



## Integral, Transversal and Multidisciplinary Management of Aortic Valve Stenosis (MITMEVA)

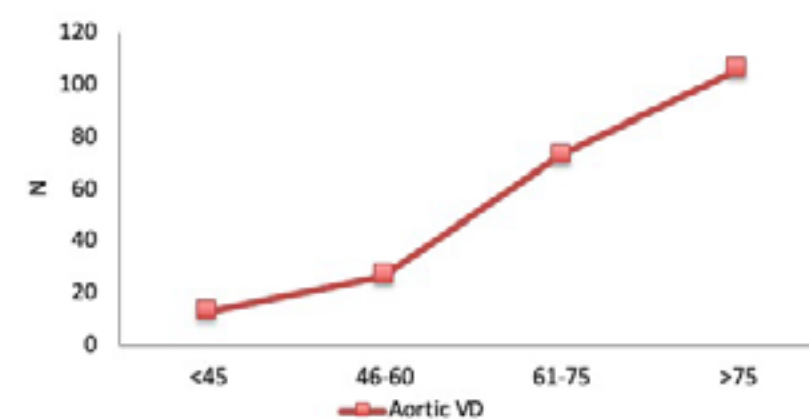
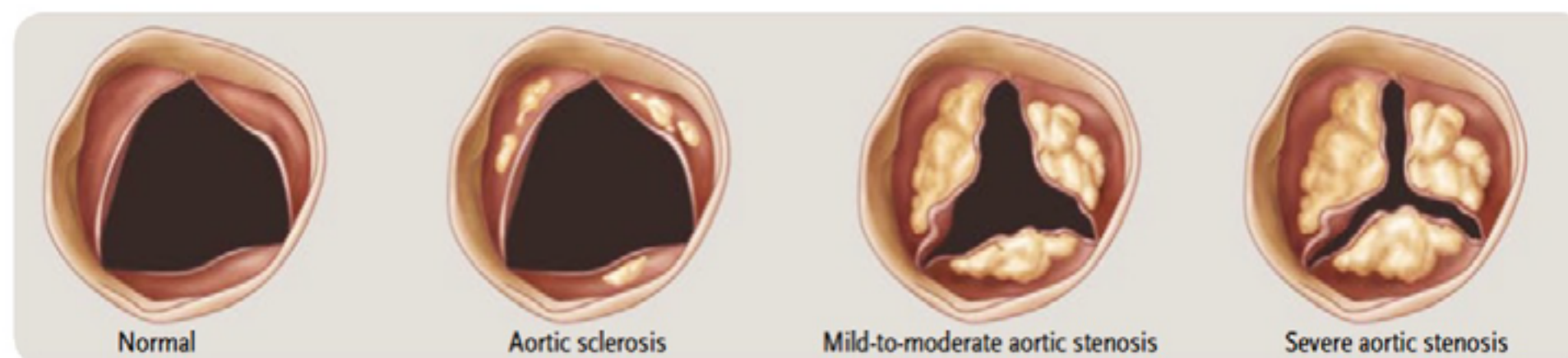
**CLÍNIC**  
BARCELONA  
Hospital Universitari



**Prof. Marta Sitges, MD, PhD**  
Cardiovascular Institute,  
Hospital Clinic, University of Barcelona



The Clinical Problem. The Case of Aortic Valve Stenosis.



3,4% of >75 y.o.  
 Aortic Valve Stenosis

2020: 2,5M People In Europe

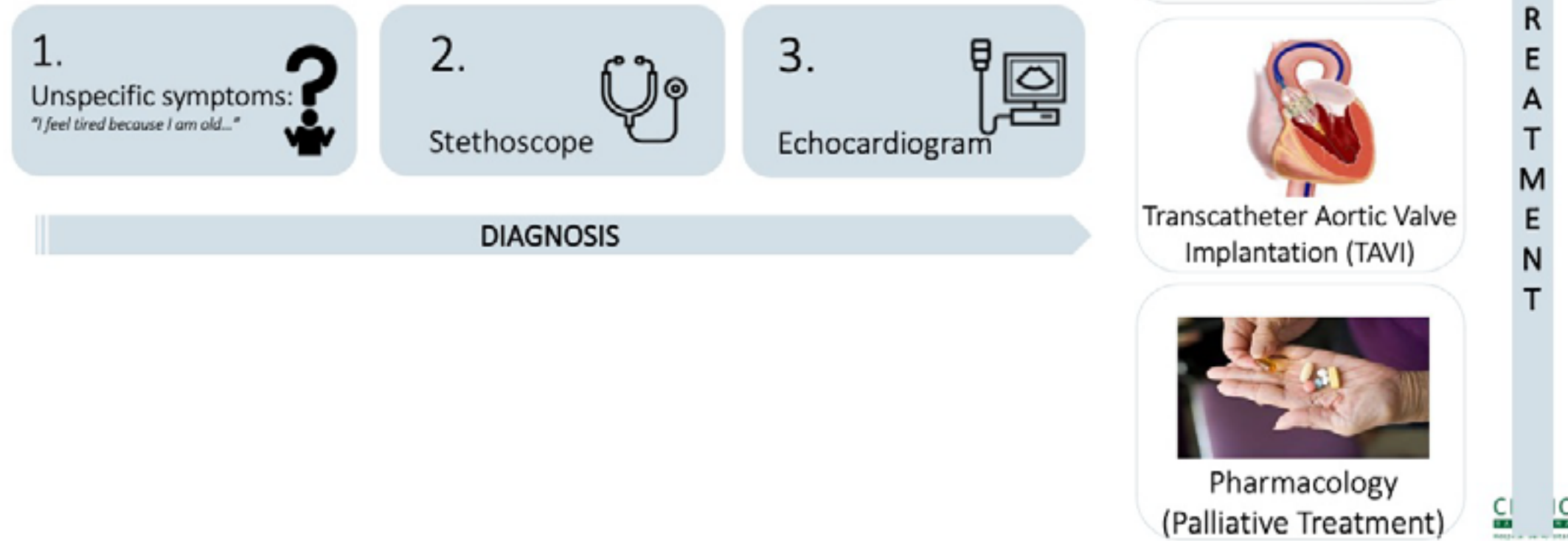
Domenech B et al. *J Heart Valve Dis* 2016;25:1-7  
 Osnabrugge RL et al *J Am Coll Cardiol* 2013;62: 1002-12







The Clinical Problem. Aortic Valve Stenosis. Diagnosis & Therapy.





