

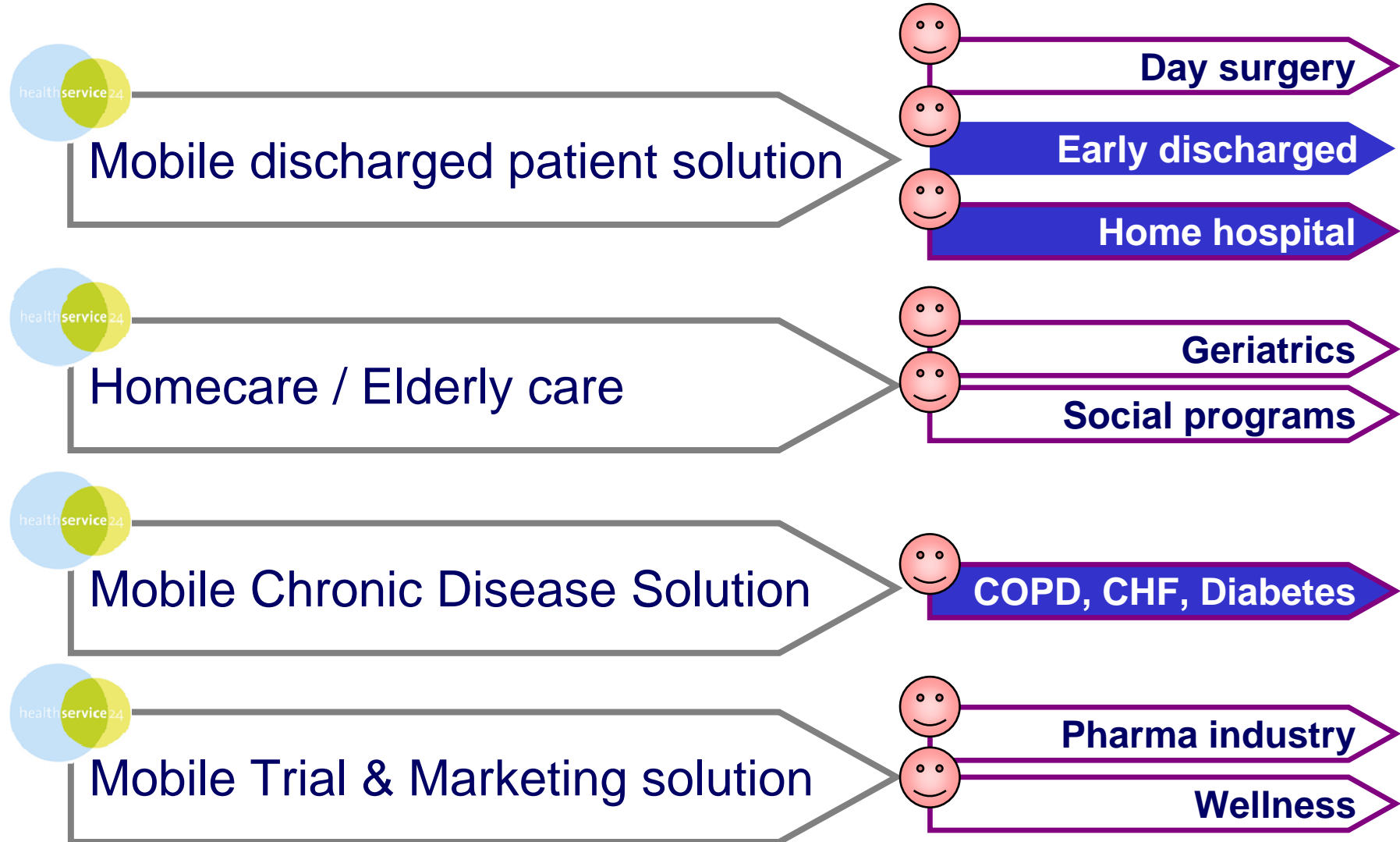
## *HealthService24 (HS24) – Taking mobile health to market implementation*

The HS24 validation trials:  
results from 3 different hospital trial sites

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# HealthService 24 Target Groups



# Pilots



Follow-up / prevention program in frail chronic patients (cardio-respiratory diseases).  
HS24 supports professional mobility (+ Patient self-monitoring)



