

# BRINGING CARE AT HOME

# HOSPITAL AT HOME

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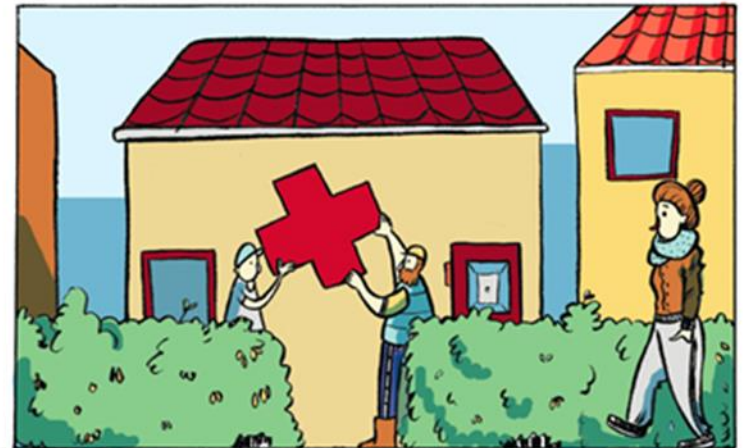


Healthwise Conference  
4<sup>th</sup> of November 2016

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*prof. dr. Sophia de Rooij, MD-PhD*

# Content

- Introduction
- Numbers and incentives
- What is Hospital at Home?
- Hospital at Home in international literature
- Hospital at Home – Groningen
  - Care
  - Research
- Discussion



# Introduction

- Maaïke Pouw
  - Medical Doctor since 2014
  - Specialization Internal Medicine
    - Elderly Medicine/Geriatrics
  - PhD-candidate Hospital at Home (UMCG)
  - Principal investigator: Prof. dr. Sophia de Rooij, MD PhD



# Numbers and incentives

## United Kingdom

- 65% admitted hospital patients >65yrs

## The Netherlands (CBS 2012)

- 733.984 admissions/year patients >65yrs
- 37% of total admissions

## UMCG

- Non-surgical Emergency Department  
± 4000 patients a year >65yrs
- 69% gets admitted



# Hospital admission

- Hospital is not different from any medicine
  - Aiming for recovery
  - Side-effects: falls, malnutrition, delirium, functional loss
- 48% of people over 85 die within one year of hospital admission

*Clark et al. 2014 - Palliat. Med.*

- 10 days in a hospital bed (acute or community)
  - Equivalent of 10 years ageing in the muscles of people over 80

*Kortebein et al 2008 – Journal of Gerontology*

**If you had 1000 days left to live, how many would you chose to spend in hospital?**

*dr. Simon Conroy, EUGMS 2016*

# Patient preferences

- 50% of elderly patients prefers home treatment

*Fried (2000) – Arch Int. Med*

- Final phase of life

- “To be cared for and eventually die in own home”

*De Korte-Verhoef (2014) - Support Care Cancer & Stajduhar (2008) – Palliative Medicine*

## Last 3 months of life

- Transfer Home → Hospital
  - Proportion of patients being transferred = 55%

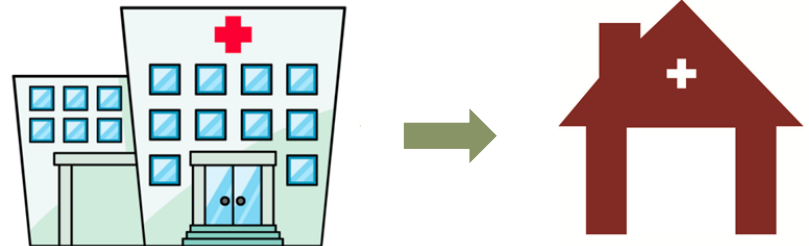


# Hospital at Home

- Acute level care in a patients' home

## Characteristics

- Active treatment for (sub-)acute conditions
- Limited period of time
- By health care professionals in patients' home
- For conditions requiring in-patient care



