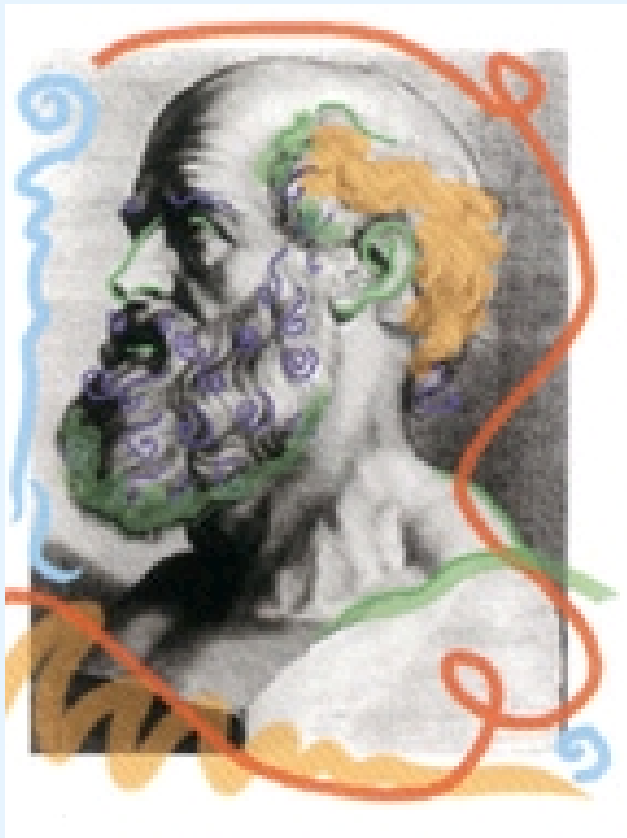


Practicalities of Using a Health Forecast

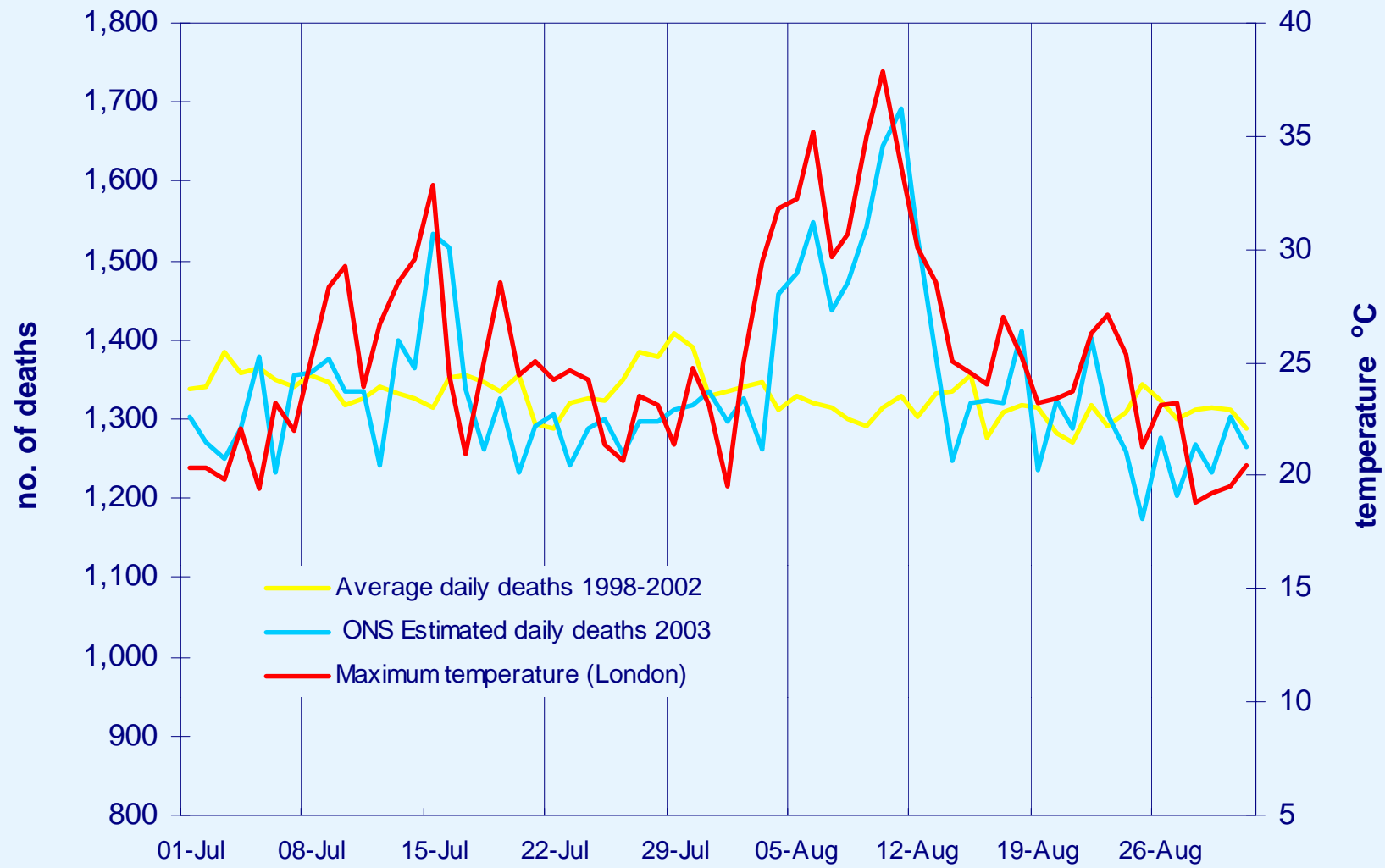
Mark Gibbs
Science and Technology Manager
Health Forecasting

