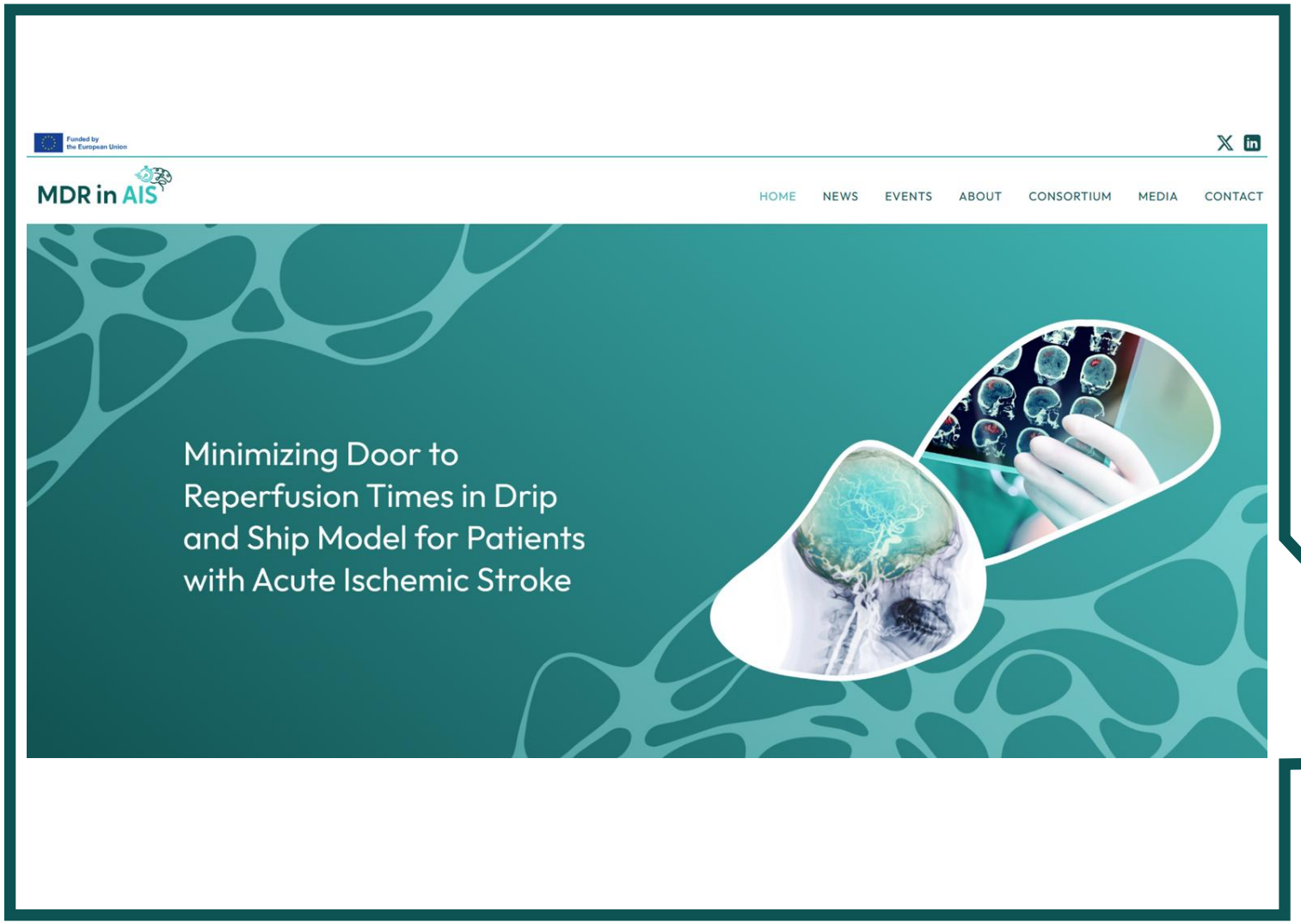
Policy and Societal Impact

- Informing evidence-based policies and guidelines for stroke care
- Reducing disability and morbidity associated with AIS
- Enhancing the quality of life for stroke patients

NEWSLETTER

SCAN ME

PROJECT WEBSITE



SCAN ME

SOCIAL MEDIA

MDR in AIS

SCAN ME in

SCAN ME X

Reducing Delays in Acute Ischemic Stroke Care

A multicenter retrospective evaluation of the drip-and-ship model across European stroke networks, examining treatment delays and outcomes in 572 patients from Italy, Spain, and Switzerland.