# Hospital at Home

## Presumed advantages

- Familiar surrounding, family nearby
- Less complications (falls, malnutrition, delirium)
- Preservation of functioning and self-confidence
  - (ADL and IADL)
- Patient satisfaction

## Presumed disadvantages

- Burden on caregivers
- Quality and safety of care



# Hospital at Home research

General Practice



**Cochrane  
Library**

Cochrane Database of Systematic Reviews

ring effectiveness and acceptability  
me scheme with acute hospital

JAMA Internal Medicine | Review

## Alternative Strategies to Inpatient Hospitalization for Acute Medical Conditions A Systematic Review

Jared Conley, MD, PhD, MPH; Colin W. O'Brien, BS; Bruce A. Leff, MD; Shari Bolen, MD, MPH; Donna Zulman, MD, MS

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Donald M. Steinwachs, PhD; and Bruce Leff, MD

# Alternative Strategies to Inpatient Hospitalization for Acute Medical Conditions

## A Systematic Review

Jared Conley, MD, PhD, MPH; Colin W. O'Brien, BS; Bruce A. Leff, MD; Shari Bolen, MD, MPH; Donna Zulman, MD, MS

*JAMA Intern Med.* doi:10.1001/jamainternmed.2016.5974  
Published online October 3, 2016.

Systematic review including 6 Systematic reviews/Meta-analysis

- Hospital at home in:
  - Acute heart failure (1)
  - Chronic Obstructive Pulmonary Disease (2)
  - Variety of clinical conditions (3)

Table 2. Clinical Outcomes of Alternative Management Strategies (continued)

| Strategy and Condition   | Systematic Review                  | Mortality |   | Return Hospital Admissions |  | Additional Clinical Outcomes   |
|--|------------------------------------|-----------|---|----------------------------|--|--|
|  |                                    | Summary   | Details   | Summary                    | Details  |  |
| <b>HaH</b>   |                                    |           |   |                            |  |  |
| Heart failure  | Qaddoura et al, <sup>20</sup> 2015 | ↔         | RR for HaH compared with inpatients was 0.94 (3 studies; 95% CI, 0.67-1.32); mortality was 3.8% in HaH and 9.7% in inpatients in a prospective cohort study ( $P < .05$ ) | ↔                          | RR for HaH compared with inpatients was 0.68 in RCTs (2 studies; 95% CI, 0.42-1.09); return admissions were significantly lower in prospective cohort trials (2 studies) | Health-related QOL was significantly improved at 6 mo, standard mean difference in HaH was -0.31 (2 studies; 95% CI, -0.45 to -0.18); this measure was also improved at 12 mo in another study |
| Various medical conditions (eg, pneumonia, urosepsis, cellulitis)    | Varney et al, <sup>21</sup> 2014   | ↔         | No difference between HaH and inpatient care (5 studies)  | ↔                          | No difference between HaH and inpatient in RCTs (3 studies); 0%-15% in observational studies (5 studies)   | Clinical outcomes (4 studies), QOL (3 studies) and adverse events or complications (3 studies) did not differ between HaH and inpatient care   |
| Various medical conditions (eg, COPD, stroke, pulmonary embolism)    | Caplan et al, <sup>22</sup> 2012   | ↓         | OR for HaH compared with inpatients was 0.79 (23 studies; 95% CI, 0.65-0.97)  | ↓                          | OR for HaH compared with inpatients was 0.76 (18 studies; 95% CI, 0.60-0.97)   | NR   |
| Various medical conditions (eg, COPD, stroke, cellulitis, pneumonia) | Shepperd et al, <sup>23</sup> 2009 | ↓         | Hazard ratio for HaH compared with inpatients at 3 mo was 0.77 (5 studies; 95% CI, 0.54-1.09); at 6 mo it was 0.62 (3 studies; 95% CI, 0.45-0.87)                         | ↔                          | RR for HaH compared with inpatients was 1.35 (5 studies; 95% CI, 0.97-1.87); patient-level meta-analysis had hazard ratio of 1.49 (3 studies; 95% CI, 0.96-2.33)         | Functional ability was not significantly different at 3, 6, and 12 mo between HaH and inpatient groups (5 studies); QOL measurements did not differ (3 studies)                                |
| COPD   | Jeppesen et al, <sup>24</sup> 2012 | ↔         | RR for HaH compared with inpatients was 0.65 (7 studies; 95% CI 0.40-1.04)  | ↓                          | RR for HaH compared with inpatients was 0.76 (8 studies; 95% CI, 0.59-0.99)  | FEV1 in HaH compared with inpatients had standardized mean difference of 0.13 (3 studies; 95% CI, -0.10 to 0.36)   |
|  | McCurdy, <sup>25</sup> 2012        | ↔         | RR for HaH compared with inpatients was 0.85 (2 studies; 95% CI, 0.45-1.62)   | ↔                          | RR for HaH compared with inpatients was 0.79 (2 studies; 95% CI, 0.43-1.45)  | Mean percentage predicted FEV1 after bronchodilator use was 36% in HaH compared with 35% in inpatients (1 study)   |