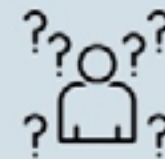
## The Clinical Problem. Current Status Aortic Stenosis.



**Uncoordination** among different levels of healthcare and social system: **NO organizational integrated care model** (from end to end) (non integrated care, non patient-centered)



**NO** available tool to support and facilitate an **END-TO-END patient management** care model



**Unknown disease** by general population: "I feel tired because I am old..."



Lack of **patient empowerment** in care and involvement in decision making



Comorbidity and **ageing population**. High costs and potential futility



**Heterogeneous practice** among professionals (surgery, cardiology)



**Late diagnosis & treatment**: advanced stages of disease impacting outcome and costs



**Heterogeneous access** for care within Europe and the world





## The Clinical Problem. Silos Medicine

Fragmented set of health and social care services



User as a ping-pong ball



CLINIC



## Our Proposal: MITMEVA. The approach.

**OPTIMIZED and STREAMLINED PATHWAY TAILORED TO THE NEED OF EACH PATIENT,  
BETTER INTEGRATING THEM ACROSS THE DIFFERENT LEVELS OF CARE**

- ✓ Faster, Optimum & Personalized Diagnosis And Treatment
- ✓ Pathway Coordination - Better Patient & Care Team Experience
- ✓ Patient Empowerment

Leading to a **MORE EFFICIENT care for health systems**, obtaining **BETTER OUTCOMES** and **LOWERING THE COSTS** (avoiding waste of resources).



CLINIC





### Our Proposal: ITMMAS. The solution.

- ✓ **PROCESS REINGENEERING (Lean methodology)**
- ✓ Final tuning & implementation of a set of components/tools addressing specific **SYSTEM ORGANIZATIONAL IMPROVEMENT**
- ✓ **Pathway Organizational Orchestration** through **digitization** following **BPM Methodology** (supported by already marketed BPM software suites)
- ✓ **TRANSFERABILITY Analysis** for facilitating replicability & scalability



CLINIC



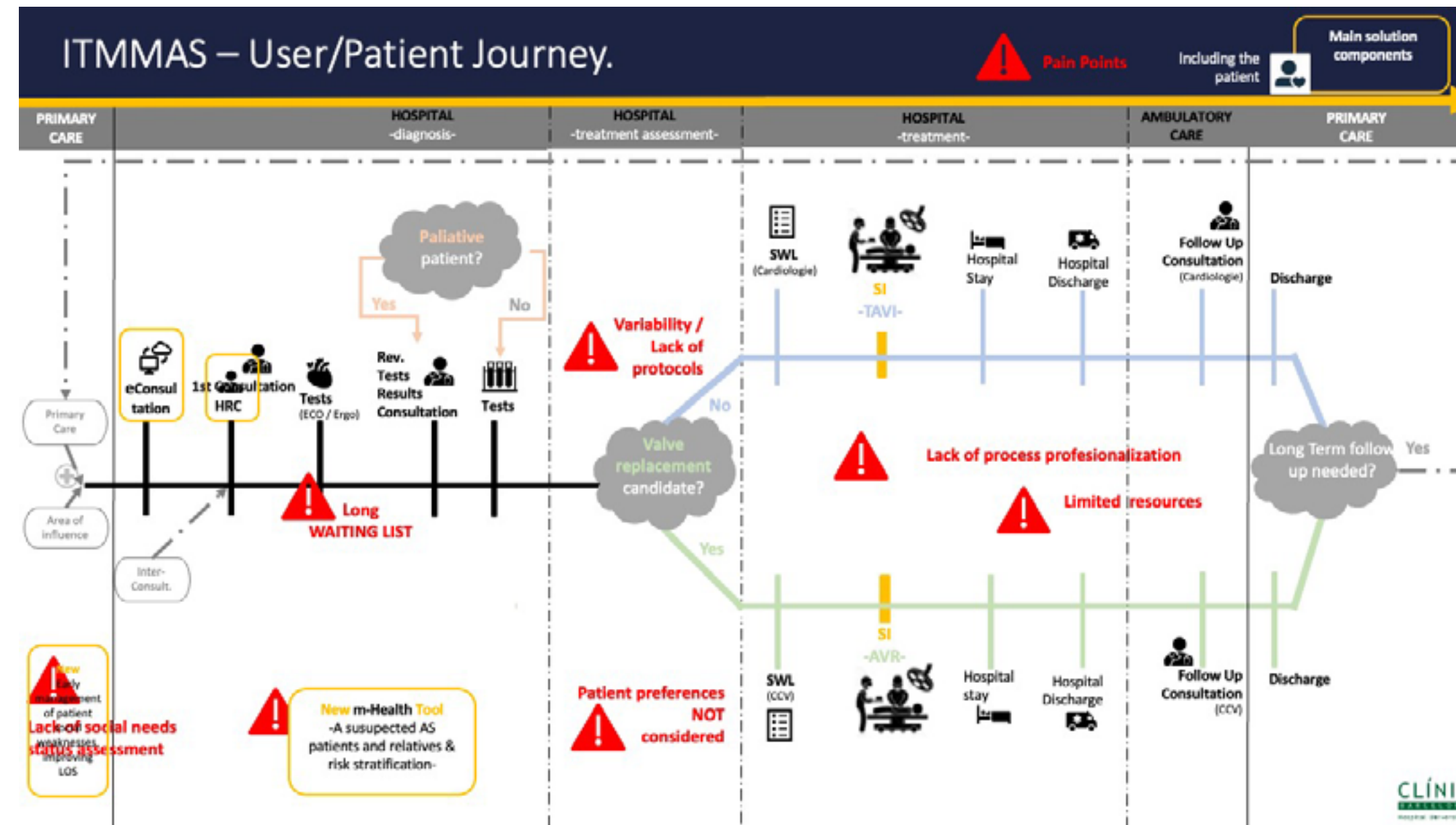
### Our Solution: ITMMAS.