The Critical Challenge of Stroke Treatment

Time is Brain

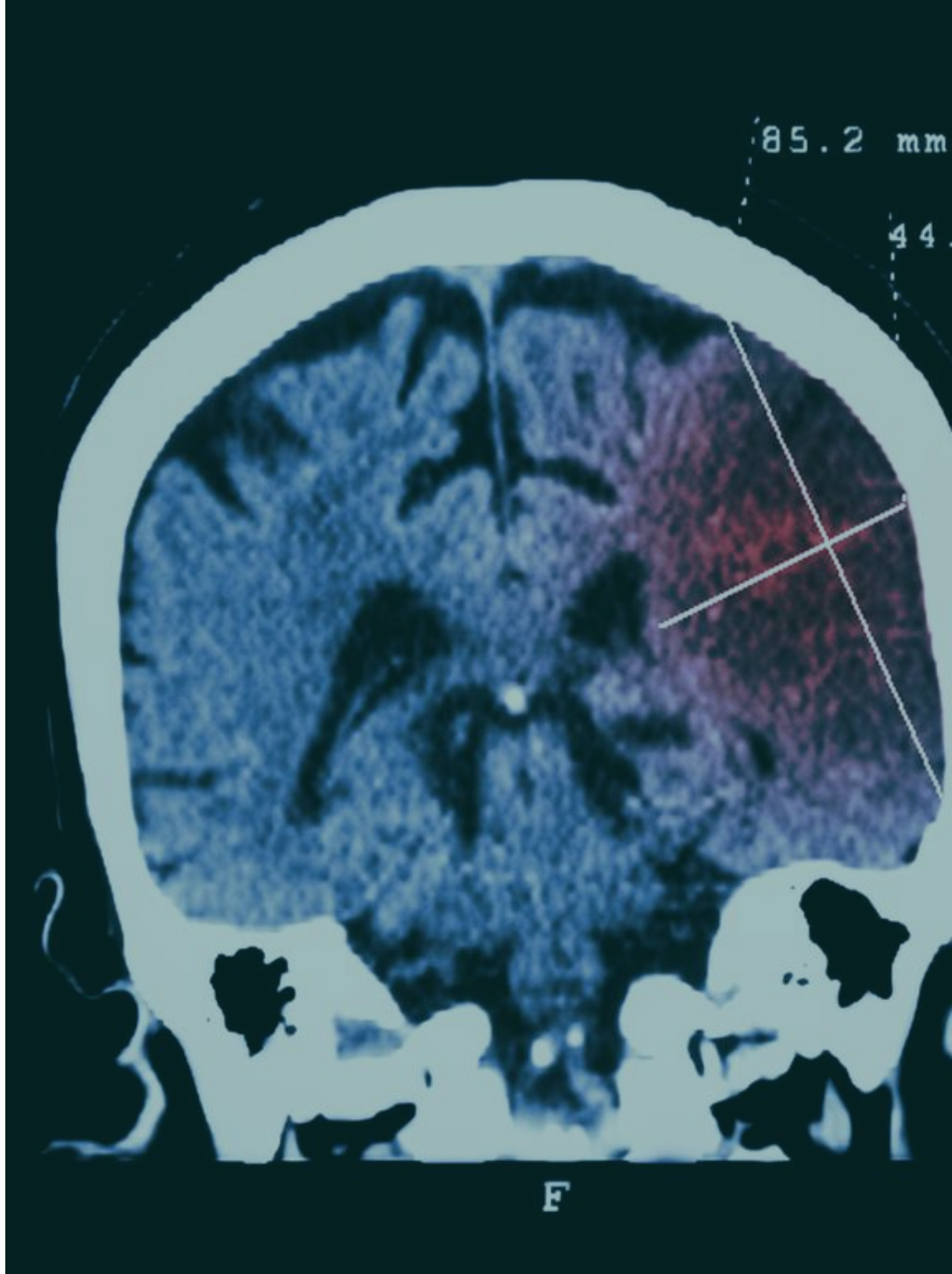
Mechanical thrombectomy (MT) combined with intravenous thrombolysis is the gold standard for acute ischemic stroke with large vessel occlusion.

