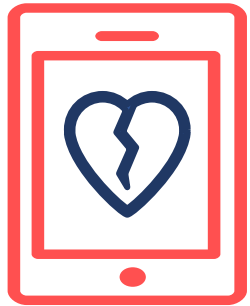


CHALLENGES



YOUR PROJECT, OUR SUPPORT



THE PH TRACKER

Patrícia Marques-Alves, Cátia Ferreira, Rui Baptista, Graça Castro



BACKGROUND **WHY?**

Pulmonary arterial hypertension is a rare, progressive and ultimately fatal disorder that involves the lung vasculature.





BACKGROUND **WHY?**

Pulmonary arterial hypertension

Rare disease 15-50 cases per million

High mortality 65% survival rate at 3-years

Demanding methodology, diagnosis, risk stratification and follow-up

Specific drug-therapy inhaled, continuous subcutaneous and endovenous formulations.

Advanced therapies balloon pulmonary angioplasty, lung transplant



BACKGROUND **WHY?**

Medical centers with a high volume of patients tend to obtain the **best outcomes**, specially when rare diseases are involved.





BACKGROUND
WHY?



Portugal four referral centers (1 Coimbra, 1 Porto, 2 Lisboa)

Center Region

Referral center

Cardiology Department of Coimbra Hospital and University Center

Referring centers

Guarda, Castelo-Branco, Covilhã, Leiria, Viseu, Aveiro, Figueira da Foz



BACKGROUND **WHY?**



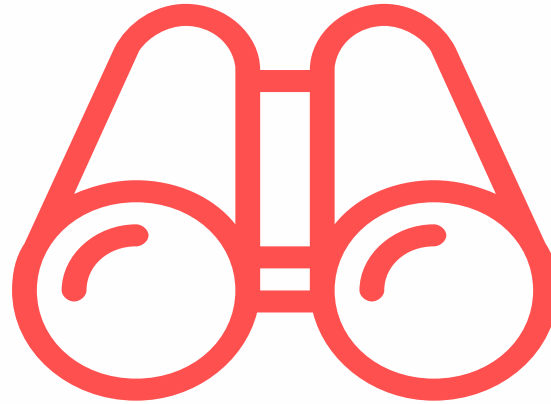
A homogenous and predefined **PAH referral system** that could ease communication between all healthcare providers (HCPs) is lacking.



Management of **PAH-specific drug therapies** can be very challenging to the patients and the HCPs.



OUR AIM



A **digital system** that could improve **communication** between all centers involved with PAH and simplify patients' **access** to HCPs, in a more direct, secure and stress-free way.



THE PH TRACKER

01

Web platform



02

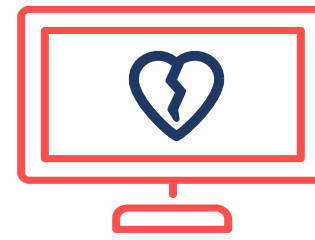
Mobile app





THE PH TRACKER

Web platform



CHALLENGES
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Patient database

PAH | CTEPH | Uncertain diagnosis

Clinical, analytical data

Ancillary exams data (echo, right heart cath, V/Q scan)



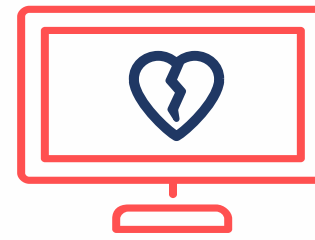
Data insertion and modification

Physicians from referral and referring centers



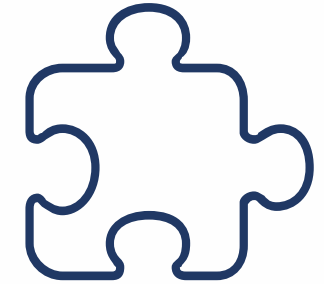
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Web platform



CHALLENGES
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Diagnostic protocols, risk scores, probability scores, diagnosis flowcharts



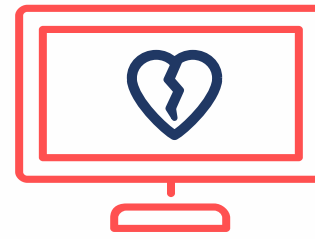
Direct communication between health care providers
Fully encrypted messaging system










THE PH TRACKER

Web platform



CHALLENGES
ACCELERATOR
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-  Simplify communication between all centers.
-  Shorten the waiting-times to PH appointments and certain exams.
-  Boost patients' referral according to each case, prioritizing urgent cases.
-  Promote interaction between all centers along the follow-up of patients, reducing the need for appointments in the referral center and patients' dislocations.
-  Organize a homogenous protocol of diagnosis, treatment and follow-up resources.



