



**EUROPEAN FORUM FOR RESEARCH AND EDUCATION
IN ALLERGY AND AIRWAY DISEASES**

New tools in respiratory care added value of digital health

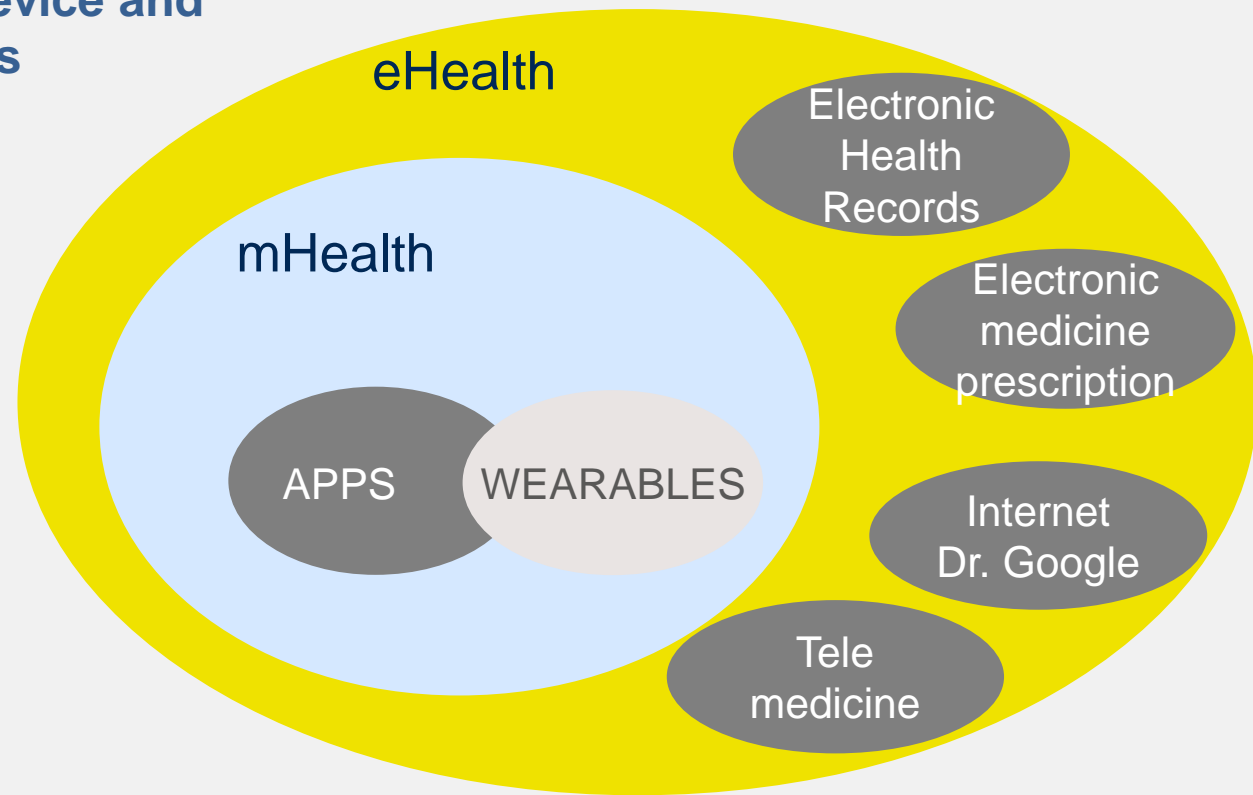
Sven Seys, PhD
EUFOREA – KU Leuven
Belgium

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Digital health tools: eHealth versus mHealth

- eHealth: online or offline support based on IT solution
- mHealth: application on mobile device and wireless tracking devices



Chronic upper airway diseases affect a significant portion of the population

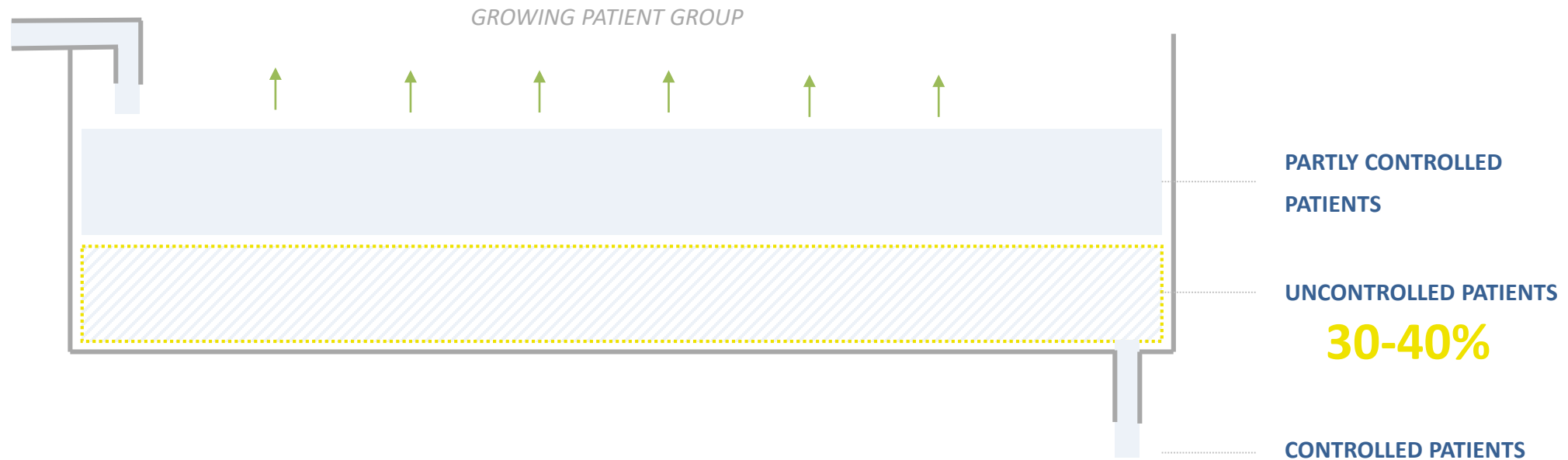
Need for better disease control of patients with CRDs

