A B C

Self-Care for COPD patients

Feasibility study supported by NWC AHSN

Stratification of Patients may be key to reducing future costs
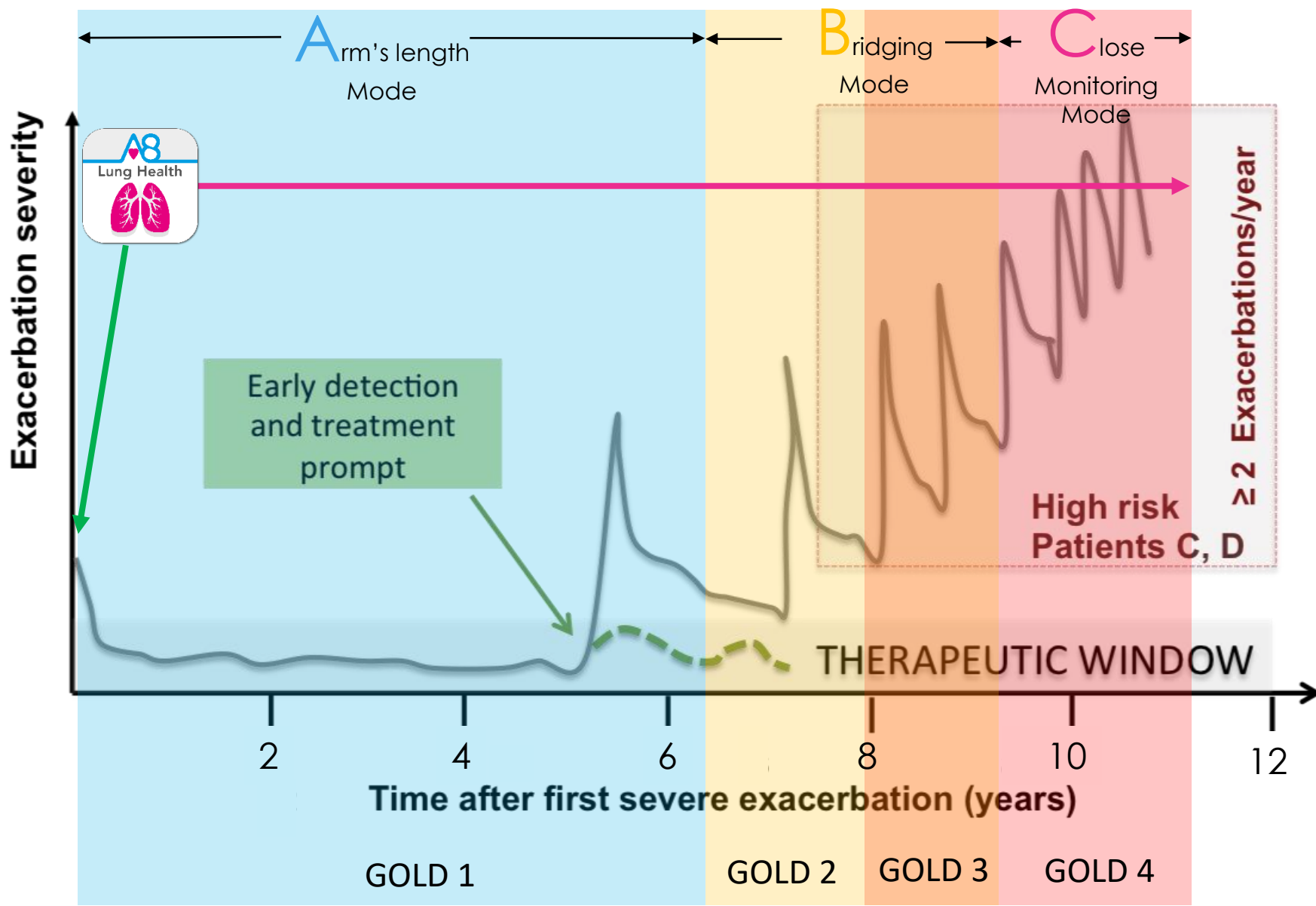
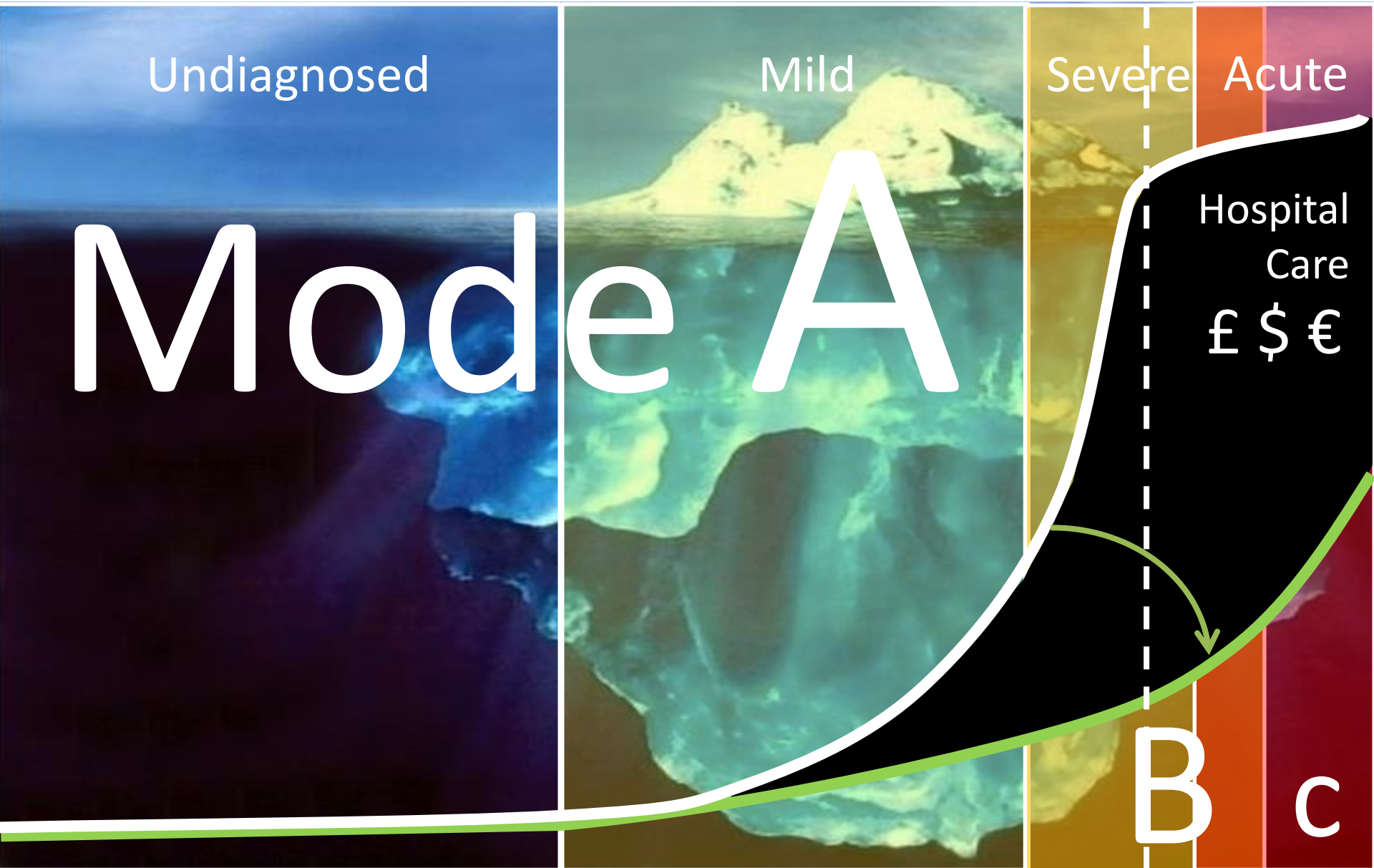Dr Dennis Wat (LHCH)

