

# Nursing PREDOCS consultation prevents postoperative delirium, depression, pressure ulcers and infections

Roelof Ettema RN PhD  
 Yvonne Jordens RN MSc  
 Annette van Hell RN MSc  
 Jacomijn van der Werf RN MSc  
 Marieke Schuurmans RN PhD professor in Nursing

**RESEARCH CENTRE FOR**  
**INNOVATIONS IN HEALTH CARE**



# Facts & Figures



- Over 70% of all cardiac surgery procedures in the Netherlands are done in patients of 65 years and older
- Older patients do have a higher risk on functional and/or cognitive decline due to occurrence of adverse events during the hospital admission like:

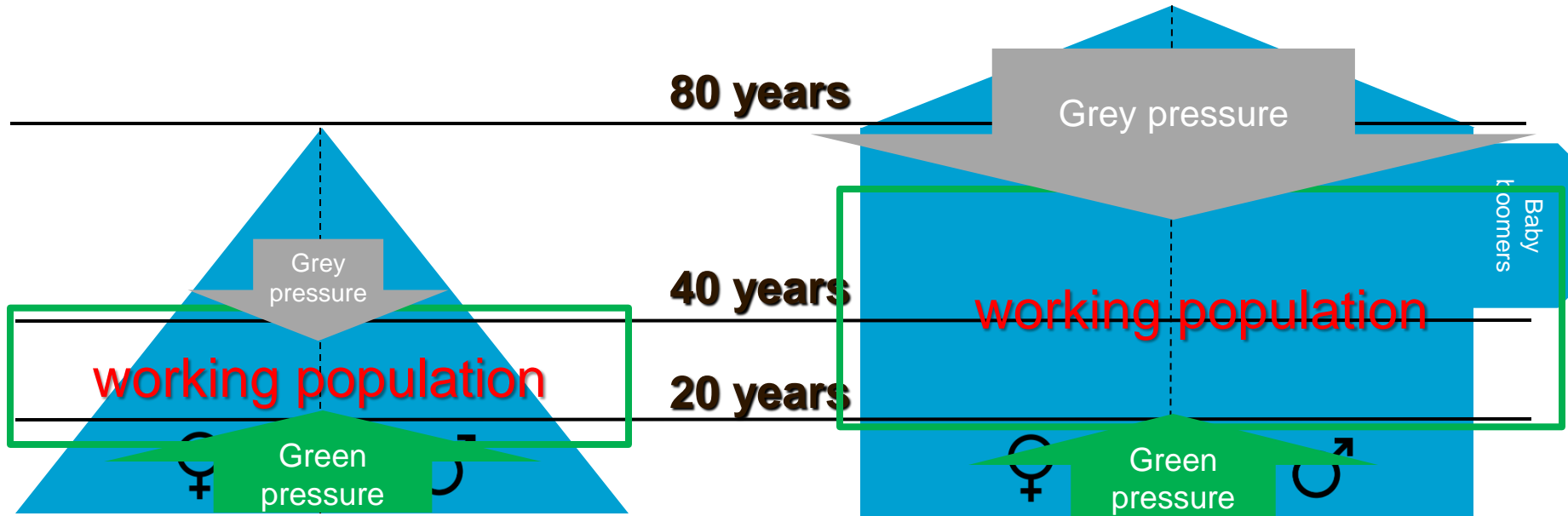
**Delirium** 14.7% - 54.9% (Arenson et al, 2013; Smulter et al, 2013)