PREVALENCE

Chronic rhinosinusitis: 10%

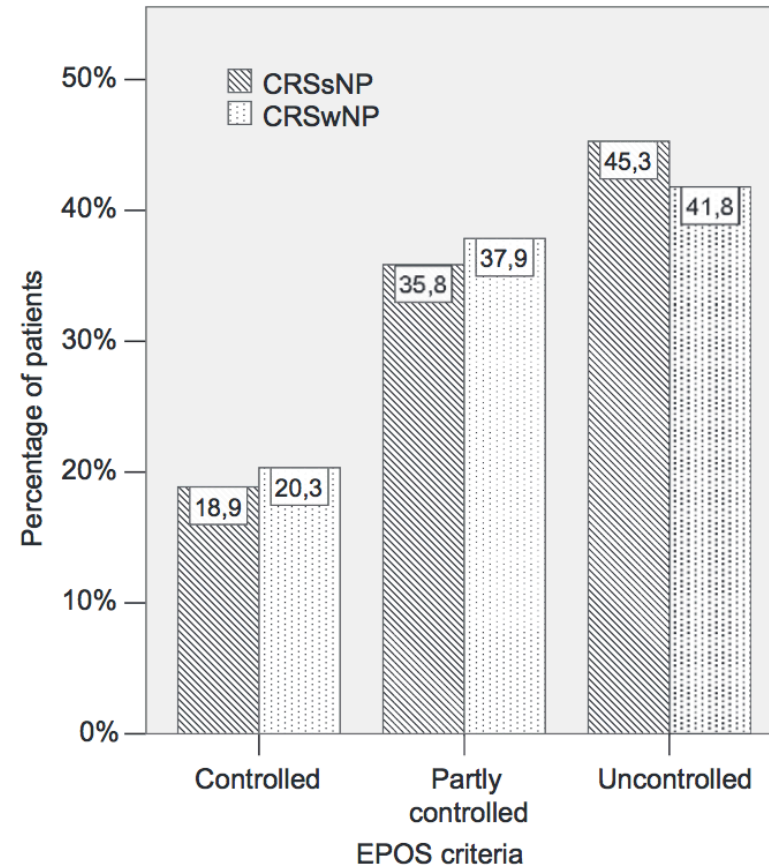
Allergic rhinitis: 20-25%

Asthma: 5-12%



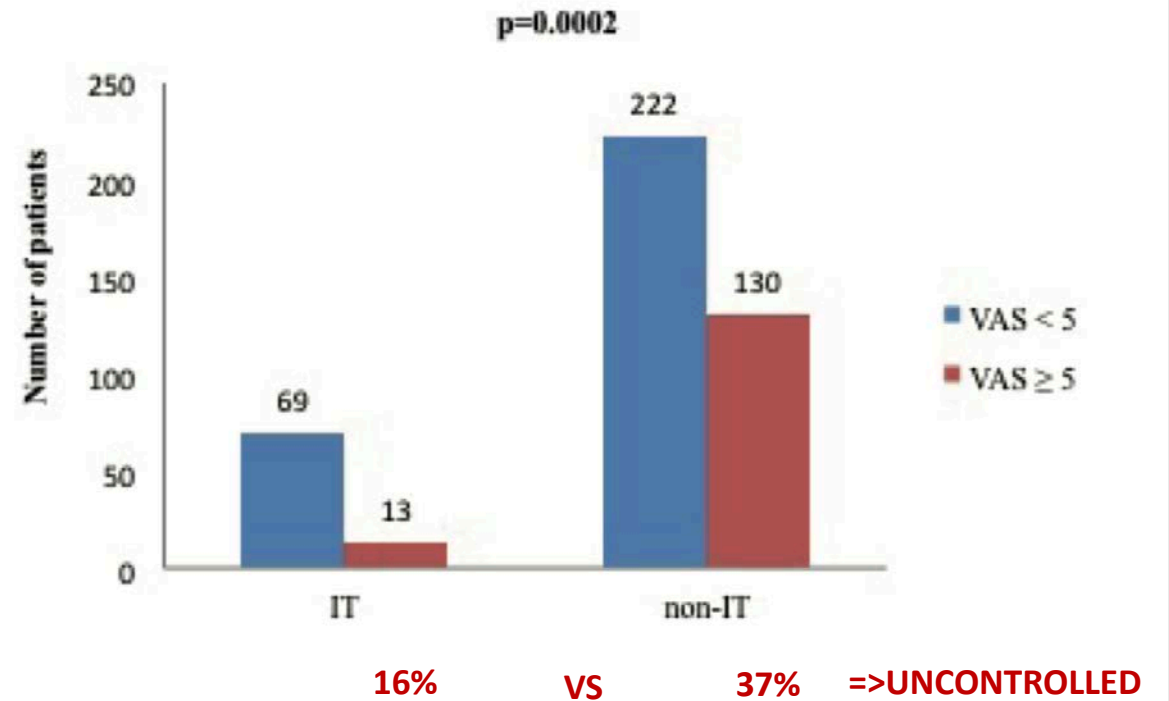
40% of CRS patients are UNCONTROLLED despite maximal medical therapy and sinus surgery

	Total (n = 389)	CRSsNP (n = 177, 45.5%)	CRSwNP (n = 212, 54.5%)	P-value
Age (mean ± SD)	47.3 ± 14.1	45.7 ± 15.0	49.3 ± 12.7	
Gender (% male)	53.2	42.5	66.1	<0.0001
Atopy (%)	33.4	28.8	39.0	0.034
Aspirin intolerance (%)	4.1	0.0	9.0	<0.0001
Asthma (%)	17.7	12.3	24.3	0.002
Smoking (%)	15.4	17.9	12.4	0.135
Revision FESS (%)	29.0	23.6	35.6	0.009



Up to 35% of AR patients are UNCONTROLLED despite conventional pharmacotherapy

	IT	Non-IT
Number of patients (n)	82	352
Men (%)	34 (41.5)	151 (42.9)
Women (%)	48 (58.5)	201 (57.1)
Mean age (year, mean, standard deviation)	33.1 (11.6)	34.6 (12.7)
Atopy		
Mono-sensitized (%)	10 (12)	104 (30)
Poly-sensitized (%)	72 (88)	248 (70)
Asthma (%)	12 (14)	42 (12)
Pharmacological treatment (n)		
Anti-histaminicum (%)	10 (12)	72 (20)
Intranasal corticosteroids (ICS)(%)	4 (5)	56 (16)
Anti-histaminicum + ICS (%)	12 (15)	87 (25)