**Table 3. Patient Satisfaction and Costs of Care of Alternative Management Strategies**

| Strategy and Condition   | Systematic Review                  | Patient Satisfaction |  | Costs of Care |  |
|--|------------------------------------|----------------------|--|---------------|--|
|  |                                    | Summary              | Details  | Summary       | Details <sup>a</sup>   |
| <b>HaH</b>   |                                    |                      |  |               |  |
| Heart failure  | Qaddoura et al, <sup>20</sup> 2015 | NA                   | 96% Of patients were very satisfied or satisfied with HaH care (1 study)   | ↓             | Significantly reduced costs in outpatients in RCTs (3 studies; 2008, 2007, 2005); costs at 12 mo remained significantly lower in 1 RCT and were lower in another RCT but not statistically significant |
| Various medical conditions (eg, pneumonia, urosepsis, cellulitis)    | Varney et al, <sup>21</sup> 2014   | ↑                    | Satisfaction was greater in HaH compared with inpatients in RCTs (3 studies); 1 RCT reported high HaH satisfaction; 95% of patients were satisfied in observational studies (2 studies)  | ↓             | Significantly reduced costs in HaH in RCTs (3 studies; 2000, 1997); other studies reported savings without a P value (2 studies; 1999, 1998)   |
| Various medical conditions (eg, COPD, stroke, pulmonary embolism)    | Caplan, <sup>22</sup> 2012         | ↑                    | Satisfaction was greater in HaH compared with inpatients in all but 1 study, in which satisfaction was equal (10 studies)  | ↓             | Cost savings favored HaH with mean difference of -1821.69 in RCTs (5 studies; 2008; 95% CI, -2591.89 to -1051.49)  |
| Various medical conditions (eg, COPD, stroke, cellulitis, pneumonia) | Shepperd et al, <sup>23</sup> 2008 | ↑                    | Higher satisfaction in HaH compared with inpatients: cellulitis ( $P < .001$ ) and CAP (40% more); elderly patients with various medical conditions also reported significantly higher satisfaction in HaH (2 studies); in 1 study, 6% of patient refused HaH care | ↓             | Significant and nonsignificant cost savings were found in HaH when compared with inpatient care (6 studies; 2003, 2000, 1998, 1996)  |
| COPD   | Jeppesen et al, <sup>24</sup> 2012 | ↔                    | Risk ratio of HaH compared with inpatients was 1.06 (2 studies; 95% CI, 0.96-1.17)   | ↓             | Significant reduction in direct costs for HaH in 2 studies, and 1 other study showed a trend toward lower cost without significance (3 studies; 2005, 2000)  |
|  | McCurdy, <sup>25</sup> 2012        | ↔                    | 95% Of patients completely satisfied with care in HaH (1 study); 94% of patients in HaH and 88% of inpatients rated care as very good/excellent (1 study)  | NA            | NR   |

