



Spotlight Session: Real-world Transformation – Successes, Pitfalls and Lessons Learned from THCS funded projects

Wednesday, 30 September - 11:00–12:00 CET

#transformation #real-worldexperiece #transferabilty #scalability #THCSLearningWeek

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.



Co-funded by the
European Union

- Welcome to the Learning Week. During sessions, please remember:
- The sessions are being recorded.
- Microphones are muted and cameras are off.
- Please get involved! Use the chat for your questions, observations and comments.
- For additional information go to: <https://knowledgehub.thcspartnership.eu/>





Prof. Dr. Enrique Rodilla Sala (TOGETHER THCC Funded project), Head of the Hypertension and Vascular Risk Unit, Sagunto Hospital Valencia

Gianluigi Riva, Postdoctoral Research Fellow & the Principal Investigator working on the EMA_Frailty Project



Alexander Nikolov is a Research Manager & Project Coordinator at SYNIO GmbH.

Martin Vitiello, Neuroradiology Unit of Siena University Hospital as project manager and researcher for MDRinAIS project, .



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.

What does transformation of health and social care systems look like in practice?

This learning session brings together THCS-funded projects to share real-world experiences, discussing achievements, barriers, and lessons learned. The third spotlight session will feature MDRinAIS, TOGETHER and EMA-FRAILTY THCS funded projects.

What you will gain:

- Better understand the realities of implementing health and social care innovations.
- Apply lessons learned from THCS-funded projects to your own work.
- Strengthen your knowledge of implementation, transferability, and scaling of innovative solutions.
- Connect with a European community committed to improving health and care systems.



[Home](#) / [Capacity building](#) / 📢 Save the Date - THCS Learning Week 2026: “Transforming Health and Social Care: Meaning, Models and Measurement”

Date published: 14/07/2026

Date amended: 11/09/2026

📢 Save the Date - THCS Learning Week 2026: “Transforming Health and Social Care: Meaning, Models and Measurement”



THCS
TRANSFORMING HEALTH
AND CARE SYSTEMS

THCS Learning Week

 **From 28 September to 2 October**

 **10 sessions** |  **1 hour each** |  **Engaging & collaborative**

SAVE THE DATE


[< Previous](#)

September 2026

[Next >](#)

Mon	Tue	Wed	Thu	Fri	Sat	Sun
	1 .	2	3	4	5	6
7	8 .	9	10 .	11 .	12	13
14 .	15 .	16 .	17	18	19	20
21	22	23 .	24 .	25	26	27
28 .	29 .	30 .				

Learning Week 2026

- Thank you for joining this session.
- The session recordings will be hosted on the Knowledge Hub:

<https://knowledgehub.thcspartnership.eu/>



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.

JTC 2023: Healthcare of the Future



TOGETHER

Vascular Age as a Key for a Team-based Approach to Manage Blood Pressure and Cardiovascular Risk between Community Pharmacists and Primary Health Care Physicians

Enrique Rodilla

Unidad de HTA y Riesgo Vascular, Medicina Interna, Hospital de Sagunto

FISABIO (Foundation for the Promotion of Health and Biomedical Research in the Valencian Region)

Universidad CEU Cardenal Herrera, Área de Ciencias de la Salud

Council member Spanish Society Hypertension, European Society of Hypertension

THCS Learning Week 2026.

September, 30 2026

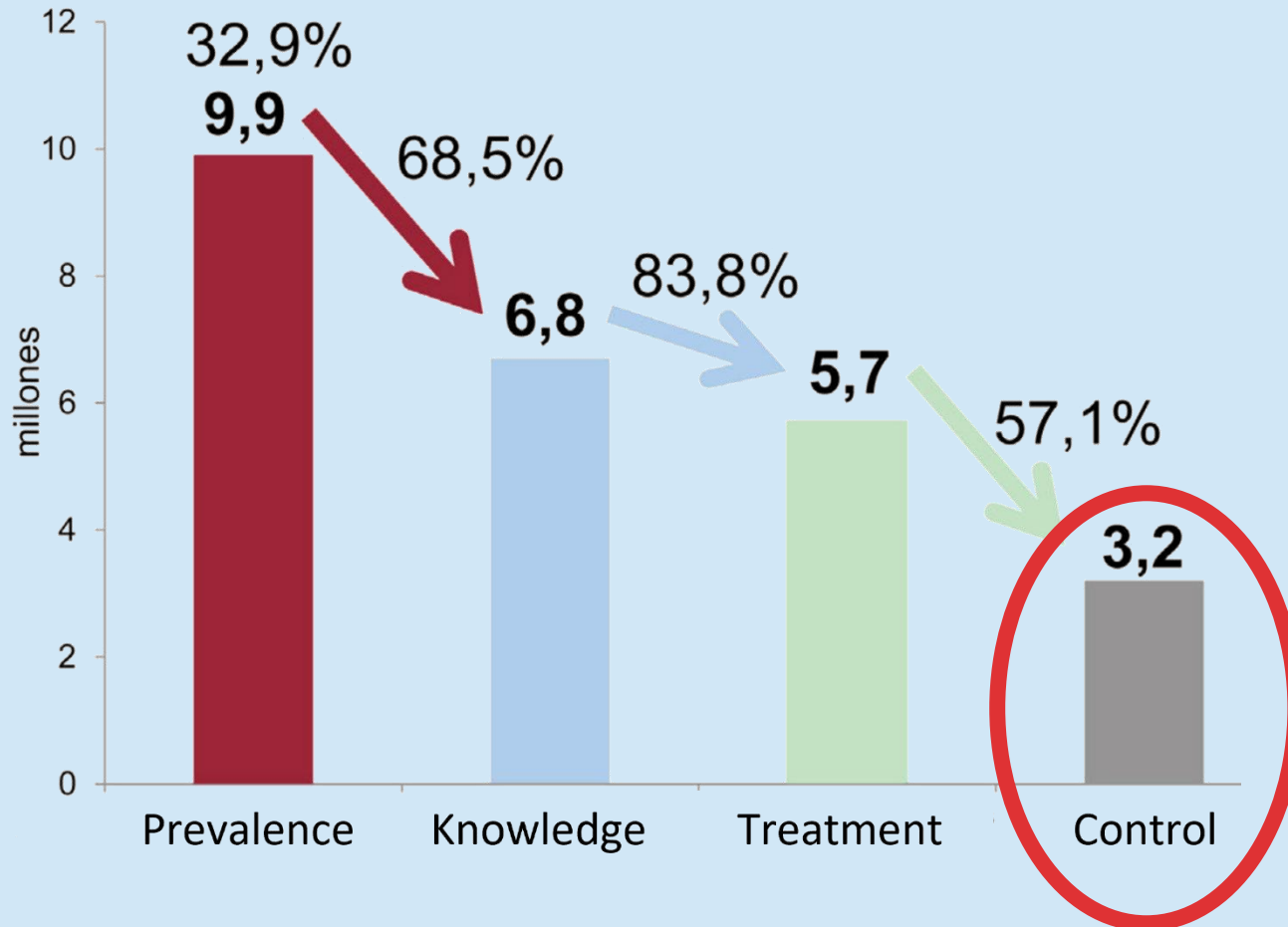
Online

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.



Co-funded by the
European Union

Hypertension: Setting the scene



Only one out of every three hypertensive patients is adequately controlled.

TOGETHER | Transformation

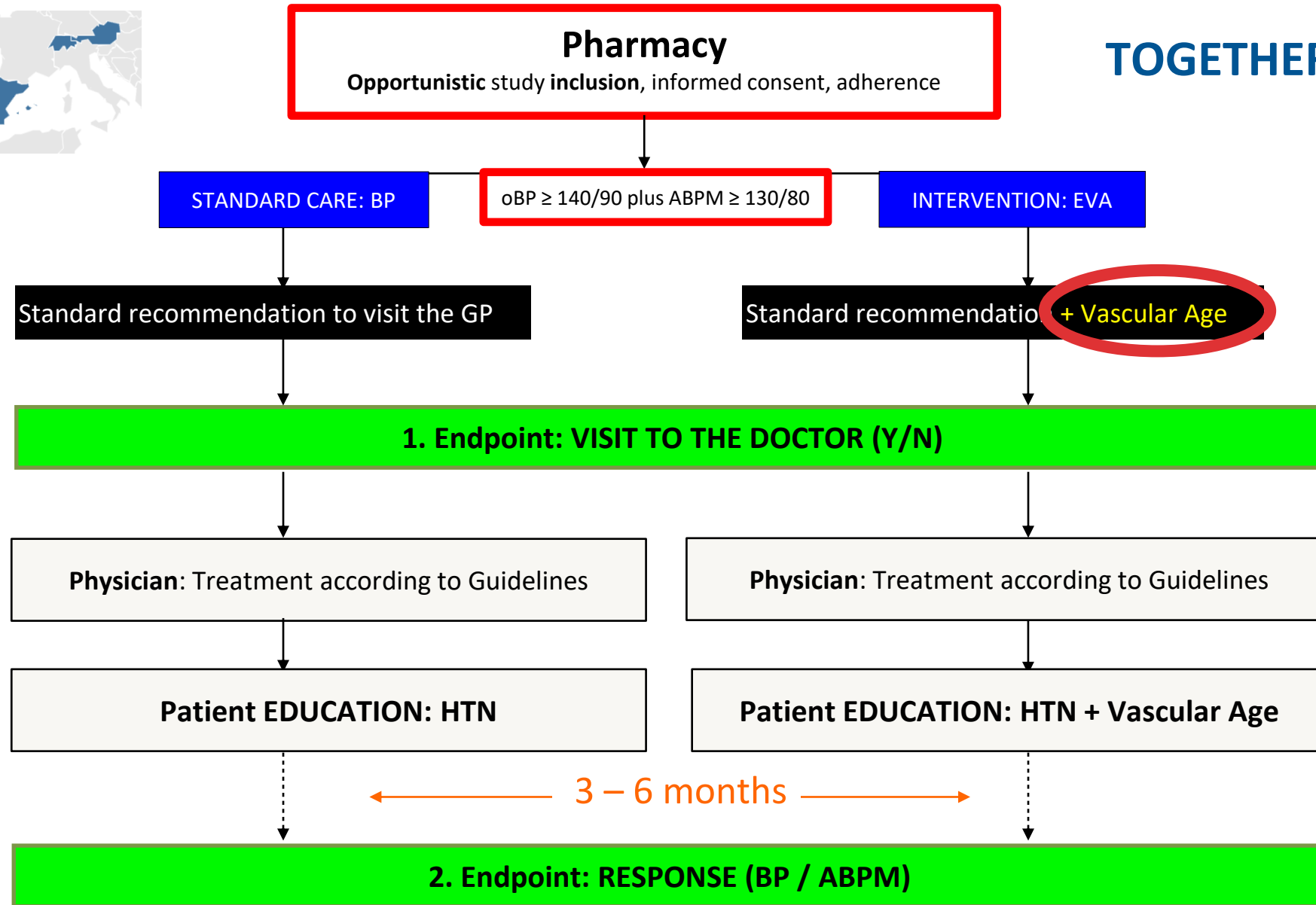


HYPOTHESIS

- **Empowerment** of hypertensive patients through knowledge of their “**vascular age**” will improve **interaction** with pharmacists and physicians as well as **HTN control**.