Geographic Barriers

MT is only available at Comprehensive Stroke Centers (CSC), which are fewer than Primary Stroke Centers (PSC).

Two Models

Drip-and-ship: treat at PSC then transfer. Mothership: direct transport to CSC.



Study Design & Network Comparison

572 Patients Analyzed

- AOUS Italy: 214 patients (37.4%)
- IBIMA Spain: 128 patients (22.4%)
- CHUV Switzerland: 230 patients (40.2%)

Network Coverage

- Italy: 11,562 km², 900K population
- Spain: 1.7M inhabitants, 5 PSCs
- Switzerland: 8,000 km², 1.5M population

Retrospective analysis conducted between 2018-2021 across three European stroke networks to evaluate treatment delays and outcomes.

Significant Timing Variations Revealed

67.7	96.9	55.9
AOUS Door-to-Groin	IBIMA Door-to-Groin	CHUV Door-to-Groin
Minutes (Italy)	Minutes (Spain)	Minutes (Switzerland)

Switzerland achieved fastest door-to-groin times by bypassing emergency department and transferring patients directly to angiography suite. Italy faced challenges with geographic distances and workflow protocols.

Key Findings & Future Directions

Substantial Inter-Institutional Variability

Significant differences in treatment approaches, timing metrics, and complication rates despite standardized protocols.

Workflow Optimization Opportunities

Direct angiography suite transfer, telemedicine integration, and AI-assisted imaging show promise for reducing delays.

MDR in AIS Project Impact

AI-assisted software introduced in 2024 across centers. Phase 2 will analyze whether telemedicine and AI optimization improves patient outcomes.

Discussion


THANK
YOU
GRAZIE
MULTUMESC
MERCI
MAAKE
TERMA KASIH
RAIBH MAITH AGAT
JUSPAXAR
OBRIGADO
MATONDO
KIITOS
SALAMAT
MOCHCHAKKERAM
KIA ORA
MULTUMESC
CHOKRANE
SALAMAT
CAM ON BAN
MERCI
RAIBH MAITH AGAT
OBRIGADO
MOCHCHAKKERAM
ASANTE
UA TSAUG RAU KOJ
MOCHCHAKKERAM
KIITOS
VINAKA
OBRIGADO
DANK JE
NIRRINGRAZZJAK
MAMANA
MULTUMESC
KIITOS
DANKON
NIRRINGRAZZJAK
MOCHCHAKKERAM
ARIGATO
MOCHCHAKKERAM
OBRIGADO
SPASIBO
WELALIN
SPASIBO
MAAKE
OBRIGADO
SPASIBO
RAIBH MAITH AGAT
DANK JE
CHOKRANE
UA TSAUG RAU KOJ
MATONDO
CHOKRANE
MATUR NUWUN
GRAZIE
MERCI
MOCHCHAKKERAM

Healthcare of the Future: Insights from Ageing Right Care(fully)

Dr. Jodi Sturge

Project lead, Ageing Right Care(fully)

Interaction Design, Faculty of Engineering Technology
University of Twente, Netherlands