ITMMAS aims to be a truly system organization transformation, achieving effective care coordination by digitized care pathway orchestration built on business process management methodology



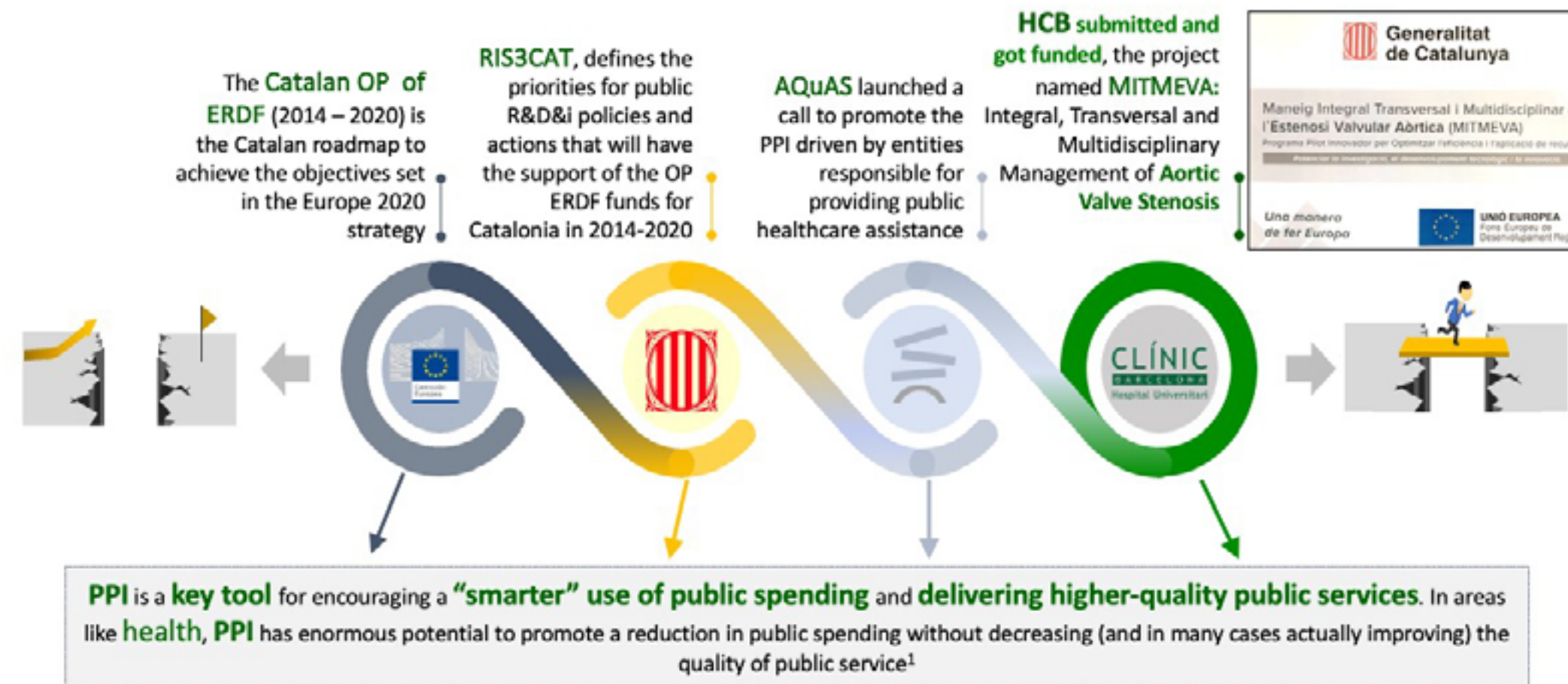
CLINIC







## AQuAS Call – Public Procurement Innovative Solutions Call



OP: Operational Programme; ERDF: European Regional Development Fund; RIS3CAT: Research and Innovation Strategy for the Smart Specialization of Catalonia; AQuAS: Catalan Quality and Health Technology assessment Agency

1. Extracted from ERDF OPERATIONAL PROGRAMME CATALONIA 2014-2020 UNDER THE INVESTMENT FOR GROWTH AND JOBS' GOAL







**Integral, Transversal and Multidisciplinary Management of Aortic Valve Stenosis (MITMEVA)**

*Innovative Pilot Programme to Optimize the efficiency and resources used*

**CLÍNIC**  
 BARCELONA  
 Hospital Universitari

**CLÍNIC**  
 BARCELONA



- **Public Procurement of Innovative Solutions**

- **To buy Aortic Valve Prosthesis with Added Value for patients and professionals**

*(Value Based Healthcare & Value Based Purchasing)*

- Patient and Referral Education
- M-Health tools: App for patients, Tools for team connection, support for pre-rehab., palliative care
- Outcome monitoring, including PROMs & PREMs
- Cost-effectiveness
- Risk sharing and outcome-based payment
- Scalability of the approach







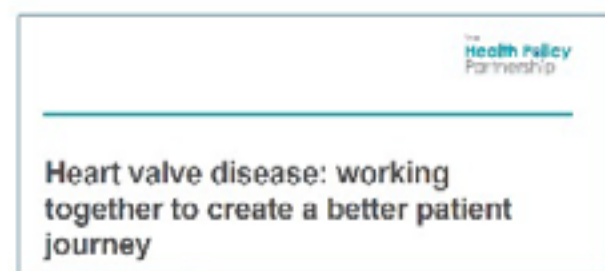
Patient and Citizen Engagement / Involvement.