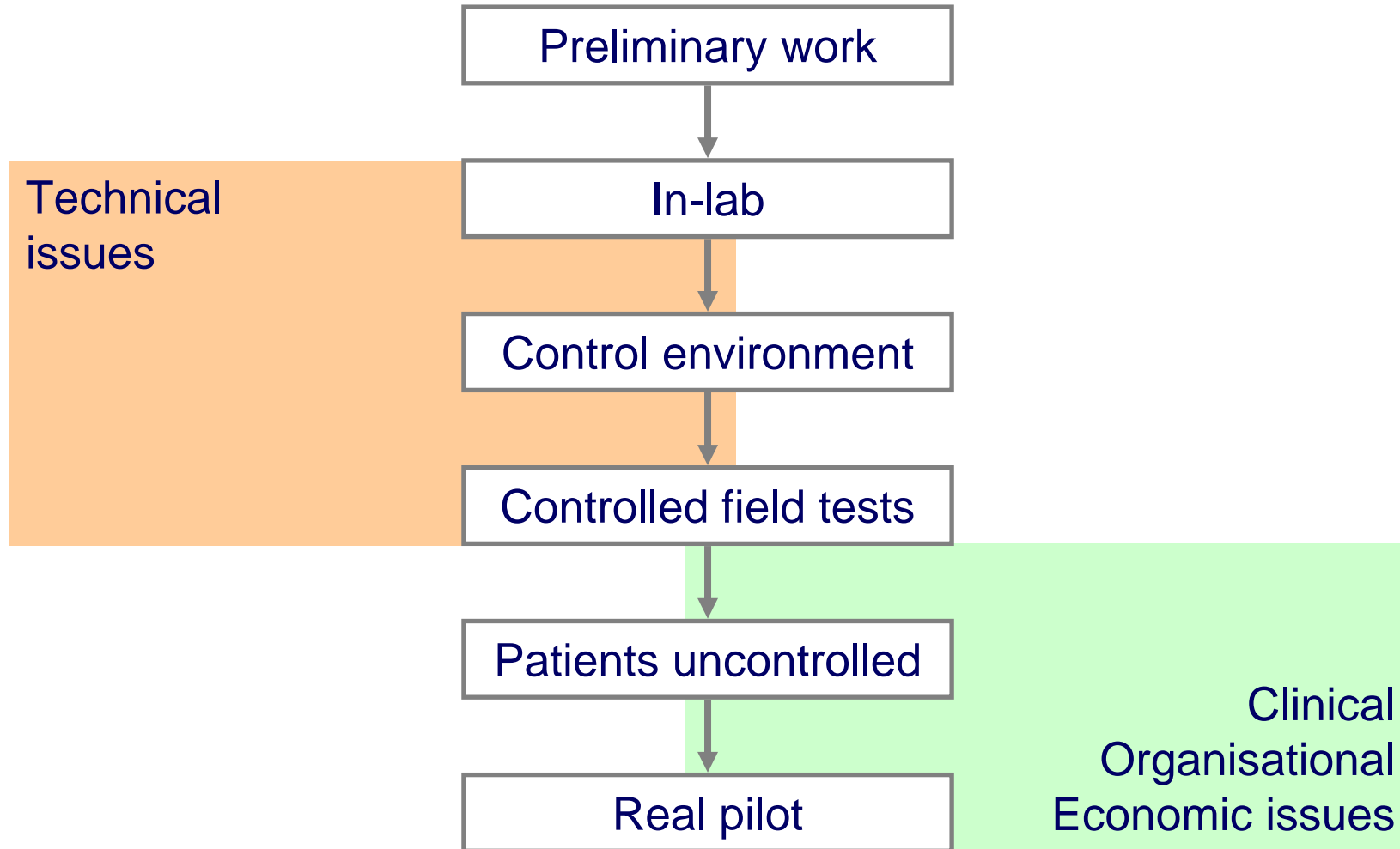
Earlier discharge and follow-up of cardiac patients admitted for an acute episode.  
Follow-up of cardiac patients with suspicion of a condition not fully diagnosed.



Medisch Spectrum Twente

Distant monitoring of pregnant women (detection of uterine activity that could forecast delivery within 48 hours).

