

The NWE-CHANCE project to date

The organisational blueprint and scientific protocol

Valerie Storms PhD, Mobile Health Unit, Hasselt University, Belgium

Martijn Scherrenberg MD, Heart Centre Hasselt, Jessa Hospital Hasselt, Belgium

Objectives

→ Evaluate the **feasibility** of a home hospitalisation strategy from the participants' perspective (patient@home, hospital staff and, informal caregiver)

- 1) Acceptance, satisfaction, usability
- 2) Safety
- 3) Platform use

→ Map the induced (and avoided) **costs** and **revenues**

→ Make a blueprint of the **organizational and operational** plan based on experiences of this pilot study

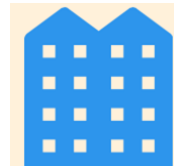
Timeline



T0



T1



T1->2



T2



T3

Screening
 Information to patient
 Informed consent
 Inclusion

First nurse visit at home
 Installation technology
 Patient education
 First measurements
 IV therapy

Daily visit by nurse
 - Follow clinical status
 - IV adaptations if necessary
 - Reporting falls, infection, delirium
 Patient measurements
 - Sensium (HR, RR,..)
 - HC@Home (BP,weight)

Last measurement
 Questionnaires
 Taking back the devices

End follow-up

0

Current status



2005 CHANCE@HOME

- IV treatment @ home
- Very successful
- Part of standard care

Experience in home IV

- In early discharge
- Not part of standard care

No experience

Inclusion



Acute decompensated HF

Recruitment from:

- GP
- Emergency and cardiac ward

Stablised HF

- Recruited from cardiac ward
- Early discharge to H@H

50

25

25

Inclusion criteria

Inclusion criteria	Exclusion criteria
Patients with known and well assessed chronic heart failure.	Indication for IC/CCU admission;
Age>18 years	Contraindication to Chance@Home;
(Indication for) hospital admission for acute decompensated heart failure	Mental impairment leading to inability to cooperate;
Living within a wide proximity of the hospital (differs per centre)	Severe comorbidity requiring simultaneous hospital care;
Living independently and/or sufficiently supported at home and/or living in nursing homes (or other supported living modalities).	History of severe liver / kidney disease;
	Unstable blood pressure (systolic blood pressure <90mmHg);
	Unstable heart rhythm (in case of sinus rhythm, heart rate >110/min, in case of atrial fibrillation >150/min);
	Need for intravenous inotropic medication;
	Unstable respiratory condition (sO2 <90% without additional O2)

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First nurse visit at home
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Patient education
Smartphone usage survey

1



T1->2

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T2

Last measurement
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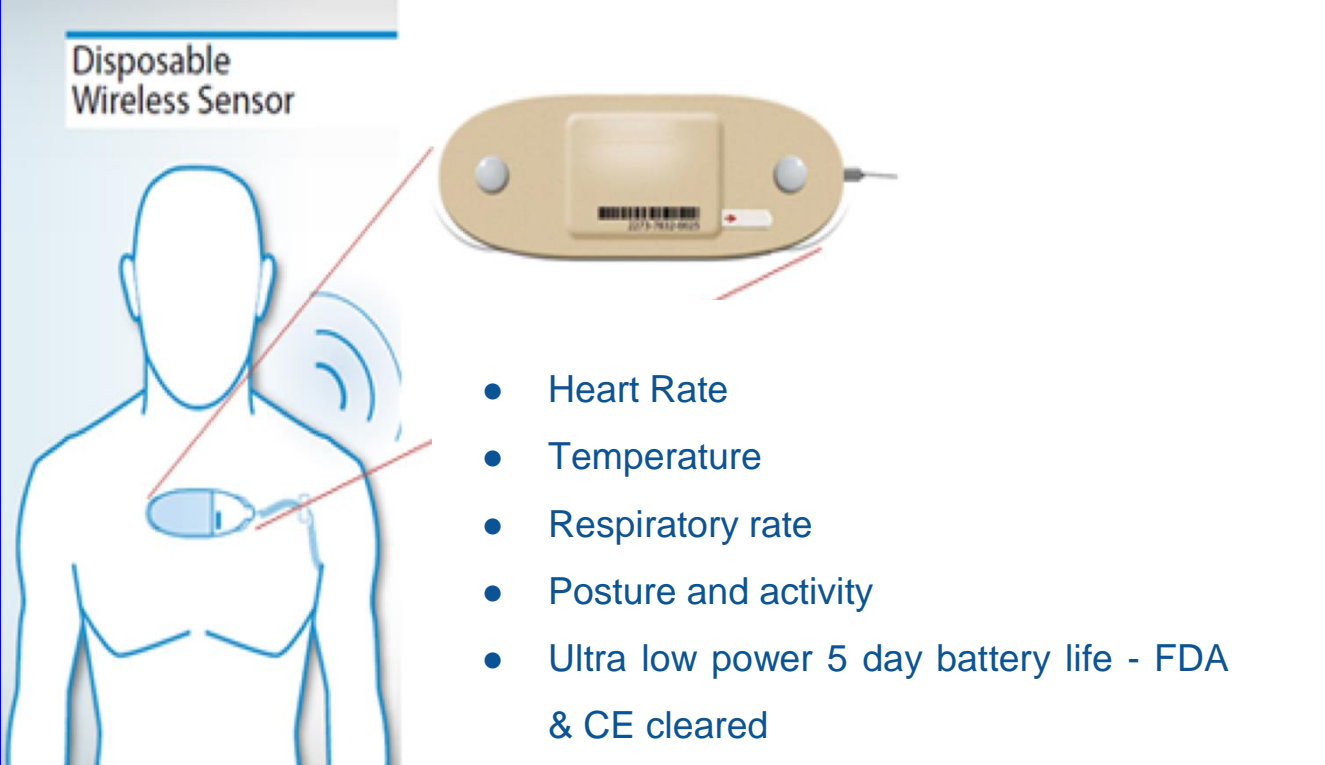