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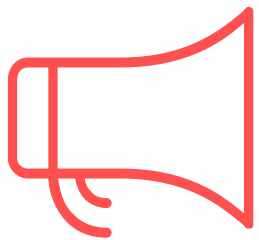
Mobile app



CHALLENGES
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Patient-first mobile application

Incorporation of patient reported symptoms and outcomes
- Status update (symptoms, medication)



Pre-specified triggers

Actionable interventions by health care providers

Patients directed to the primary care practitioner / referring center
physician/nurse / referral PH center / emergency department



THE PH TRACKER

Mobile app



CHALLENGES
ACCELERATOR
YOUR PROJECT, OUR SUPPORT

Patient-first mobile application

Incorporation of patient reported symptoms and outcomes
- Status update (symptoms, medication)



Therapy management

Direct communication with health care providers (solve any doubts concerning the subcutaneous/endovenous systems)

Dose titration (ex: adjusting prostanoid or diuretics dose)



THE PH TRACKER

Development plan

CHALLENGES
ACCELERATOR
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Design

Prototyping and Implementation

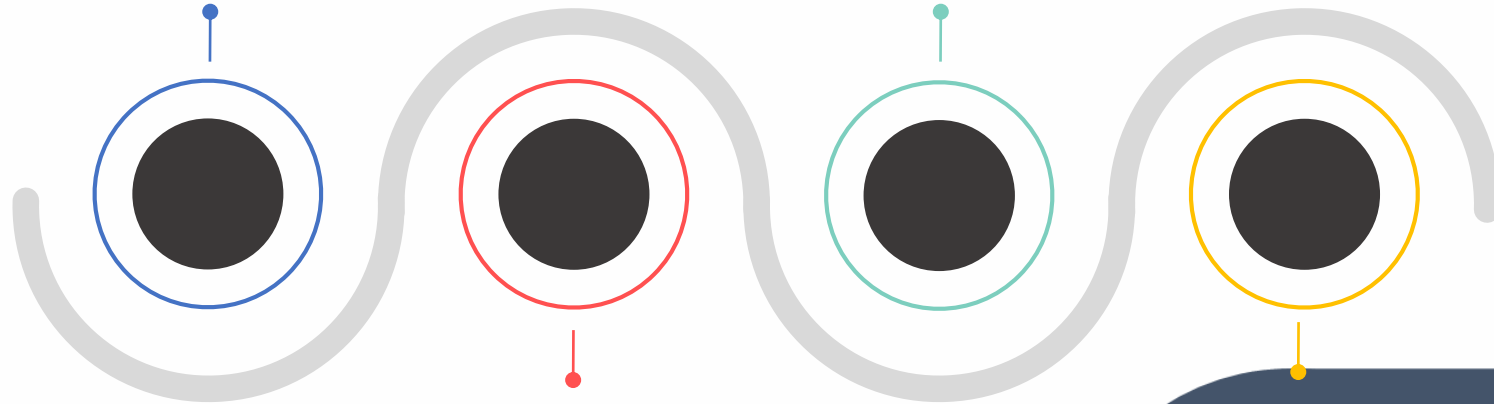
01

Web platform



02

Mobile app



Compliance and ethical validation

Testing and iteration

Deployment

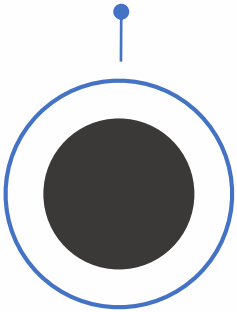


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Development plan



Design



- Database parameters
- Provider's roles (referral center doctor/nurse; referring center doctor/nurse) for data input and validation
- Diagnostic protocols and risk assessment scores
- Actionable triggers for referral and communication pathways between providers