Kevin A Auton Ph.D (Aseptika)

About Liverpool Heart and Chest Hospital (LHCH)

- LHCH: specialist cardiothoracic centre

- Serves 2.8 million people (Merseyside, Cheshire, North Wales and the Isle of Man).

- In partnership with NHS Knowsley CCG- provider for community COPD service since August 2011

- Reported prevalence of COPD in Knowsley

  - 3rd most deprived CCG

  - 5,100 patients (2012/13)

  - 2 x that of national average 1.7 %

  - Mortality 2.5 x that of national average

  - Smoking prevalence in Knowsley-32%

- 2013/14 Knowsley spent £1,250,578 on emergency admissions (589 spells) for COPD.
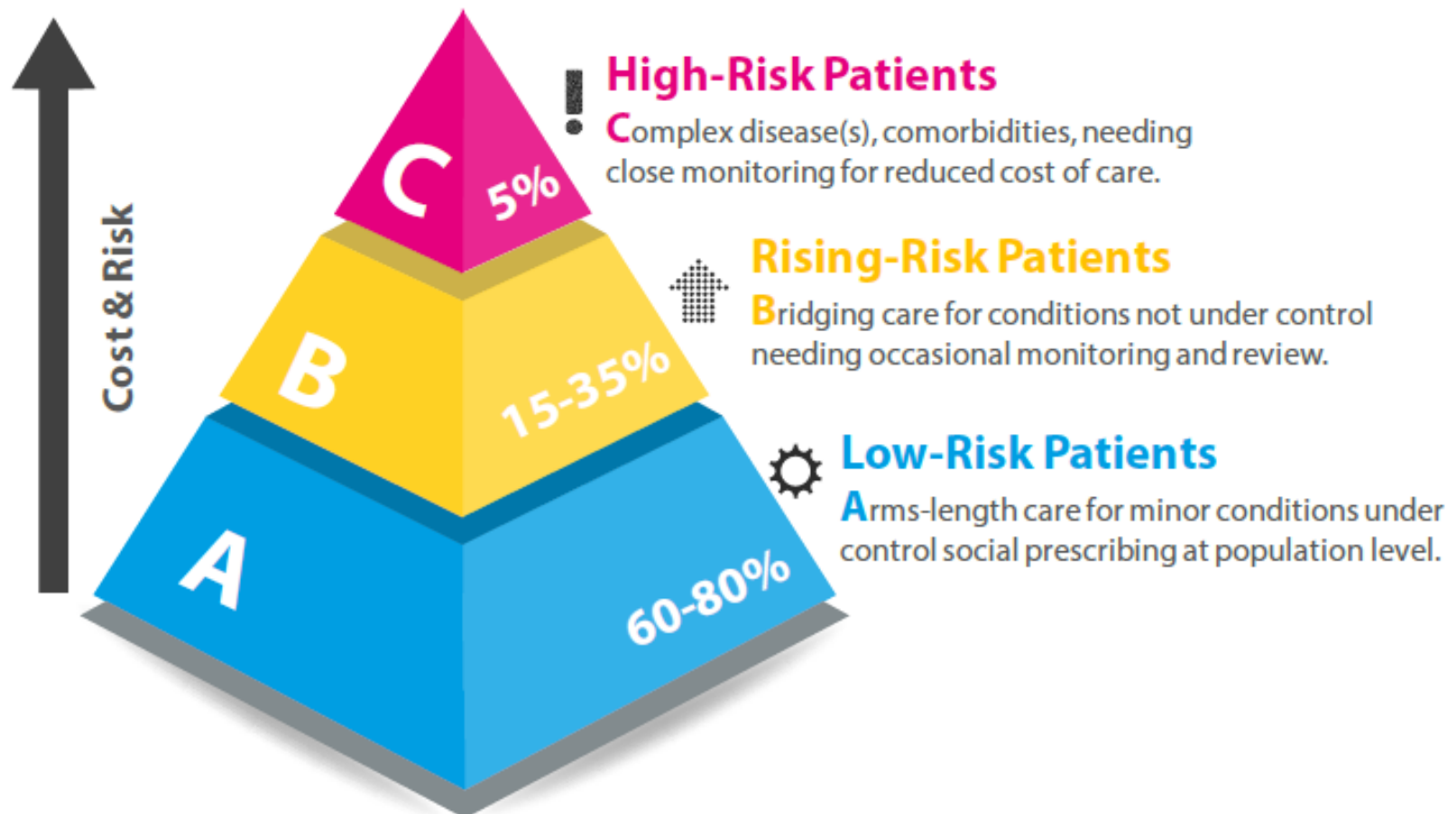
Self-management in COPD

- Allows patients to manage their symptoms more effectively

- Able to recognise exacerbations symptoms at an early stage, seek medical attention earlier

- Preserve patient's sense of autonomy

- Improve quality of life

- Traditional self-management includes education to be used in conjunction with proven treatments such as smoking cessation and pulmonary rehabilitation (PR)

- Smoking cessation- challenging

- PR- poor uptake and high drop out rate

- Innovative approach is required

Arm's length Mode

Bridging Mode

Close Monitoring Mode

Exacerbation severity

Lung Health

Early detection and treatment prompt

THERAPEUTIC WINDOW

High risk Patients C, D

≥ 2 Exacerbations/year

Time after first severe exacerbation (years)

2   4   6   8   10   12

GOLD 1

GOLD 2   GOLD 3   GOLD 4

A8 Activ8rlives

Three Patient Populations: Three Care Pathways

Cost & Risk

C 5%

B 15-35%

A 60-80%

High-Risk Patients
Complex disease(s), comorbidities, needing close monitoring for reduced cost of care.

Rising-Risk Patients
Bridging care for conditions not under control needing occasional monitoring and review.

Low-Risk Patients
Arms-length care for minor conditions under control social prescribing at population level.