OBJECTIVES

- **PRIMARY:**
 - determine the compliance with GP (“Visit to the doctor, yes/no”)
 - assessment of ambulatory blood pressure (ABPM < 130/80? yes/no)
- **SECONDARY:**
 - evolution of office BP, CV risk, lipids, vascular age, weight, smoking, etc.
 - interactions:
Pharmacy – GP/ Patient – GP/ Patient – Pharmacy
 - treatment **adherence** and therapeutic **inertia**
 - **comparison** of Health Systems

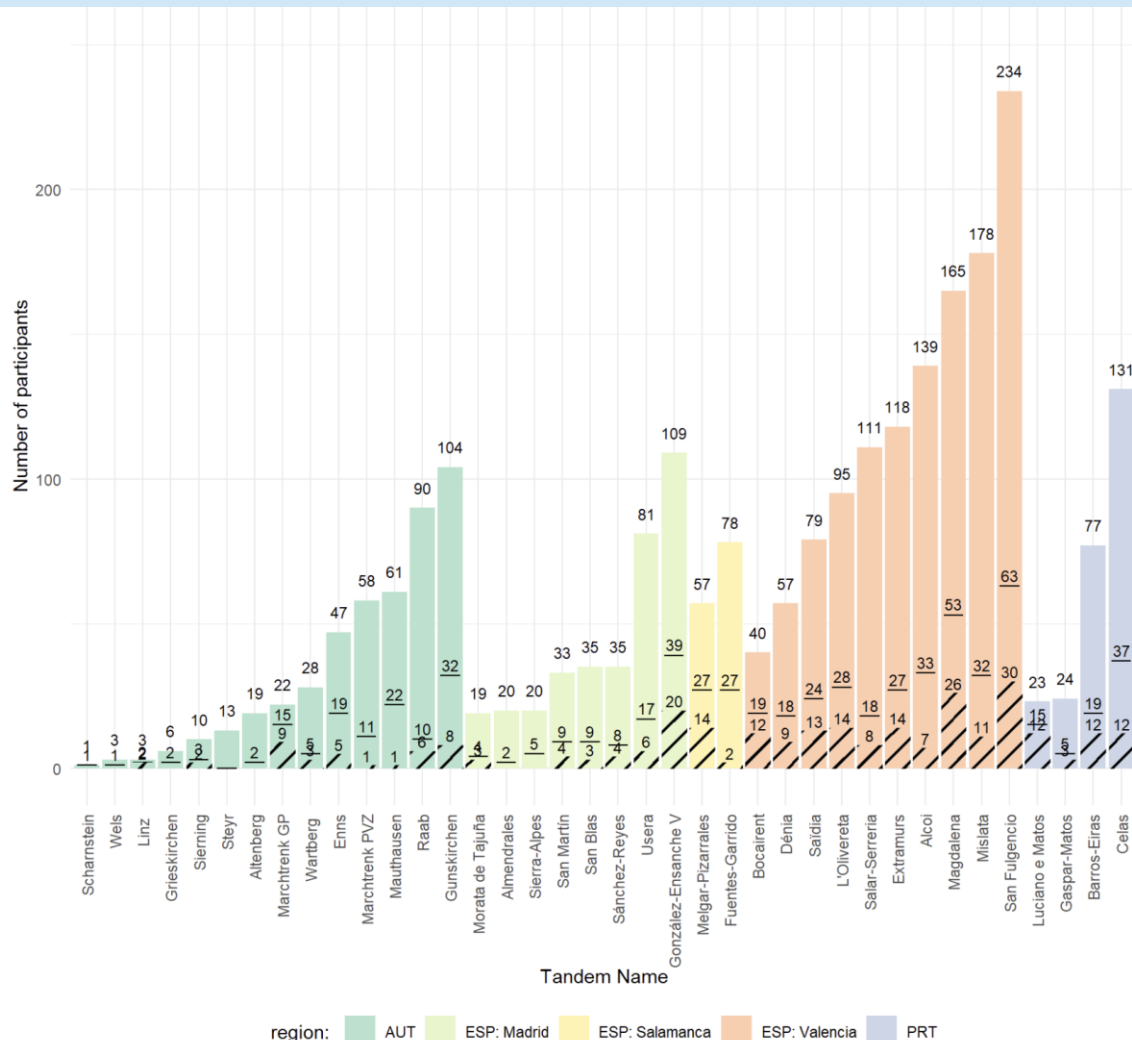


Flow-Chart TOGETHER: ABPM: Ambulatory Blood Pressure Monitoring; GP: General Physician; HTN: Hypertension.

Successes

- Design of a logo and a webpage
- Design and implementation of eCRF and a shared online Database
- Creation of 40 tandems pharmacists - physicians
- Multilanguage educational materials
- Two publications (one of them Q1) and over ten congress talks
- Participation in social media, two graphical animations
- Contact to patients associations and policy makers
- Recruitment





Successes

Table 2. Participants and local percentages by region and stage

Region	v1	Should have v2 [n (%)]	ABPM v2 [n (%)]	Should have v3 [n (%)]	v3 done [n (%)]
AUT	465	125 (26.9%)	37 (29.6%)	25 (67.6%)	5 (20.0%)
ESP: Madrid	352	93 (26.4%)	40 (43.0%)	31 (77.5%)	0 (0.0%)
ESP: Salamanca	135	54 (40.0%)	16 (29.6%)	10 (62.5%)	0 (0.0%)
ESP: Valencia	1216	315 (25.9%)	144 (45.7%)	120 (83.3%)	16 (13.3%)
PRT	255	76 (29.8%)	39 (51.3%)	31 (79.5%)	6 (19.4%)
TOTAL	2423	663 (27.4%)	276 (41.6%)	217 (78.6%)	27 (12.4%)

Challenges and pitfalls



Unforeseen technical complications and dependency on external companies/partners



Challenges and pitfalls

Lacking experience in clinical trials



Challenges and pitfalls

Unexpected workload



Challenges and pitfalls

Resistance to participate from the health authorities



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.

Challenges and pitfalls

Lacking access to policy makers

2. Agenda preliminar

Dinamizador/a: periodista especializado/a en salud

9:15 – 9:30 Inauguración

Autoridades

- Dr. Miguel Ángel Colmenero, Gerente del Hospital Universitario Virgen de la Macarena.
- D. Andoni Lorenzo Garmendia, Presidente del Foro Español de Pacientes.
- Dr. Manuel García de la Vega Sosa, presidente de la Sociedad Española de Medicina Preventiva, gestión sanitaria y salud pública.
- **Dña. Mónica García, Ministra de Sanidad.**
- D. Antonio Sanz Cabello, Consejero de Sanidad, Presidencia y Emergencias de la Junta de Andalucía

Parte I. Estilo de vida saludable – Más vale prevenir que curar

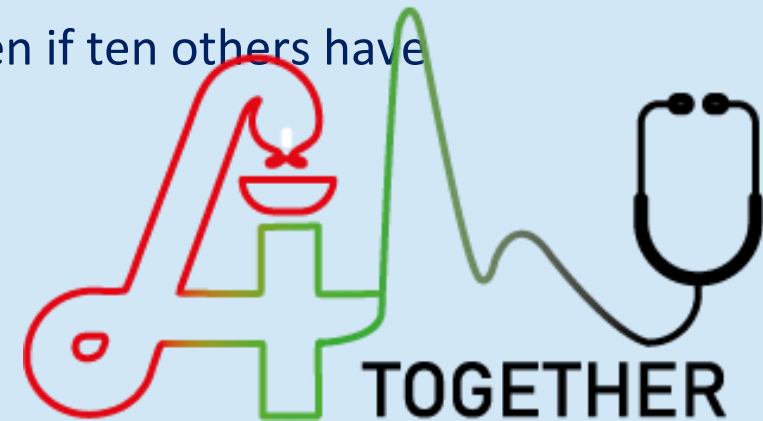
9:30 - 10:00 – Prevención desde dentro: el papel esencial del endotelio

Ponente:

Dr. Enrique Rodilla Sala, Jefe la Unidad de Hipertensión y Riesgo Vascular, Servicio de

Lessons learned

- Never assume that a device will remain on the market.
- Never forget that you are working in the real world.
- Never forget the flu season.
- Never rule out the possibility that one administration may say “no”, even if ten others have raised no objections.
- Patients are the most powerful stakeholders in the healthcare systems



Transferability, policy and system impact

- Application THCS 2026 -> extension to 8 countries.