**Depression** 10.0% - 37.7% (Horne et al, 2013; Doering et al, 2013)

**Pressure Ulcer** 14.0% - 18% (Brindle et al, 2012; Gomez et al, 2009)

**Infection** 8.3% - 54.5% (Rahmanian et al, 2013; Segers et al, 2008)

*The part of older people is increasing in our societies*



## Population Structure *100 years ago*

### Due to

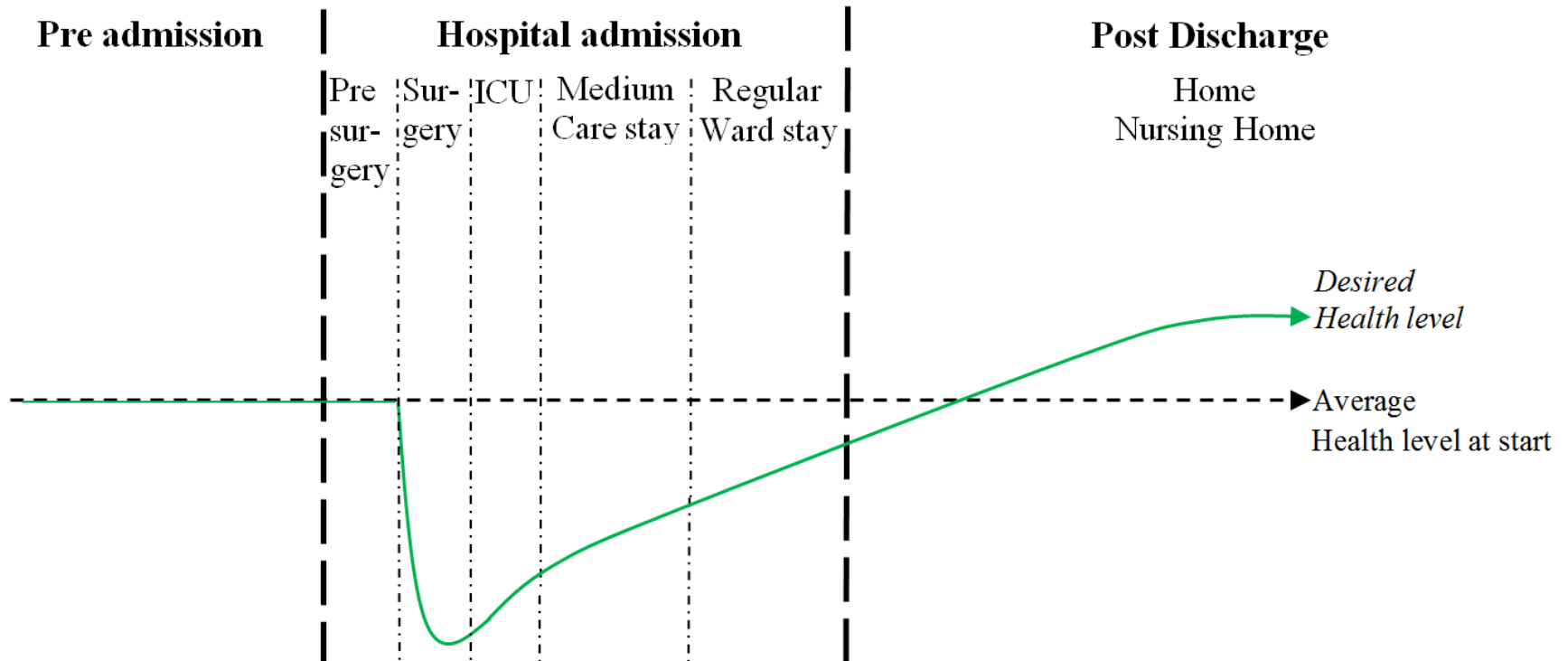
- Poor hygiene
- High infection rate
- No clean drinking water
- Wars and battles
- Poor housing
- Food shortages

## Population Structure *Nowadays*

### Due to

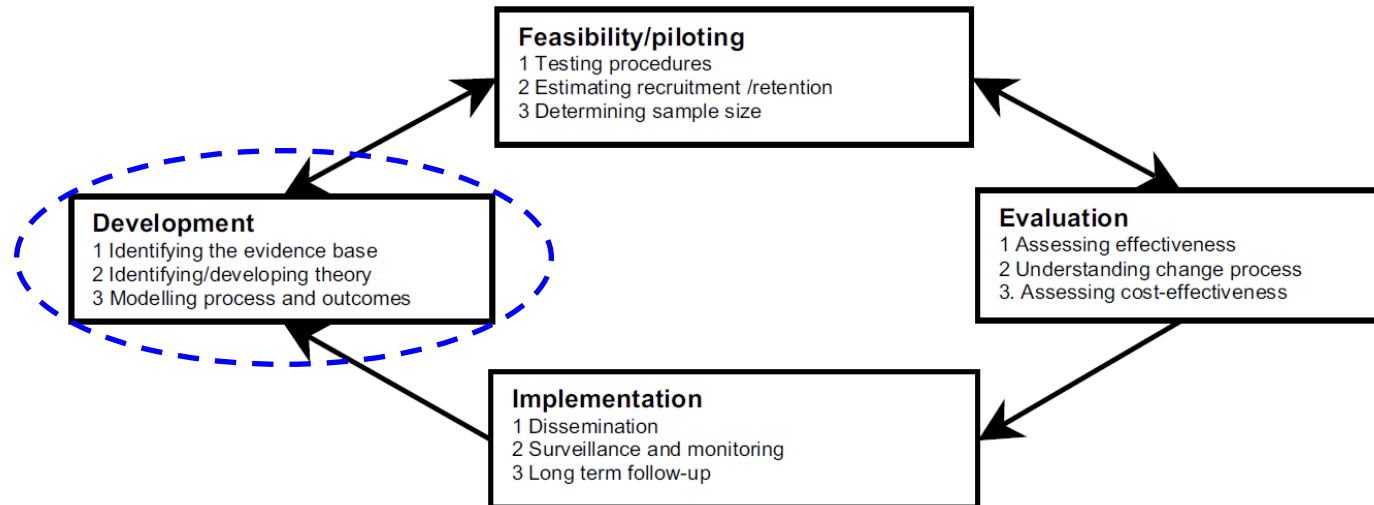
- Bathing, cleaning and clothing
- Antibiotics treatments / Healthcare
- Clean tap water
- Peace and stability
- Social housing
- Food surplus