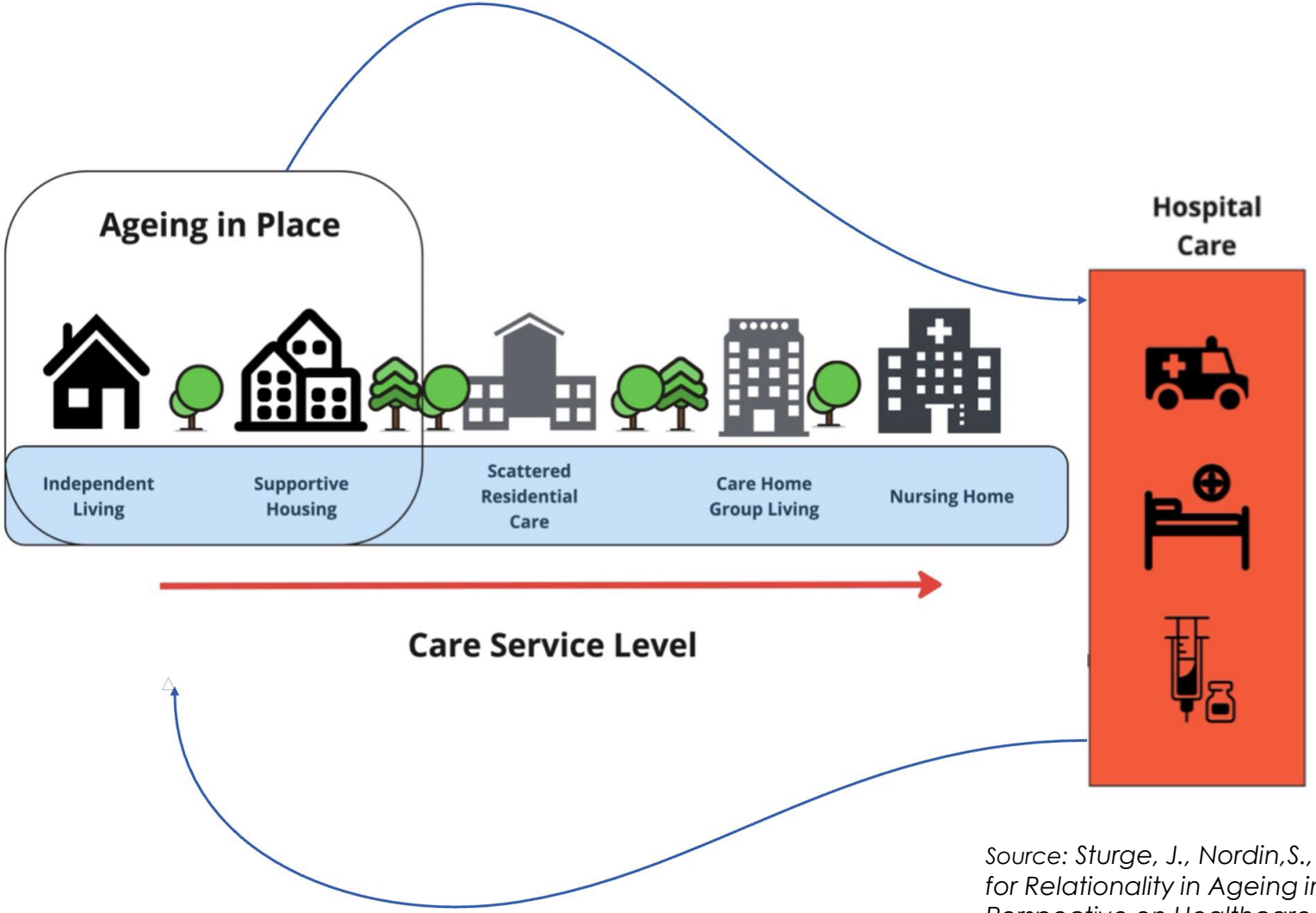
THCS
Transforming Health and Care Systems

Co-funded by the European Union

Ageing Right Care(fully)

Hospital or Home?