References: The Population Health Enterprise: Building the High-Performance Care Management Network. The Advisory Board Company, 2015, p15.

Blood Pressure

Pulse oximeter
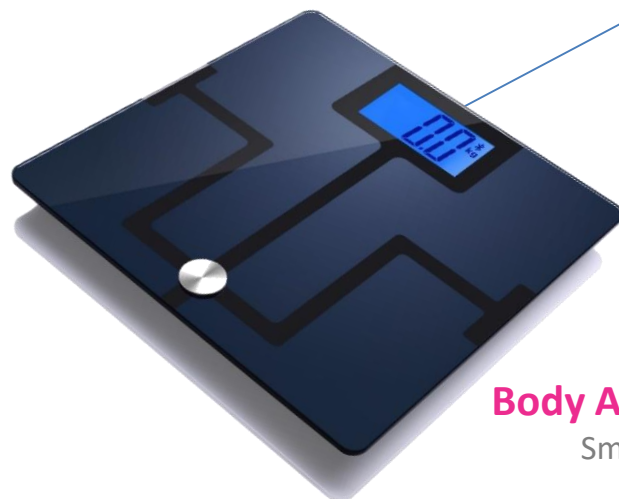Blood oxygen and heart rate

Contactless Thermometer

Peak Flow
PEF and FEV_1

Body Analyser
Smart scales

BuddyBand2
Waterproof Activity Tracker

13 **Read your Blood Pressure**

unable to do this

Press either of the reading buttons on the Blood Pressure monitor.

A8 Lung Health

Age / Abilty appropriate Apps for patients/users.

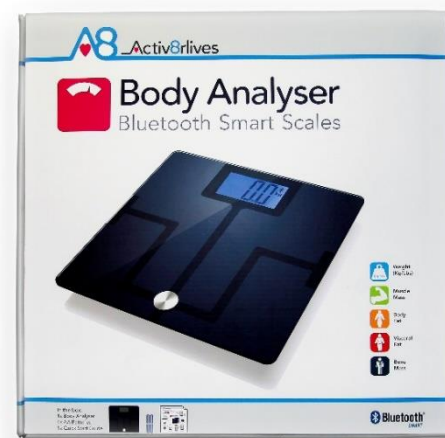Various App versions.

Complete solution: devices, Apps, Cloud.

15:37

Menu Switch on the Thermometer

14 **Switch on the Thermometer**

NEXT

MODE °C/°F MEM

SCAN

unable to do this

Press any button on the thermometer so it comes on. Then press Next.

10 Stand on the Scales

NO SOCKS

unable to do this

Please remove your shoes and socks, then stand on the Body Analyser.

Graphing for Patient21 PHT
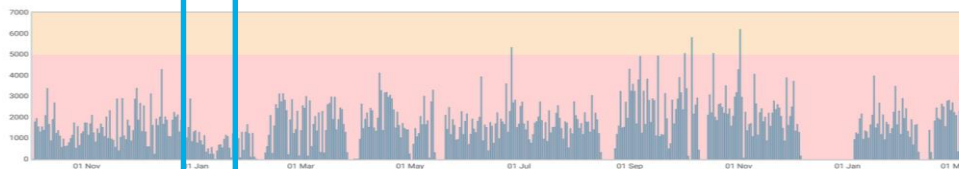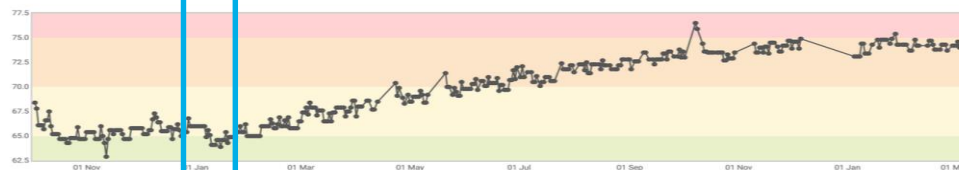
DOB: 10/05/1963   NHS Number:

PercentPEF
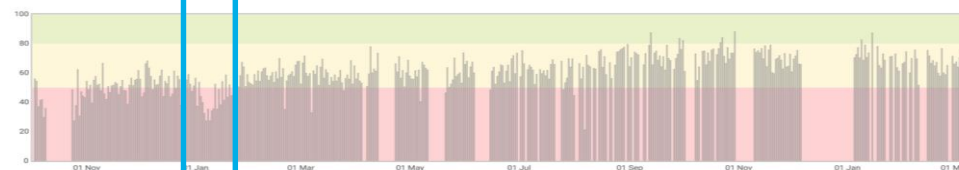
Oxygen
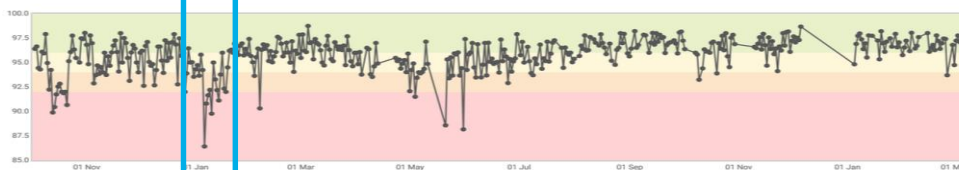
CombinedBP

Steps

Weight

A patient successful in Self-Care.

♥ Increased lung function by 20%.

♥ Catches exacerbations early and self-medicates with rescue pack.

♥ 18 months.

♥ Daily Self-Care.

First and last mile Self-Care and connected health

Hospital Clinicians
Nurse Practitioners
GPs
Dieticians
Physiotherapists

EMIS Web
MIG Messaging

Web-facing

Social workers
Teachers
Community leaders
Families
Parents
Young carers

Self-monitoring
Self-management
Empowerment
Responsibility
Independence
Ownership
Self-reliance

90-97%

adherence in clinical trials.

100,000 users
Mostly UK

NHS IG ToolKit

A8 Activ8rlives

- Dashboard
- Group Health Data
  - Group Health
  - Group NEWS
  - Group NEWS Map
- Patient Health Data
- CMS Settings
- Bulletins
- Store

My Account | Help | Logout

Group health data

Switch to NEWS | Switch to NEWS Map

Filter Patients | Clear Filter

Organisation: Liverpool Heart & Chest Hospital

Group:

Name	Alerts	NEWS	Oxygen (%)	Percentage Peak Flow (%)	Percentage FEV₁ (%)	Heart Rate (Beats per min)	Systolic Blood Pressure (mmHg)	Diastolic Blood Pressure (mmHg)	Blood Pressure	Body Temperature (°C)	Room Temperature (°C)	Steps	Weight (kg)	Wellness	Cough	Appetite	Breathing	Energy	Respiratory Contact	Other Contact	In Hospital
Patient 1		4	87 ↓	22 ↓	29 ↓	100 ↑	162 ↑	88 ↑	162/88	--	--	3837 ↑	--	6 ↓	6 ↓	8 ↑	7 ↑	7 ↑	--	--	--
Patient 2		4	87 ↓	12 ↓	16 ↓	110 ↓	123 ↓	66 ↓	123/66	36.40 ↓	22.00 ↑	1182 ↓	--	4 ↓	3 ↓	4 ↓	5 ↑	2 ↓	--	--	--
Patient 3		3	89 ↑	14 ↓	13 ↑	87 ↑	112 ↓	57 ↓	112/57	37.80 ↑	23.10 ↓	293 ↓	61.50	7 ↓	3 ↓	10 ↓	6 ↓	6 ↓	--	--	--
Patient 4		3	94 ↑	45 ↓	32 ↓	102 ↓	171 ↑	106 ↑	171/106	36.00 ↓	21.80 ↑	246 ↓	--	9 ↓	8 ↓	9 ↓	8 ↓	8 ↓	--	--	--
Patient 5		3	92 ↓	108 ↓	74 ↓	93 ↓	138 ↓	68 ↓	138/68	36.70 ↓	24.10 ↓	1776 ↓	50.90	7 ↓	9 ↓	6 ↓	6 ↓	7 ↓	--	--	--
Patient 6		3	90 ↓	25 ↓	20 ↓	90 ↑	118 ↑	45 ↓	118/45	36.10 ↓	21.60 ↓	2122 ↓	--	6 ↓	6 ↓	6 ↓	6 ↓	6 ↓	--	--	--
Patient 7		2	93 ↑	--	--	88 ↑	127 ↑	51 ↓	127/51	37.30 ↓	20.80 ↓	2163 ↑	80.90	8 ↓	8 ↓	7 ↓	7 ↓	7 ↓	--	--	--

A8 _Activ8rlives_

- Dashboard
- Group Health Data ∨
  - Group Health
  - Group NEWS
  - Group NEWS Map
- Patient Health Data >
- CMS Settings >
- Bulletins
- Store

Group NEWS Map

[Switch to Latest Values] [Switch to NEWS]

[Previous day] [Today] [Next day] [Choose day]   Showing data for Wednesday 13th April 2016 (Yesterday)
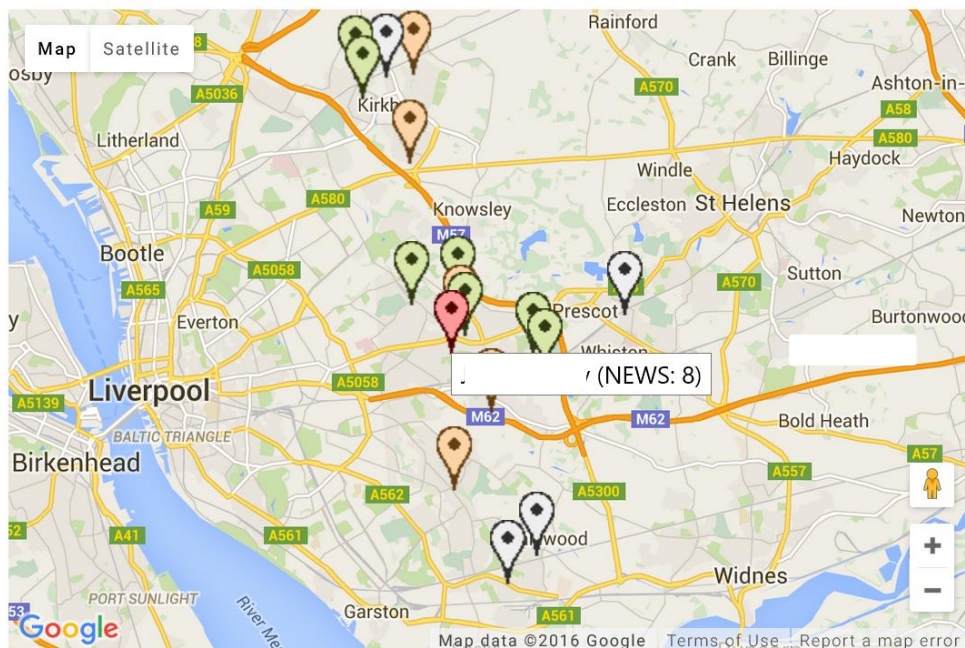
National Early Scores. Patient-generated data. By region.

Show Red Scores: ☑   Show Amber Scores: ☑   Show Green Scores: ☑   Show White Scores: ☑

(NEWS: 8)

Forecast exacerbations by 5-7 days.

