

CORTEX-eCARE: a High-Value Care Approach for Children with Congenital Heart Disease

Hospital Sant Joan de Déu



AICCELERATE

smart hospital care pathway engine

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n.101016902. This document reflects the author's view and the Commission is not responsible for any use that may be made of the information it contains.



CONGENITAL HEART DISEASES (CHD)

UNMET CLINICAL NEED

HIGH HEALTH AND SOCIETAL IMPACT

**MOST COMMON
BIRTH DEFFECT
(1%)**

50,000 EU newborns
each year



**LEADING CAUSE OF
MORBIDITY &
MORTALITY**

1st year of life



**9 OUT OF 10 REACH
ADULTHOOD**

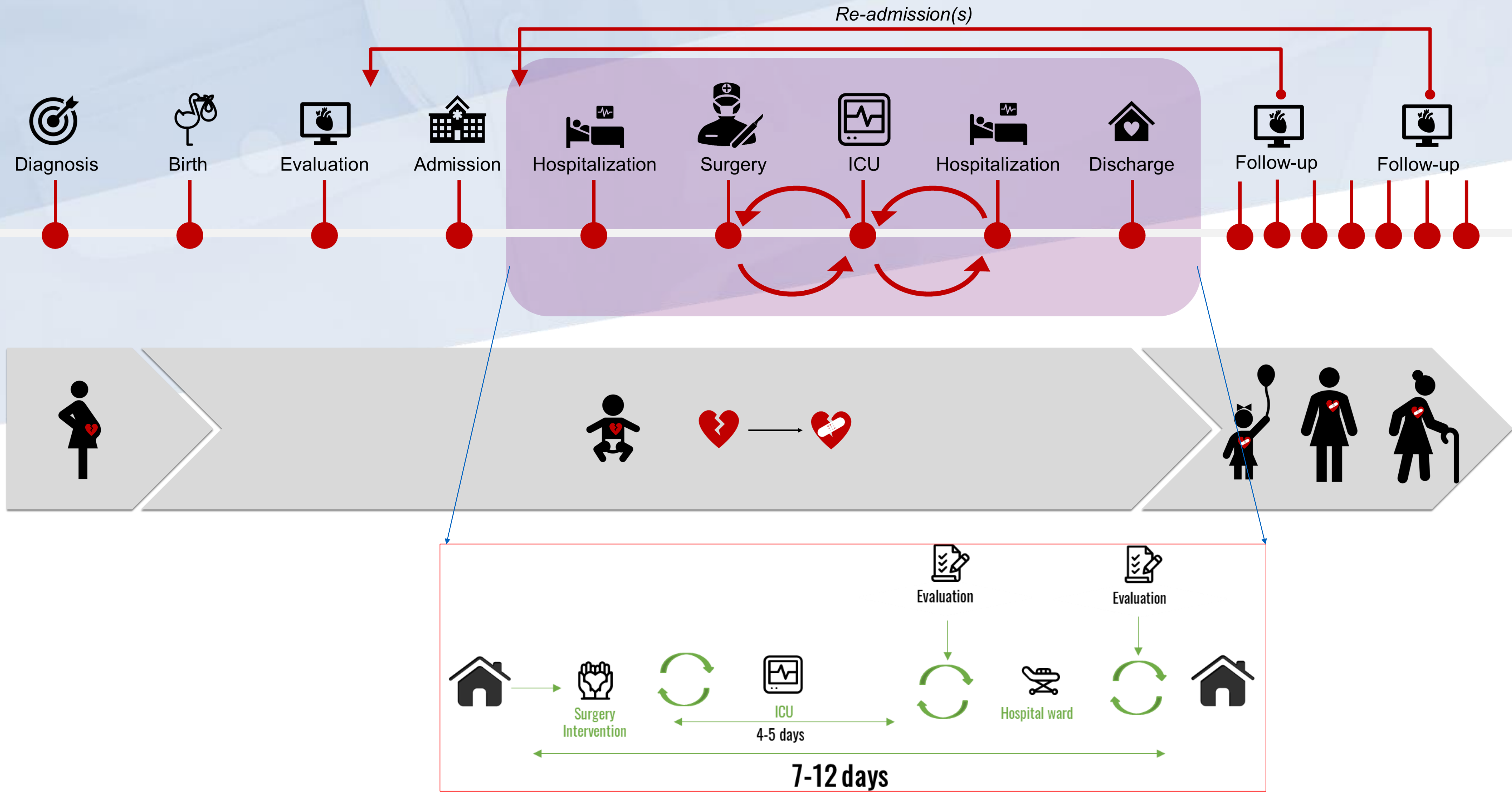
Over
1 M adults in EU



**Patient & Family-Centered High Value Care (HVC) models are
needed to ensure QoL for CHD citizens**



CURRENT PATIENT JOURNEY



HVC MODEL - eCARE "traffic-light"

Towards a new person-centered care approach for CHD patients aiming to

- i. identify new patient/family-centered outcome metrics,
- ii. anticipate and prevent critical events,
- iii. improve patient & family experience and QoL,
- iv. improve healthcare providers' experience and
- v. reduce HC system costs.