4 Key Barriers / Solutions throughout the holistic care continuum

Efficiency and Multidisciplinary Collaboration



A
TIMELY ACCESS

B
EFFECTIVE TREATMENT

C
MONITOR

D
EFFICIENCY +
COLLABORATION

PATIENT EDUCATION
THE NEED FOR ADEQUATE
AND UNBIASED
INFORMATION

PHYSICIAN EDUCATION
IN DAILY PRACTICE OF HEALTHCARE
DELIVERY
PATIENT EDUCATION
IMPROVE ADHERENCE

**SUPPORTED SELF-
MANAGEMENT**
DISEASE ACTION PLANS

**INTEGRATED CARE PATHWAY
SOLUTIONS**
INCREASING MULTIDISCIPLINARY AND
TRANSMURAL COLLABORATION

+

+

+

+

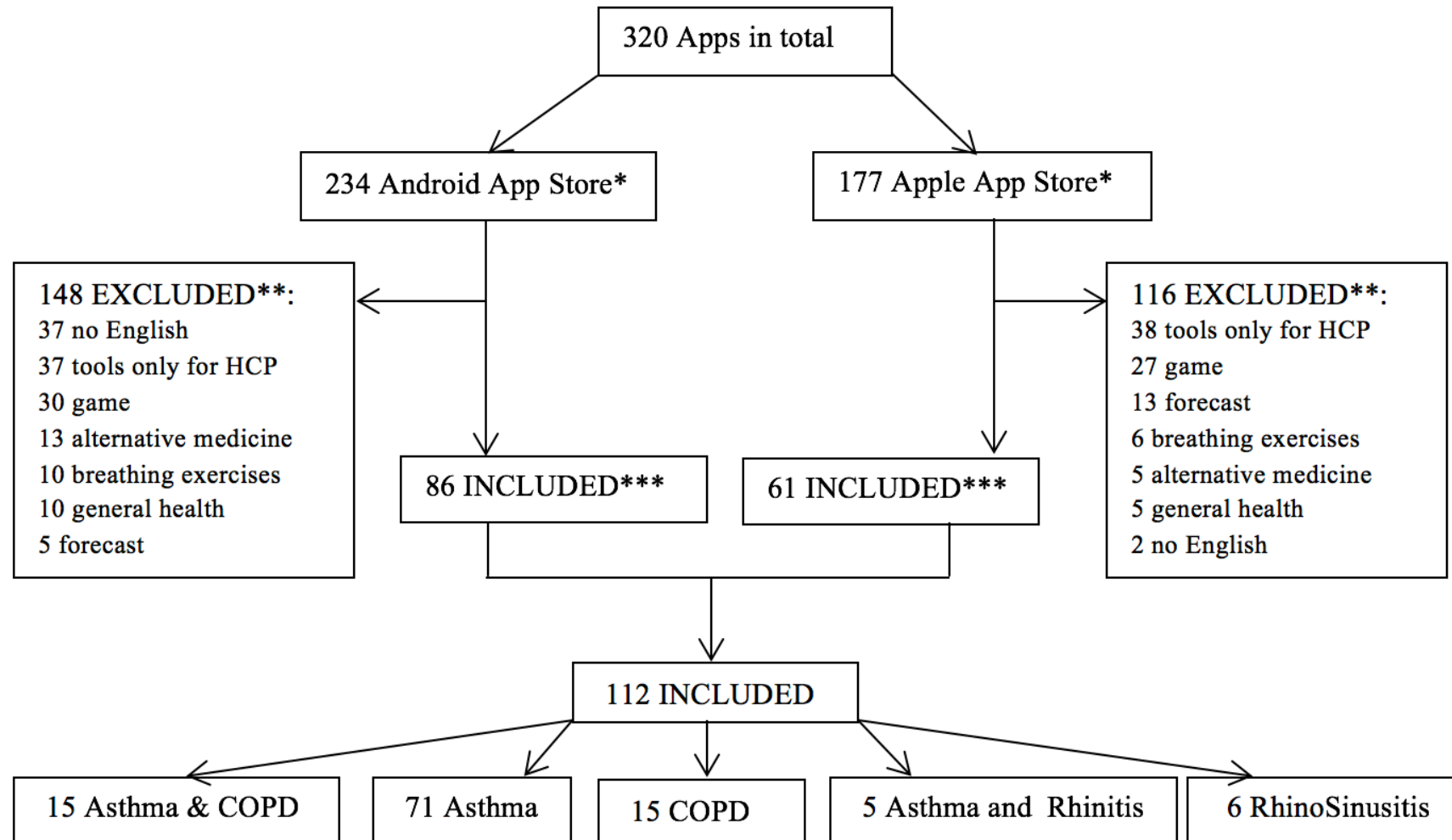
DIGITAL SOLUTIONS

INTEGRATED SOLUTIONS

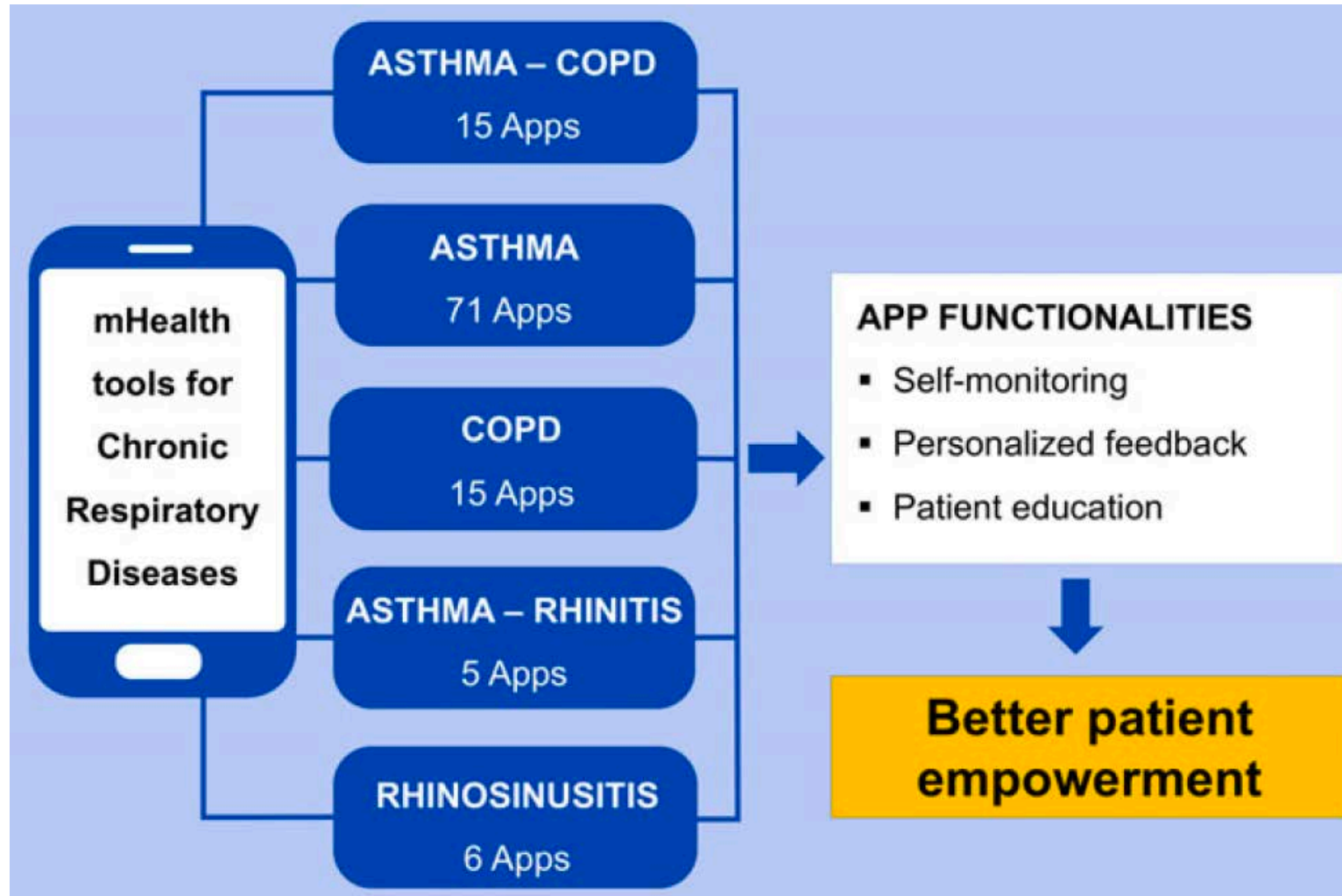
**IMPROVING
QUALITY OF LIFE in
RHINOLOGY**