Housing Continuum and Hospital at Home

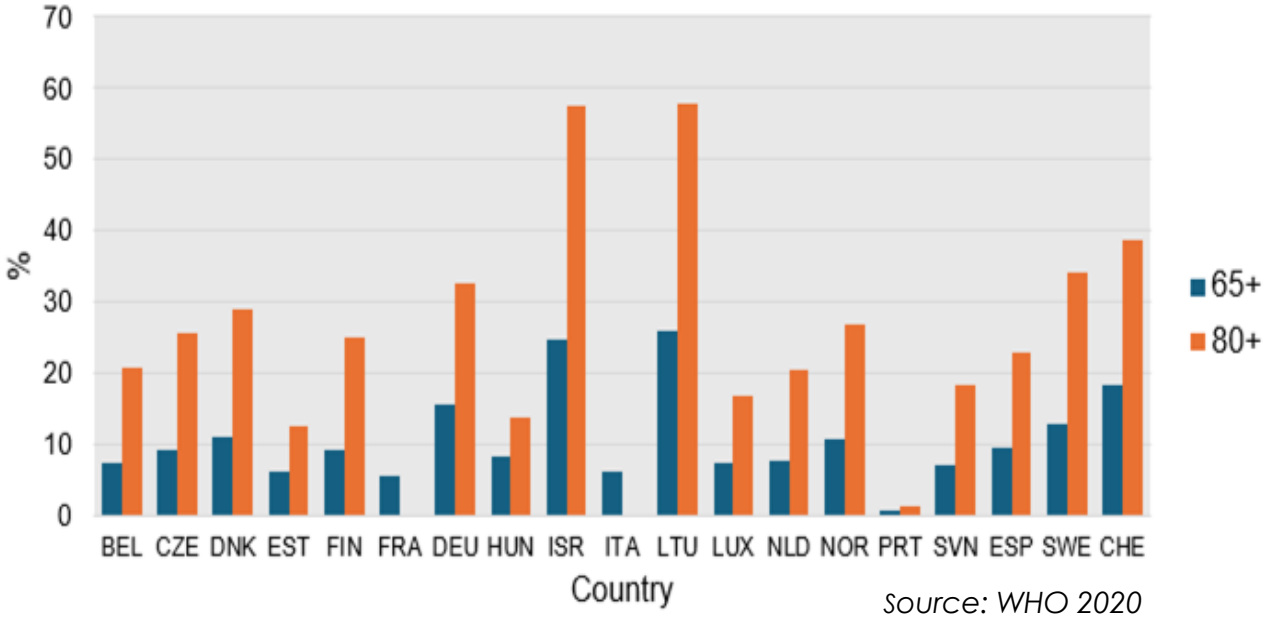


Source: Sturge, J., Nordin,S., Miedema, E., Dewit, I (2025, in press) Designing for Relationality in Ageing in Place: A Systemic and Service Design Perspective on Healthcare and Housing Systems. Proceedings of Relating Systems Thinking and Design, RSD1

Demographic shifts and demand for care at home

- Growing reliance on care at home, extended independent living
- Most older adults (80%) prefer to age in place and receive care at home rather than in a care facility (Eurofund 2017)
- Demand for care at home continues to grow due to ageing population and limited nursing capacity