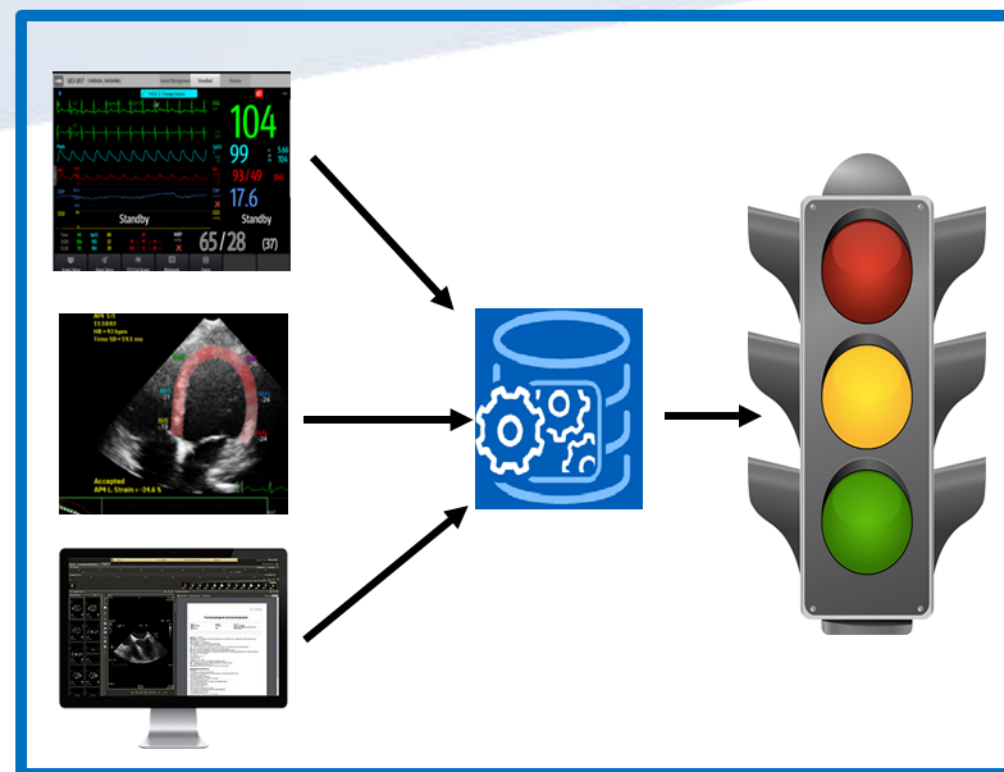


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HOW

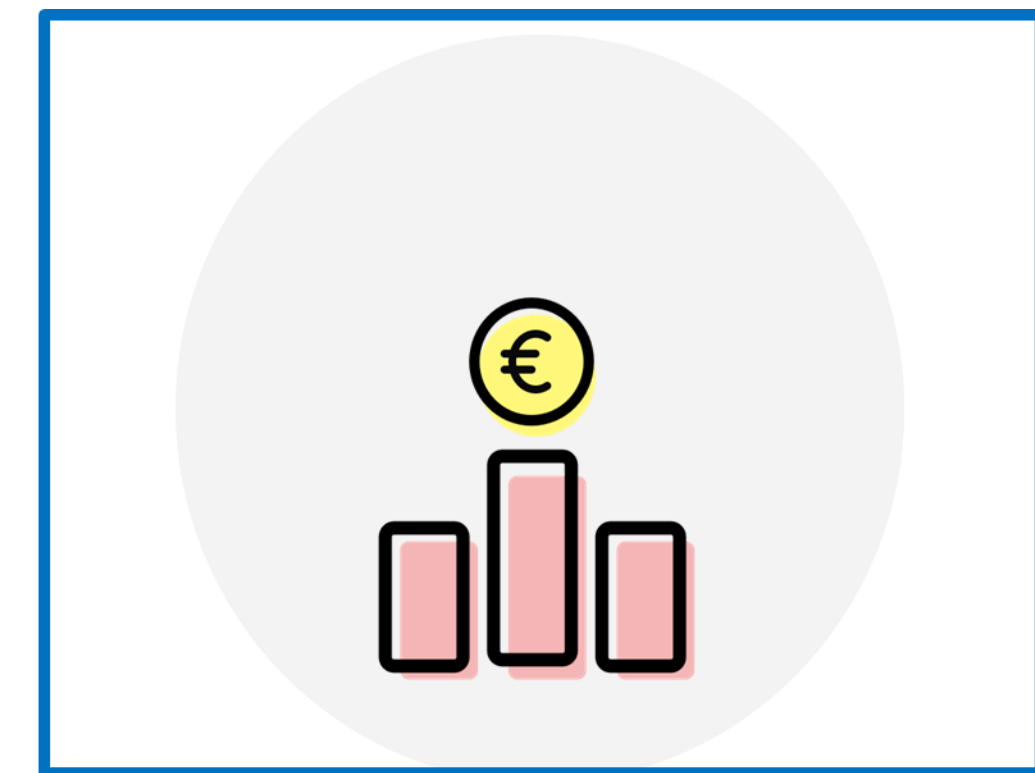


Data-supported patient risk stratification:

CORTEX "traffic light" algorithm



**Implementation
PREMs/PROMs and
family reported
outcomes**



Shift to value-based reimbursement

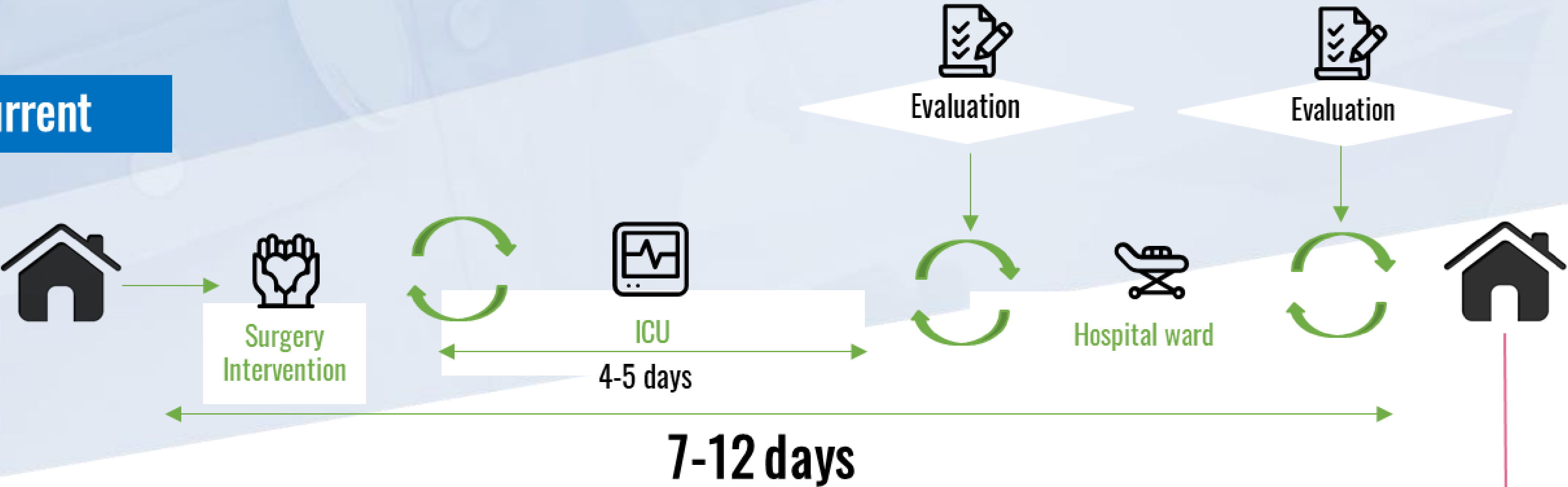


CORTEX eCARE

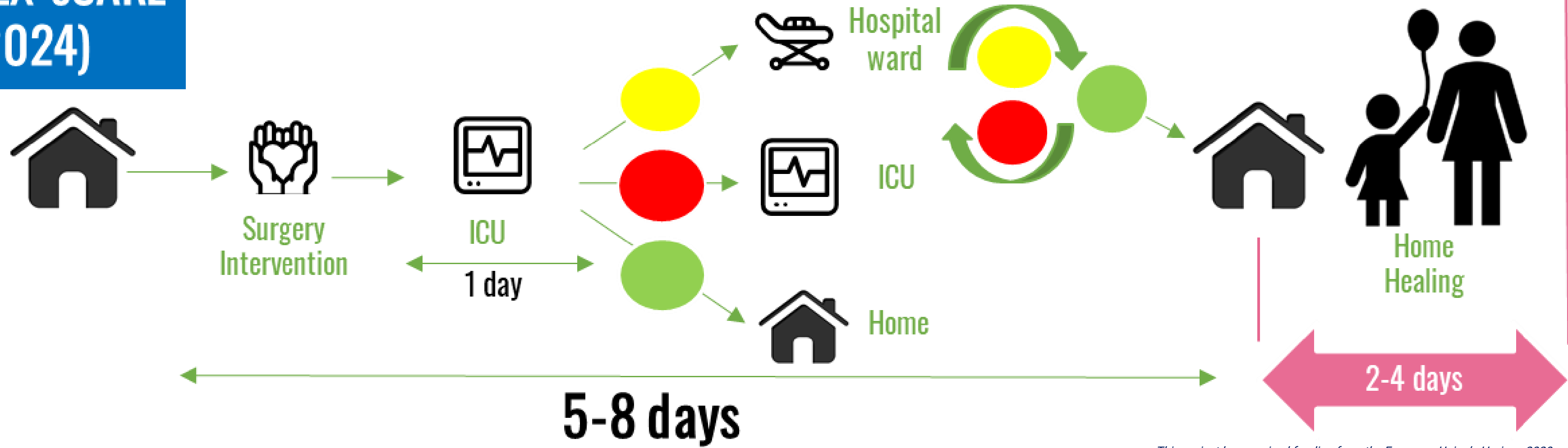
THE AIM

AIM

Current



CORTEX-eCARE (2024)



THE TEAM

MULTIDISCIPLINARY IMPLEMENTATION TEAM



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“TRAFFIC LIGHT” ALGORITHM

SOLUTION

HOSPITAL DATA

CORTEX RULE-BASED ALGORITHM

ACTUAL PRELIMINARY RESULTS

SJD
Sant Joan de Déu
Barcelona · Hospital

INTEGRATED

REAL-TIME PATIENT DATA

Heart rate, SO2, Resp. rate,
ECG, Blood pressure,
...