Economics:
1 hospitalisation prevented =
100% ROI

High Risk Zone Patient

Steps ⓘ

Copy Graph

Hospitalisation
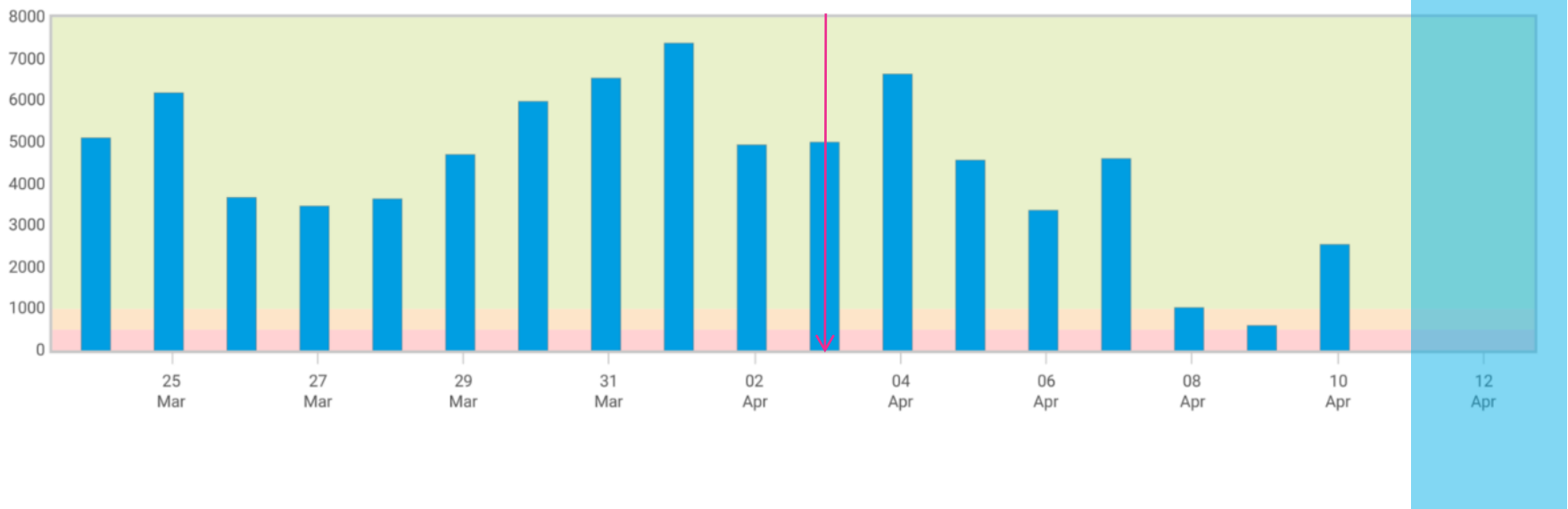
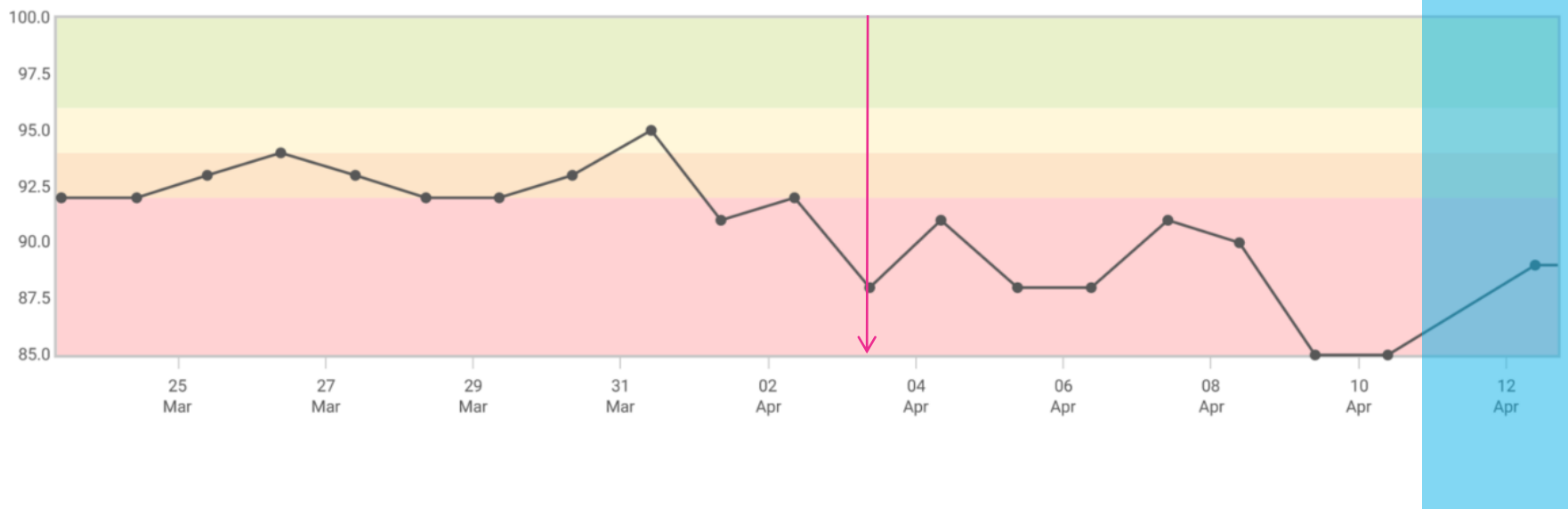

5-7 days early warning.
But someone has to be watching and looking.
Move from reactive to proactive to reduce hospitalisations.

Activ8rlives

High Risk Patient

Oxygen ?

Copy Graph

Hospitalisation

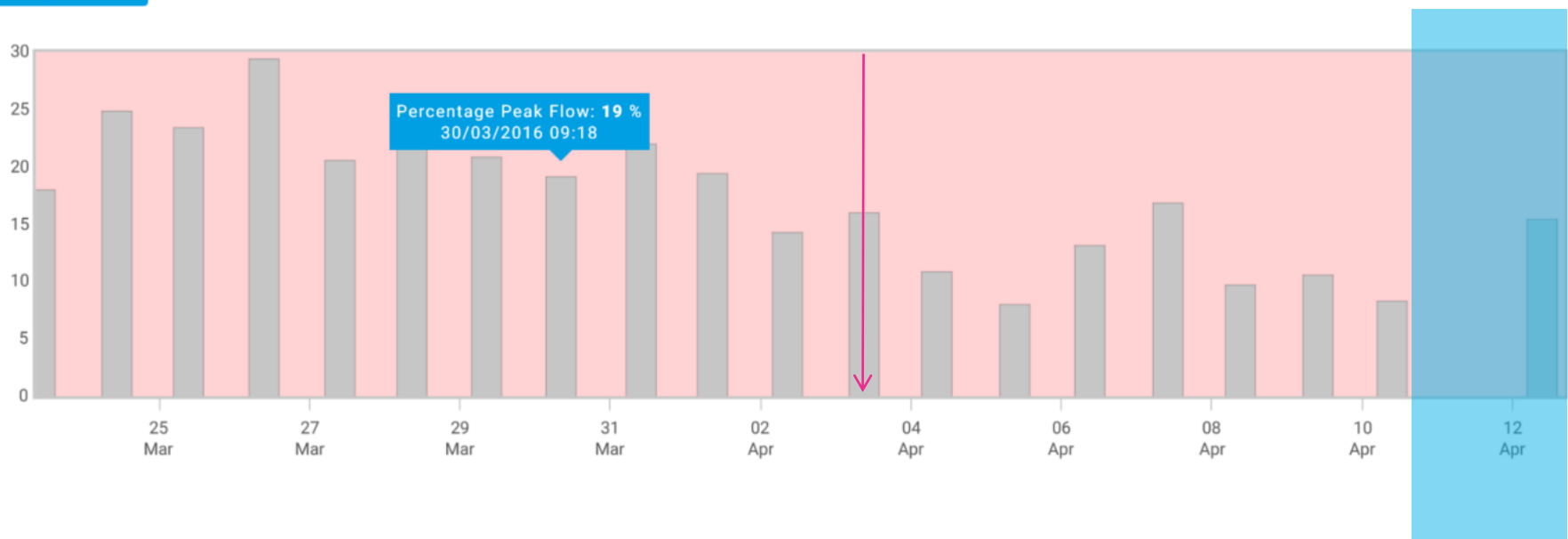5-7 days early warning.
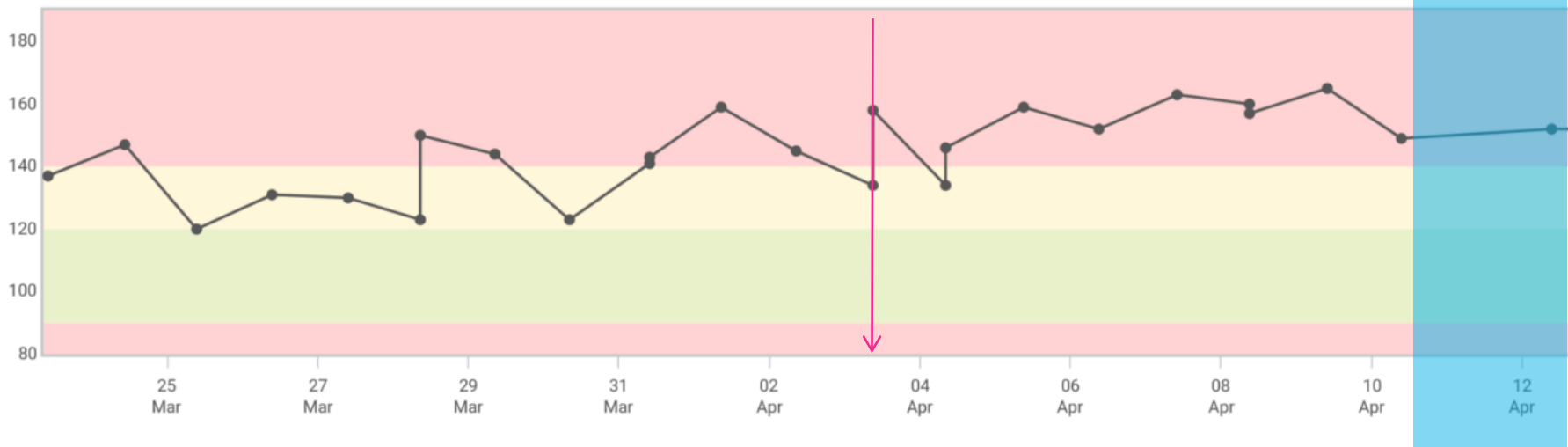But someone has to be watching and looking.
Move from reactive to proactive to reduce hospitalisations.