- ✓ Improve Outcomes of Patients with **CRDs**
- ✓ Prevent and Control **Asthma**
- ✓ Create a **Socio-Economic** Impact

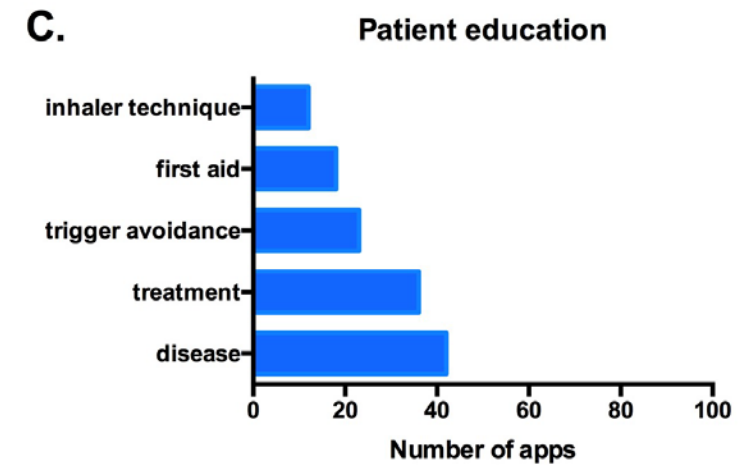
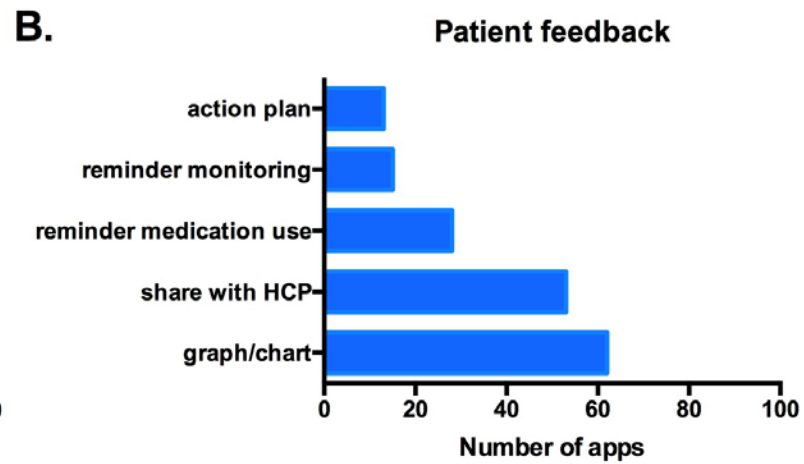
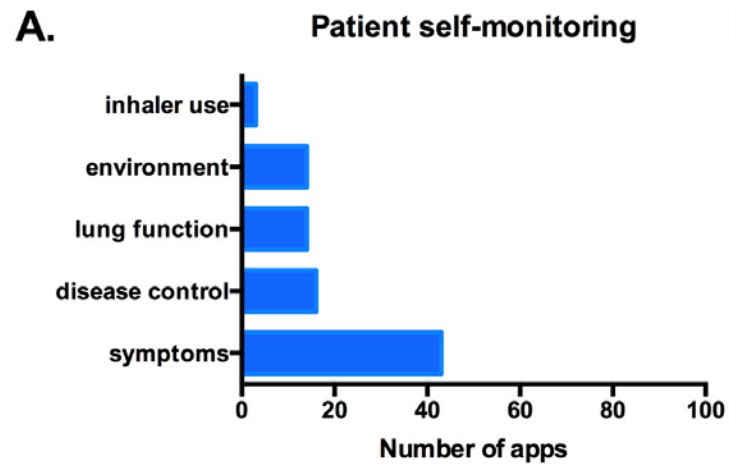
Mapping mHealth tools in CRD