01

Web platform





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Development plan

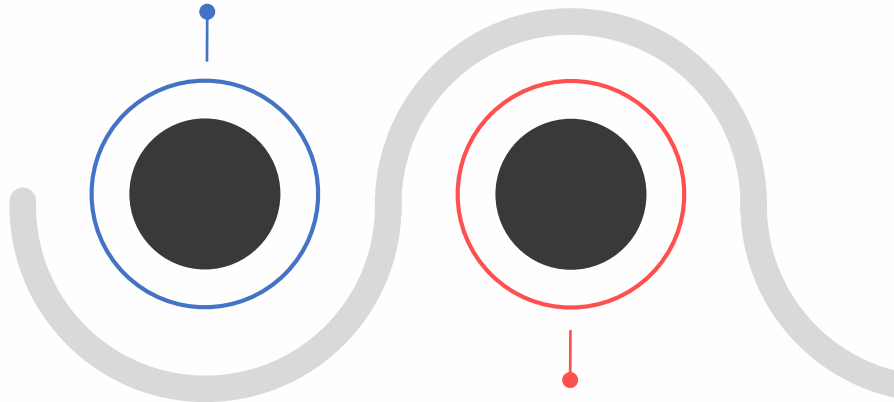


01

Web platform



Design



Compliance and ethical validation

Compliance with the new General Regulation of Data Protection



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Development plan

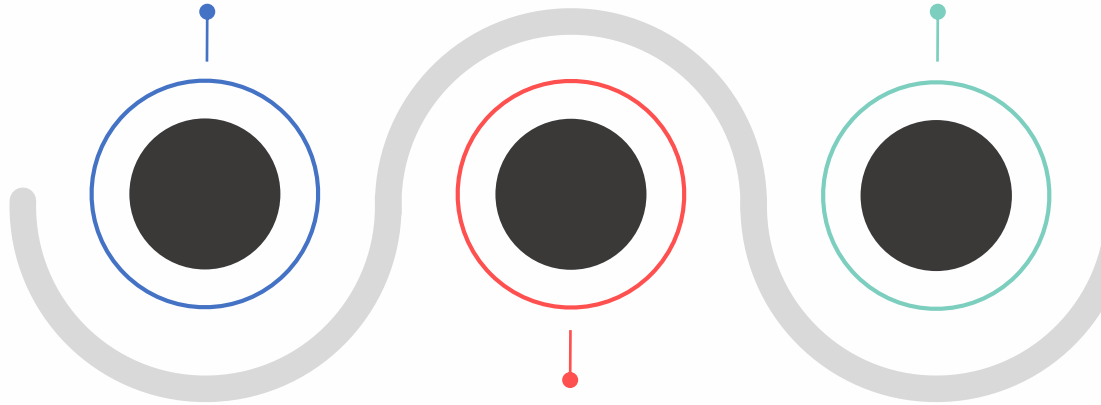


Design

Prototyping and Implementation

01

Web platform



Compliance and ethical validation

Development of the back-end (database) and web front-end (website for the platform) in order to create a minimum viable product (MVP) implementing the minimum specification