# Evaluation



# Technical aspects

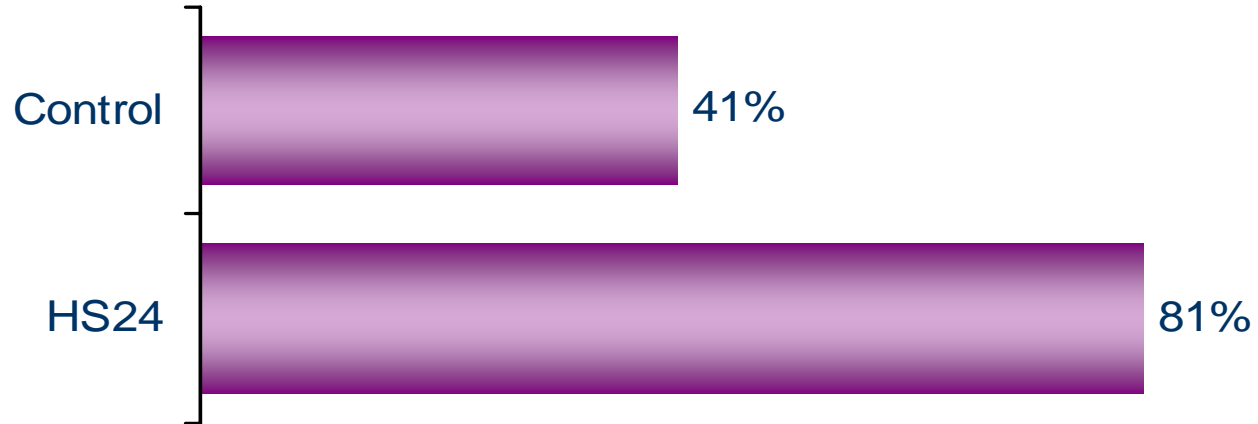
- Excellent / Good vital signs measurements for respiratory / cardiac pilots
- Problem of interferences in the case of the pregnant women trial due to usage of mobile phone at the same time as measuring. Lab tests proved that this will be solved in the next generation of EMG registration devices.
- Excellent performance in terms of signal delay
- System stable (some constraints in the battery life side)
- Mobile Base Unit (MBU, front-end) is user friendly  
Minor issues of wearability noticed
- Portilab Application (back-end) requires improvement / interoperability with existing corporate HIS

# Technical aspects

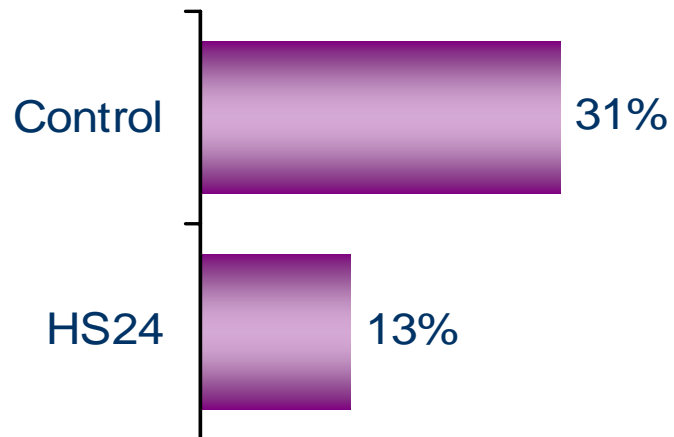


# Clinical outcomes

## COPD: Self management skills (8 wk.)



## COPD: Rate unexpected admissions (8 wk.)



# Clinical outcomes

- In the cardiac pilots:
  - 60% decrease in rate of admission was observed
  - 90% of the patients claimed to feel more reassured by being monitored through HS24
- In the pregnancy women pilot:
  - Optimal clinical scenario but results were not conclusive

# Economic indicators

- Benefits derived from the reduction in the use of (costly) care resources
- COPD
  - Only direct costs have been considered
  - The costs per patient under the integrated care model were 62% of the costs of conventional. This was mainly due to fewer days of inpatient hospitalisation (1.7+2.3 versus 4.2+4.1 days)
- Cardiac patients:
  - A clear reduction in the number of admissions was observed. Using the mobile health monitoring solution the cardiologists could assess the patient from his home and detect if any anomaly existed in the signals.
  - Reduction in travelling costs for the patient
  - Reduction in the need for emergency room care since cases were detected and directly addressed to the ward/specialist

# Organisational impact

- Introduction of mobile health monitoring services was not disruptive with current work practices
- Rather it easily co-existed with other existing formats of service delivery, in some cases supplementing them or, in other cases, replacing previous practices
- This facilitated the integration, putting the end-users in command to decide on the most adequate pace
- But ...

# Organisational impact

- “...technology itself does not do the job”
- New approaches to treatment and follow-up of patients were adopted. This undoubtedly maximised the benefits that mobile monitoring systems brought about.
- This meant:
  - 1) normalisation of care pathways (appropriate use and frequency of the monitoring services)
  - 2) reallocation of professional roles
  - 3) specific patient education on the disease
- This has to have a clinical sense (based on established guidelines) but also should not add extra costs that could make the whole design unfeasible.

# Conclusions

- The need for mobile health is unquestionable
- To release its full potential requires...
  - A redesign of clinical practices
  - Adequacy of technology (with a purpose, reliable and interoperable)
  - Reasonable business cases (socially sustainable, clear reimbursement schemes)
  - Legal issues, administrator policies (minor)