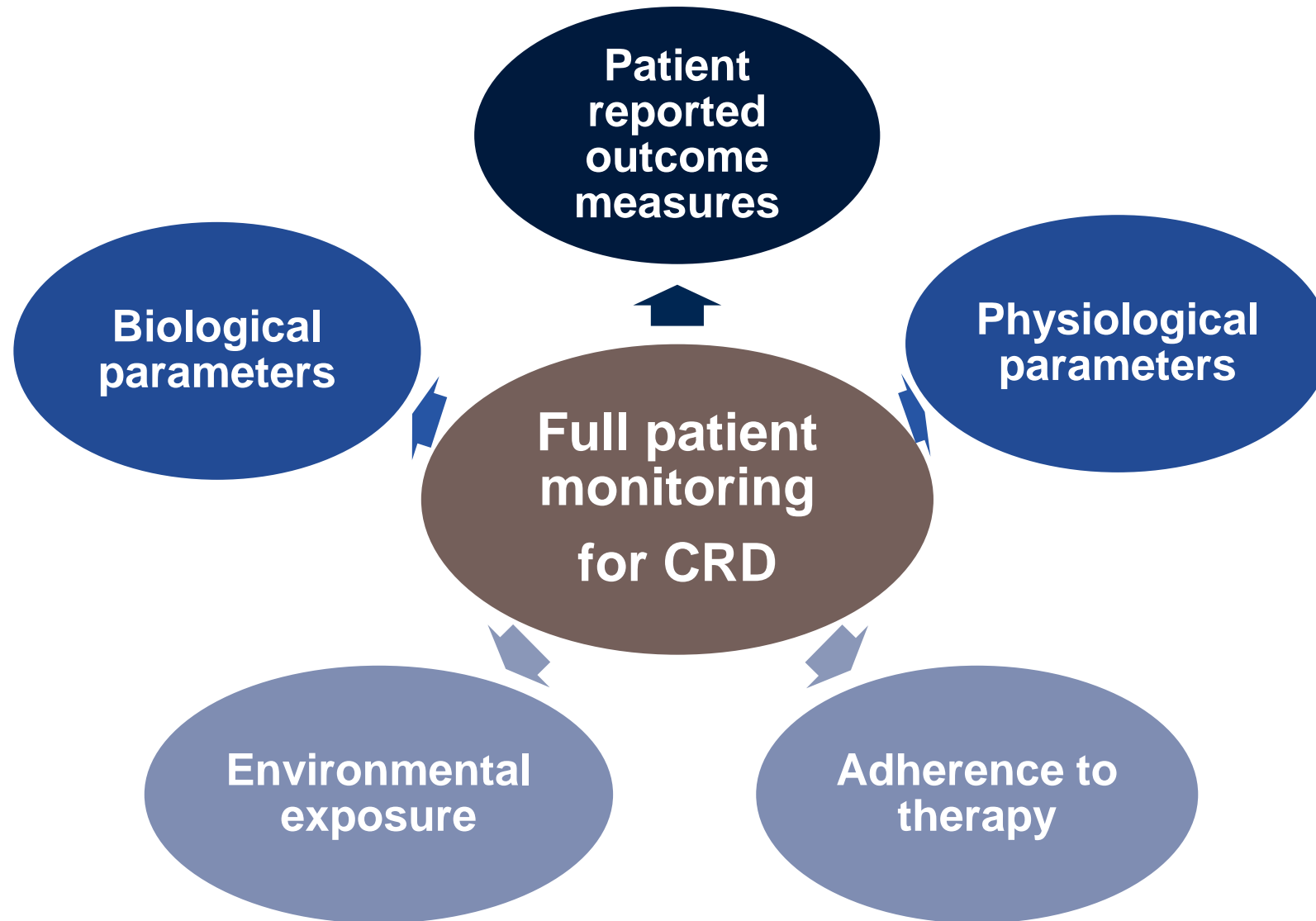
Mapping mHealth tools in CRD



Mapping mHealth tools in CRD



Full patient monitoring using mHealth tools for CRD

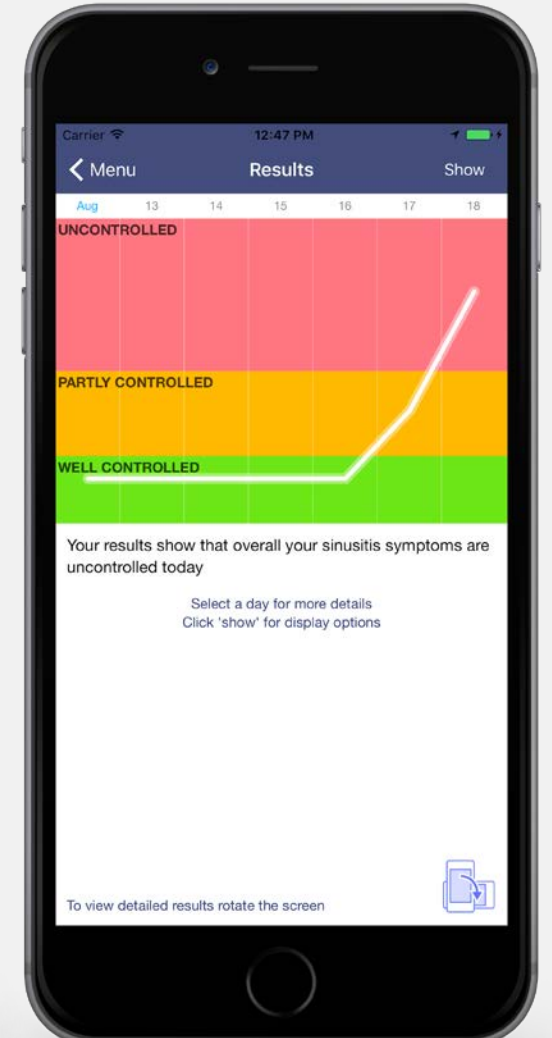
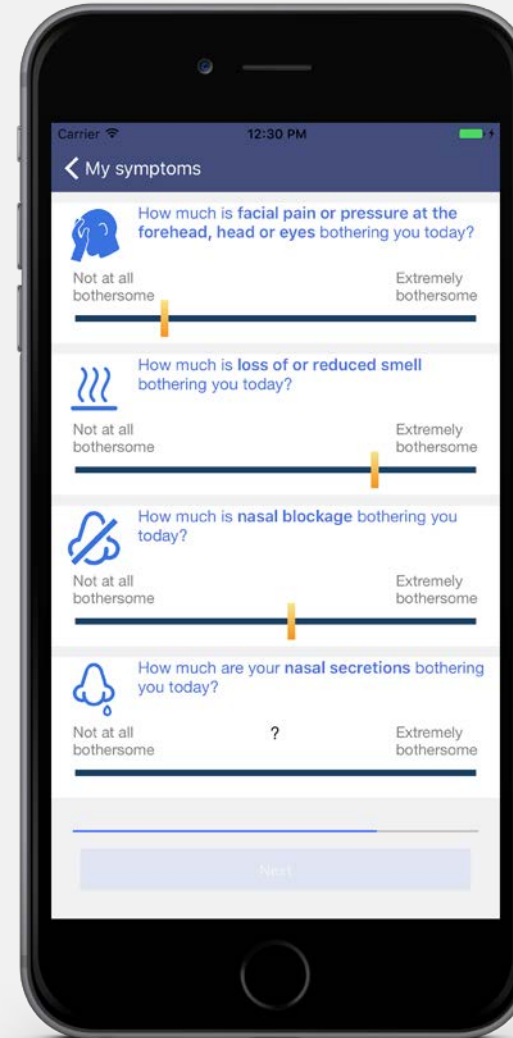


Full patient monitoring using mHealth tools for CRD

Patient reported outcome measures

mySinusitisCoach

- Sinusitis Diary
- Registration medication use
- Weekly reminder
- Patient feedback



Full patient monitoring using mHealth tools for CRD

Patient reported outcome measures



Sharing of results with HCP



Full patient monitoring using mHealth tools for CRD



Patient reported outcome measures

A screenshot of a mobile app interface. At the top, it says 'Carrier' with a signal icon, '12:34', and a battery icon. Below that is a blue header with a back arrow, 'Menu', and 'My symptoms'. The main content area has a question: 'Overall how much are your allergic symptoms bothering you today?'. Below the question is a horizontal slider with 'Not at all bothersome' on the left and 'Extremely bothersome' on the right. A blue vertical bar is positioned on the slider, approximately one-third of the way from the left. At the bottom of the screen is a blue button labeled 'Next'.

How much are your nose symptoms bothering you today?

How much are your eye symptoms bothering you today?

How much are your asthma symptoms bothering you today?