# Problem & Approach



# Intervention Development & Feasibility

## PREDOCS



# MRC phase: Development (2007 – 2013)



## Identifying the evidence base:

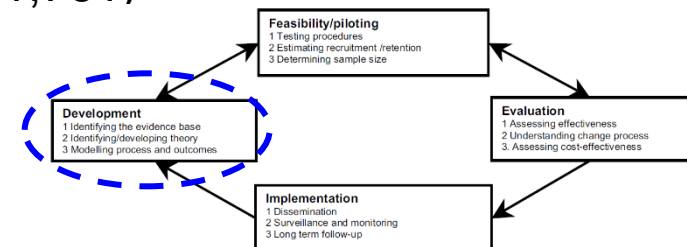
1. *Systematic review prevalence postoperative complications*
2. *Systematic review preadmission patient characteristics related to a problematic postoperative course*
3. *Systematic literature review: effective preventive interventions*

## Identifying / developing theory:

4. *Identifying risk factors for surgery and ICU complications (11,395 cardiac surgery patients)*
5. *Etiologic relations: modifiable preadmission characteristics and post surgery complications (n=1,761)*
6. *Interviews patients: needs (n=9)*
7. *Surveys nurses: opinions prevalence and preventions (n=250)*

## Modelling process and outcomes:

8. *Prognostic modelling: selection of frail patients (n=1,761)*
9. *Intervention development*



# Intervention **PREDOCS**



## Intervention includes 3 parts:

1. General applicable for all cardiac surgery patients
2. Selection of frail patients (increased risk on postoperative complications)
3. Specific preventive measures according to the increased risk

## Part 1 (*General*):

### a. Standard information on three levels:

- *Procedure / What patient will experience / What patient can do*

### b. Nutritional condition

### c. Empower partner/children/social environment

### d. Pain management for rapid postoperative recovery



# Intervention **PREDOCS**

## Part 2 (Selection) :



Delirium Risk Score during the Preoperative Consultation	Points
Previous Delirium	2
Diagnosis Alzheimer	2
Use of a walking stick or a walker	2
EuroSCORE greater than 20% risk	1
Receives support from family / friends (informal care) and living alone or no active support partner	1
Age above 70 years	1
History of CVA / TIA	1
Use of Benzodiazepines	1
<i>Total (increased risk of delirium is 3 or higher)</i>	

Pressure Ulcer Risk Score during the Preoperative Consultation	Points
History of Tricuspid Insufficiëncy	5
Physically limited *	3
Living alone	3
EuroSCORE greater than 20% risk	2
Use of Fraxiparin	2
Renal impairment	1
<i>Total (increased risk of pressure ulcers at 3 or higher)</i>	

Depression Risk Score during the Preoperative Consultation	Points
Use of insoles	3
Deaf of deafness	2
Female	1
Use of Benzodiazepines	1
<i>Total (increased risk of depression at 2 or higher)</i>	

\*) within the survey the patient is asked whether she or he has a disability. The response categories were: 'deaf', 'blind', 'disability' and 'intellectual disability'.

Infection Risk Score during the Preoperative Consultation	Points
History of Tricuspid Insufficiëncy	3
EuroSCORE greater than 20% risk	2
Use of Diuretics	2
<i>Total (increased risk of infection is 3 or higher)</i>	

Statistical performance (n = 1,761):

**AUC's: 0,72; 0,59; 0,68; 0,64**

**P-values, U-statistics: 1; 1; 0,16; 1**

.... clinical eye!