Share of Older People Receiving Care at Home in Europe



Source: WHO 2020

Ageing Right Care(fully): Project Overview

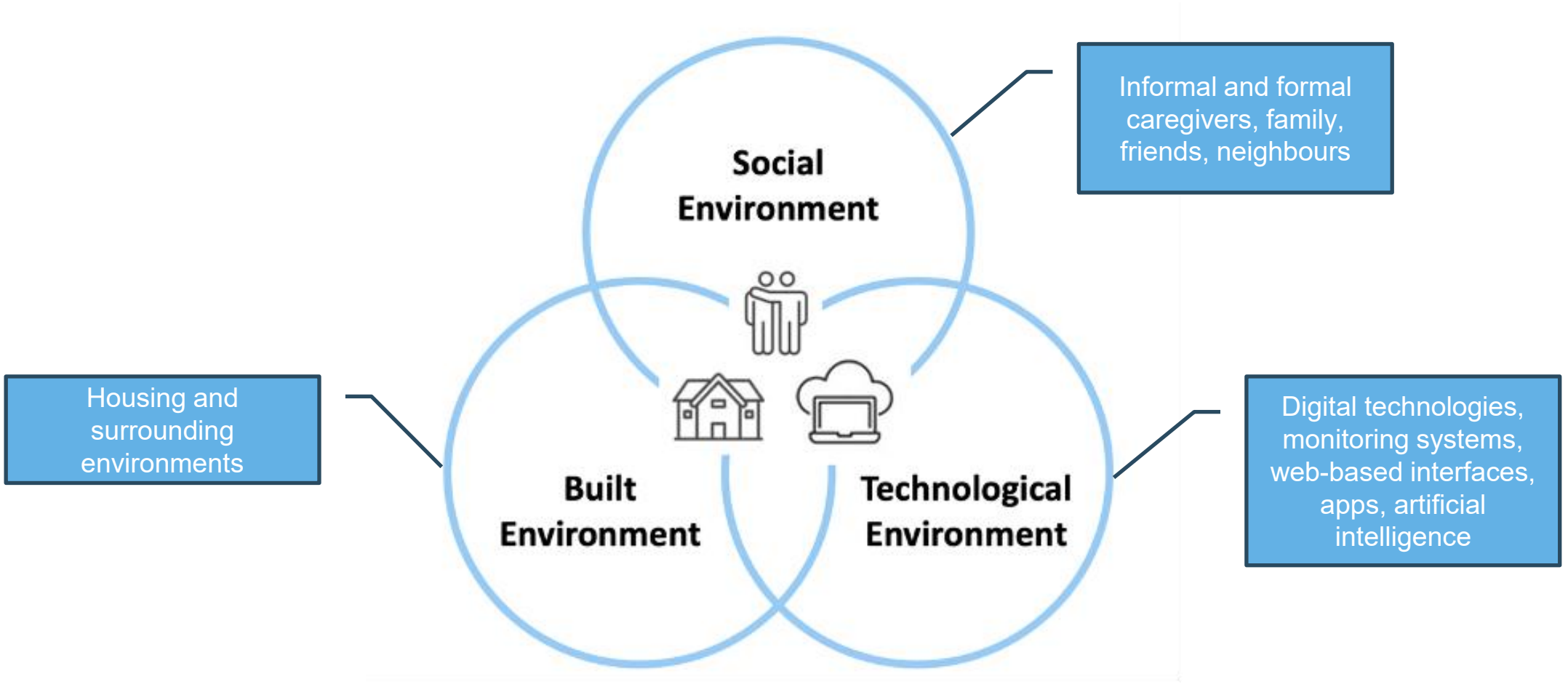
- Transnational research project which aims to improve our understanding of the **care pathways between ageing in place and home hospitalization** of older adults.
- Special attention is paid to the role of different housing environments (**built, social, technological**) in supporting ageing in place and receiving hospital at home care.
- Comparing three different regions (**the Netherlands, Israel and Sweden**) to learn from each other and create actionable recommendations for policy and practice

Ageing Right Care(fully)

THCS
TRANSFORMING HEALTH AND CARE SYSTEMS

Project Protocol

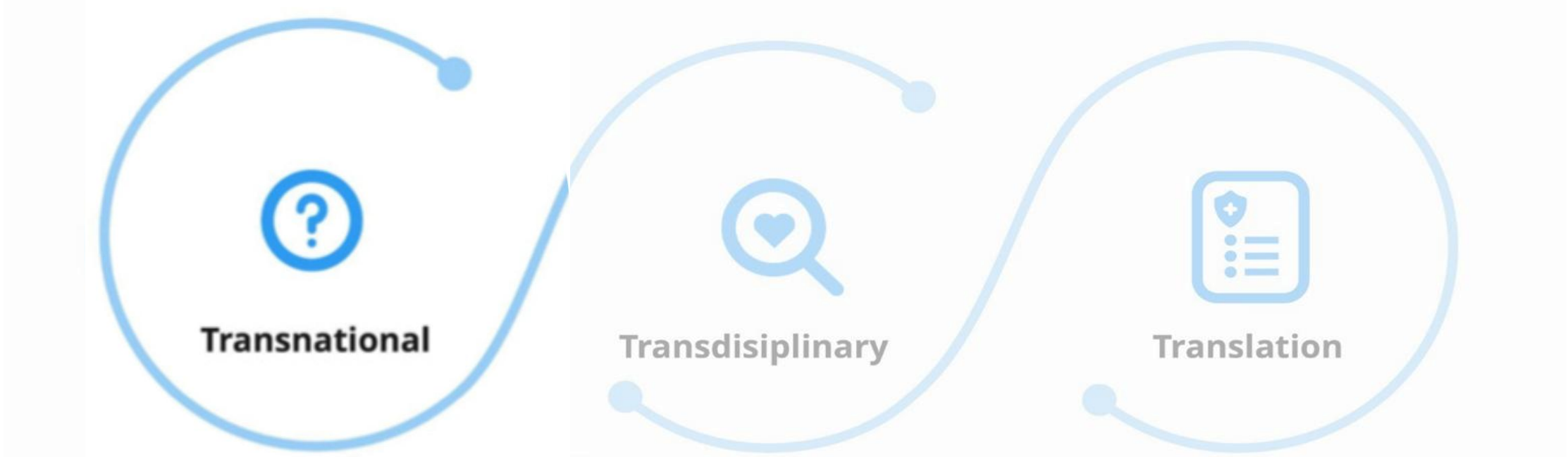
Housing conditions for ageing in place and receiving health services at home