# Conclusion

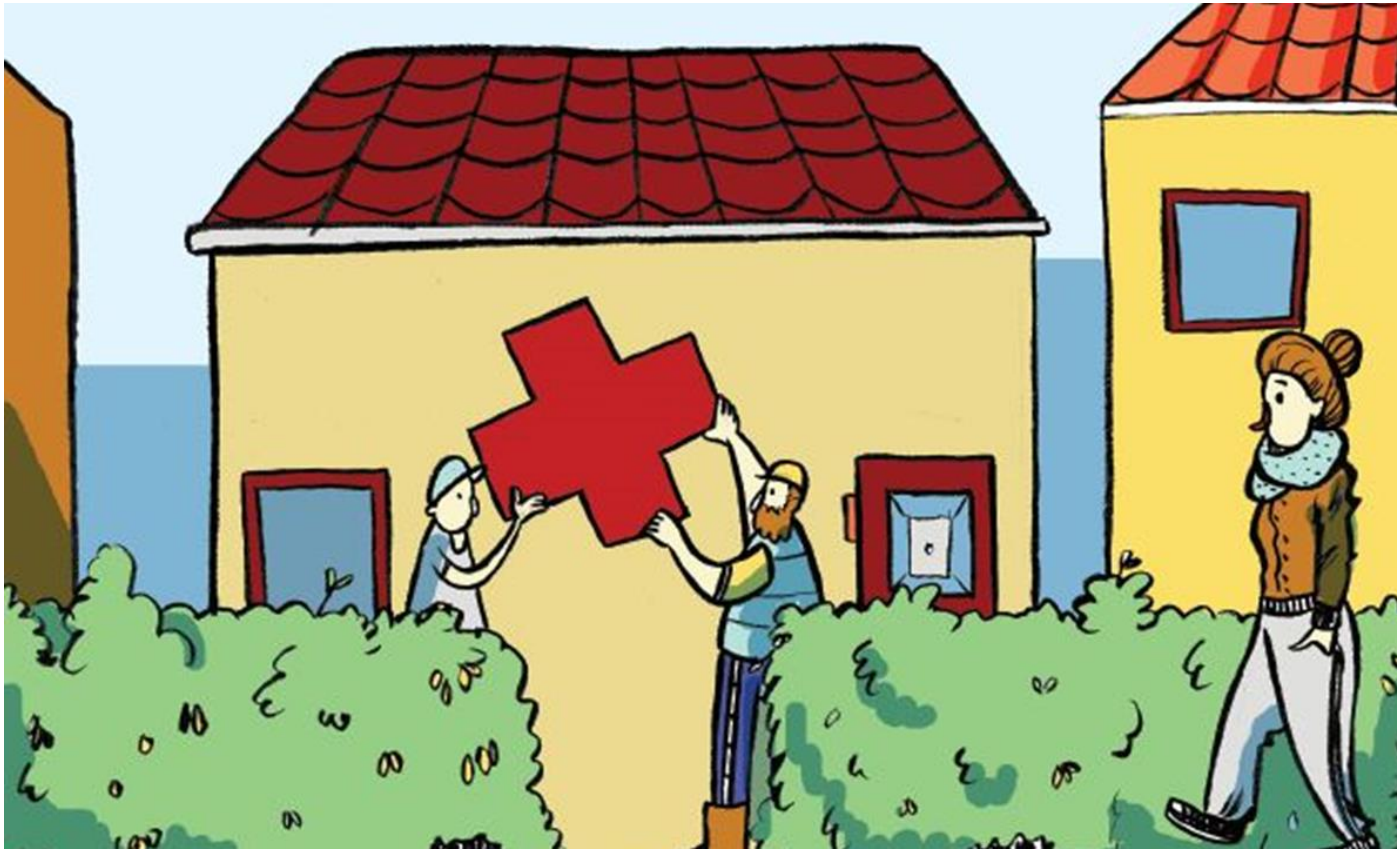
*Our findings of alternative management strategies for low-risk patients with acute medical conditions conventionally treated via hospitalization suggest that safe and effective care can be achieved in lower cost settings with positive or neutral impact on patient satisfaction.*