ENGAGEMENT



Patient ASSOCIATIONS

INVOLVEMENT



Outcomes for patients can be improved if existing deficits along the care pathway are addressed

Global Heart Hub. The Health Policy Partnership  
 Sitges M et al. Creating a better patient journey for patients with heart valve disease. Eur Heart J Open 2021





## Developed Actions

### 1. Valve Heart Team building



Consensus criteria  
Check List

### 3.



Patient education  
Referrals education

### 2. Single entry point at Valve Center



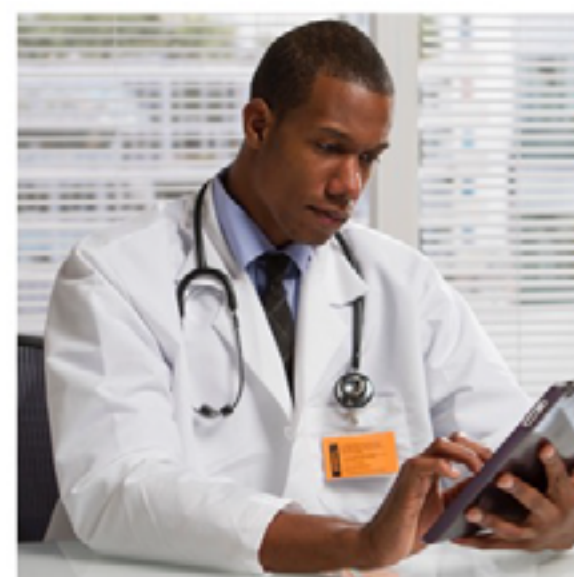
CLINIC





## Developed Actions

### 4. Virtual consultation



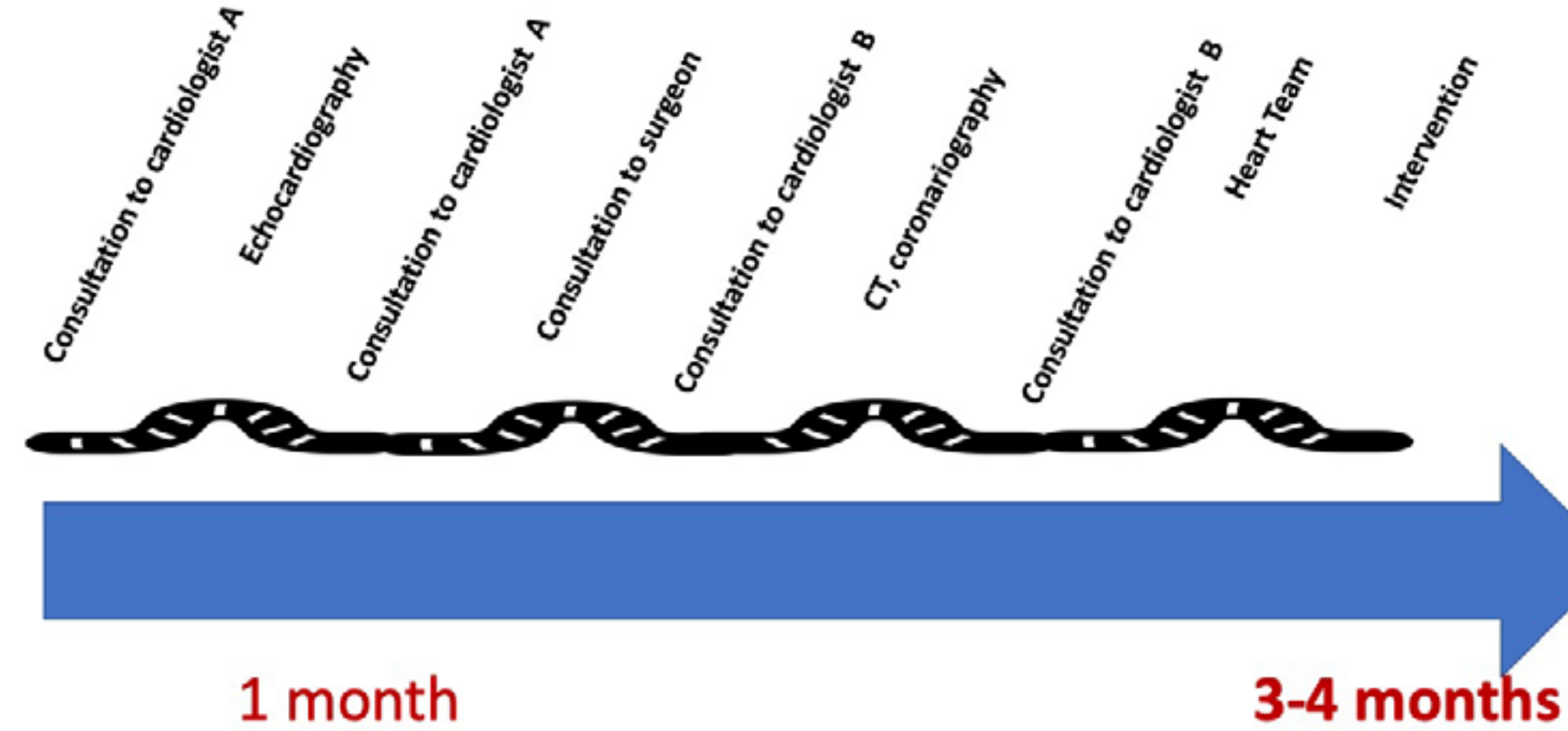