MEDICAL IMAGING

Echocardio, AngioTC,
Chest X Ray
...



EMR

Weight, Age, Diuresis, Fluid
balance, CHD diagnosis,
...



7 variables CORTEX traffic-light
ruled-based algorithm



Unstable: ICU.
At risk: Monitor in hospital rooms.
Stable: Consider sending home



NOT INTEGRATED

5% reduction in avg. ICU Length of Stay (LOS)
4.6 → 4.4 days

22% reduction in avg. total hospital LOS
12 → 9.3 days

12% reduction in hospital operative costs
11,700 → 10,300 €/patient
100 patients pilot → 138 k € savings

3.7 % of readmissions reduced
5 % of complications reduced



“TRAFFIC LIGHT” ALGORITHM v 2.0

SOLUTION

HOSPITAL DATA

CORTEX ALGORITHM

EXPECTED RESULTS

INTEGRATED

REAL-TIME PATIENT DATA

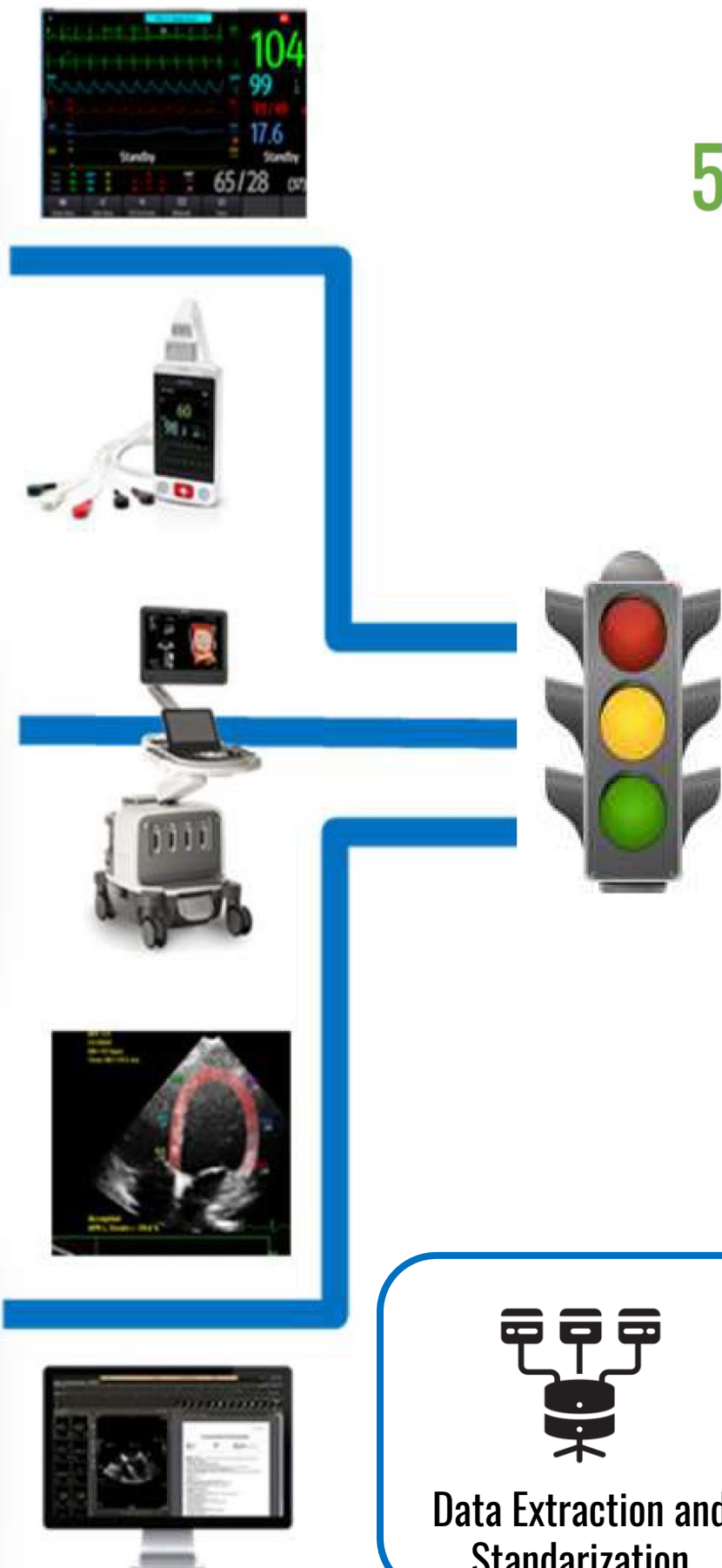
Heart rate, SO2, Resp. rate,
ECG, Blood pressure,
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MEDICAL IMAGING