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Development plan

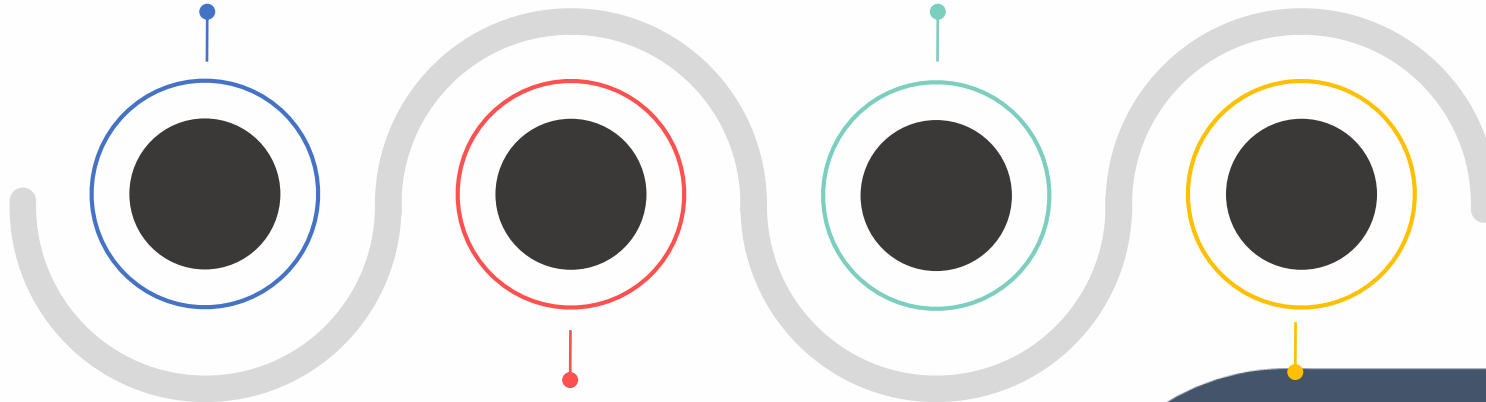


Design

Prototyping and Implementation

01

Web platform



Compliance and ethical validation

Testing and iteration

Testing the MVP with a small cohort of patients and short iterative cycles for refining, debugging and feature implementation.



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Development plan

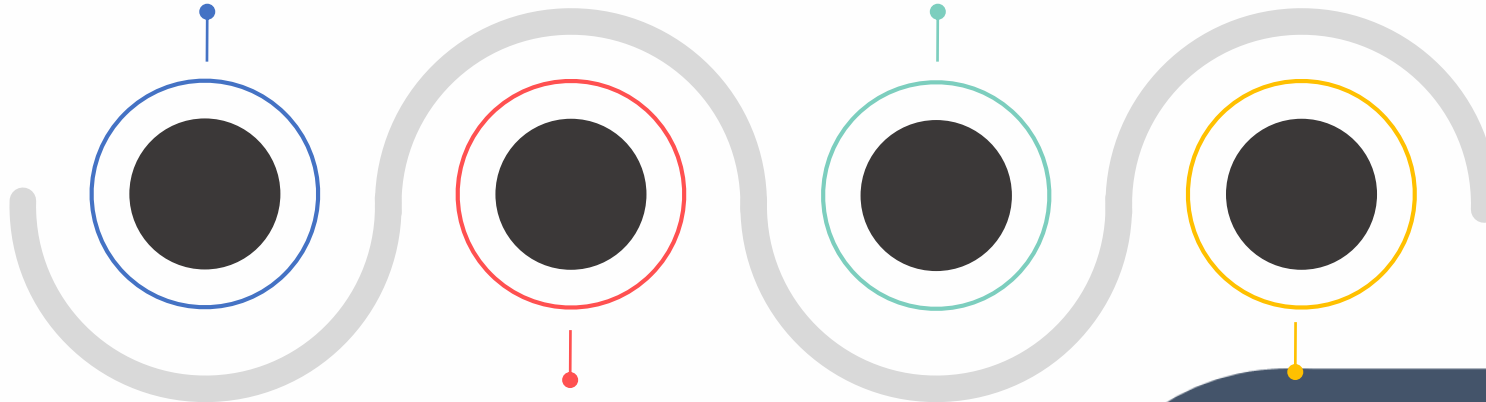
CHALLENGES
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Design

Prototyping and Implementation

01

Web platform



Compliance and ethical validation

Testing and iteration

Deployment

Slow rollout of the platform to other centers with a progressively larger number of patients and centers.