### 5. High Resolution Consultation



CLINIC



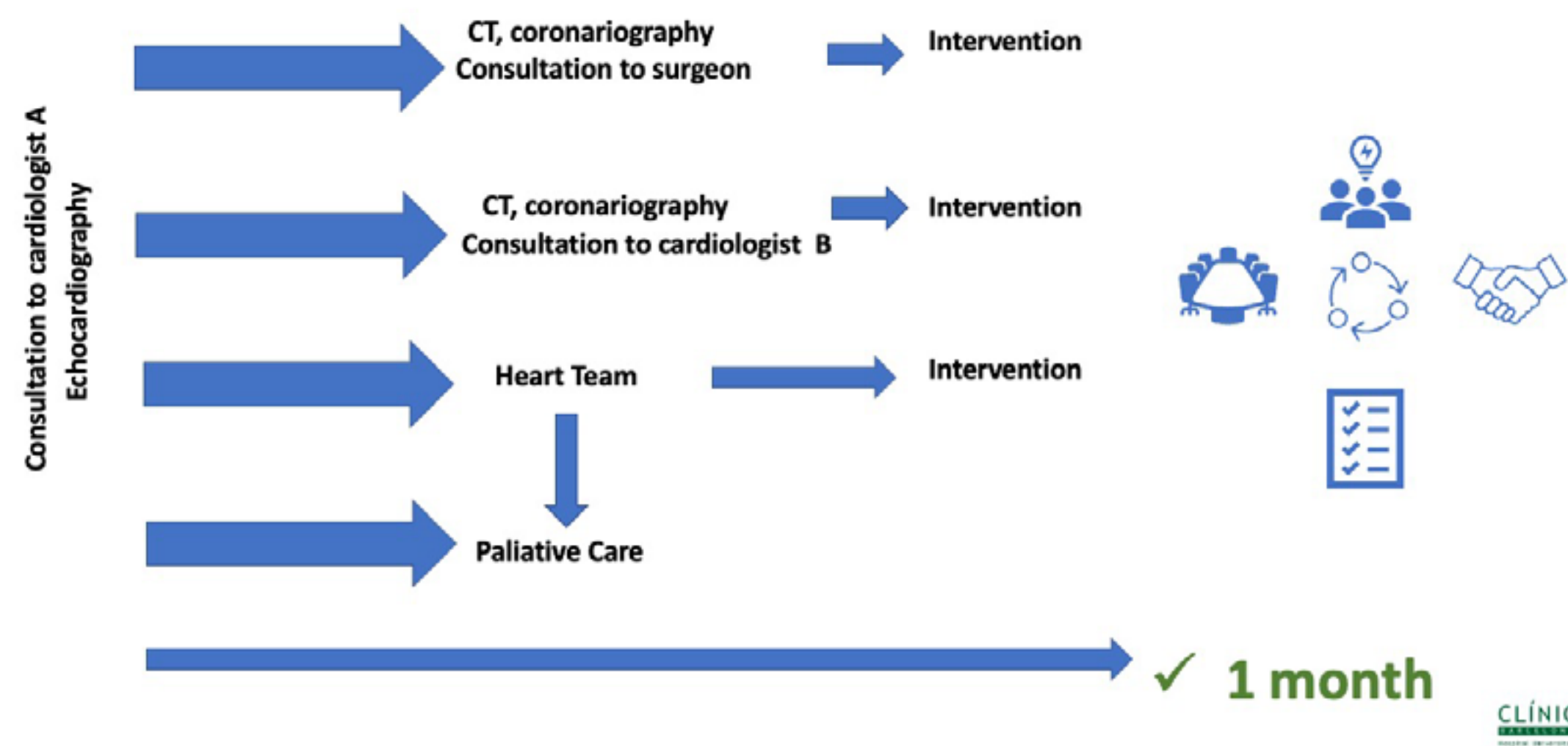
### Developed Actions



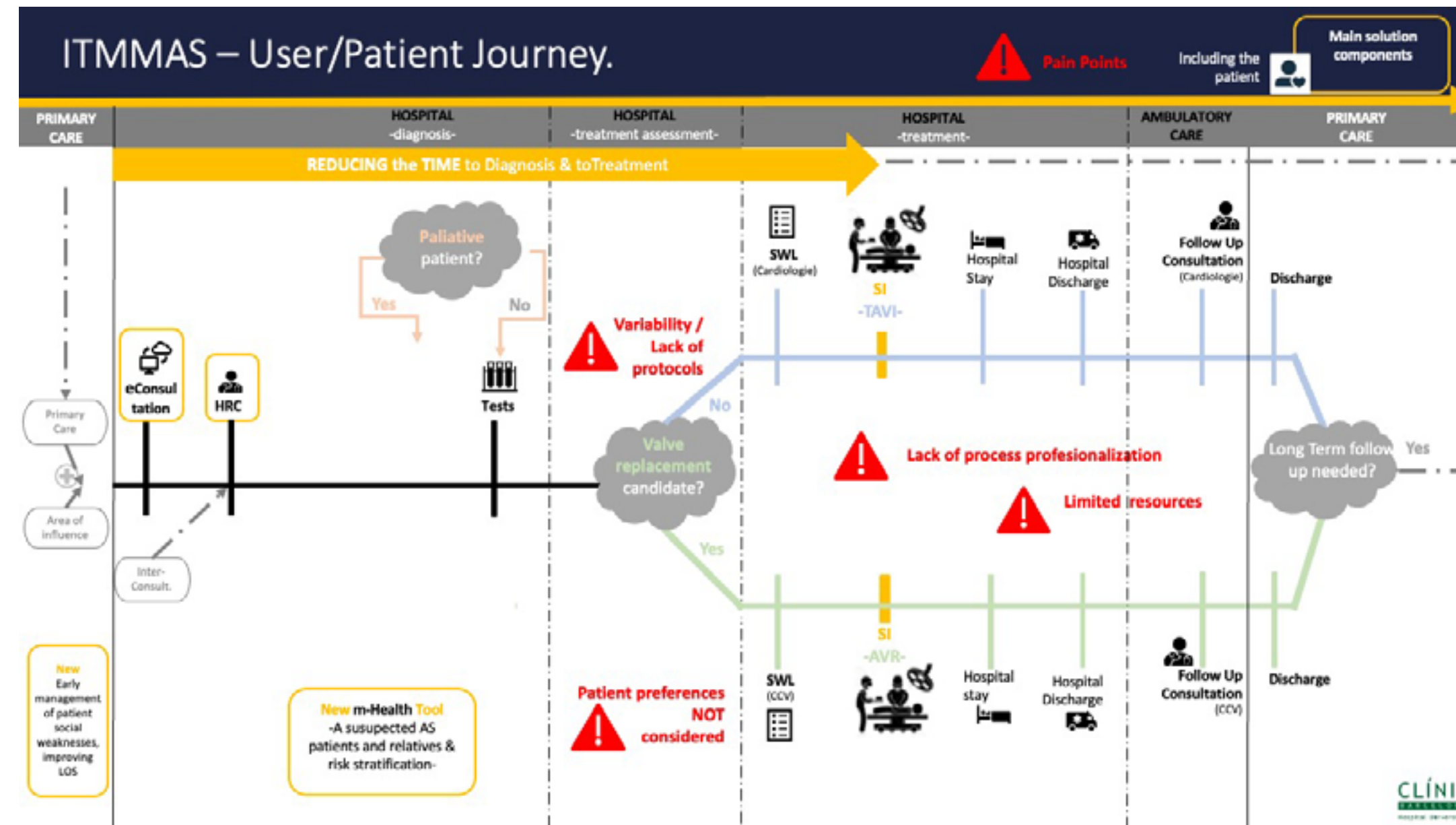




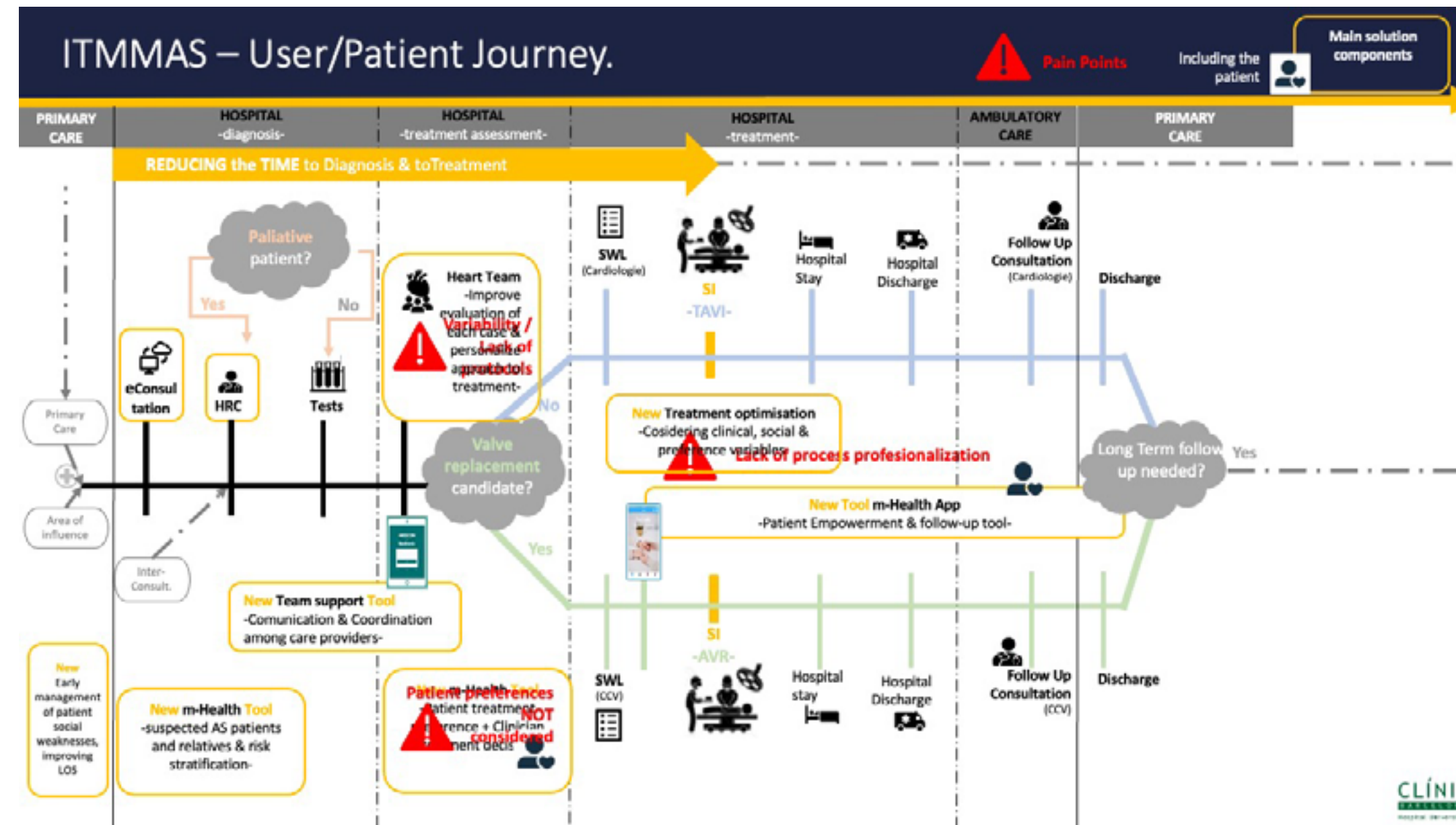
### Developed Actions



CLINIC



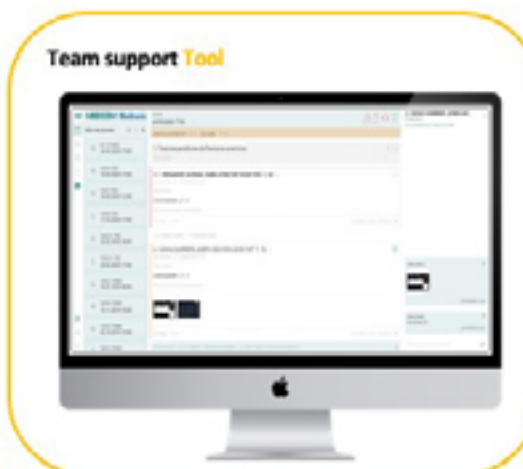
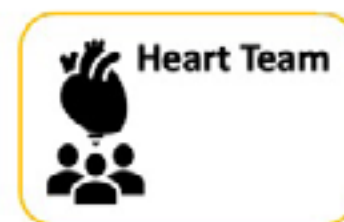