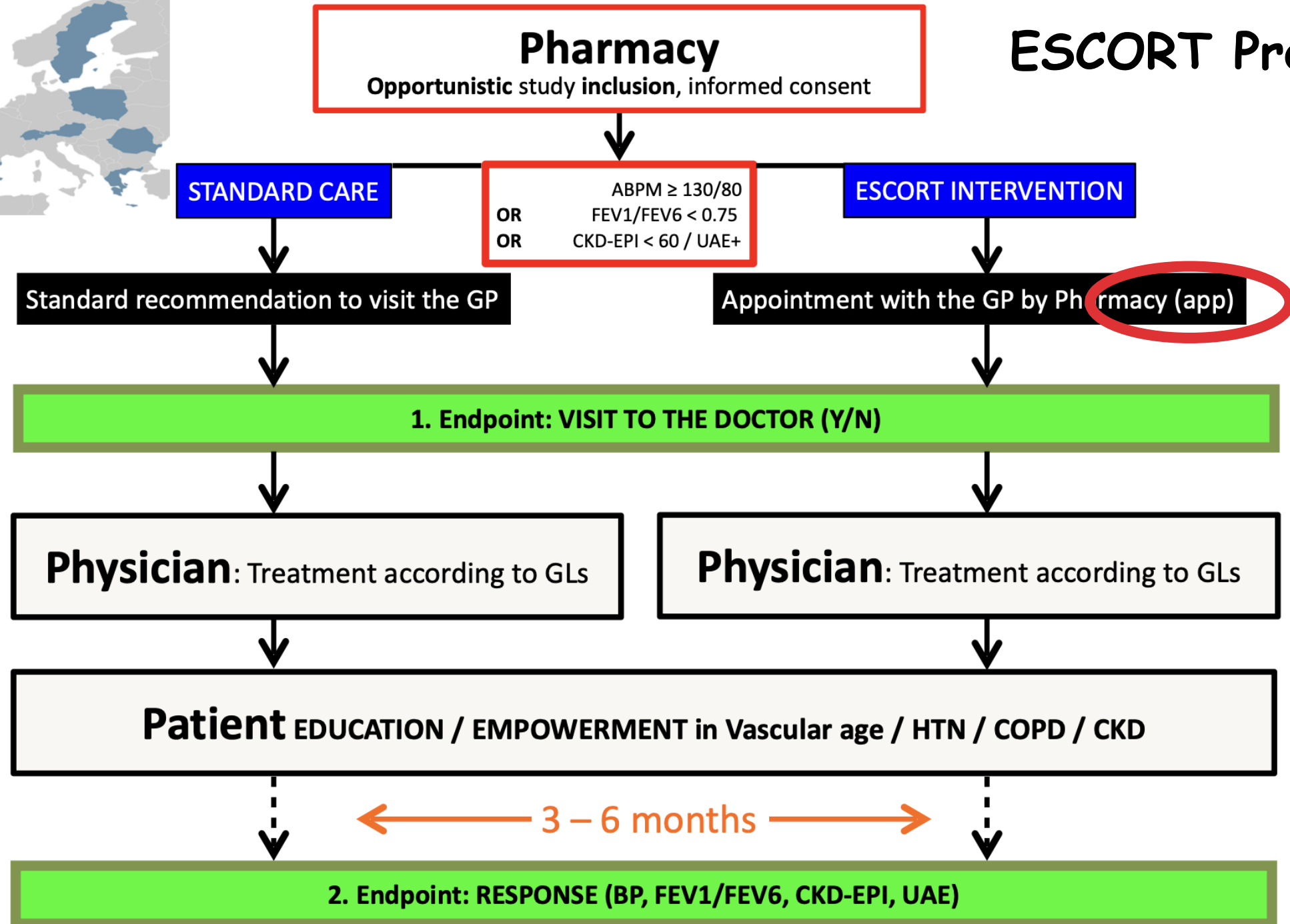


Co-funded by the
European Union

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.



ESCORT Project



Transferability, policy and system impact

- Application THCS 2026 -> extension to 8 countries.
- Development of an app to connect pharmacists and Primary Care Centers.



P.101

Integration of Information Systems in the Optimized Management of Arterial Hypertension (EplSIMOH) Using the Concept of Vascular Age in the TOGETHER-Trial

Llanos Cuenca¹, José Manuel Ventura-Cerdá², Begoña Martínez-Salvador³, Enrique Rodilla^{4,5}

¹Universitat Politècnica de València, Valencia, Spain, ²Conselleria de Sanitat, Hospital Arnau de Vilanova, Valencia, Spain, ³Universitat Jaume I, Castellón, Spain, ⁴Conselleria de Sanitat, Hospital de Sagunto, FISABIO, ⁵Universidad Cardenal Herrera-CEU, CEU Universities, Moncada, Valencia, Spain

Background: Hypertension is the leading cause of premature death and disability worldwide. The lack of integration between healthcare levels, particularly between community pharmacies and primary care, hinders the coordinated follow-up of chronic patients and limits medication adherence, which is inversely associated with cardiovascular

events. Communicating cardiovascular risk through vascular age has proven effective in improving patient understanding and promoting behavioural change. Expressing risk as “early vascular aging” (EVA) provides an intuitive and emotionally meaningful interpretation of absolute risk, increasing patient engagement in disease management.

Methods: A collaborative digital application was developed to securely and in real time connect community pharmacies and primary care with role-based access control and anonymized data.

Results: The tool bridges the existing communication gap between pharmacies and primary care, facilitating interprofessional coordination and longitudinal follow-up of hypertensive patients.

Conclusion: Interconnecting community pharmacies and primary care through this digital solution enhances integrated hypertension management, improves medication adherence and continuity of care, and generates a positive impact on healthcare system efficiency and patient engagement in cardiovascular risk control.

Figure:

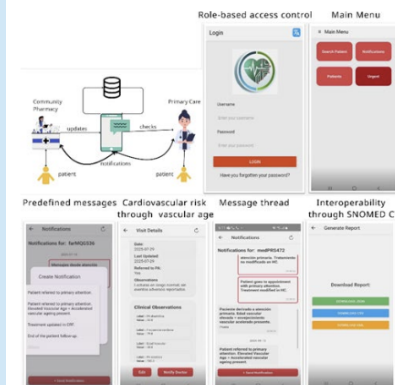
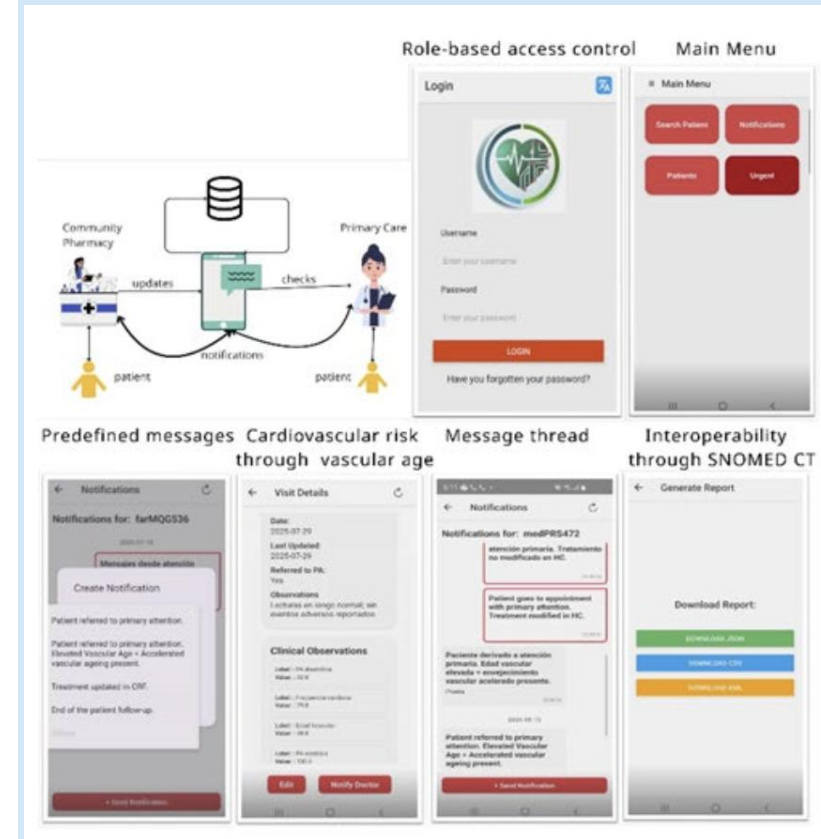


Figure 1. Integration of Information Systems in the Optimized Management of Arterial Hypertension using the concept of vascular age in the TOGETHER-Trial.

Acknowledgment: This paper has been founded by the project Estudio preliminar para el proyecto de Integración de Sistemas de Información en el Manejo Optimizado de la Hipertensión arterial (POLISABIO2024_AP15).



Transferability, policy and system impact

- Application THCS 2026 -> extension to 8 countries.
- Development of an app to connect pharmacists and Primary Care Centers.
- Working Group: General physicians and TEAM BASED management of HTN (ESH)



Thank you for your attention





TRANSFORMING HEALTH
AND CARE SYSTEMS



EMA_FRAILTY Legal Working Package

Legal and ethical compliance for AAL home monitoring: from requirements to integrated impact assessment

THCS Learning Week – 30.09.2026

Gianluigi M. Riva
Bocconi University

Core message

Compliance is not a separate legal appendix. It is a design, governance and evidence layer for the whole AAL lifecycle.

Why frailty matters?

- Frailty is a dynamic and multidimensional condition.
- It increases the risk of falls, hospitalisation, disability, and mortality.
- Early detection is important because frailty can change and may be reversible.
- Current clinical assessments often provide only a snapshot.

The gap in current approaches

- Clinic-based tests do not capture daily variation.
- IoT systems collect objective data but often miss subjective experience.
- Ecological Momentary Assessment (EMA) captures self-reported data in real time.
- Few systems combine EMA and IoT for frailty assessment.

Aim and objectives

- **Main aim:** Enable early, personalised intervention for frailty using real-time data.
- **Objectives:**
 1. Develop and test an integrated AAL system using EMA.
 2. Detect early frailty indicators through data analysis.
 3. Evaluate health and social impact, including user acceptance.
 4. Assess cost-effectiveness and policy implications.

Consortium



Universidad de
Alicante
Spain
Coordinator



SGH Warsaw School
of Economics
Poland



Fundatia Ana Aslan
International
Romania



Università Bocconi
Italy



ISABIAL – Instituto
de Investigación
Sanitaria y
Biomédica de
Alicante
Spain



Asociación
Gerontológica del
Mediterráneo
Spain
Collaborator

How frailty items are collected

SELF-REPORTED

Obtained through active user participation (EMA)

- Fatigue
- Feeling sad or depressed
- Problems with memory
- Knowing date
- Difficulties walking 100 meters
- Experience of fall
- Difficulties getting (un)dressed
- Difficulties using the toilet
- Need to carry out ADLs
- Vision problems
- Hearing problems
- Difficulties taking medications
- ...