T3

End follow-up

NWE Chance strategy

Disposable Wireless Sensor



The diagram shows a human silhouette with a sensor on the chest. Red lines connect the sensor on the chest to a physical image of the sensor device. The device is a small, beige, oval-shaped unit with two circular sensors on the left and right sides, a central display area, and a small red cross symbol on the right side. A thin cable is attached to the right side of the device.

- Heart Rate
- Temperature
- Respiratory rate
- Posture and activity
- Ultra low power 5 day battery life - FDA & CE cleared

NWE Chance strategy

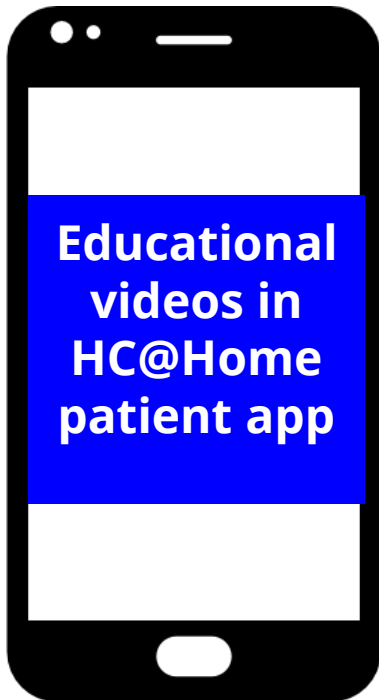


NWE Chance strategy



Education

**Education
standardisation by an
education protocol**



Phone Usage Survey

Instructions: Please answer the following questions about your smartphone usage habits.

1. Do you regularly use a smartphone (e.g., iPhone or Samsung Galaxy or Google Nexus or similar)?
- Yes
 - No

What brand of smartphone do you use?

2. How long have you owned your smartphone?
- _____ years
_____ Not applicable

3. For which of the following activities do you ever use your mobile phone for? (Check all that apply)
- | | |
|---|---|
| <input type="checkbox"/> Phone calls | <input type="checkbox"/> Exercising |
| <input type="checkbox"/> Text messaging | <input type="checkbox"/> Social networking (e.g., Facebook) |
| <input type="checkbox"/> Shopping | <input type="checkbox"/> Navigating with maps (e.g., finding a store) |
| <input type="checkbox"/> Banking | <input type="checkbox"/> Entertainment (e.g., movies, games) |
| <input type="checkbox"/> Emailing | <input type="checkbox"/> Other _____ |

4. Where do you normally keep your mobile phone when you are at home? (Check all that apply)
- | | |
|--|---|
| <input type="checkbox"/> Trousers/pants pocket | <input type="checkbox"/> Table at home |
| <input type="checkbox"/> Jacket/shirt pocket | <input type="checkbox"/> Near your bed (e.g., nightstand) |
| <input type="checkbox"/> Handbag | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Shoulder bag | |

Timeline



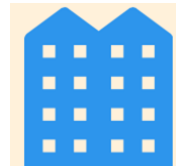
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1-13

Intervention



Acute decompensated HF

Recruitment from:

- GP
- Emergency and cardiac ward



Medical decision based on:

- NWE-Chance platform on top of CHANCE@Home
- Venous blood sample
- Clinical examination

Medical decision based on:

- NWE-Chance platform
- Venous blood sample
- Clinical examination

No IV treatment

Limited medical decisions:

- NWE-Chance platform
- Venous blood sample
- Clinical examination

Technical feasibility:

- NWE Chance platform

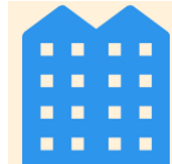
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5-14