## Developed Actions

### 6. Heart Team connection



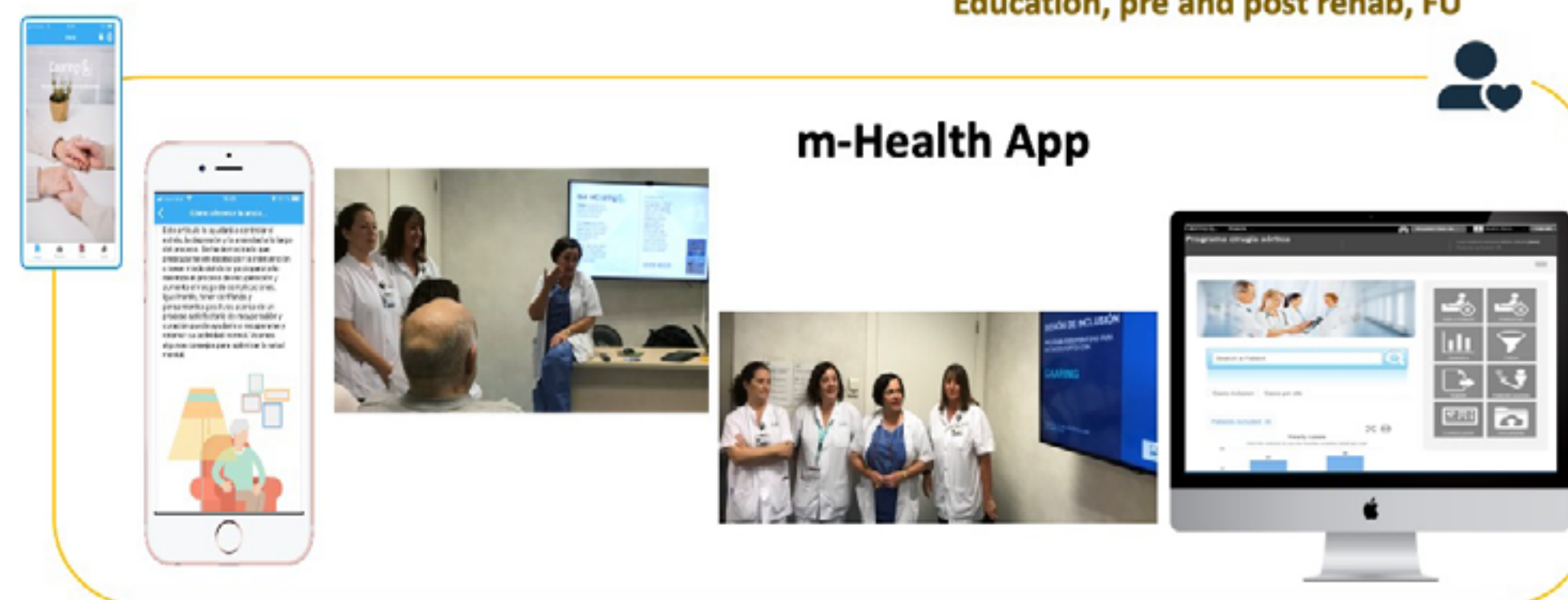
CLINIC





## Developed Actions

### 7. App for patients: Education, pre and post rehab, FU



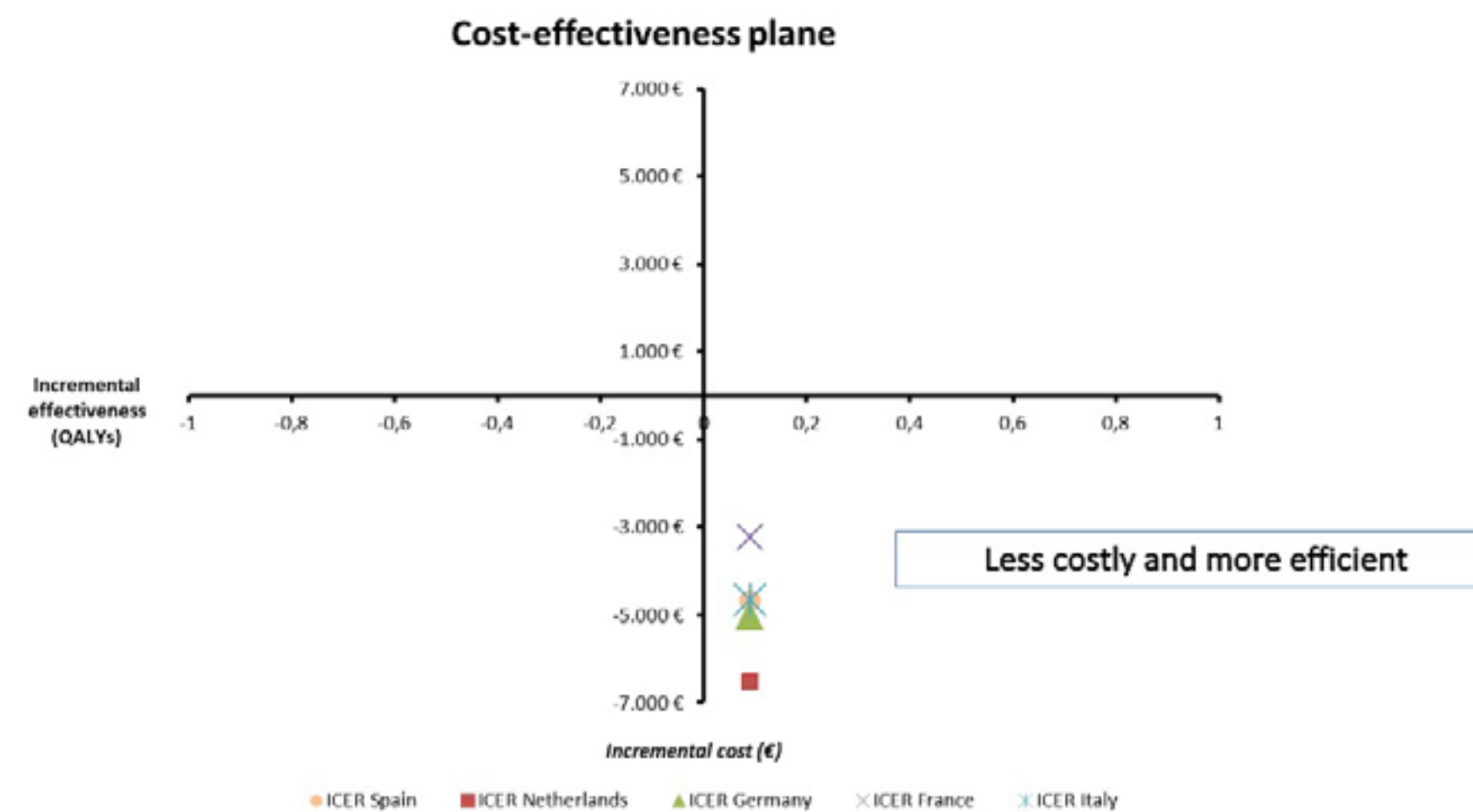
INTEGRATED HEALTH SOLUTIONS

Medtronic

CLINIC



Economical simulations at 5 y



ICER = Incremental Cost Effectiveness Ratio







### Preliminary Results (n=83)

	CONTROL N=83	MITMEVA N= 83	p
Quality-adjusted life year (QALY)	6,7	8,8	0,02
Time 1st consultation-decision (days)	120	30	0,03
Perioperative complications (n)	42	18	0,004
Hospital length of stay (days)	12,8	7,3	0,01
ICU length of stay (days)	15,2	3,3	0,01
Cost per patient (€)	10.166	5.401	0,01
Cost per QALY (€)	1.516	658	0,01