CLINICAL HISTORY

Related to comorbidities and medication

AUTOMATABLE

Obtained through sensors

DELEGATED

Obtained in specialised centres

How frailty items are collected

SELF-REPORTED

Obtained through active user participation (EMA)

CLINICAL HISTORY

Related to comorbidities and medication

AUTOMATABLE

Obtained through sensors

DELEGATED

Obtained in specialised centres

- Number of chronic conditions
- Number of medications
- Diagnosis of high blood pressure or hypertension
- Diagnosis of a heart attack
- Diagnosis of a stroke
- Diagnosis of cancer
- Diagnosis of diabetes or high blood sugar
- Diagnosis of arthritis
- Diagnosis of chronic lung disease
- Diagnosis of osteoporosis
- Diagnosis of hip fracture or femoral fracture

How frailty items are collected

SELF-REPORTED

Obtained through active user participation (EMA)

- Unintentional weight loss
- Leave the house
- Visit friends
- Difficulties shopping for groceries
- Use of public transport
- Walk for 15 minutes
- Low physical activity
- Physical fitness
- Engaged in light housework
- Engaged in heavy housework
- Time engaged in light sport or recreational activities
- Time engaged in moderate sport or recreational activities
- Time engaged in strenuous sport and recreational activities

CLINICAL HISTORY

Related to comorbidities and medication

AUTOMATABLE

Obtained with sensors



How frailty items are collected

SELF-REPORTED

Obtained through active user participation (EMA)

CLINICAL HISTORY

Related to comorbidities and medication

AUTOMATABLE

Obtained through sensors

DELEGATED

Obtained in specialised centres

- Balance (Romberg test)
- Chair Stand Test
- Grip strength
- Gait speed
- Cognition (drawing a clock)
- Fluency (n° of animals in 60")
- Serum albumin levels (quintiles)
- Waist circumference
- Knee extension strength (kg)
- Brachial ankle index (BAI)

FrailTrack App

Smartband



Steps



Activity



Heart Rate



Resting



Slow Walking



Sleep



Light Walking

A smartphone screen displaying the 'Form Screen' of the FrailTrack App. The screen is divided into sections: 'Personal Information' with fields for Birth Date, Sex, Height (1.70 m), and Weight (60.00 kg); 'Structure' with fields for Smartphone (Redmi Note 9) and Home Assistant (Raspberry Pi); and 'Smart Devices' with fields for Smartband (Xiaomi Band 7), Smart Scale (Example Scale), Cameras (Digital Cameras), and Alexa Speaker (Echo Dot 8). A 'Submit Form' button is at the bottom.

Smart Scale



Weight

GPS Services



Location



Places of Interest

FrailTrack App



Level 1: Minimal integration

Devices: Smartphone only

Mechanism: FrailTrack app (Brief questionnaires).

Advantage: No technological entry barriers.



Level 2: Wearable ecosystem

Devices: Smartphone + Smart wristband + GPS

Mechanism: Self-reports + passive mobility monitoring.

Advantage: Objective and continuous physical data.



Level 3: Complete AAL system (smart home)

Devices: Level 2 + Smart scale + Home Assistant

Mechanism: Ambient biometrics.

Advantage: Maximum granularity of ecological data.

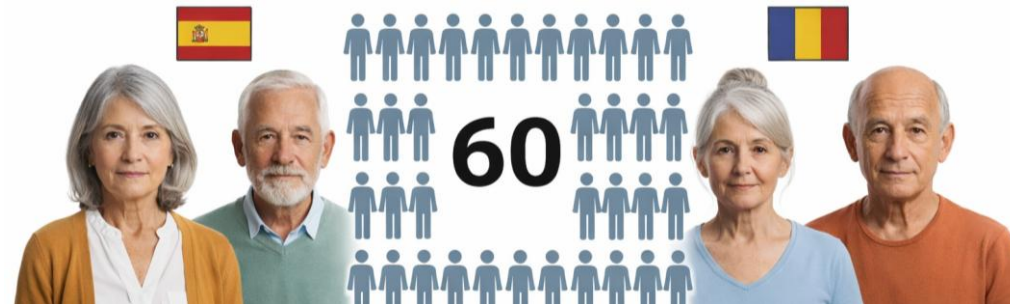
Develop an integrated AAL system using EMA

- Determine the data to be collected.
- Design the AAL system architecture and specify the required technologies and sensors.



Next steps

- Implement real-world pilots in Spain and Romania.
- Refine the system through iterative user feedback.
- Integrate collected data to generate overall and domain-specific frailty scores.
- Design and develop a dashboard for healthcare professionals.



WP6: Legal Deep Dive & Data Privacy



- GDPR compliance and DPIA
- Medical device regulation
- Ethical governance and consent
- Legal audits and compliance tools
- Trust and scalability enabler

Regulatory Integration (Led by Bocconi)

- **GDPR Excellence:** implementing "privacy-by-design" to manage sensitive health/biometric data.
- **AI Act Compliance:** assessing automated frailty estimations as "high-risk" health indicators.
- **Vulnerable Groups:** Specialized protocols for participants with cognitive decline (guardians/informed consent).
- **DPIA/FRIA Audits:** Conducting regular legal audits to ensure the FrailTrack app meets EU medical regulations.

1. Compliance as a design layer

Legal and ethical compliance must shape the architecture, the protocol and the pilot operations: not merely approve them afterwards.

Four questions every AAL decision must answer

01

Lawfulness

Can we lawfully collect, infer, store and share this data?

02

Proportionality

Is this the least intrusive means for the clinical / research purpose?

03

Safety

Can clinicians and caregivers rely on outputs without creating new harm?

04

Control

Can older adults and households understand, contest, pause or withdraw?

Design implication

Every sensor, alert, dashboard and data flow needs a documented purpose, a rights analysis and a named owner.

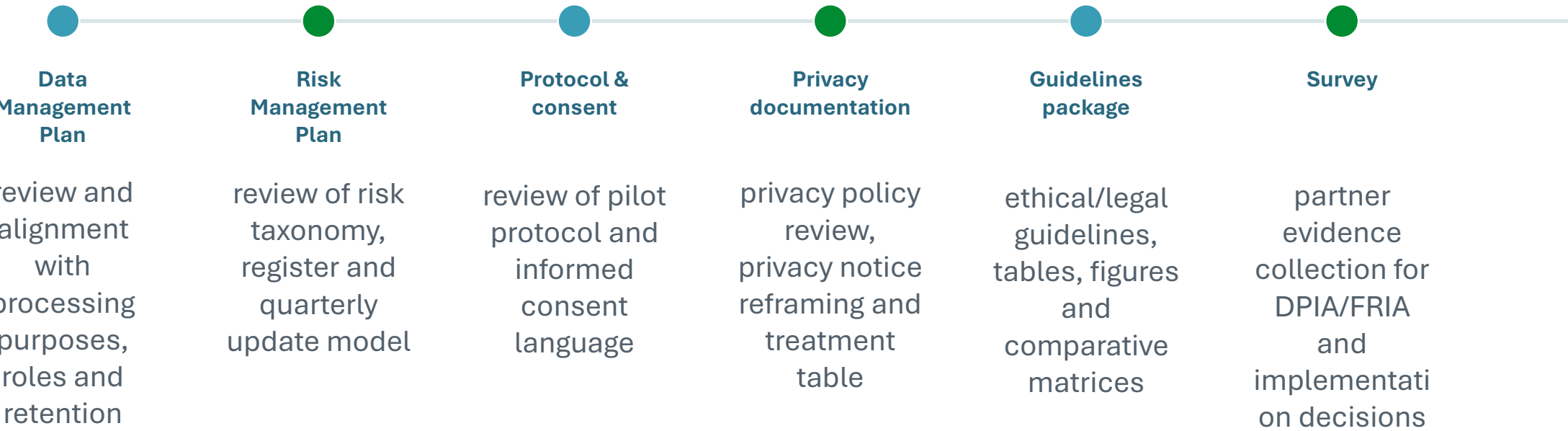
2. EU legal and ethical framework for AAL

EMA_FRAILTY sits at the intersection of health data, AI-enabled monitoring, connected devices and clinical safety.



3. What has been done so far

The Legal WP has already moved from document review to integrated governance tools.



Immediate value: the existing work is now structured as evidence for a joint DPIA + FRIA dossier, rather than as separate compliance documents.

4. Guidelines: the core message

The ethical and legal guidelines translate abstract requirements into auditable design and operational controls.

Private home

Treat the home as an intimate space; protect bystanders and household power dynamics.

Health-data infrastructure

Map purposes, lawful bases, data flows, retention and rights-handling.

AI decision support

Validate, explain and supervise scores, nudges and conversational coaching.

NON-NEGOTIABLES

DPIA before in-home pilot

Least-intrusive sensing

No default always-on audio/video

Consent/capacity model

Bystander safeguards

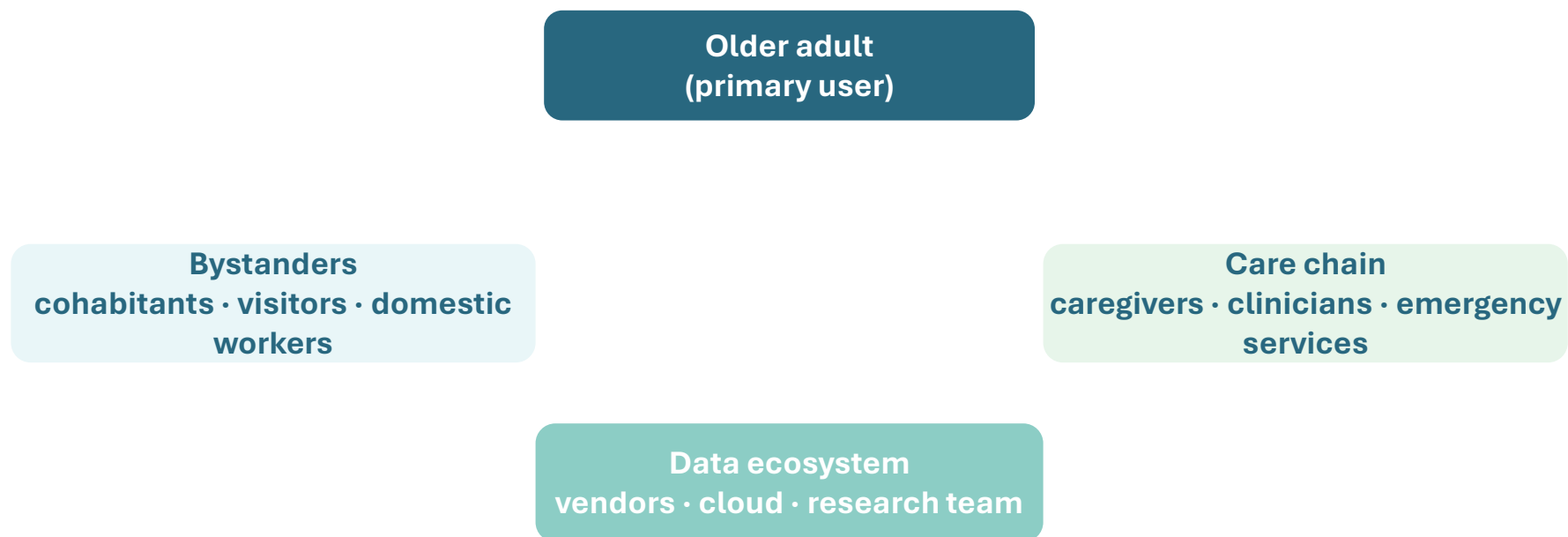
Clinical safety case

Human oversight for AI

Vendor + transfer controls

5. Guidelines element: household and data governance

AAL monitoring creates rights and interests for more than the enrolled participant.