On airs, waters, and places



- Whoever wishes to investigate medicine properly, should proceed thus:
in the first place to consider the seasons of the year, and what effects each of them produces for they are not at all alike, but differ much from themselves in regard to their changes.
- Secondly he must study the warm and the cold winds, both those which are common to every country and those peculiar to a particular locality ...

Summer 2003 deaths

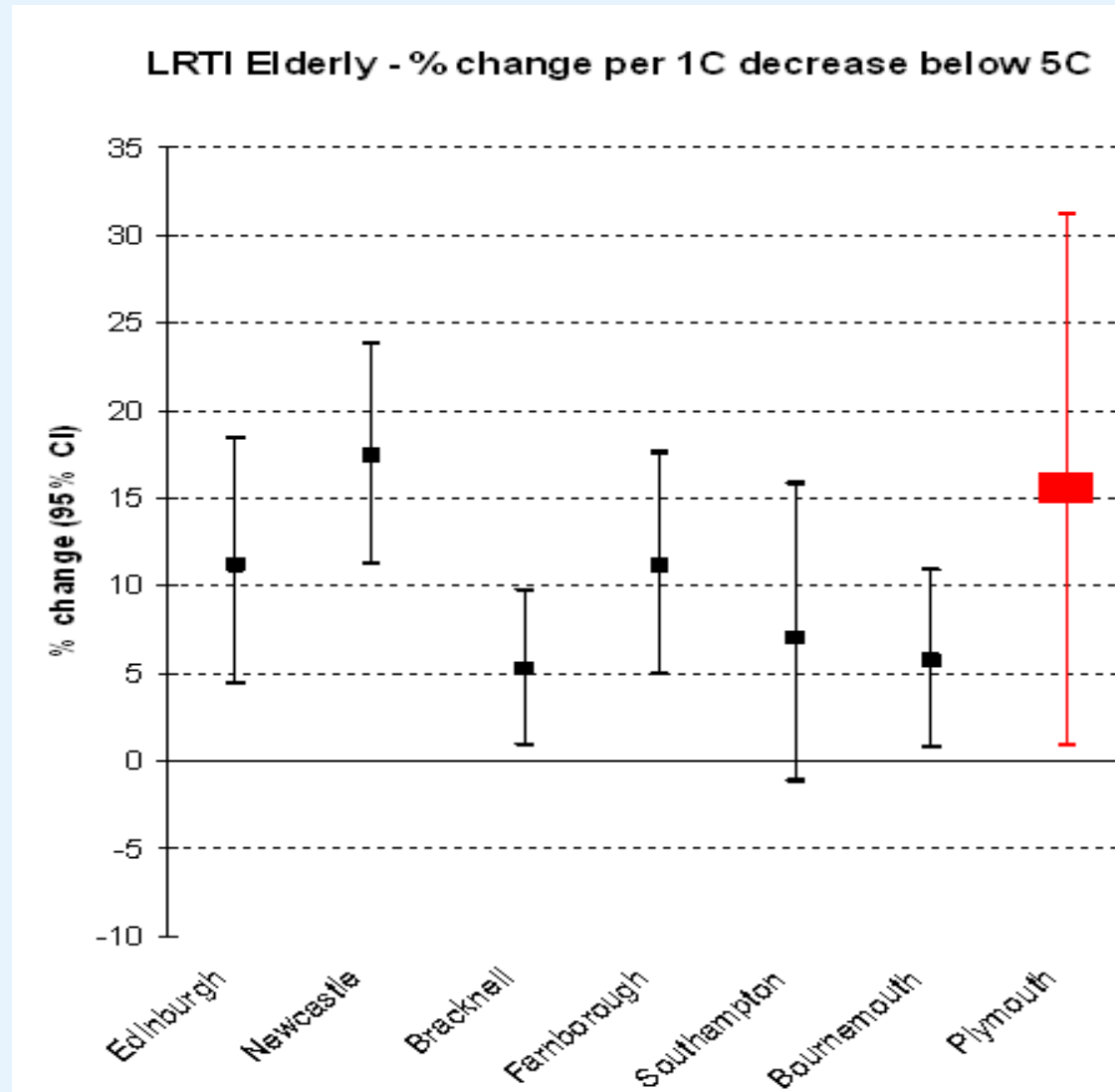


The Elderly and Low Temperatures

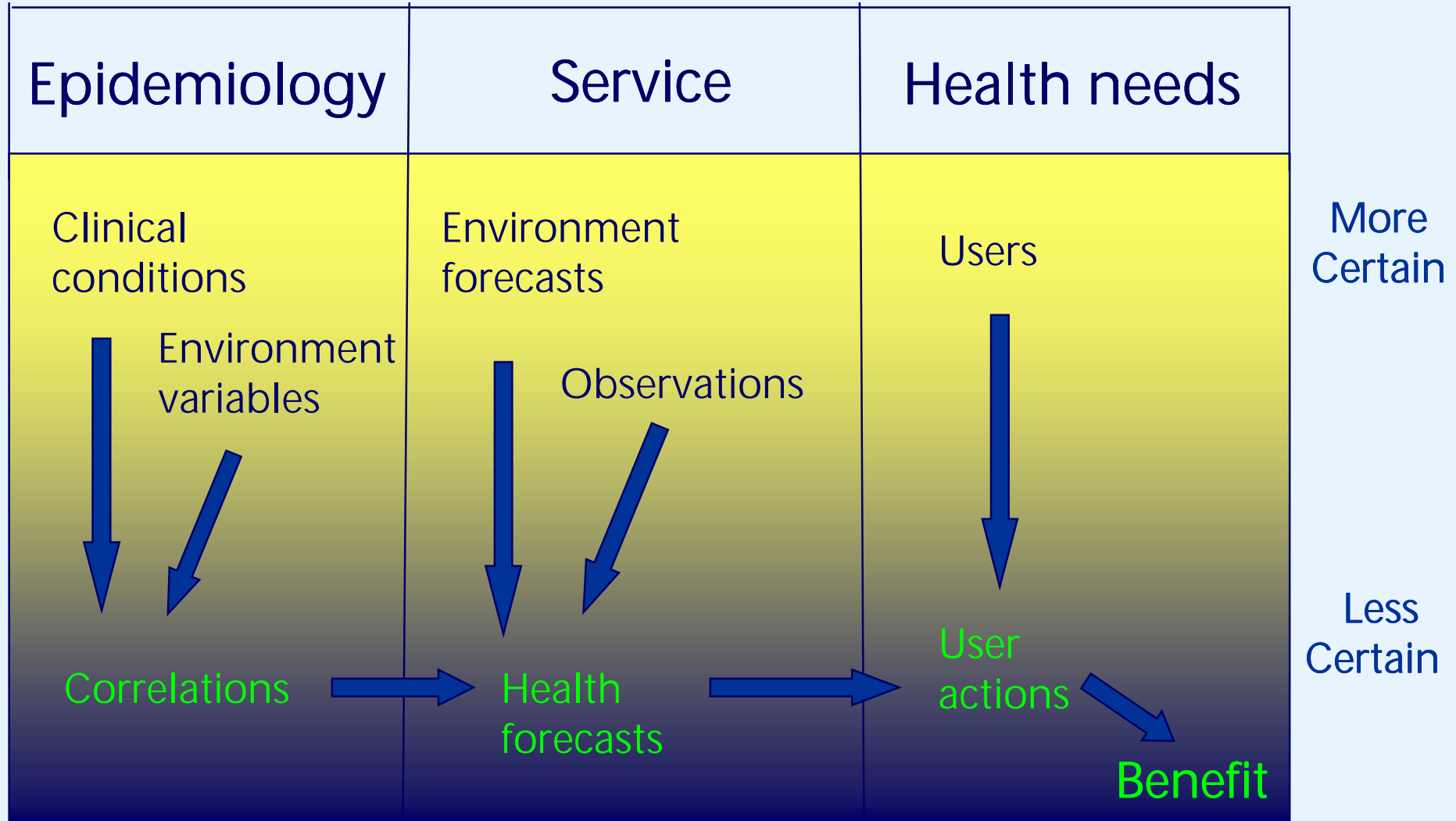


The % increase of elderly patients visiting their GP with a LRTI for every degree fall below 5°C

