

# Abstract Presentations

## 1. Susanne van de Hei, Netherlands



# ACCEPTANCE

*Effectiveness and acceptability of a smart inhaler asthma self-management programme: a cluster RCT study protocol*

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# Disclosure

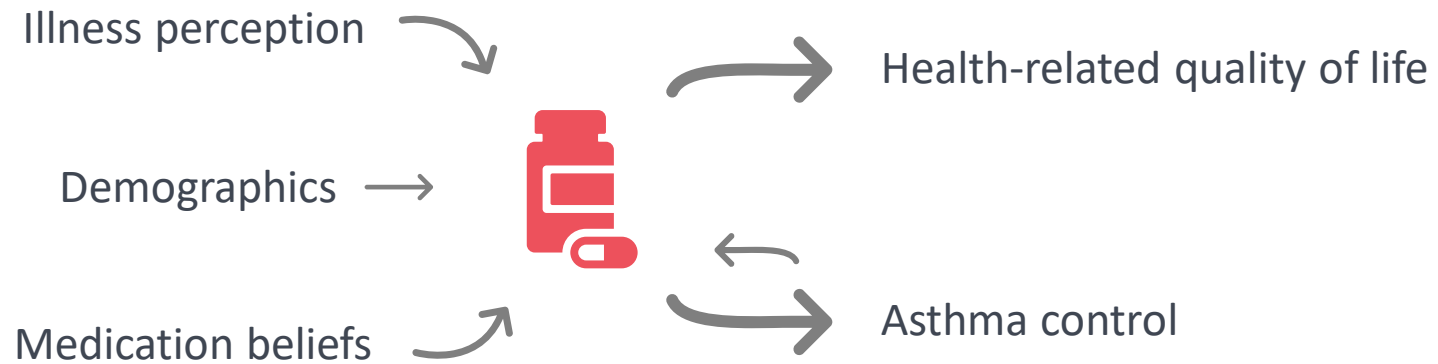
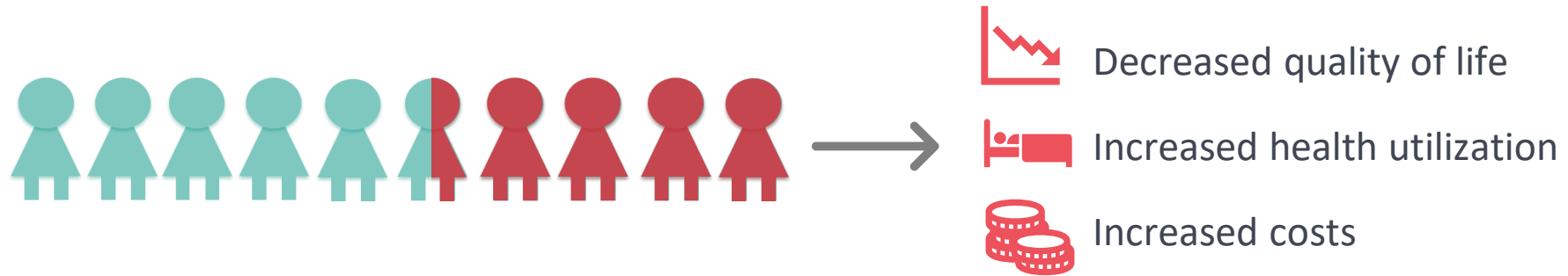
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All other authors declare that they have no competing interests.



# Asthma & medication adherence

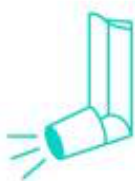


# eHealth and electronic monitoring devices



## Self-management-based eHealth interventions

- Tailored
- Monitoring from distance
- Outside office hours



## Electronic monitoring devices

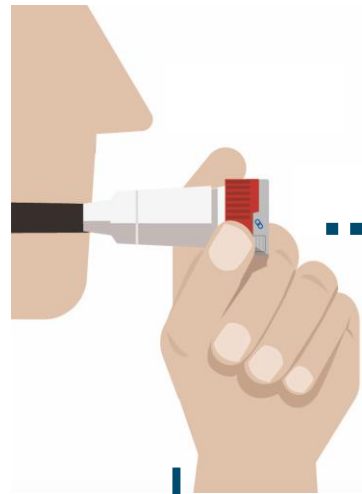
- Detect inhaler use, audiovisual reminders and feedback
- Increase medication adherence
- Potentially benefit clinical outcomes

Evidence on **long-term benefits** and **acceptability** is scarce.



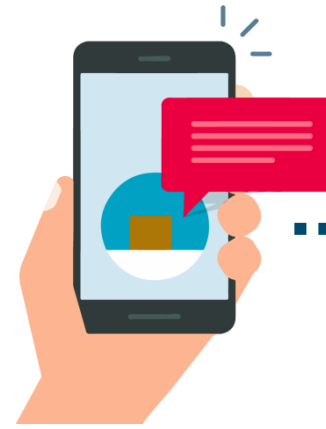
# Smart inhaler

**Electronic Monitoring  
Device attached to inhaler**



Register actuation

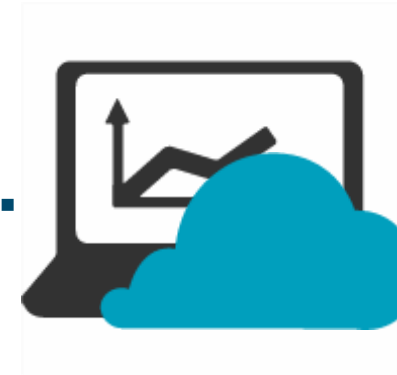
**Data on medication use**



Record date, time

Individualized reminders  
Keeping track of symptoms  
and triggers over time

**Health care professional  
Access to patient data**



Assess medication adherence

Understand inhaler use



## PRIMARY OBJECTIVE

To evaluate the effect of the smart inhaler programme (Turbu+™) on **medication adherence** compared to control over 12 months in partially controlled and uncontrolled patients