Source: Sturge et al. (2025). How to age right and care(fully) at home? A protocol for a multistage comparative study of ageing in place and hospital at home care across three countries. *BMJ Open, 15*(e096385).

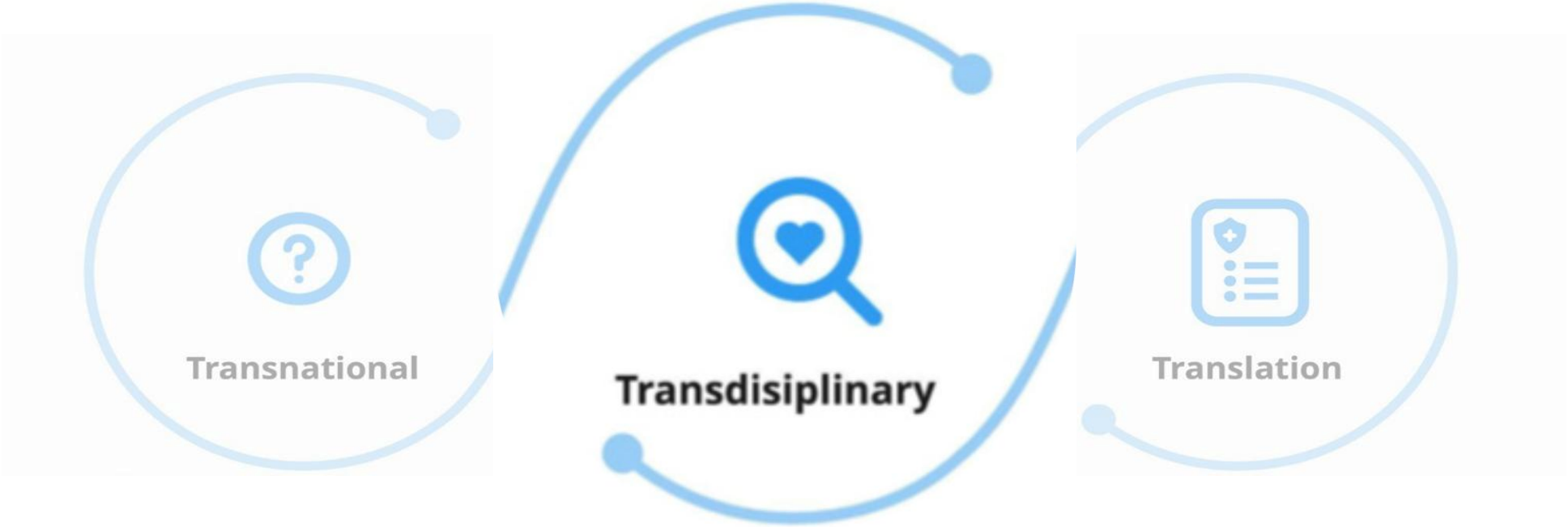
Source: Sturge et al. (2025). How to age right and care(fully) at home? A protocol for a multistage comparative study of ageing in place and hospital at home care across three countries. *BMJ Open, 15*(e096385).