*Further examination with RCT and high-quality comparative observational studies for some conditions and models of care is warranted.*

# Summary results previous RCT's

- Australia, USA, New-Zealand, Italy, Spain, UK
- Results of previous trials
  - Mortality =/↓
  - Readmissions =/↓
  - Occurrence of (geriatric) complications ↓
  - Preservation cognitive and physical functioning ↑
  - **Patient satisfaction** ↑

# Hospital at Home in Groningen



# Plan

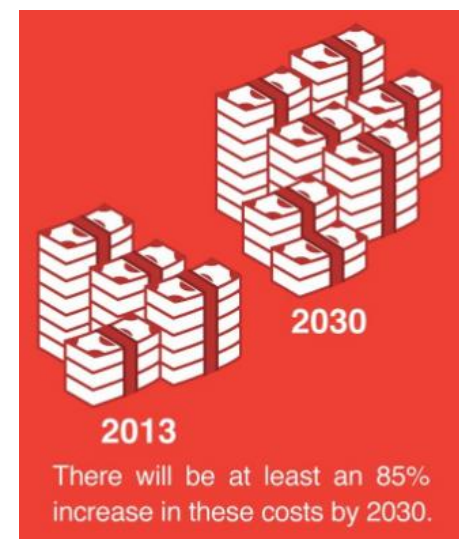
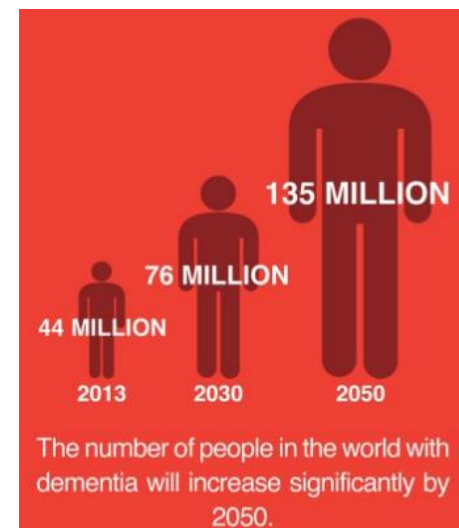
- Patients 65 years and over
- Known cognitive disorders  
or
- At current ED-presentation acute confusional state
- Presenting at the Emergency Department of the UMCG  
with an acute illness
- Indication for hospital admission