Met O / LSHTM



Health forecasting architecture



Many possible interventions

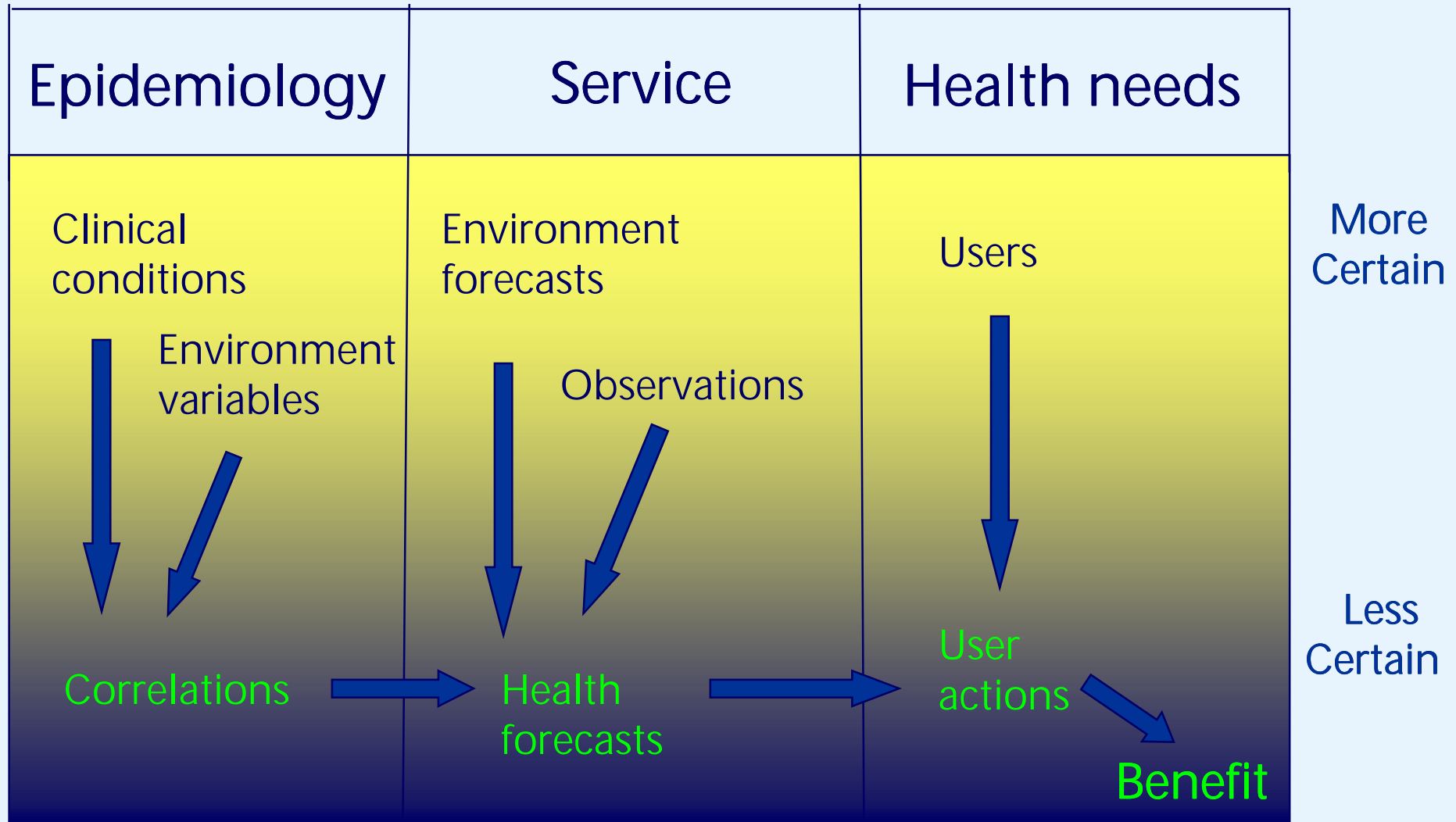


User	Action	Benefit
Acute Hospitals	Emergency Admissions: Cold, Infections, Boundary Layer: <i>Discharges, cancel electives</i>	Manage capacity and patient care
Primary Care	Over 80yr olds: Heat and Cold	Prevent hospital admissions
Primary Care	COPD: target patients, heating, medication, increase primary care	Prevent hospital admission
Primary Care	HEART FAILURE: Cold, infections: Target patients, medication,	Prevent hospital admissions
Public	Heat: <i>target high risk patients, support, fluids</i>	Prevent morbidity and death