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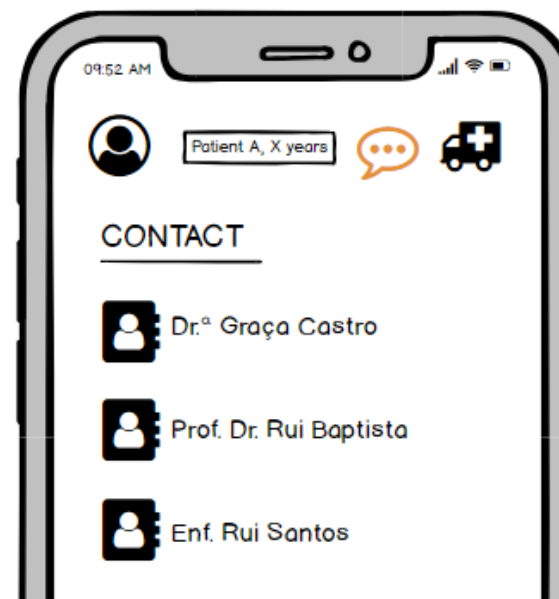
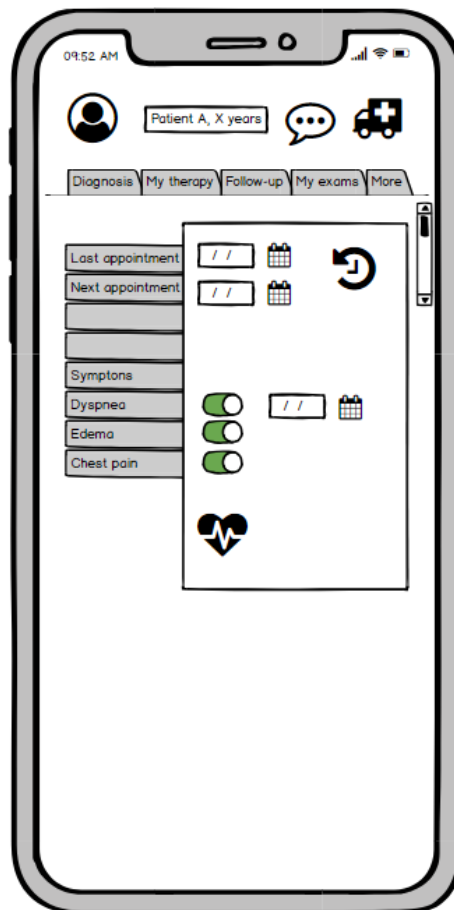
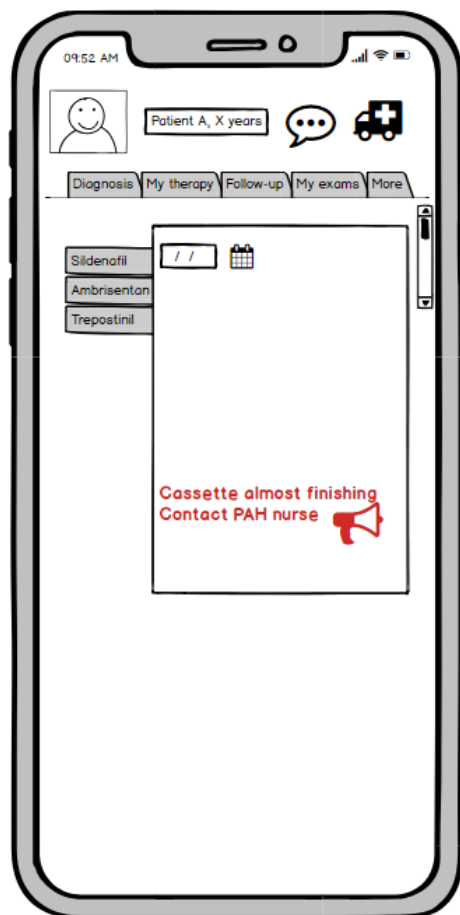
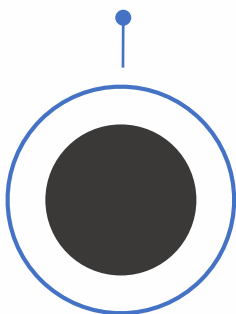
Development plan