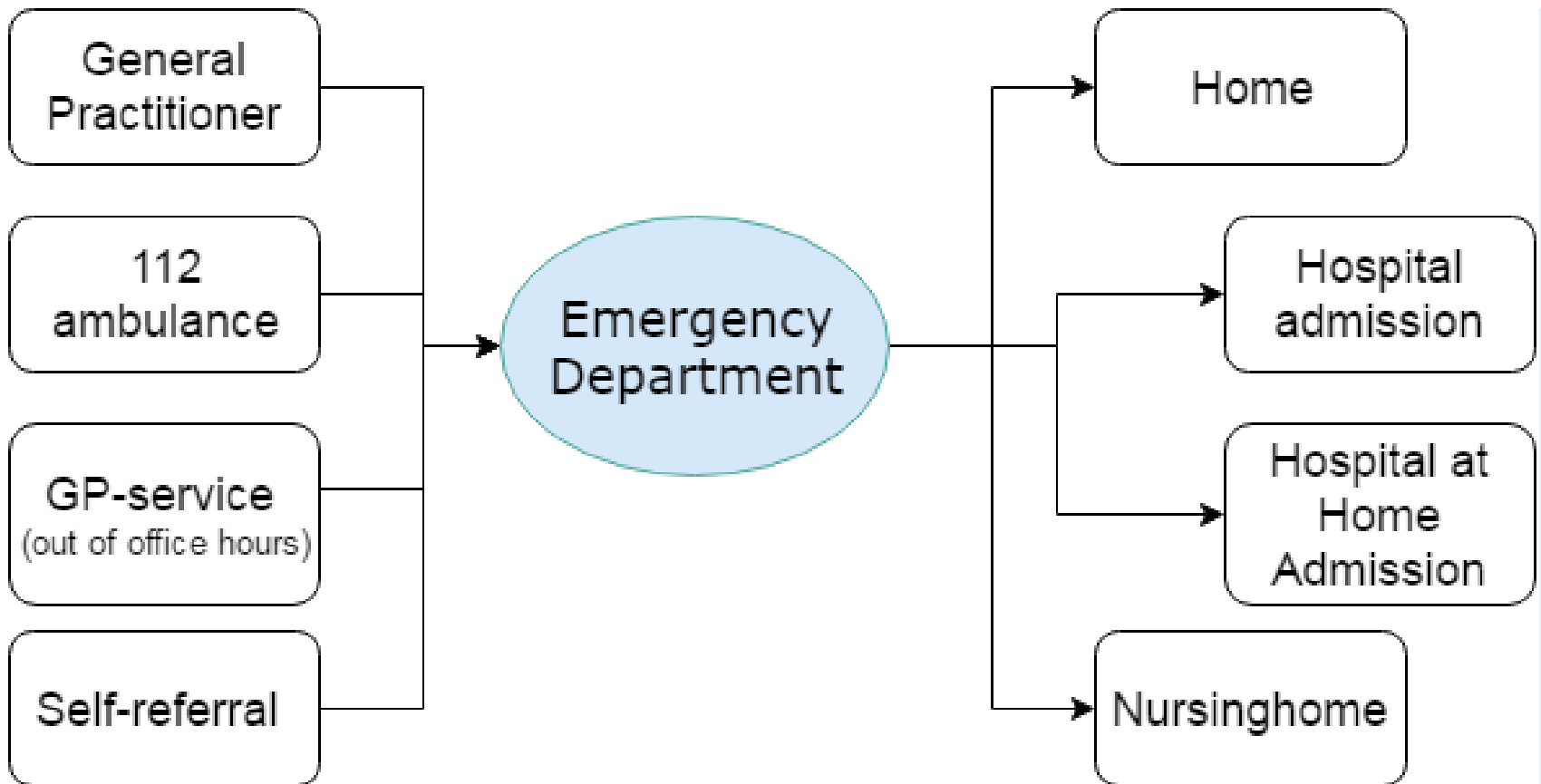
# Why this patient population?