Full patient monitoring using mHealth tools for CRD

Physiological parameters

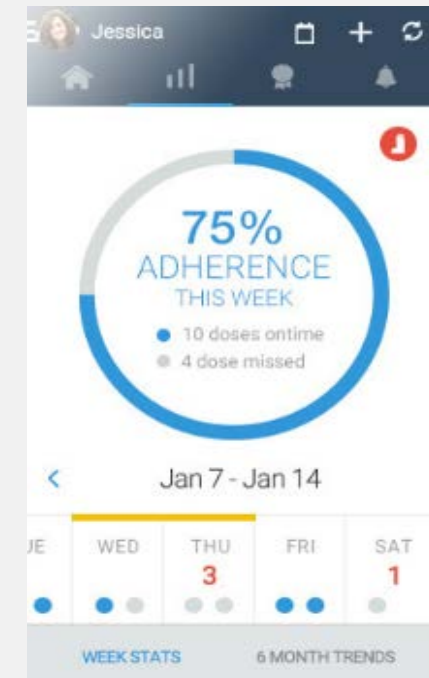
- Evaluation lung function by daily peak flow measurements (PEF) → asthma
COPD
- Evaluation nasal patency by peak nasal flow measurements? → rhinitis
CRS
- Evaluation of general health-related parameters by wireless tracking devices → asthma
COPD
CRS
 - Pulse rate
 - Physical activity
 - Sleep quality



Full patient monitoring using mHealth tools for CRD

Adherence to therapy

- Reminders for taking medication
- Patient reported medication use via mHealth tool
- Smart sensors
 - Inhalers
 - Nasal sprays
 - Blisters



Full patient monitoring using mHealth tools for CRD

Biological
parameters

- Endotype-driven treatment
 - Blood/nasal secretion/sputum eosinophils
 - FeNO, nNO, VOCs in exhaled breath
- Need for point of care solutions
- Results integrated in mHealth tool

PatiëntCoach
samen werken aan je gezondheid

myAirCoach

Weekly
Planned: Fri, 13/01/2017

Link	Date
ACQ week	<input checked="" type="checkbox"/> Tue, 17/01/2017
Piko-1 (FEV1)	<input checked="" type="checkbox"/> Tue, 17/01/2017
NIOX Vero (FeNO)	<input checked="" type="checkbox"/> Tue, 17/01/2017
X-halo (EBT)	<input checked="" type="checkbox"/> Tue, 17/01/2017

To do Monitor Plan Info Logout

Full patient monitoring using mHealth tools for CRD

**Environmental
exposure**

- **Based on geo-localization**
 - need for specific consent of patient
- **Estimated individual exposure**
 - Outdoor air pollution
 - Indoor air pollution
 - Pollen counts
- **Alerts might lead to individual patient actions**
 - Modify activity
 - Personal protection
 - Medication

Added value of mHealth tools for different stakeholders

PHYSICIAN

- **Early identification** of uncontrolled disease and resistance to therapy
- **Standardized follow-up** after medical treatment and surgery

RESEARCHER

- Generation of **real-life data**, comparing efficacy of treatment strategies

PATIENT

- **Tracking** of symptoms and objective monitoring of disease parameters
- **Personalized feedback** on disease progression and control
- **Sharing** detailed reports with physician
- Better **education** about disease, treatment options and correct use of drugs or devices

HEALTH CARE SYSTEM

- **Cost saving** thanks to reducing unnecessary consultations and hospitalizations
- Increasing **time efficiency** by better patient education

SOCIETY

- Reduced **absenteeism** and **presenteeism** at work
- Reduction of **economic costs**
- Disease **prevention** by timely treatment

Adding value for all stakeholders requires adoption of mHealth tool in clinical practice

STEP

1

One application for multiple CRDs

CHRONIC RHINOSINUSITIS – ALLERGIC RHINITIS – ASTHMA

STEP

2

Adding value for patient and physician

PERSONALISED PATIENT FEEDBACK and IMPROVED PHYSICIAN DASHBOARD

STEP

3

Geographical coverage - standardisation

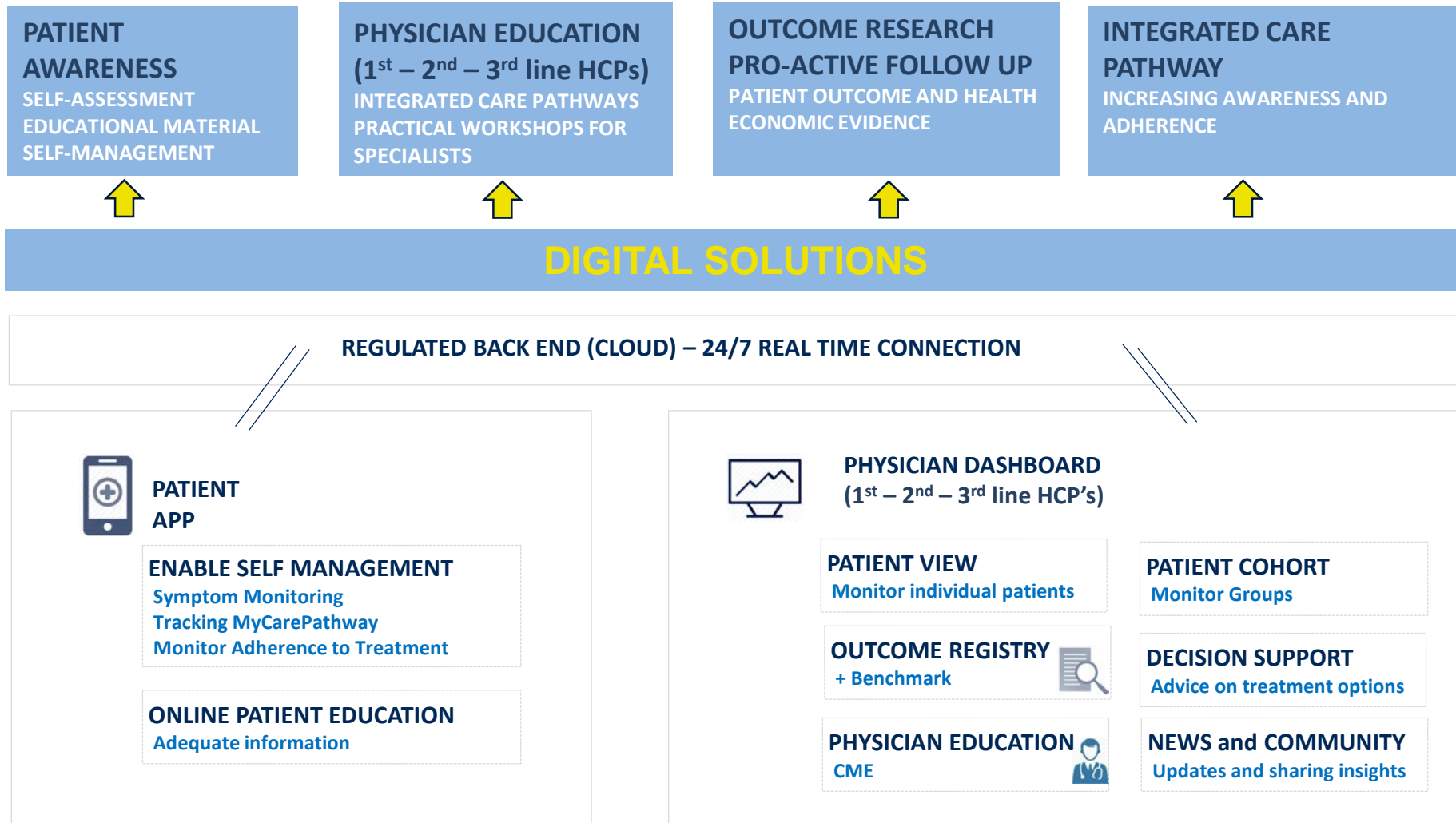
13 EU COUNTRIES (phased implementation in 2019)