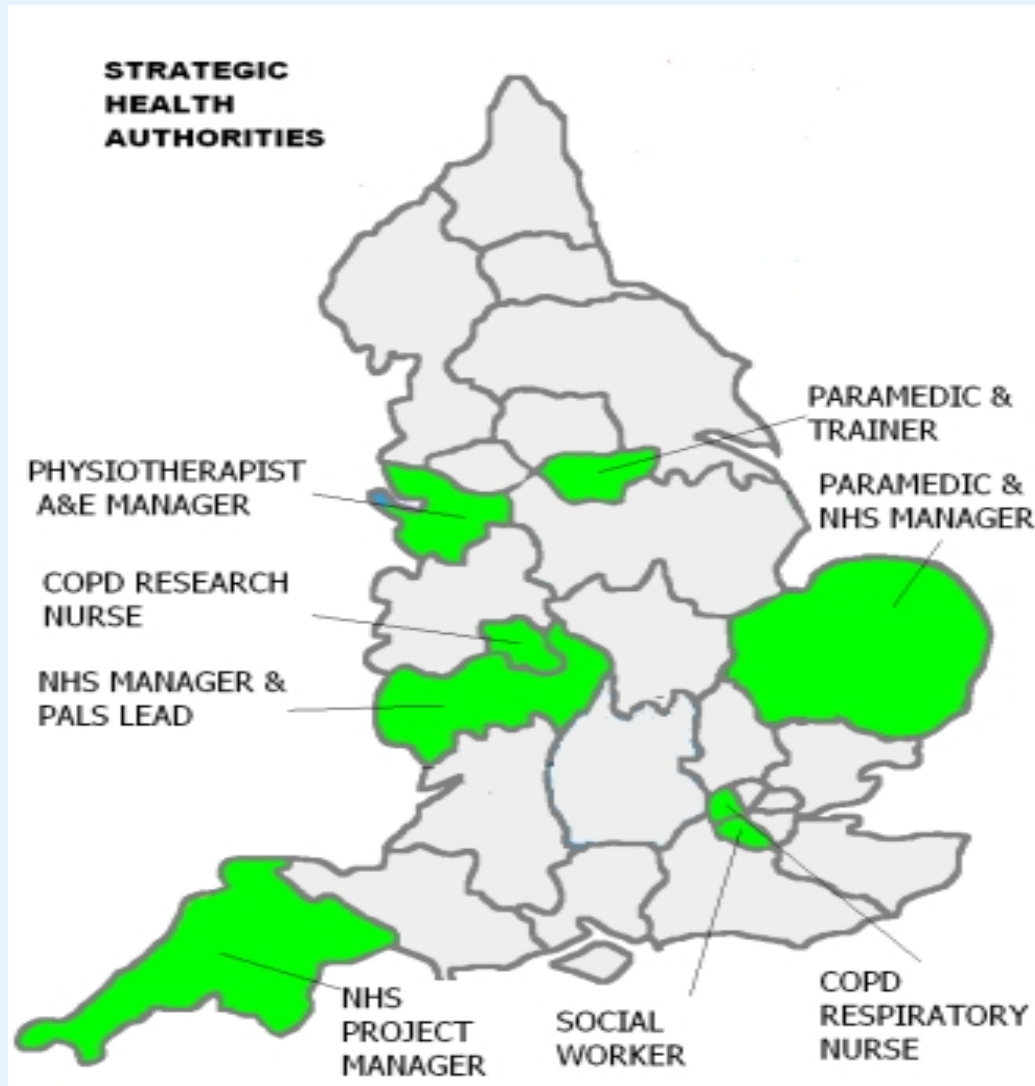
1. Predicting increases in the risk of COPD exacerbation
 - Working with 30 PCTs
2. Predicting hospital emergency admissions
 - Working with 30 acute hospitals

- Between 16% and 22% of patients with exacerbations are admitted to hospital with a mortality of 15% within 90 days
- Some hospital at home schemes have reduced admissions by 45%
- Early treatment reduces length and severity of exacerbation