Echocardio, AngioTC,
Chest X Ray
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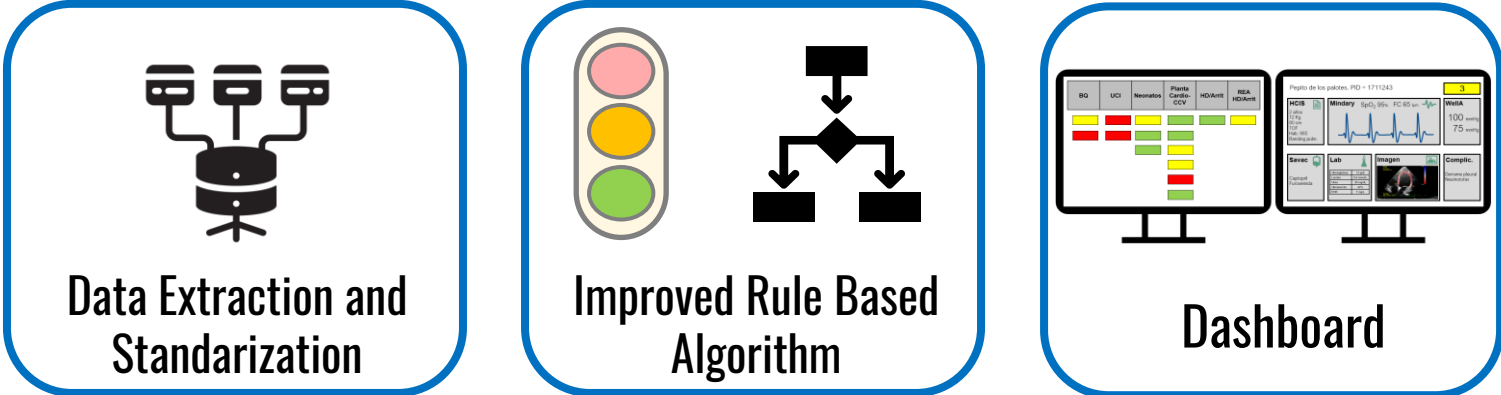
EMR

Weight, Age, Diuresis, Fluid
balance, CHD diagnosis,
...



50 variables CORTEX traffic-light ruled-based algorithm

Unstable: ICU.
At risk: Monitor in hospital rooms.
Stable: Consider sending home



14% reduction in avg. ICU Length of Stay (LOS)
30% reduction in avg. total hospital LOS
21% reduction in hospital operative costs
5 % of readmissions reduced
7.5 % of complications reduced



contains.