High Risk Patient

PercentPEF ⊙

Hospitalisation

Copy Graph

Percentage Peak Flow: **19** %
30/03/2016 09:18

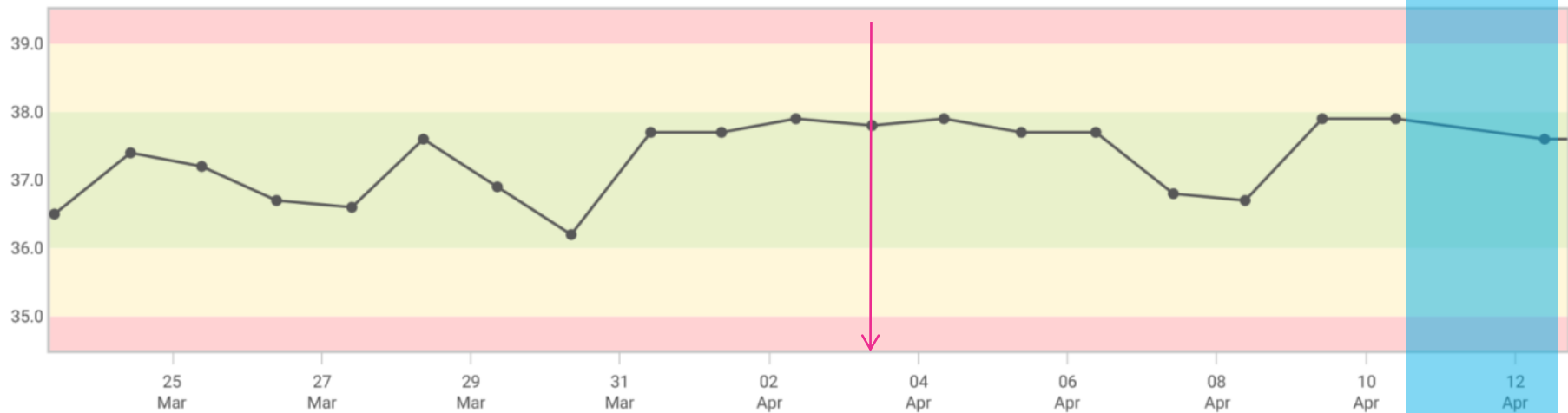5-7 days early warning.
But someone has to be watching and looking.
Move from reactive to proactive to reduce hospitalisations.

High Risk Patient

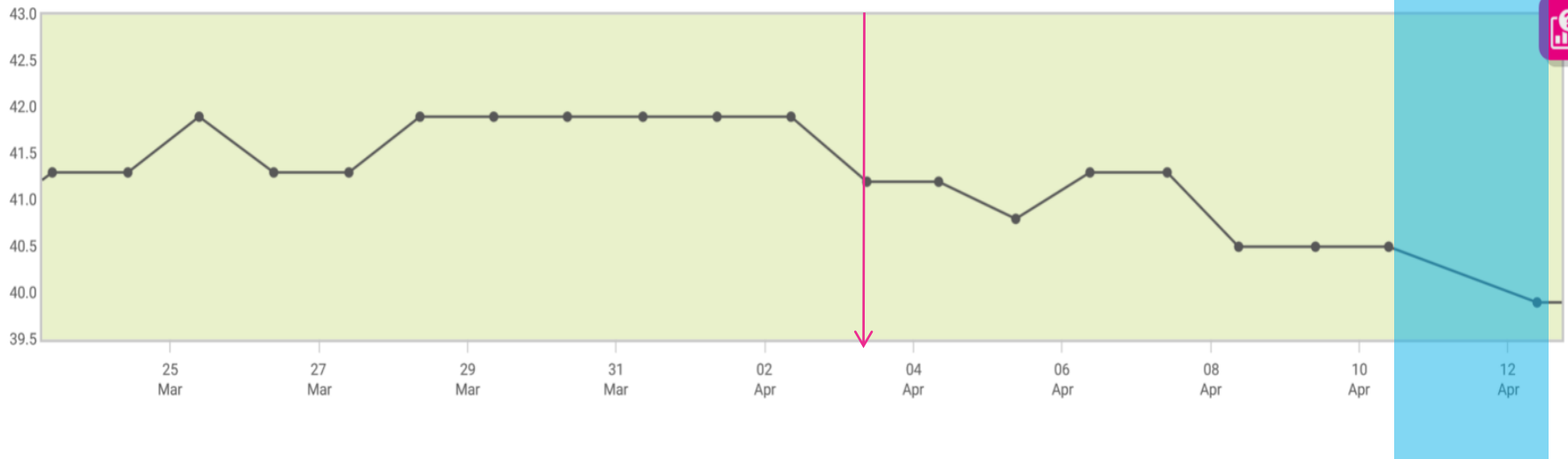**Temperature** ⓘ

Hospitalisation

5-7 days early warning.
But someone has to be watching and looking.
Move from reactive to proactive to reduce hospitalisations.