GOVERNANCE CONTROLS

Household notice and onboarding · role-based access · pause/privacy mode · bystander-sensitive sensor placement · data-flow map · retention schedule · rights-handling workflow

6. Guidelines element: AI, clinical safety and accountability

Risk scoring, behavioural nudges and LLM coaching require a safety case, not only a privacy notice.

CONTROL STACK



AI function

Frailty risk score · anomaly detection · behavioural nudges
· optional LLM coaching

Safety question

What happens if the output is wrong, late, misunderstood
or over-trusted?

Governance question

Who can change the model, threshold or prompt — and
who approves release?

Positioning: decision support, not autonomous clinical judgement unless validated, classified and governed accordingly.

7. Guidelines element: red lines and acceptable boundaries

Some practices are incompatible with a trustworthy AAL deployment in private homes.

RED LINES

Covert or hidden surveillance

Default continuous audio/video without necessity

Selling or monetising EMA-derived personal data

Clinical automation without validation and oversight

Undisclosed AI coaching or manipulative nudges

Over-disclosure to insurers or law enforcement

ACCEPTABLE BOUNDARIES

Least intrusive sensor modality

Local processing and event-triggered capture

Visible indicators and bystander notice

Least-privilege access and audit logs

Independent consent / capacity safeguards

Governance approval for secondary use

The test:
would a reasonable older adult and household understand, accept and retain control over this practice?

8. Survey: evidence for the DPIA + FRIA

The survey collects partner evidence that cannot be reconstructed from legal texts alone.

Data flows · AI functions · clinical use · partner roles · risks · mitigations

WHAT WE NEED FROM PARTNERS

- Data** what is collected, where it flows, who can access it, how long it remains
- AI** what outputs are generated, who sees them, how they influence action
- Care pathway** who acts on alerts, response timeframes and escalation responsibilities
- Controls** what safeguards already exist and where gaps remain

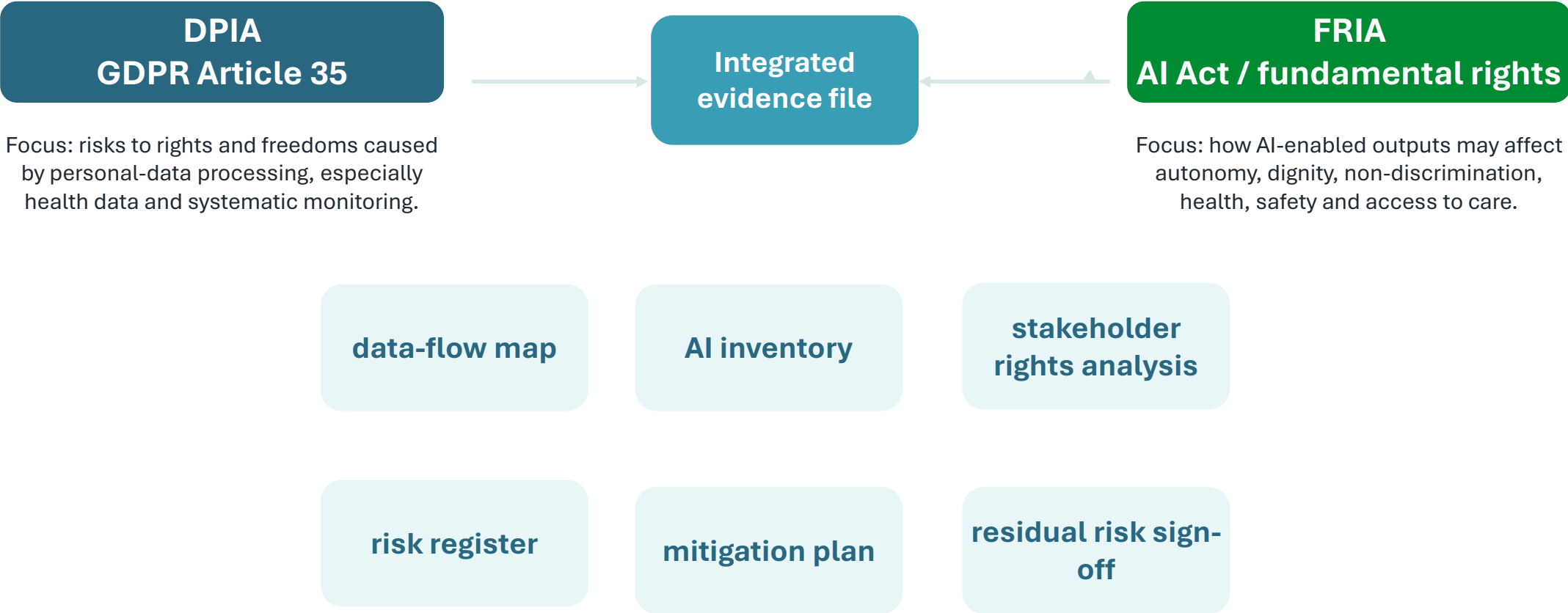


Survey link

**Please complete with operational facts.
The assessment is only as good as the evidence it receives.**

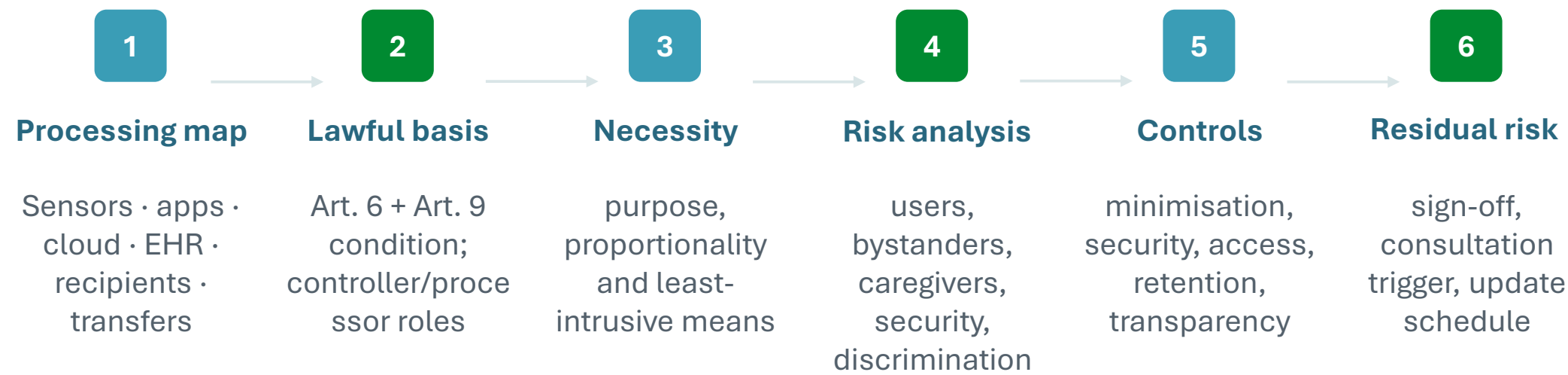
9. Integrated DPIA + FRIA: one assessment dossier

DPIA and FRIA should be coordinated to avoid duplicated questionnaires and inconsistent risk ownership.



10. DPIA method for EMA_FRAILTY

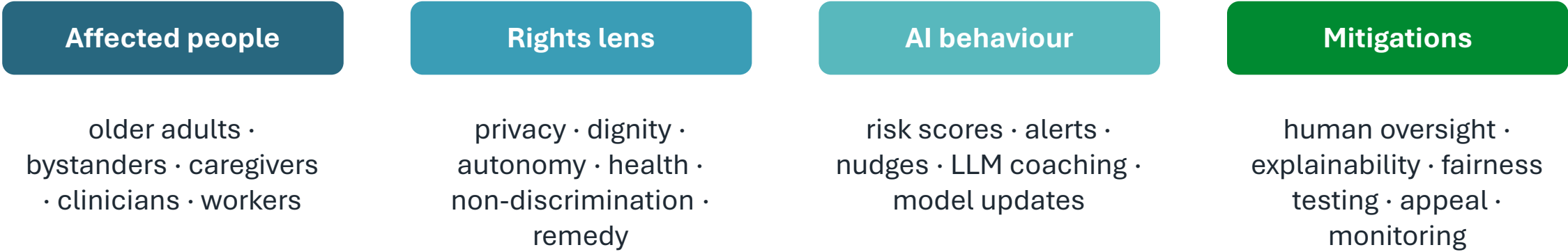
The DPIA is the accountability spine for home monitoring and health-data processing.



DPIA output: a dated, version-controlled record of processing, risks, mitigations, owners, residual risk and escalation decisions.

11. FRIA method for AI-enabled AAL

Fundamental rights assessment asks how AI outputs change power, choices and safety in real life.



FRIA QUESTIONS FOR PARTNERS

Does the AI output affect access to care, urgency of intervention, user behaviour, household autonomy, or allocation of responsibility?

Who can contest it, override it, or ask for human review?

Apply FRIA even where formal AI Act applicability is still being qualified: it is a defensible human-rights method for high-trust deployment.

12. Integrated workflow with partners

The assessment must be iterative, evidence-based and owned by the consortium.



PARTNER RESPONSIBILITIES



Target output: one live assessment dossier, not a static compliance appendix.



**Ministero
dell'Università
e della Ricerca**

EMA frailty

Q&A

THCS Learning Week – 30.09.2026



**Università Commerciale
Luigi Bocconi**

Aknowledgment

"Financed by MUR -
Project "EMA_FRAILTY -
Ecological monitoring
for the assessment of
frailty in older people"
THCS24_00052 - CUP
J43C25000130001"



MDR in AIS

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

Project presentation and current advancements

Azienda Ospedaliera Universitaria Senese - Martin Vitiello | Project Coordinator

SYNYO GmbH - Alexander Nikolov | Research Manager & Project Coordinator

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.