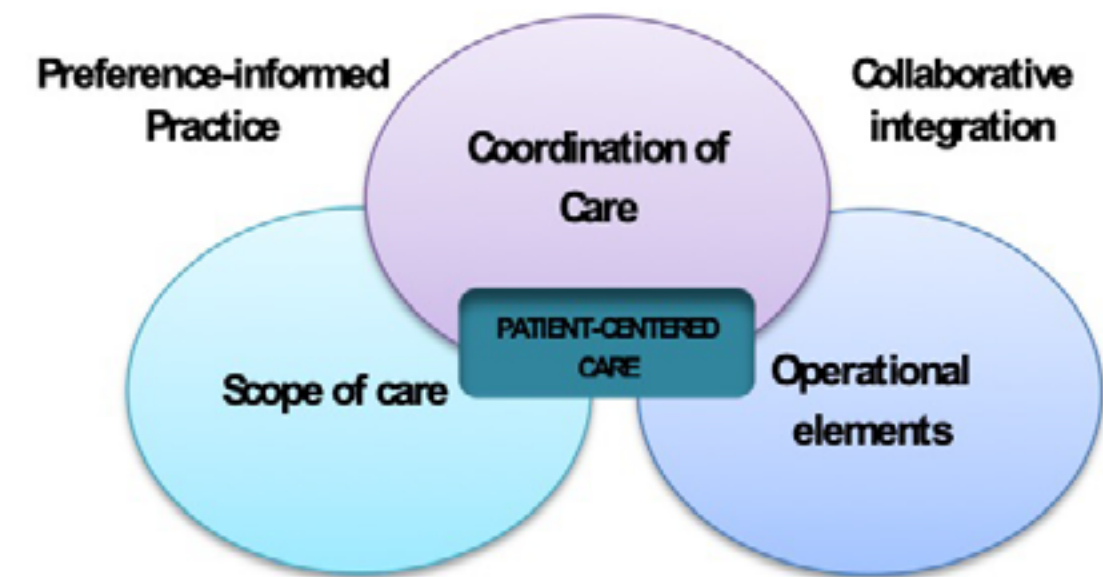
Estimated economical impact: +395K € (savings)





What will we have after ITMMAS?

Transforming AS care from silos to coordination:  
Better care and improved efficiency



CLINIC





# Thank you

Questions?  
[msitges@clinic.cat](mailto:msitges@clinic.cat)



### **Delitti in materia di violazione del diritto d'autore (Art. 25-novies, D.Lgs. n. 231/2001) [articolo aggiunto dalla L. n. 99/2009]**

- Messa a disposizione del pubblico, in un sistema di reti telematiche, mediante connessioni di qualsiasi genere, di un'opera dell'ingegno protetta, o di parte di essa (art. 171, legge n.633/1941 comma 1 lett. a) bis)
- Reati di cui al punto precedente commessi su opere altrui non destinate alla pubblicazione qualora ne risulti offeso l'onore o la reputazione (art. 171, legge n.633/1941 comma 3)
- Abusiva duplicazione, per trarne profitto, di programmi per elaboratore; importazione, distribuzione, vendita o detenzione a scopo commerciale o imprenditoriale o concessione in locazione di programmi contenuti in supporti non contrassegnati dalla SIAE; predisposizione di mezzi per rimuovere o eludere i dispositivi di protezione di programmi per elaboratori (art. 171-bis legge n.633/1941 comma 1)
- Riproduzione, trasferimento su altro supporto, distribuzione, comunicazione, presentazione o dimostrazione in pubblico, del contenuto di una banca dati; estrazione o reimpiego della banca dati; distribuzione, vendita o concessione in locazione di banche di dati (art. 171-bis legge n.633/1941 comma 2)
- Abusiva duplicazione, riproduzione, trasmissione o diffusione in pubblico con qualsiasi procedimento, in tutto o in parte, di opere dell'ingegno destinate al circuito televisivo, cinematografico, della vendita o del noleggio di dischi, nastri o supporti analoghi o ogni altro supporto contenente fonogrammi o videogrammi di opere musicali, cinematografiche o audiovisive assimilate o sequenze di immagini in movimento; opere letterarie, drammatiche, scientifiche o didattiche, musicali o drammatico musicali, multimediali, anche se inserite in opere collettive o composite o banche dati; riproduzione, duplicazione, trasmissione o diffusione abusiva, vendita o commercio, cessione a qualsiasi titolo o importazione abusiva di oltre cinquanta copie o esemplari di opere tutelate dal diritto d'autore e da diritti connessi; immissione in un sistema di reti telematiche, mediante connessioni di qualsiasi genere, di un'opera dell'ingegno protetta dal diritto d'autore, o parte di essa (art. 171-ter legge n.633/1941)
- Mancata comunicazione alla SIAE dei dati di identificazione dei supporti non soggetti al contrassegno o falsa dichiarazione (art. 171-septies legge n.633/1941)
- Fraudolenta produzione, vendita, importazione, promozione, installazione, modifica, utilizzo per uso pubblico e privato di apparati o parti di apparati atti alla decodificazione di trasmissioni audiovisive ad accesso condizionato effettuate via etere, via satellite, via cavo, in forma sia analogica sia digitale (art. 171-octies legge n.633/1941).

**[Torna all'inizio](#)**