# Intervention **PREDOCS**

## Part 3 (*Preventive measures*):

### ***Delirium***

- a. Signs & Symptoms
- b. Favorite food and drinks
- c. Quick mobilization
- d. Sleeping habits
- e. Use the aids
- f. Orientation
- g. Will for information
- h. Daily visits or sleeping

### ***Pressure Ulcer***

Signs & Symptoms

### ***Depression***

- a. Relaxing music
- b. Daily visits
- c. Signs & Symptoms

### ***Infection***

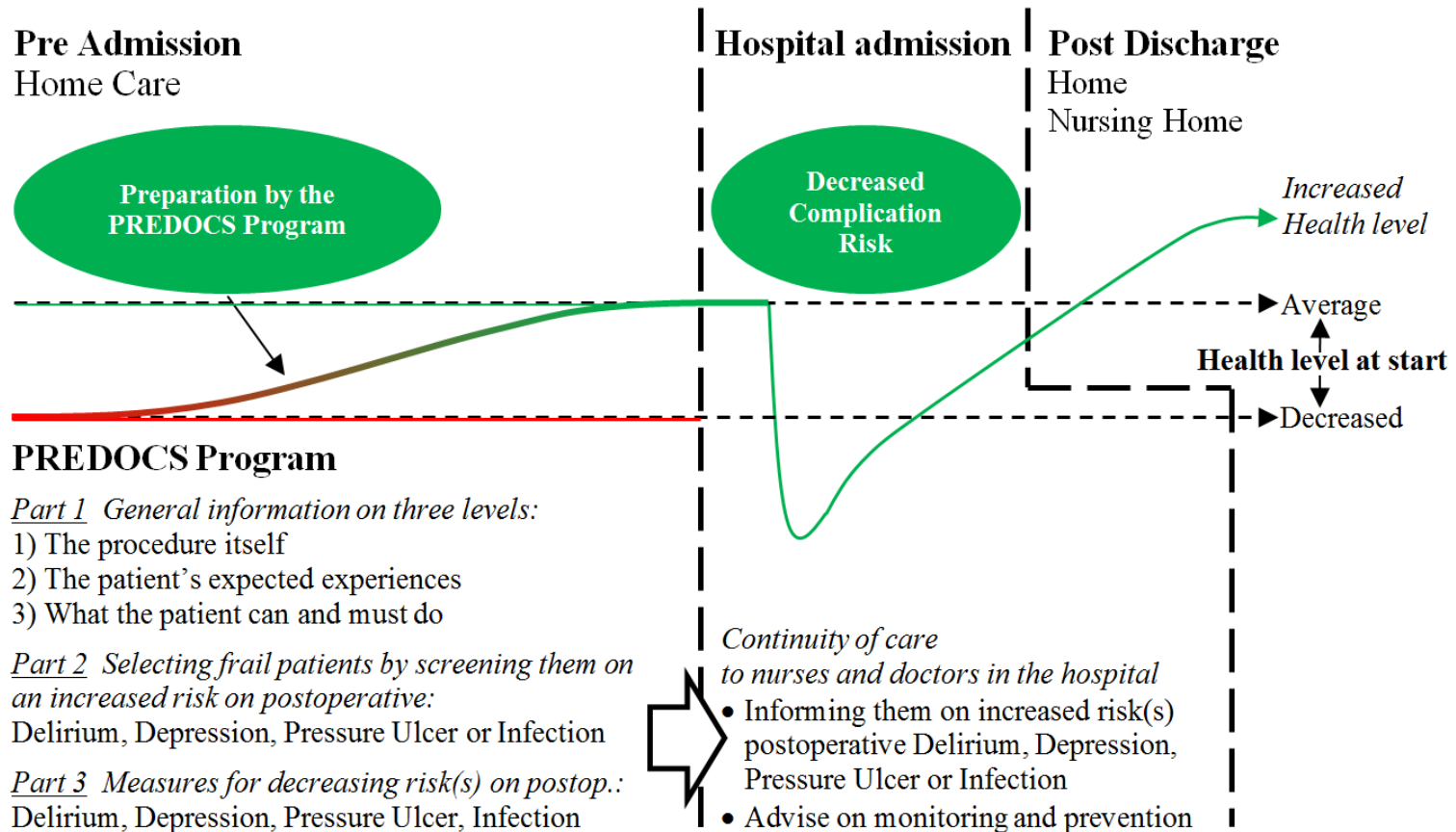
- a. Breathing exercises
- b. Coughing up / Huffing
- c. Signs & Symptoms
- d. Not touching the wound

### ***Continuity of care***

Report of findings and intervention given, in the patient file for ward care

Solution:

# *Prepare patients for their hospital admission with cardiac surgery!*



# Short Instruction Film PREDOCS



better in better out in cardiac surgery



# Nursing PREDOCS consultation prevents postoperative delirium, depression, pressure ulcers and infections

## Thank you for your attention

Roelof Ettema RN PhD  
 Yvonne Jordens RN MSc  
 Annette van Hell RN MSc  
 Jacomijn van der Werf RN MSc  
 Marieke Schuurmans RN PhD professor in Nursing

**RESEARCH CENTRE FOR**  
**INNOVATIONS IN HEALTH CARE**