Health forecasting architecture



SERVICE DEVELOPERS

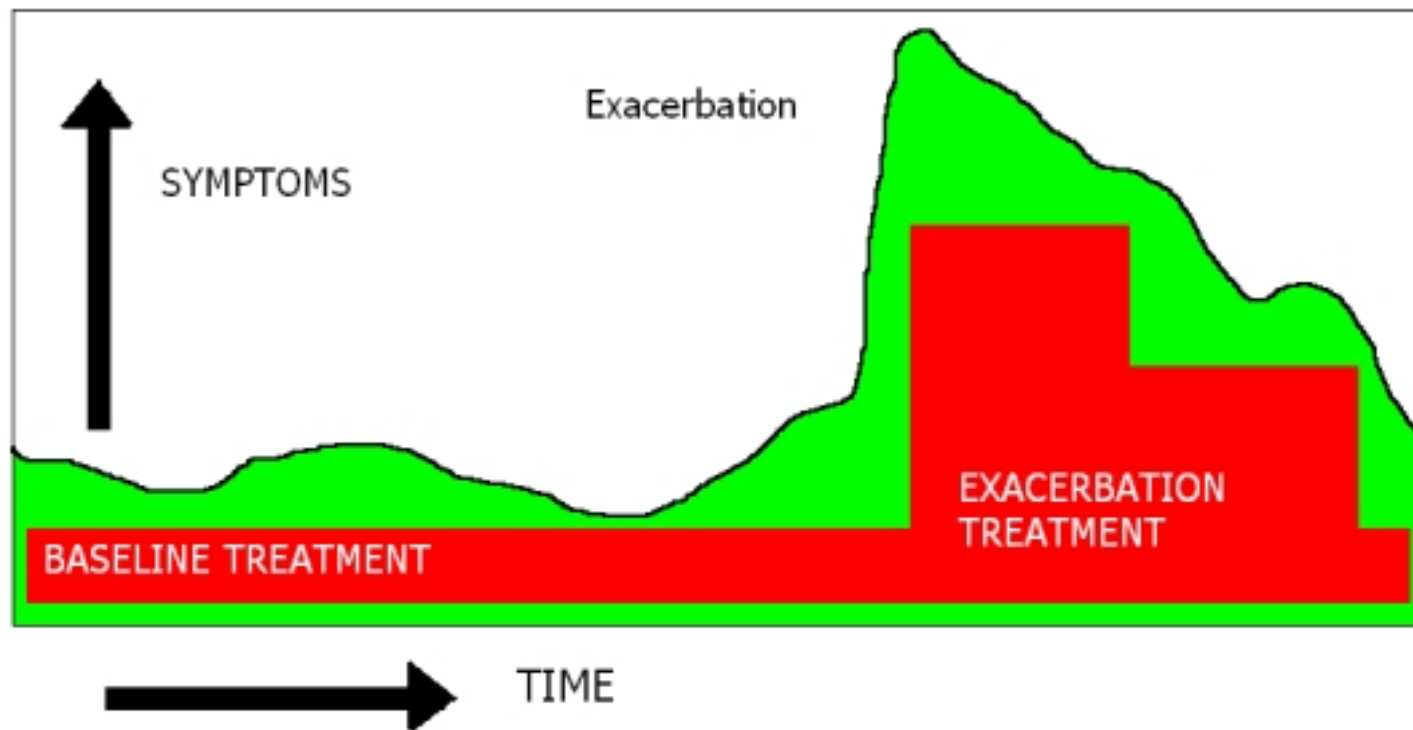


Facilitate
Actions