STEP

4

Adoption in clinical practice to support patient and physician throughout the care pathway

Adding value for all stakeholders requires adoption of mHealth in clinical practice



IMPROVING
QUALITY OF LIFE
in **CRD**

- ✓ Improve & Control Patient Outcomes
- ✓ Prevent and Control Asthma
- ✓ Create a Health-Economic Impact



STEP 1

PATIENT REGISTERS IN THE APP VIA 2 ENTRIES

1/ Non Diagnosed by Self Assessment – 2/ Diagnosed and in Treatment

BENEFITS

WHY

Non Diagnosed

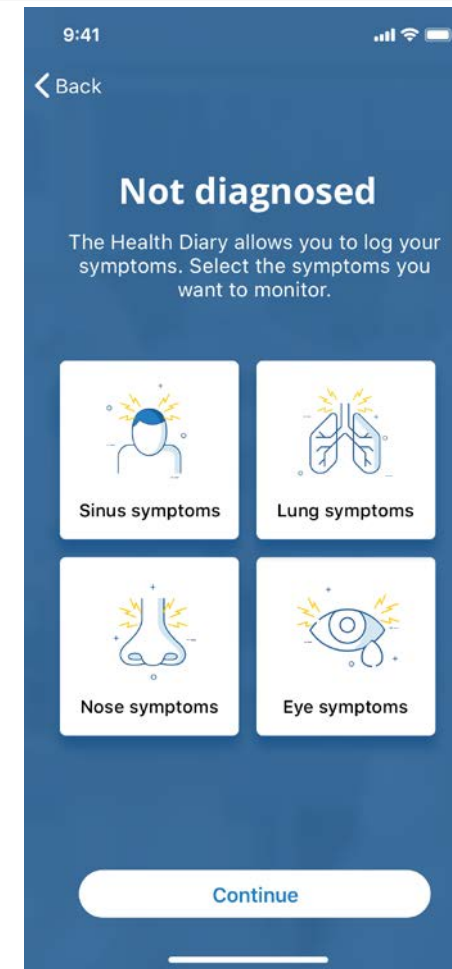
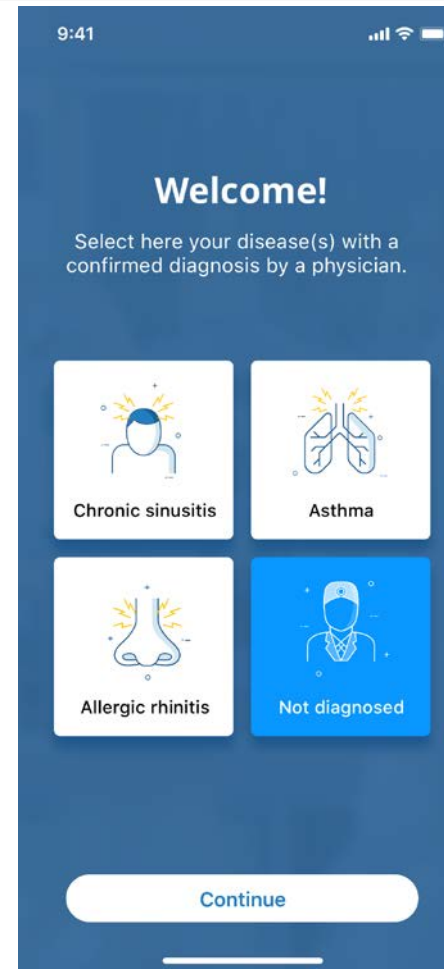
- Reach General Population
- Improve Detection
- Improve Diagnosis and Referral

Diagnosed

- Monitor Diagnosed Patients

WHAT

- Self Assessment for Non Diagnosed Patients
- Registration of Profile





STEP 2

PATIENT STARTS MONITORING AND KEEPS A DIARY IN THE APP

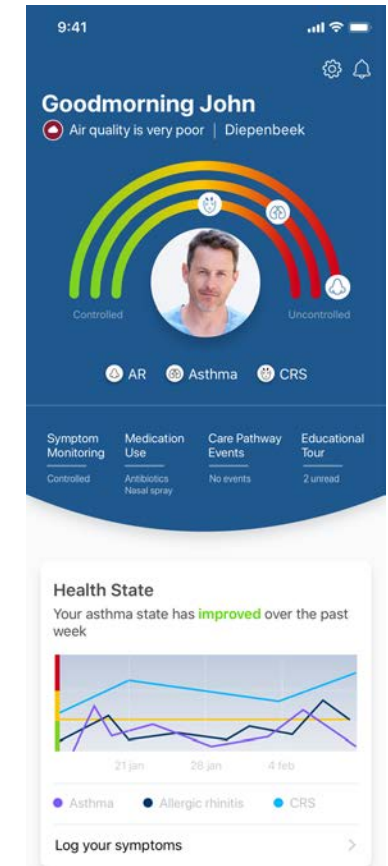
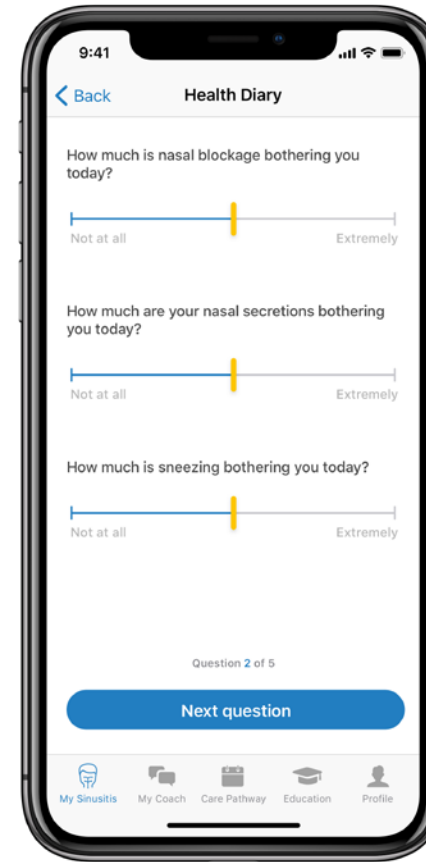
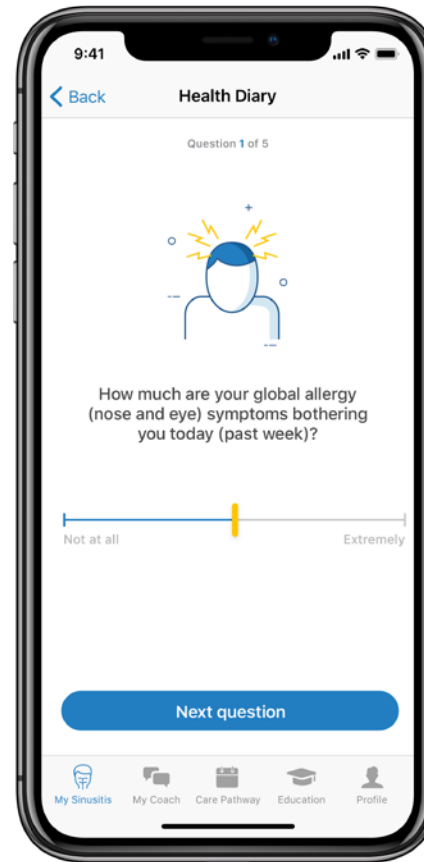
BENEFITS