Co-funded by the
European Union

FACTS AND FIGURES

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 09/2027 (43 month)

IDENTIFICATION CODE

FP-1127

COORDINATOR

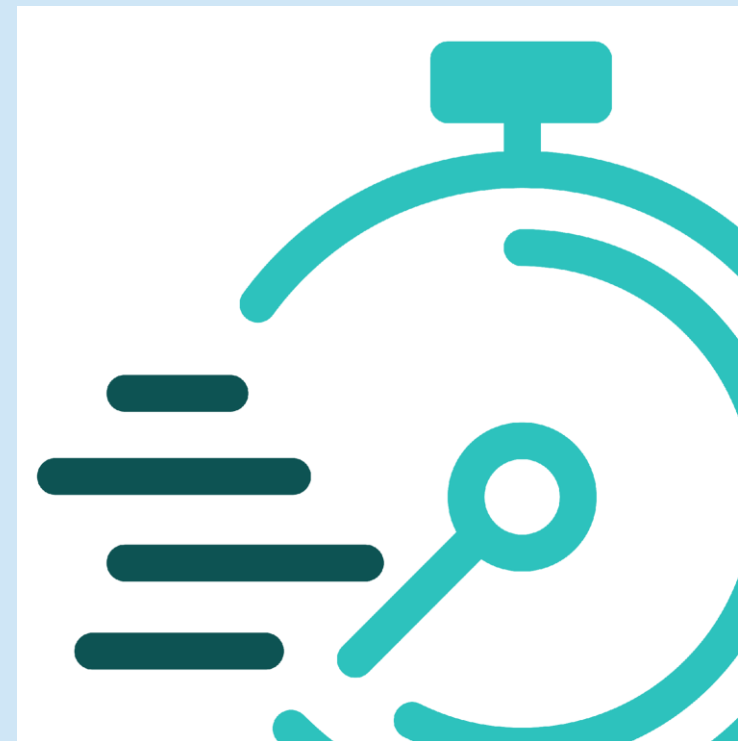
AZIENDA OSPEDALIERO UNIVERSITARIA SENESE (AOUS)

PARTNERS

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



Co-funded by
the European Union



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.

THE CLINICAL PROBLEM: TIME IS BRAIN

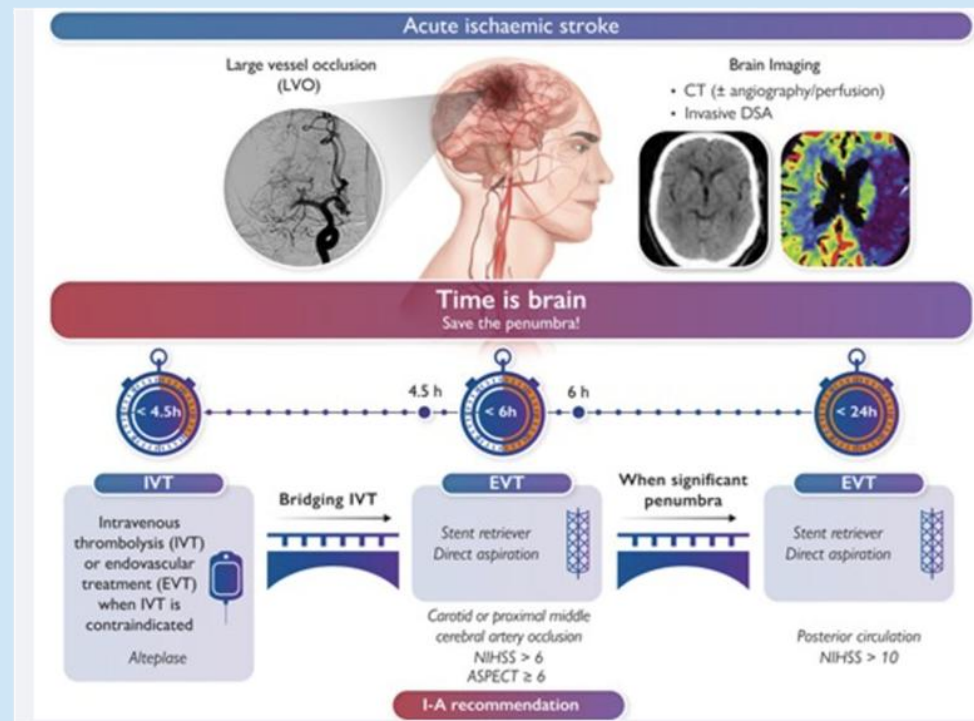
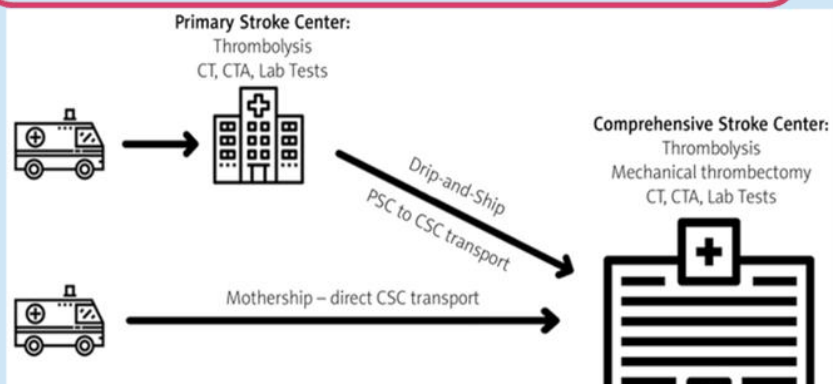
Every minute of delay has a cost — and some of those delays are avoidable

The scale of the problem

- Each minute without reperfusion: ~1.9 million neurons lost
- Drip and Ship: necessary but introduces structural delays at the CSC

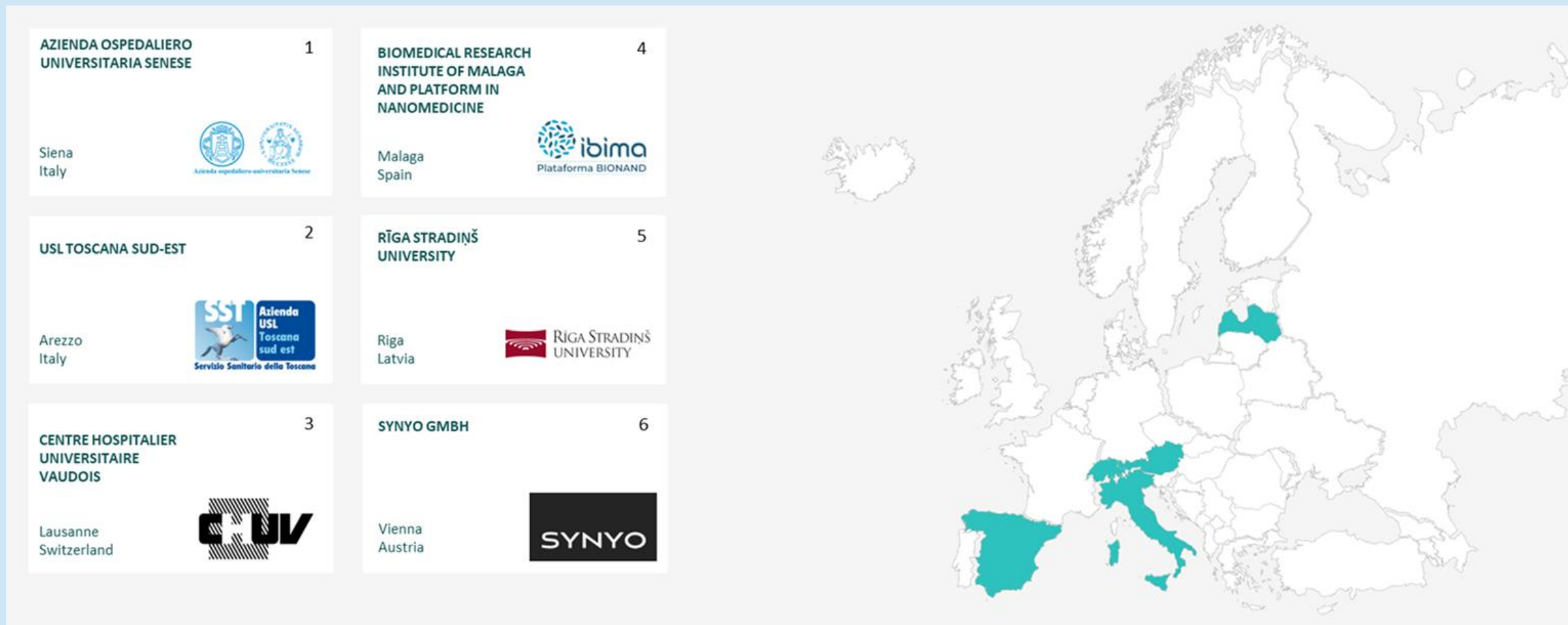
Where time is lost

- EMS activation and transport
- Diagnosis
- Re-triage at CSC emergency department
- Repeat clinical assessments and imaging reviews
- Multiple handovers without real-time coordination



CONSORTIUM

Partners map



AOUS AND THE SOUTH-EAST TUSCANY STROKE NETWORK

Results are a Joint Effort

The South-East Tuscany Stroke Network

- Population covered: ~900,000
- AOUS Siena: Comprehensive Stroke Center (CSC)
- 3 Primary Stroke Centers (PSCs): Grosseto, Arezzo, Montevarchi

Recognition and Excellence

- **ESO-Engels Diamond Award (2022)** — European Stroke Organisation top certification for AIS treatment quality
- **AGENAS National Ranking (2021)** — Among the top 9 centres in Italy for stroke management efficiency



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.