## SECONDARY OBJECTIVES

To evaluate the effect of the smart inhaler programme on **asthma control** and on **other clinical outcomes**

To evaluate who would benefit most based on **patient characteristics**  
*i.e. beliefs about medicine, illness perception, eHealth literacy*

To evaluate **usability** and **acceptability** from a patients and health care professional perspective

To collect health utilization data to inform **cost-effectiveness** analysis



# Study design



## Intervention ('smart inhaler')

- Turbu+™ add-on device
- Turbu+™ Insights application
  - View adherence data
  - Reminders & motivational messages
  - Symptom tracking feature
- Turbu+™ healthcare portal
  - View adherence data



## Control ('silent monitoring')

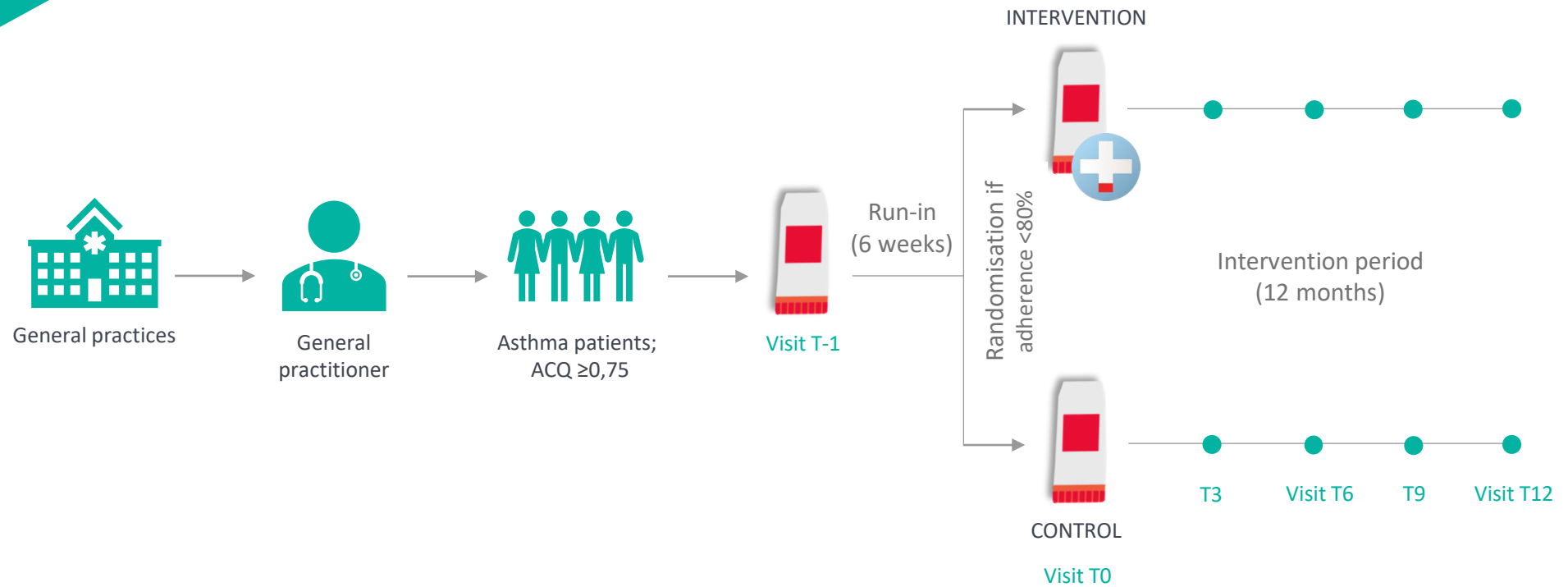
- Turbu+™ add-on device
- No access to adherence data by patient and health care professional

+ usual care according to the Dutch asthma guidelines





# Study design



## LEGEND



Symbicort Maintenance + electronic monitoring device **and Turbu+™ App**



Symbicort Maintenance + 'silent' electronic monitoring device



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# Study population



## Multi-center trial



## Clusters

61 general practices  
(± 4 patients/cluster)



## Participants

242 patients (121 per arm)

### ✓ Key inclusion

- Doctor-diagnosed asthma, partially controlled or uncontrolled (ACQ  $\geq$  0.75)
- $\geq$  18 years old
- Use of Symbicort<sup>®</sup> Turbuhaler<sup>®</sup>  $\geq$  8 weeks at inclusion
- Being 'non-adherent' (< 80%)

### ✗ Key exclusion

- Use of maintenance and reliever regimen
- Change in ICS dose or exacerbation <4 weeks prior to inclusion
- Current use of anti-IL5 or anti-IgE
- COPD, IRD, bronchiectasis



# Study outcomes

## Primary outcome

**Difference in medication adherence between the smart inhaler group and the control group over twelve months**

## Secondary outcomes

- Asthma control (ACQ)
- Quality of life (mini-AQLQ)
- Exacerbations
- Medication adherence
- Reliever use (pharmacist + SABA EMD)
- Usability (SUS) and acceptability (TAQ)

## Other outcomes

- Medication beliefs (BMQ)
- Illness perception (IPQ)
- Total costs (health care utilization and work absence (WPAI))
- eHealth literacy (eHLQ)
- Attitude and self-efficacy (KASE-AQ)

**Results expected: June 2022**



# Thank you for your attention!

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