High Risk Patient

Hospitalisation

Weight ⍰
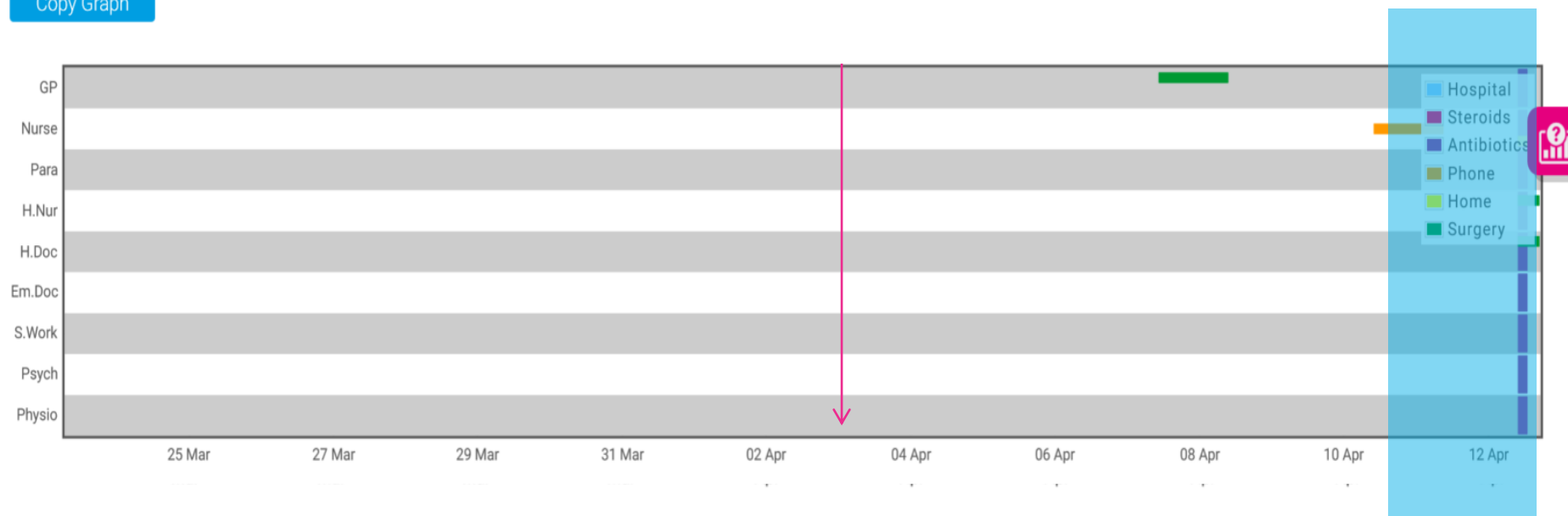
Copy Graph

5-7 days early warning.
But someone has to be watching and looking.
Move from reactive to proactive to reduce hospitalisations.

High Risk Patient

Respiratory Contact ❓

Hospitalisation

5-7 days early warning.
But someone has to be watching and looking.
Move from reactive to proactive to reduce hospitalisations.

Arms Length (60-80%)

- ♥ Diagnosed.
- ♥ No monitoring, no interventions, eLearning
- ♥ In work.
- ♥ GP care.
- ♥ Population-Level QoL drives economics.

GOLD 1

Bridging (15-30%)

- ♥ First exacerbation or hospitalisation.
- ♥ Home care packs.
- ♥ Referred to specialist clinics.
- ♥ Shares data as outpatient or prescribed A8.
- ♥ Patient-generated data reviewed occasionally.
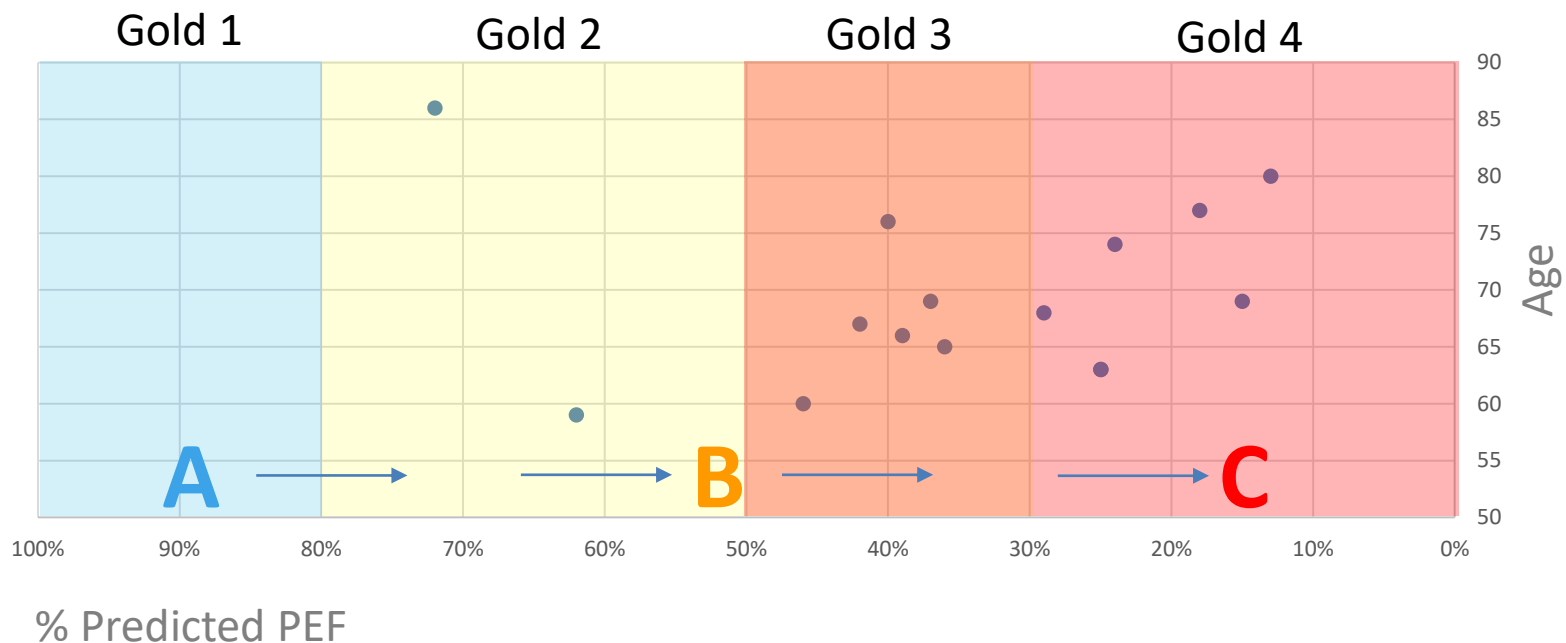- ♥ Burden of cost transferring to Acute setting.

GOLD 2 > 3

Close (5%)

- ♥ Frequent Hospitalisation.
- ♥ Palliative care.
- ♥ Admission & Readmission avoidance drives Health Economics.

GOLD 3 > 4

Gold 1   Gold 2   Gold 3   Gold 4

A   B   C

% Predicted PEF

Patients from LHCH selected: **2 admissions in last 12 months**.
Average age = 69 (range 59-86), average PEF = 35% of predicted (range 88-13%).