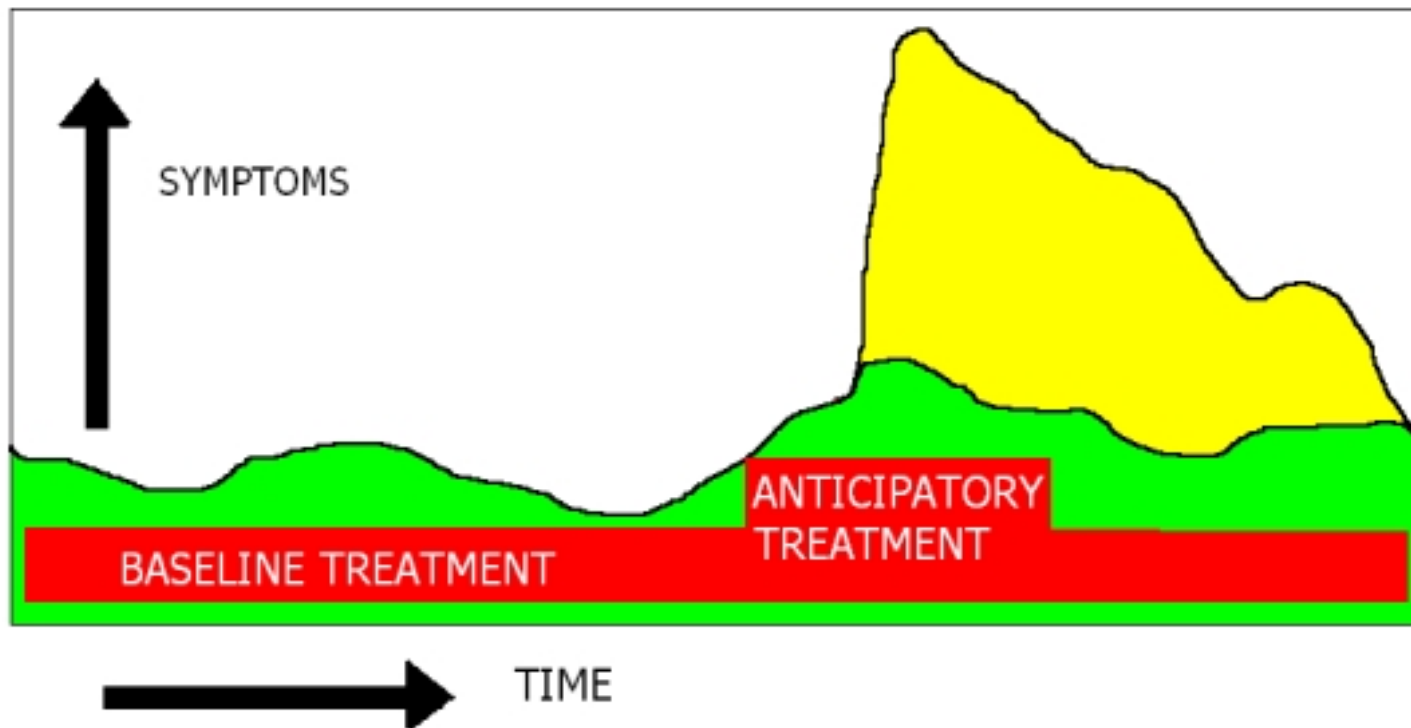
Feedback of
current situation

Feedback of
service

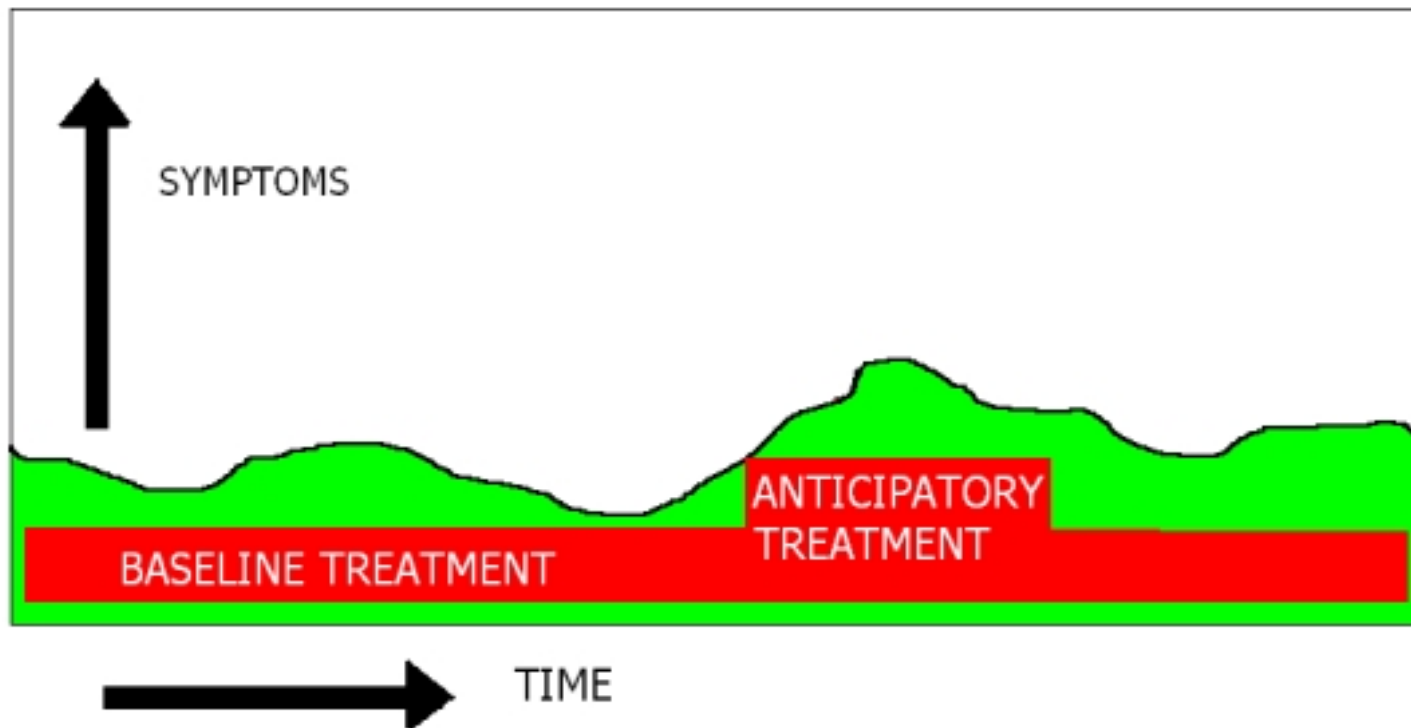