Outcome measures

- **Primary objective – feasibility** of a home hospitalisation strategy for HF patients using the NWE-Chance platform
 - Acceptance, satisfaction and usability => **Questionnaires**
 - Safety: **mapping (S)AE**
 - **Platform use**
- **Secondary objective**
 - Induced **Costs**

Questionnaires

Questionnaire	Target	Timing
Smartphone usage questionnaire	Patients	Start
SUTAQ - Service User Technology Acceptance Questionnaire	Patients	End
Satisfaction Home-hospitalisation program	Patients	End
Satisfaction Home-hospitalisation program	Cardiologists	End
Satisfaction Home-hospitalisation program	Nurses	End
SUS questionnaire for patient application	Patients	End
SUS questionnaire for caregiver dashboard	Nurses	End

Safety

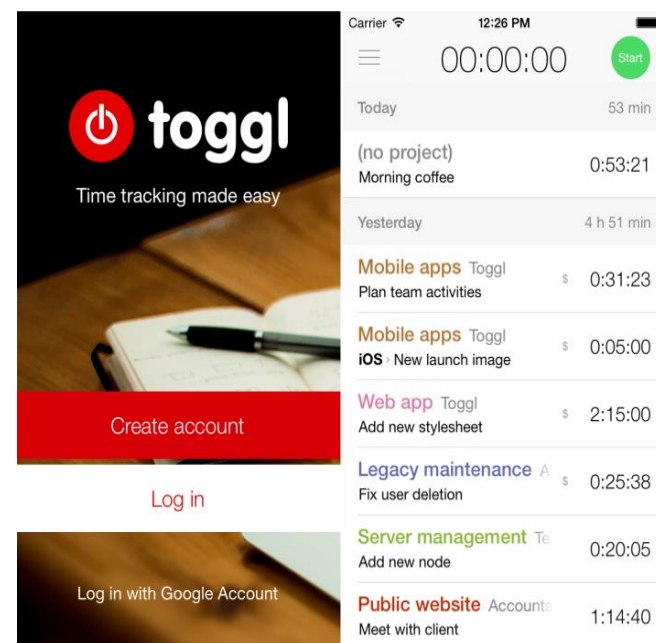
- **Major adverse effects =>** 30 days after inclusion
 - All-cause mortality - Major adverse cardiovascular events (MACE) – Rehospitalizations
- **Moderate adverse effects =>** during H@H
 - Occurrence of delirium
 - Occurrence of infection
 - Occurrence of falling trauma
- **Small adverse effects =>** during H@H
 - Medical problems related to the medical devices - Rash, Pruritus,.....

Platform use

- **Use of the NWE-Chance** platform by patient and care professionals tracked by HC@Home
 - **Compliance** of patients to daily measurements
 - Frequency of consulting and type of **educational information**
 - Time spent on the clinical dashboard
- **Amount, type of technical problems & interventions**
 - Recorded by calls to the installed helpdesk
 - Recorded by nurse
 - Times given reinforcements & additional information

Induced costs

- **Estimated technology costs (devices & software)**
- **Staff costs**
 - Time spent by staff on transport, logistics, at the patients home, planning □ **TOGGLE APP**
- **Transport costs**
 - Cost of car, fuel and maintenance



Data recording

We will use an **Electronic Data Capture platform** and eCRFs
⇒ **Castor Software**
⇒ All data need to be integrated and coded before analysis

Hospital EMR

- Demographics
- Medical Interventions
- Therapy & medication
- Re-hospitalisations

NWE-Chance platform

- Patient Measurements
- Compliance
- Time registration

TOGGLE App

- Time registration

(e)CRF

- Questionnaires
- Adverse Events

Ethical approval GDPR compliance

! Advice from Data Protection Officer (DPO) of the hospital

- **Companies & Hospitals**
 - **Data agreement:** Hospitals remain owner of patient data
 - **Service level agreement**
 - Data **pseudonymization & transparency** in data collection, storage and ownership
- **Companies & Patients**
 - Loan agreement for smartphone and medical equipment
- **Hospital**
 - IC for patients and IC for nurses using the TOGGLE app
 - Insurance

Education session for health professionals

- **Home hospitalisation care path**
 - operational & organisational aspects
- **Technology – integrated eHealth platform & devices**
- **Study guidelines**
 - use of CASTOR eCRFs, digital questionnaires for the patients, follow-up on study progression

Operational organisation plan

- To facilitate the **upscaling & replicating** of the NWE-Chance home hospitalisation strategy
- To share **good practices and guidelines for implementation**
- To assess if hospitals are ready for home hospitalisation by defining **'assessment criteria'**:
 - Staff occupation and training
 - SOPs
 - Planning of patients
 - 24/7 service
 - Transportation
 - ICT infrastructure
 - Medical equipment
 - eCRF
 - GPs informed

END

ANY QUESTIONS?



Patient at home



Visiting nurse



Isala
MUMC+
Jessa



Cardiologist