PATIENT ENGAGEMENT

TOWARDS CAPABILITY, CONFORT AND CALM



Begonya Nafria (Patient Engagement) Mireia Salvador (Psychologist)

Unmet medical needs

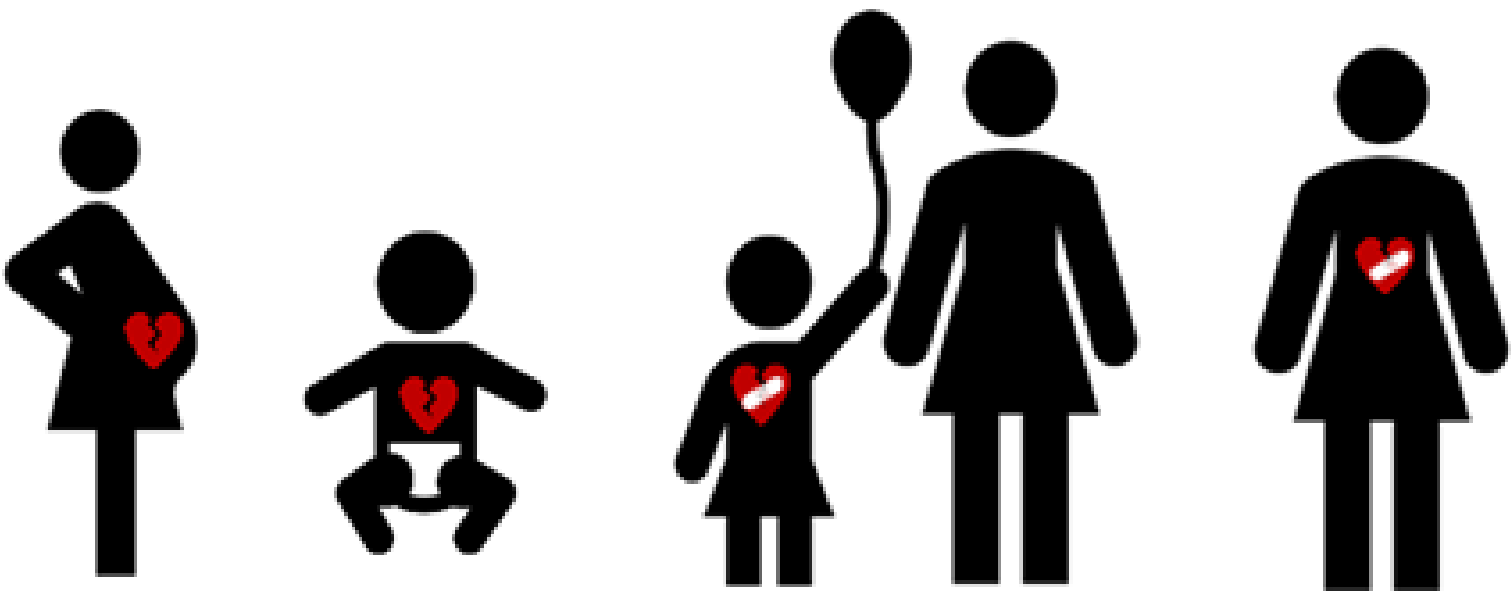
Co-creation of questionnaires

Data Health Literacy

Ethical decisions



CHD Advisory Board



Cross-Cutting Involvement
throughout Patient Journey



Outcomes

Dissemination and communication

Testing the PREMs & PROMS tools

Educational materials



PATIENTS AND FAMILIES

Engagement - Involvement



efpia
Patient Think Tank

Health School

SJD
Sant Joan de Déu
Barcelona - Hospital

KIDS
BARCELONA



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PARENTS

KIDS
BARCELONA

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Sant Joan de Déu
Barcelona - Hospital

FUNDACIÓ PRIVADA
DANIEL BRAVO ANDREU

Jornadas Fundació Daniel Bravo en Salut Digital
Pediàtrica: La experiència del Hospital Sant Joan de Déu en cardiologia infantil

eYPAGnet
European Young Patients' Advisory Group Network

EnprEMA
European Network of Paediatric Research of the European Medicines Agency



Muchas gracias !

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