THE CLINICAL PROBLEM: TIME IS BRAIN

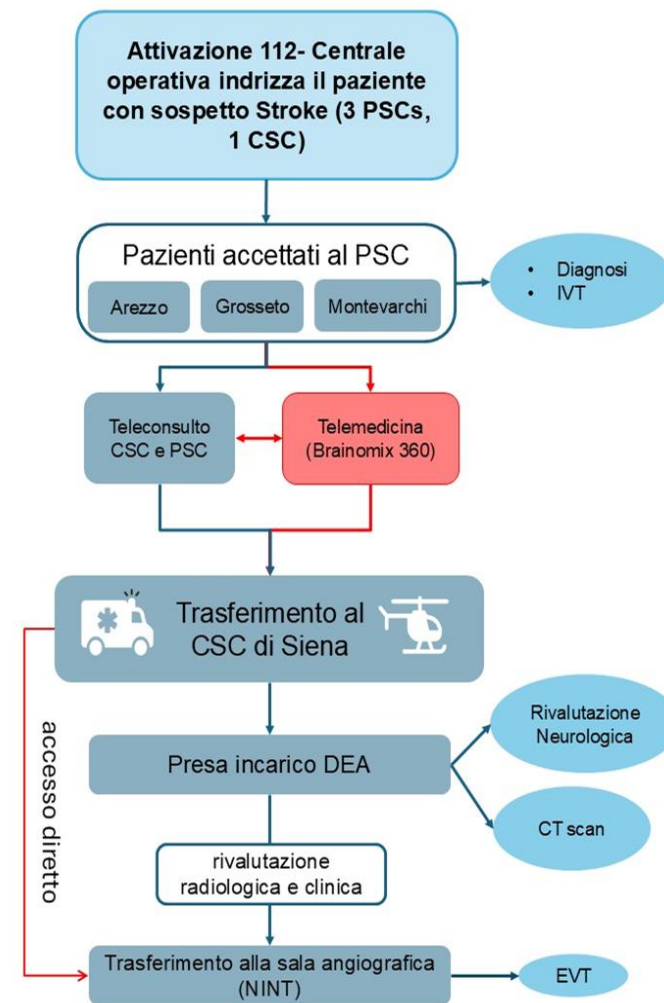
Every minute of delay has a cost — and some of those delays are avoidable

Our hypothesis

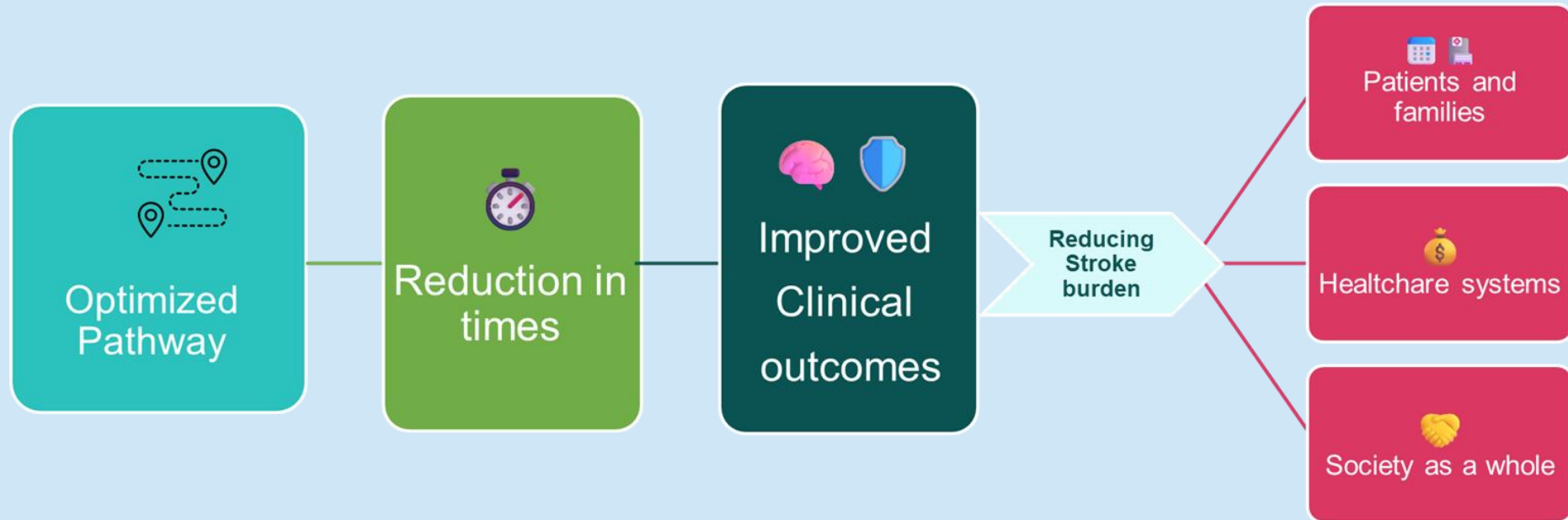
- Bypass the CSC emergency department on arrival
- Use telemedicine for pre-arrival coordination and real-time imaging sharing

Standard pathway: PSC → transfer → CSC ED → assessment → angio suite

Streamlined pathway: PSC → telemedicine → direct to angio suite



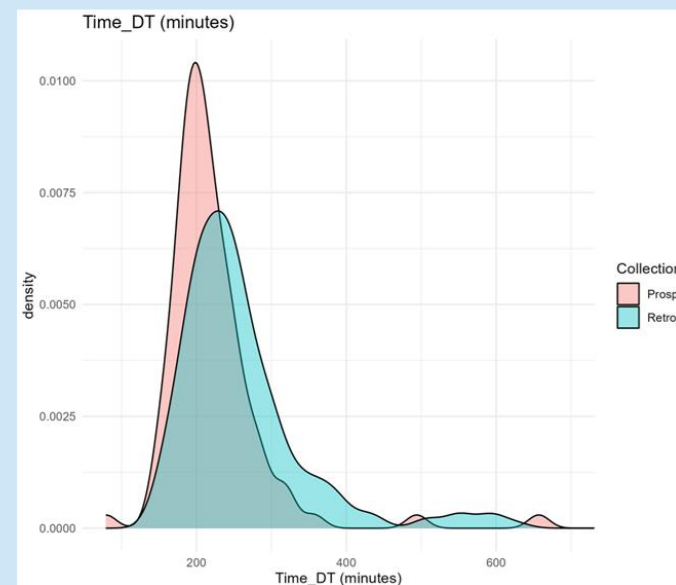
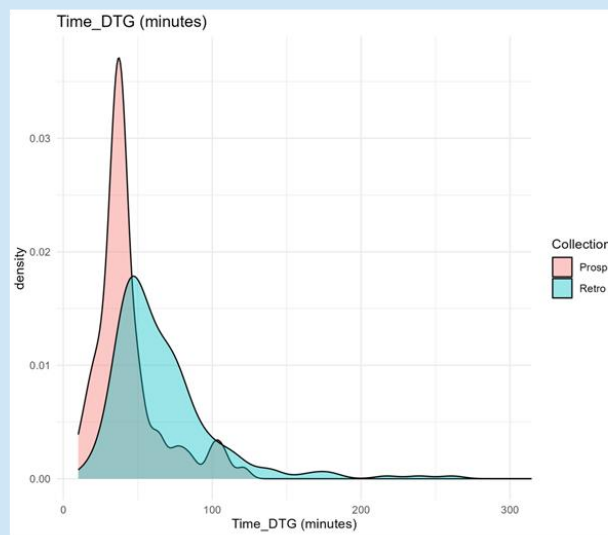
THE STUDY RATIONALE



PRELIMINARY RESULTS

The Italian Pilot

- **Setting:** Tuscany South-East Network (N=214 Pre-AI vs. N=102 Post-AI).
- **Hub Door-to-Groin (DTG):** Significant reduction from **58** to **40** min ($p < 0.001$).
- **Spoke-to-Groin (DT):** Improved from **240** to **210** min ($p < 0.001$).



PRELIMINARY RESULTS

The Italian Pilot

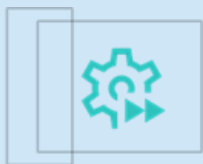
Neurological Recovery (NIHSS)

- **At onset: NIHSS** comparable between groups (14 vs 14, $p=0.261$).
- **At 24h and at discharge**
 - **At 24h:** Post-AI (Prosp) shows lower NIHSS than Pre-AI (Retro) (7 vs 13, $p=0.001$).
 - **At discharge:** Post-AI (Prosp) shows lower NIHSS than Pre-AI (Retro) (3 vs 6, $p=0.008$).



EXPECTED PROJECT IMPACTS

Key information



Implementing an optimized
pathway for LVO AIS
patients



Minimizing treatment
delays and optimizing
outcomes



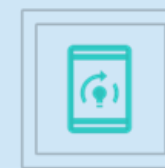
Advancing stroke
management
protocols



Exploring challenges and
opportunities in
telemedicine for stroke
management



Addressing communication
and coordination needs



Integrating
telemedicine into
existing workflows

**Improving Stroke
Management**

**Telemedicine
Implementation**



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.

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



IDENTIFY

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

SYSTEM USABILITY SCALE (SUS) SURVEY



Exploring challenges and opportunities in telemedicine for stroke management



Addressing communication and coordination needs



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.

BROADER IMPACTS AND BENEFITS



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



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.

ESTABLISHING THE FOUNDATION

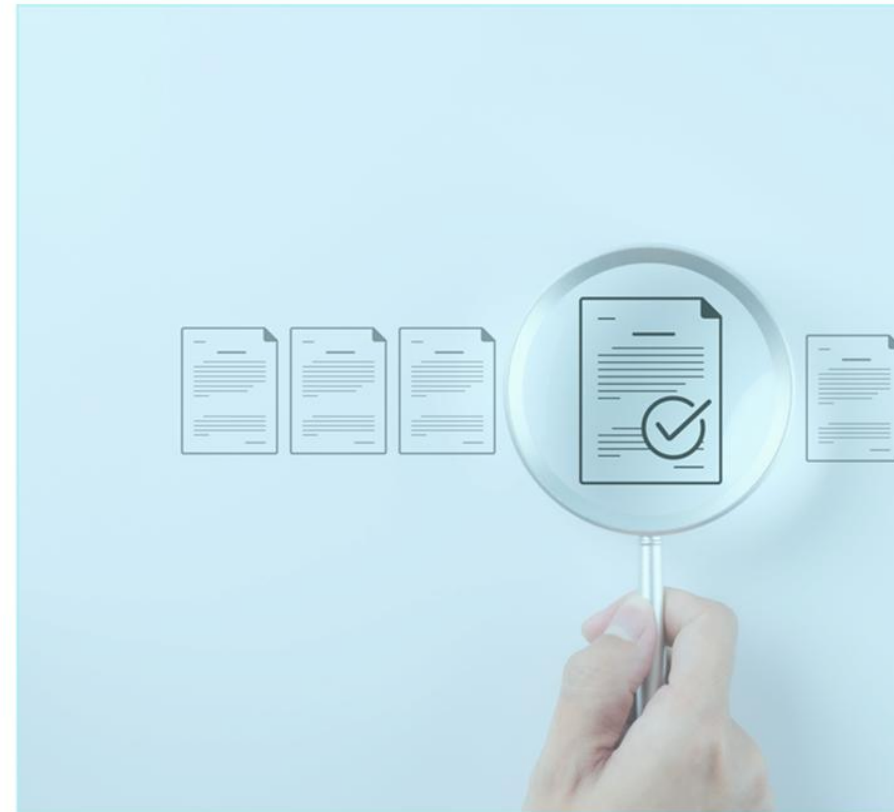
Stakeholder analysis

Stakeholder analysis served as the project's foundational knowledge engine.