90% patients are compliant with the technology
90% patients are satisfied with the technology
80% patient are competent using the technology after just 4 weeks
85% patients will recommend this technology of self-monitoring to a fellow patient
60% patients would contribute financially for technology to improve self-management

Close Monitoring
Mode C
GOLD 3 > 4
Health economics
driven by
admission
avoidance
High Risk
Daily monitoring

Bridging Care
Mode B
GOLD 2 > 3
Health economics driven by avoiding readmission
Rising Risk

Self-Care
Health Education
Occasional Reviews

Arm's Length
Population Level
Mode A
GOLD 1
(or any LTC)
No monitoring
eLearning
Self-monitoring
Self-purchase?

Progress to date

- 16 COPD patients recruited into the project to date, with funding for another 30

- Mean age- 66 years (oldest being 86 years)

- Challenging (and expensive) patients- All had been admitted > twice in the last 12 months. Many on palliative care plans.

- Some patients needed additional support and coaching from the clinical staff to understand their own data and how to learn from it

Activ8rlives

Adoption challenges 1 – LHCH looking out.

- Investment costs are high - so many calls on NHS budget.

- Connectivity from Activ8rlives solution and LHCH PHR inhibits adoption.

- The most **frail patients (C)** need constant monitoring - not set-up for this.

- Takes huge effort to move current practise.

- Overwhelming demand pulls us in all directions.

- Demand for evidence used as a way to say "NO!"

Adoption challenges 2 – Aseptika looking in.

- Willing Clinical Leadership. Patients love it. Resistance at other levels.

- Plenty of money in the system, but hard to move it.

- Need locally created evidence for bottom-up. But Top-down implementation.

- The "Doers" are "Too busy sawing to stop to sharpen the saw."

- Low levels of basic IT skills (Smartphones and Tablets) at junior HCP level.

- Our costs to drive implement are huge. Training, support, IG, IT, logistics – slow and expensive.

- Health Economics focused avoiding admissions (£1,700-3,500 per admission).

- Closely Monitor High-Risk patients (1 minute per patient per day to view data) – but no time.

- For High Risk patients (5%) with no support in the community (family and social care), may be no alternative to admission.

- Investment needed to proactively work at Rising-Risk level - stem transition to High-Risk stages for as long as possible. Can't justify on avoidance HE model. Needs longer-term thinking.

Activ8rlives
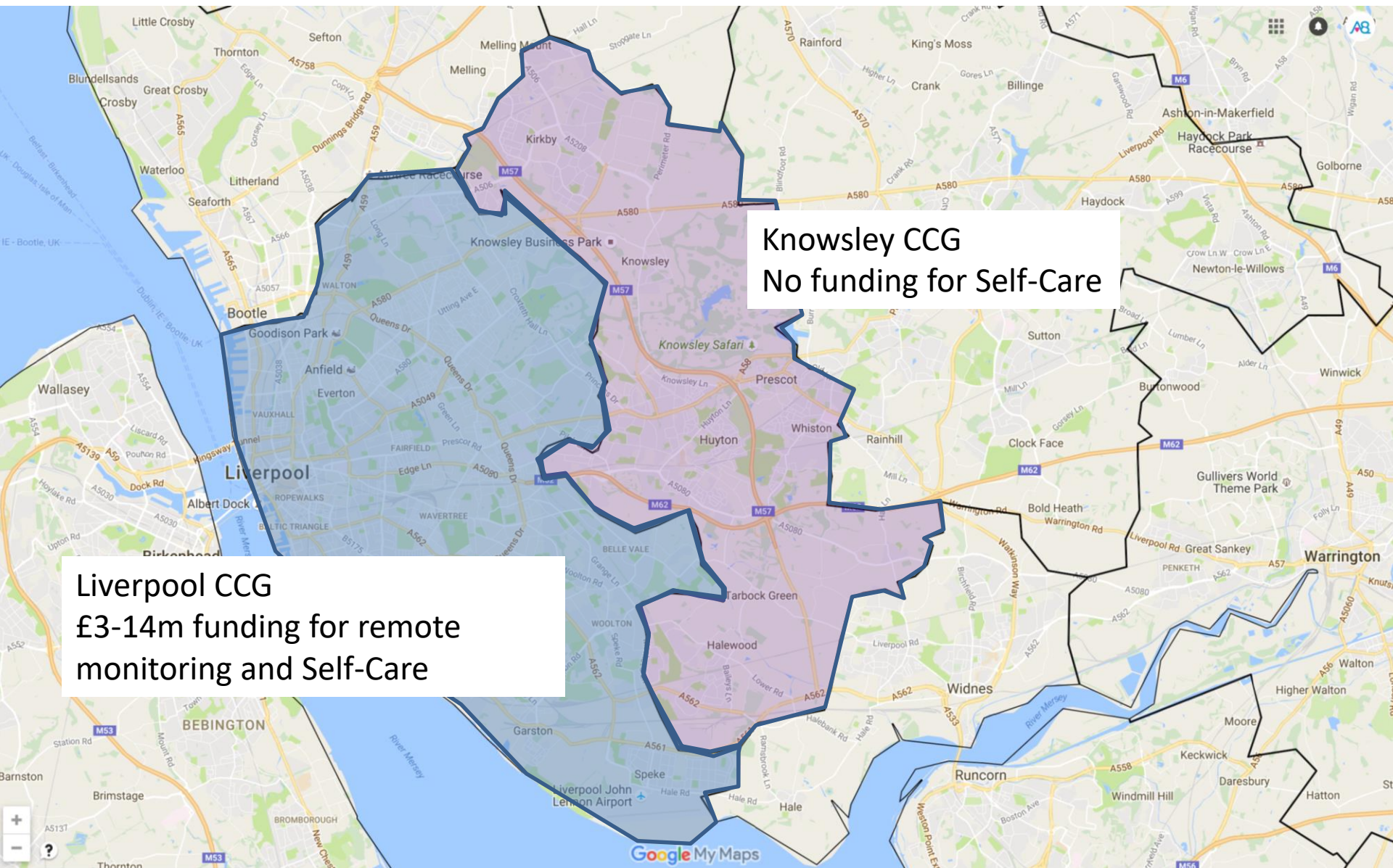
Knowsley CCG
No funding for Self-Care

Liverpool CCG
£3-14m funding for remote
monitoring and Self-Care

Impact: Key successes and outcomes

- 2 days protected time for a team member to project manage

- Gained ethical approval from Research and Innovation Committee at LHCH

- Gained Information Governance approvals to allow information sharing between LHCH and Aseptika

- Feedback from the expert patient groups facilitated the development of easy-to-understand consent forms and patient's educational materials

- **Feedback form patients:**
  - 90% of patients are compliant with the technology
  - 90% of the patients are satisfied with the technology
  - 80% are competent using the technology after just 4 weeks
  - 85% of the patients will recommend this technology of self-monitoring to a fellow patient
  - 60% of the patients are happy to contribute financially to the technology in order to improve their self-management

A B C

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Dr Denis Wat (LHCH)

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