CHALLENGES
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02 Mobile app



Design





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Development plan

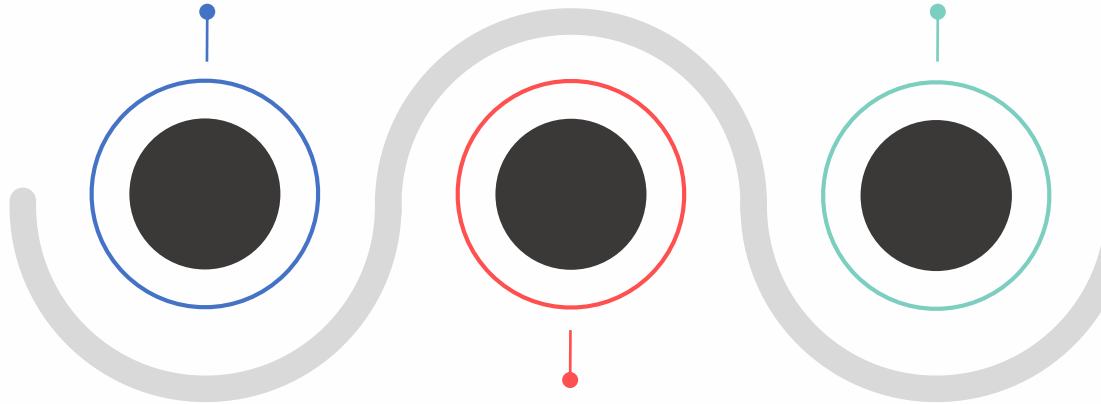


02 Mobile app



Design

Prototyping and Implementation



Compliance and ethical validation

Android and iOS compatible mobile application in order to create a MVP.



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Development plan

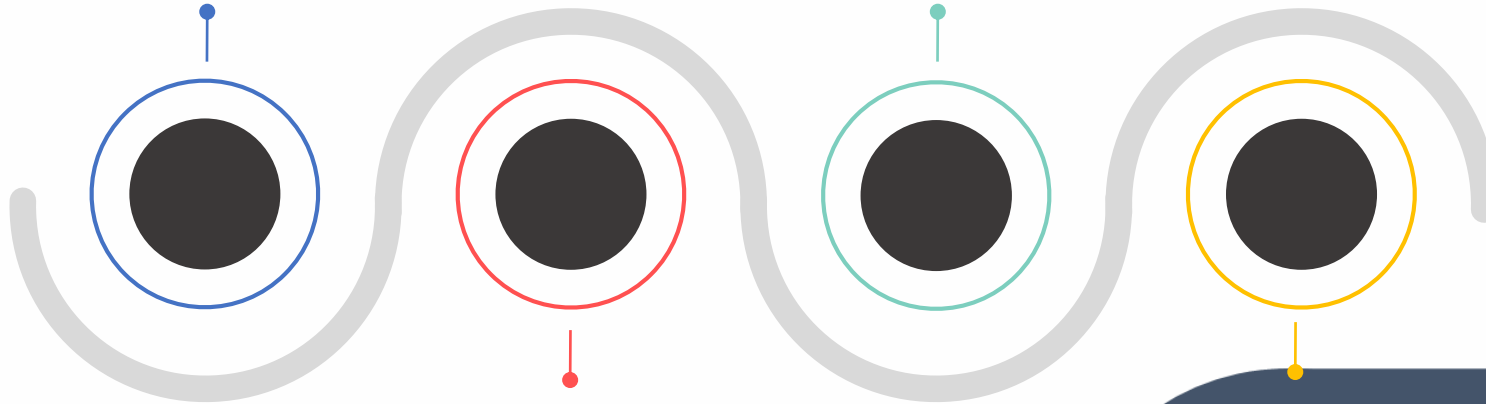


02 Mobile app



Design

Prototyping and Implementation



Compliance and ethical validation

Testing and iteration

Deployment

Slow rollout of the platform to other centers with a progressively larger number of patients and centers.



THE PH TRACKER

Innovation

01

Web platform



More than just a single database

Efficient communication between all centres

Unifying protocols

Promoting good clinical practices



THE PH TRACKER

Innovation

02

Mobile app



Patient-directed

Close contact to nurse/physician

Early detection of complications

Therapy guidance



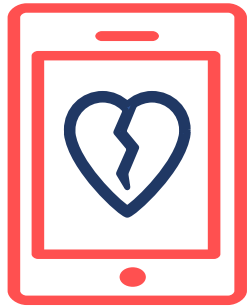
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Budget



1. Software development + 2 year support after initial platform/app deployment
(outsourced to external company): **10.000€**
2. Dedicated PC workstation at referral center: **1.000€**
3. Online server running costs (estimate from Amazon Web Services) for 2 years: **360 €**
4. Overheads (10%): **1136€**

TOTAL: 12.496 €



THE PH TRACKER

Patrícia Marques-Alves, Cátia Ferreira, Rui Baptista, Graça Castro

OBRIGADA!