Collected real-world evidence instead of relying on theoretical assumptions.

Identified operational bottlenecks, usability issues, and legal barriers faced by clinicians and administrators.

Ensured all subsequent development activities addressed verified, real-world problems.



ESTABLISHING THE FOUNDATION

Role and aims

Identifies and analyzes key actors across the acute stroke care ecosystem - clinicians, hospital managers, researchers, patient advocates, developers, and regulators - ensuring their real-world requirements directly shape the project's innovations.

Within the project architecture, the stakeholder analysis acts as the **foundational knowledge engine**, synthesizing transfer models, evaluating technology solutions, mapping regulatory boundaries, and capturing stakeholder feedback to provide the evidence base for downstream deliverables.

1

Optimize direct-to-OR clinical pathways for stroke patients across hospital networks.

2

Structure simulation and training curricula for emergency and neurology teams.

3

Define software, interoperability, and security specs for the telemedicine platform.

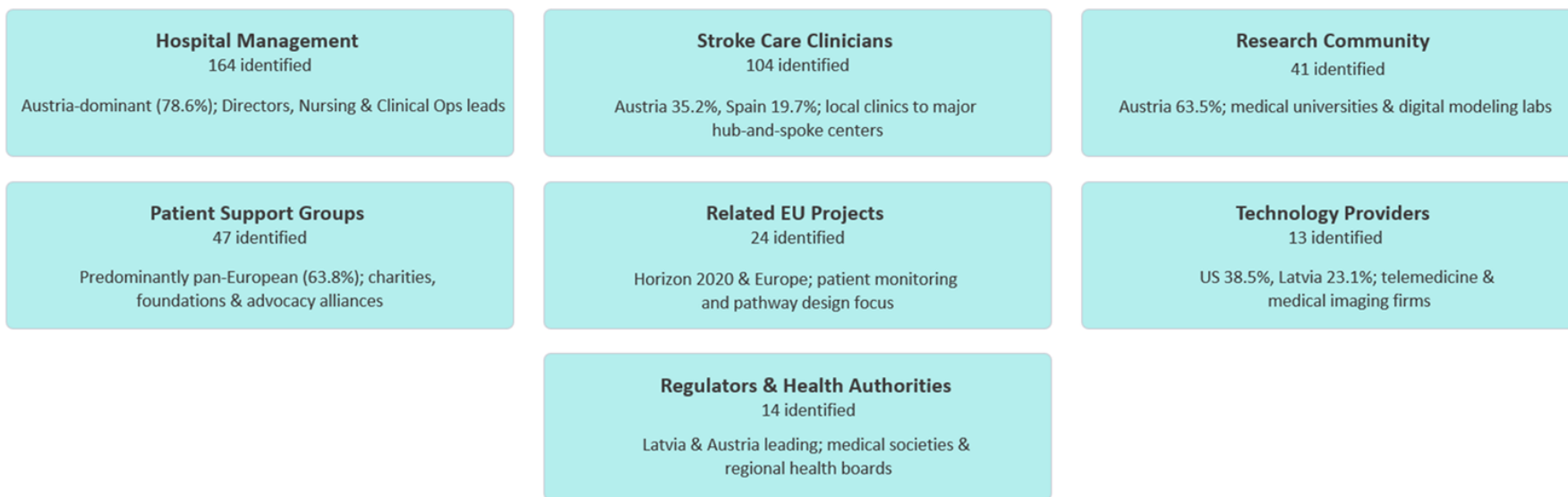


KNOWLEDGE COLLECTION AND STAKEHOLDER MAPPING

Methodology and results

MDR in AIS deployed a **multi-method framework across five partner nations** - Austria, Italy, Spain, Latvia, and Switzerland - combining **systematic desk research, structured stakeholder mapping, quantitative surveys, and in-depth semi-structured interviews**. All findings were triangulated to validate a consolidated set of operational requirements.

Mapped Results 445 Organizations, professionals and related projects



THE STROKE CARE LANDSCAPE, TECHNOLOGY, AND REGULATIONS

Comparing Stroke Care Transfer Models

Standard Drip and Ship

IV thrombolysis locally, then transfer. Transit delays and repeated handoffs.

Enhanced Drip and Ship

CT angiography before transfer reduces unnecessary transfers but adds delays.

Telemedicine-Integrated Drip and Ship

Live video and image sharing for faster expert advice. Platform incompatibility remains a barrier.

Hub-and-Spoke Networks

Standardized regional protocols. Regional quality gaps persist.

Mobile Stroke Units (MSU)

On-scene CT and telemedicine. Reduced improper transfers from 43% to 11% (Berlin) - but cost-prohibitive.

- ❑ Optimizing the Telemedicine-Integrated Drip-and-Ship model with ER bypass is the most practical, cost-effective path forward.

The Clear Research Gap

- ❑ A review of 12 EU-funded stroke projects shows most target prevention, AI prediction, or rehabilitation. **None address a unified telemedicine system enabling ER bypass directly to surgery** - the gap MDR in AIS was built to fill.

Commercial Digital Tools

• Brainomix (e-Stroke)

AI scan analysis; increased surgical transfer rates by **44%** in Wales.

• RapidAI

Color-coded perfusion maps and secure team messaging within minutes.

• Viz.ai

Deep learning LVO detection with automatic on-call team alerts.

• Siemens Healthineers

Advanced OR imaging and regional patient tracking software.

• Philips Healthcare

Real-time ambulance-to-hospital vitals and video streams.

• Medtronic (LINQ II ICM)

Cardiac monitor detecting hidden stroke causes for up to **4.5 years**.

Legal and Regulatory Framework

Standard	Key Requirement
ESO Guidelines	Thrombolysis ≤4.5 hrs; thrombectomy ≤6 hrs
EU MDR 2017/745	AI diagnostic tools classified as medical devices; clinical trials required
GDPR	Encryption and legal permissions for cross-hospital image sharing
HL7/FHIR & DICOM	Universal standards for patient records and scan transfer

WHAT THE STAKEHOLDER SURVEYS REVEALED

Front-Line Stroke Clinicians

- Ambulance transfer delays are the single biggest care challenge
- Most hospital systems communicate poorly or not at all
- Majority experience equipment failures during emergencies

Hospital Management Staff

- Treatment initiation delays are the primary weakness of Drip-and-Ship
- No administrator rated inter-hospital handovers as "very effective"
- Usability and training - not hardware costs - dominate as obstacles

Researchers and Academics

- Poor integration between telemedicine tools and hospital EHRs is the largest technical gap
- Lack of staff training is the main barrier to wider adoption

Government and Regulatory Authorities

- Cross-border doctor credentialing is the primary policy challenge
- Outdated reimbursement rules and missing standards are major barriers
- Current telemedicine regulations rated ineffective by the vast majority

Patient Organizations

- Lack of post-stroke rehabilitation and caregiver support are the most serious gaps
- Families face financial burdens, long travel distances, and shortage of local specialists
- AI diagnostics and wearables seen as most promising for recovery

Solution Providers

- Adoption driven by cost savings and better patient outcomes
- All surveyed providers use AI image analysis and connect with ambulance dispatch

IN-DEPTH EXPERT INTERVIEWS – REAL WORLD PRACTICALITIES

Key insights

Key findings from **in-depth interviews** with hospital directors, neurologists, public health officials, and software developers across Latvia and Italy.

Health Authorities and Regulators

- **Legal liability gaps:** GDPR rules and unclear AI liability laws create hesitation among providers
- **Flexible regulation needed:** Rural clinics and university centers need modular, step-by-step adoption - not costly system overhauls

Hospital Executives and Operations Directors

- **Culture change is the hardest barrier:** Staff default to routine habits (paperwork, triage queues) instead of fast-tracking stroke patients
- **Reimbursement gaps:** Insurance pays for surgeries but not for telemedicine consults or ambulance coordination

Stroke Clinicians and Emergency Doctors

- **Single-staff bottlenecks:** One on-call radiologist can delay multiple patients - AI flagging tools are urgently needed
- **Unified interface:** Doctors juggle too many separate screens; they need **one unified dashboard**
- **Drills over lectures:** Timed simulation drills change behavior; policy handbooks do not

Technology Vendors

- **Certification delays:** EU MDR approvals stall tested features (e.g., automated MRI analysis) for months or years
- **Cloud hesitation:** Each hospital requires separate legal negotiations to share brain images, slowing network-wide adoption



KEY FINDINGS AND STRATEGIC RECOMMENDATIONS

Key insights

Combining the survey statistics, interview insights, and clinical reviews highlights five foundational pillars needed to speed up stroke care across Europe.

1

Fix the Clinical Pathway and Patient Handovers

- **Problem:** Transfer delays, repeated exams, and paperwork cost patients critical brain cells.
- **Action:** Implement ER bypass protocols and a shared digital handover sheet so surgical teams are ready on arrival.

2

Connect Software and Improve Usability

- **Problem:** Staff juggle multiple disconnected apps, causing "app fatigue" and data gaps.
- **Solution:** One unified interface combining vitals, AI scans, and team chat via HL7/FHIR standards.

3

Ensure Data Privacy and Clarify Legal Rules

- **Problem:** GDPR fears and unclear AI liability stall hospital adoption.
- **Action:** Use privacy-by-design with audit logs and hybrid local/cloud storage for sensitive data.

4

Invest in Practical Team Drills

- **Problem:** Passive training and staff turnover stall new workflows.
- **Action:** Run timed multidisciplinary simulations and appoint local "clinical champions" in each hospital.

5

Update Reimbursement and Offer Modular Purchasing

- **Problem:** Small hospitals can't afford full AI systems; remote consults go unpaid.
- **Action:** Create billing codes for tele-stroke and offer modular software packages for community hospitals.



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.

European Public Health Conference | Bilbao, Spain

Booth #12 - MDR in AIS and other SYNYO's related health projects

EPH EUROPEAN PUBLIC HEALTH CONFERENCE

Bilbao 2026 ▾ Conferences ▾ News and announcements About ▾ Support & Contact

→ REGISTER

EUROPEAN PUBLIC HEALTH CONFERENCE BILBAO 2026

[HOME](#) > [BILBAO 2026](#)

Urban and global synergies: shaping the future of public health with climate resilience, equity and innovation

10 — 13 November 2026
Euskalduna Conference Centre, Bilbao, Spain

→ REGISTER FOR BILBAO



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.

CONTACT DETAILS



MDR in AIS

**SUBSCRIBE TO
OUR NEWSLETTER**

And we will keep you
up-to-date with our
latest project news!





MDR in AIS

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