## Cognitive disorders

- Risk of hospital admission 1.4-3.6x ↑
- Mortality ↑

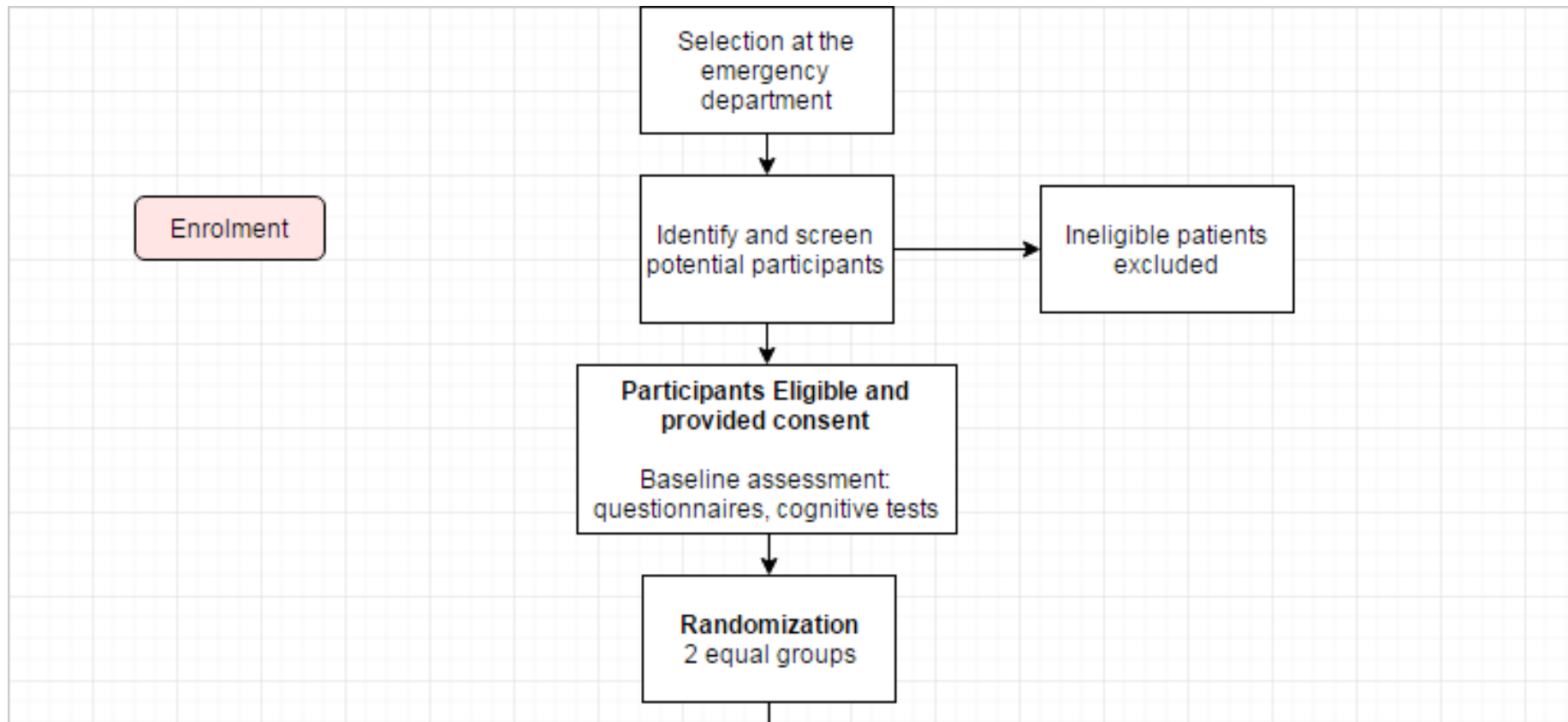


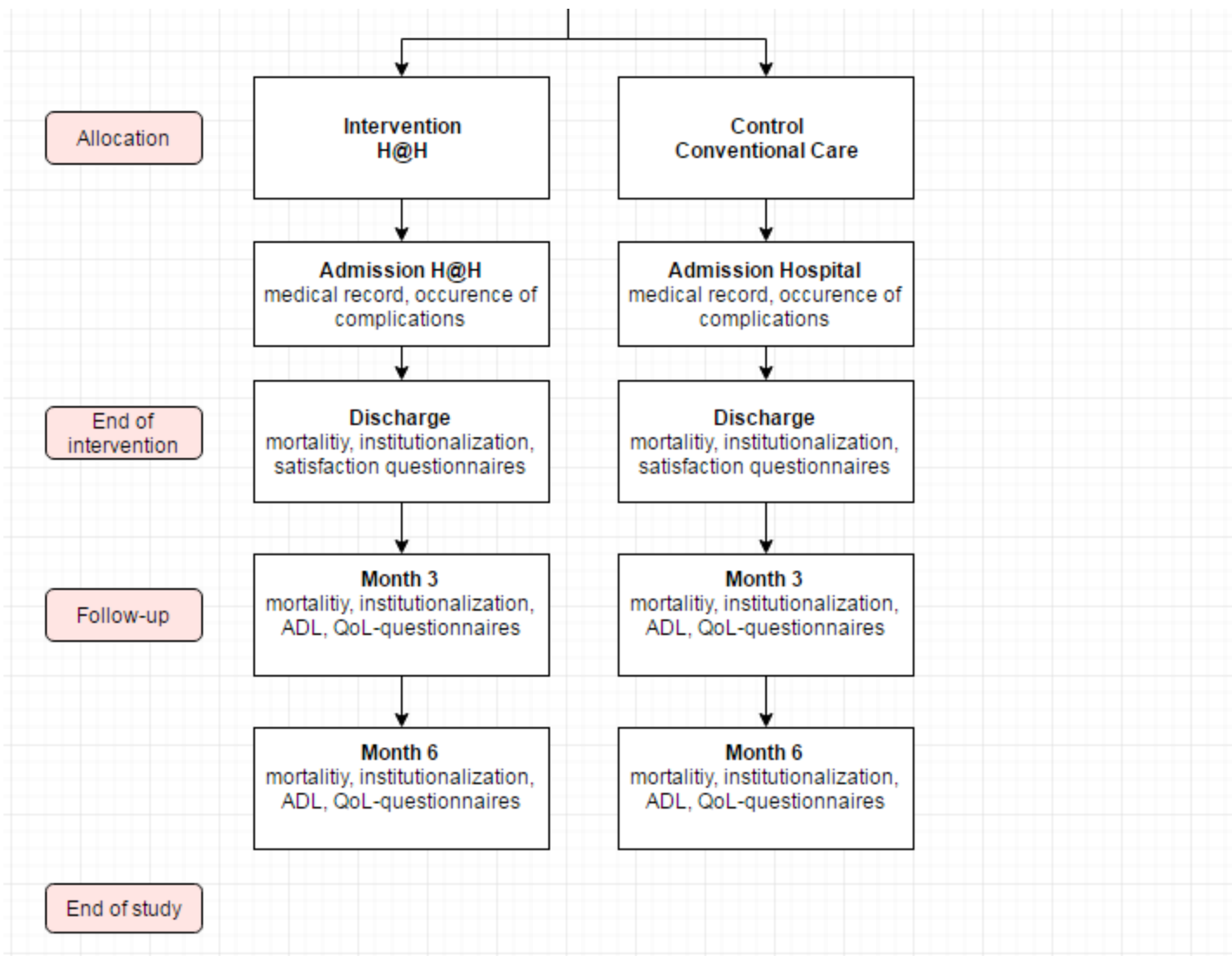
# Patient Flow diagram



# Plan

- Inclusion of patients
  - January/February 2017





# Plan - Outcomes

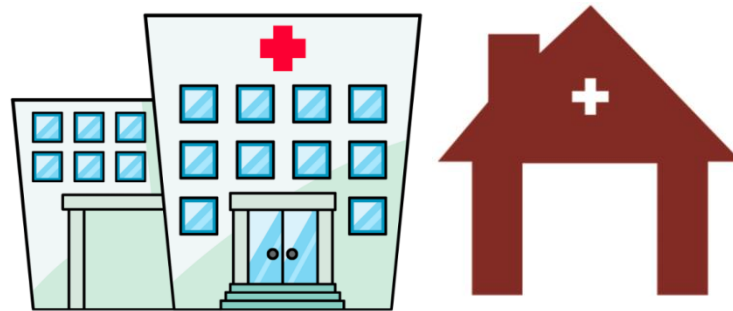
- Patient relevant outcomes
  - Time spent at home
  - Satisfaction with care
  - Satisfaction/Burden caregiver
  - Preserve daily functioning
- Clinical outcomes and safety
  - Mortality and readmissions
  - Occurrence of complications
- Costs
  - Cost-effectivity and Cost-utility

*Together with Healthwise*



# To discuss with you

- Effect of Savings
  - Fee-for service or health insurance
  - In the Netherlands: payroll doctors / partnerships doctors
- Expenses Hospital → Community
  - How to measure informal costs?
- Questions



*Additional questions or remarks, you can always contact me at: [m.a.pouw@umcg.nl](mailto:m.a.pouw@umcg.nl)*