WHY

- Standardized follow up of patient outcomes
- Evaluate outcomes after new treatment

WHAT

- Health Diary to monitor airway symptoms (VAS)
- Additional validated questionnaires available
- Feedback to the patient





STEP 3

PATIENT CONSULTS THE PHYSICIAN

EVALUATE DISEASE STATUS and PRESCRIBE TREATMENT

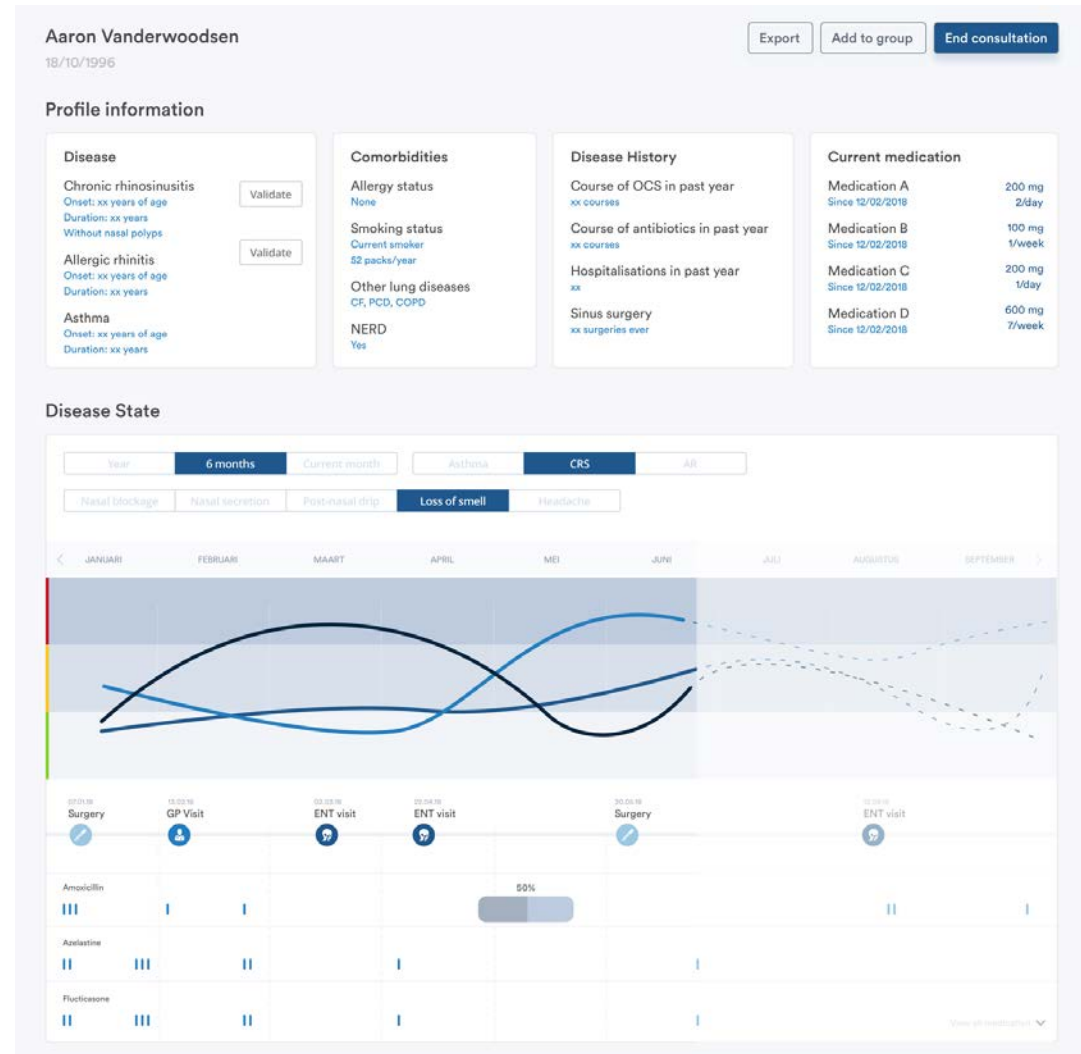
PATIENT INDIVIDUAL FILE

WHY

- Continuous monitoring of symptoms
- Feedback on disease control
- Feedback on adherence to medication
- Prediction of outcomes after surgery

WHAT

- Remote access to patient results
- Create patient groups (severe, surgery, for biological treatment)
- Access from KWS (in progress)





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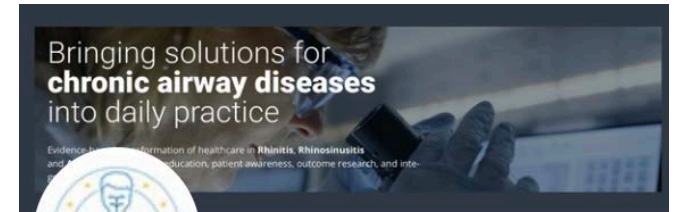
SUPPORT EUFOREA MAKE A DONATION

Bringing solutions for chronic airway diseases into daily practice

Evidence-based transformation of healthcare in **Rhinitis, Rhinosinusitis** and **Asthma** via physician education, patient awareness, outcome research, and integrated care pathways

mHealth tools
Development of digital solutions for better

www.euforea.eu



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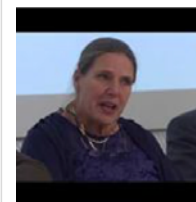
1,074



EUFOREA

13 augustus · 🌐

Debate on the positioning of Dymista, a nasal treatment for allergic **#rhinitis** combining antihistamine and corticosteroid. A panel discussion with patients and experts **#Allergy #HayFever**
https://youtu.be/_GuPUayz1hs



YOUTUBE.COM

Positioning Dymista in Allergic Rhinitis treatment [Rhinology Future Debates 2017]

Debate on the positioning of Dymista, a nasal treatment for Allergic Rhinitis. Dymista is a symptomatic treatment containing an...