Bumps Along the Way



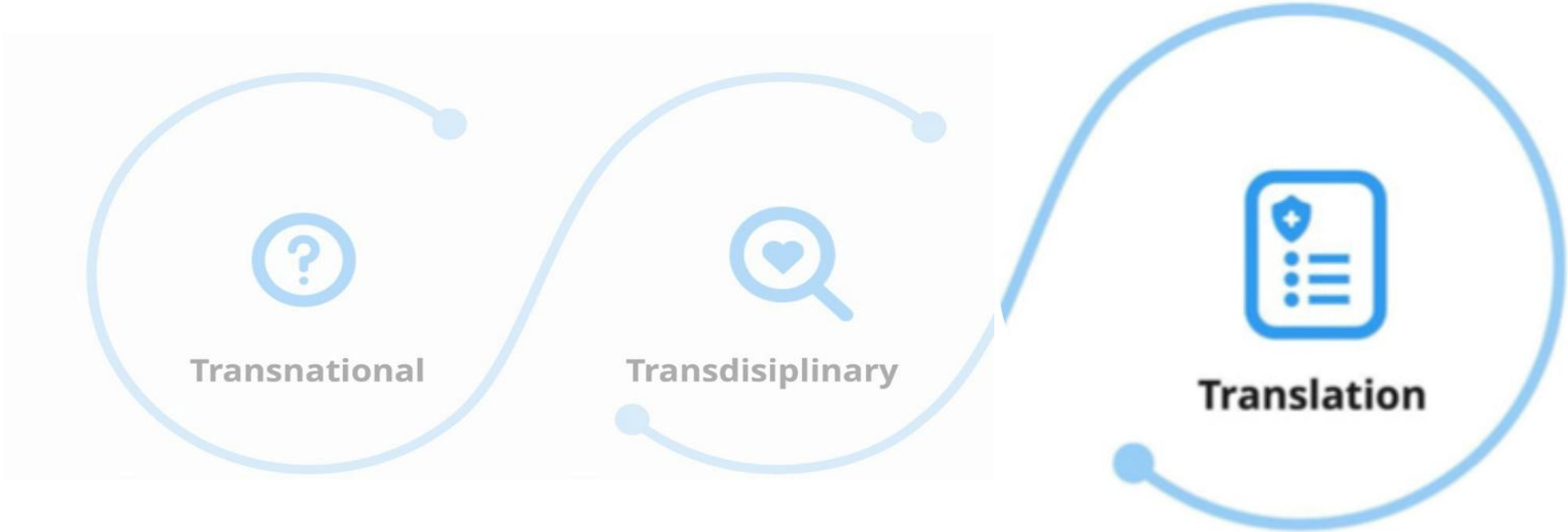
- Unequal funding amounts can impact capacity
- Diverse institutional ethic committee procedures

Bumps Along the Way



- Navigating different methods and adapting to new theoretical frameworks
- Differing standards of the scientific fields and dissemination means

Bumps Along the Way



- Policies, regulations are systemic and can be challenging to compare
- Healthcare terms and tacit knowledge difficult to explain/compare

Would you like to contribute?

Aim

- To better understand how H@H is organized and provided in different countries

Online Survey (max. 15 min)

- Targeting hospitals or organizations that are currently developing, testing, or implementing H@H care pathways
- Languages: Swedish, Dutch, English

Next Steps

- Develop a **composite indicator** for each country (built, social, technological) based on the SHARE database
- **Stakeholder interviews** on hospital at home for older adults
- **Co-create** a patient journey research method
- **Co-create patient journeys** with older people for touch and improvement points
- Develop a toolkit to **guide hospital at home policy and implementation** for older adults in the future

Follow up questions?

Dr. Jodi Sturge j.l.sturge@utwente.nl

https://www.linkedin.com/in/jodi-sturge-phd-68660b62

https://www.arc-project.eu/