Treating an Exacerbation



Anticipatory Care

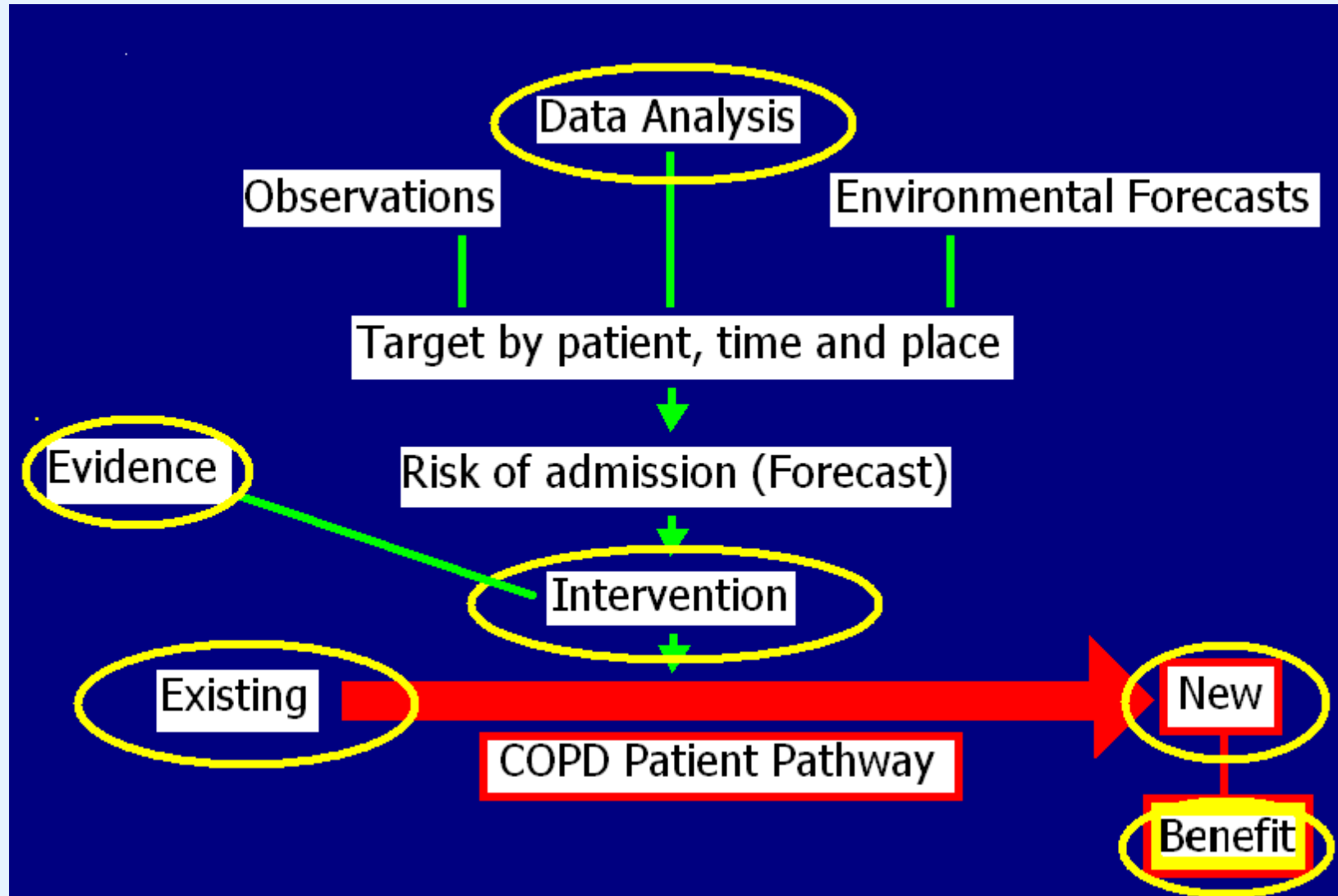


Anticipatory Care

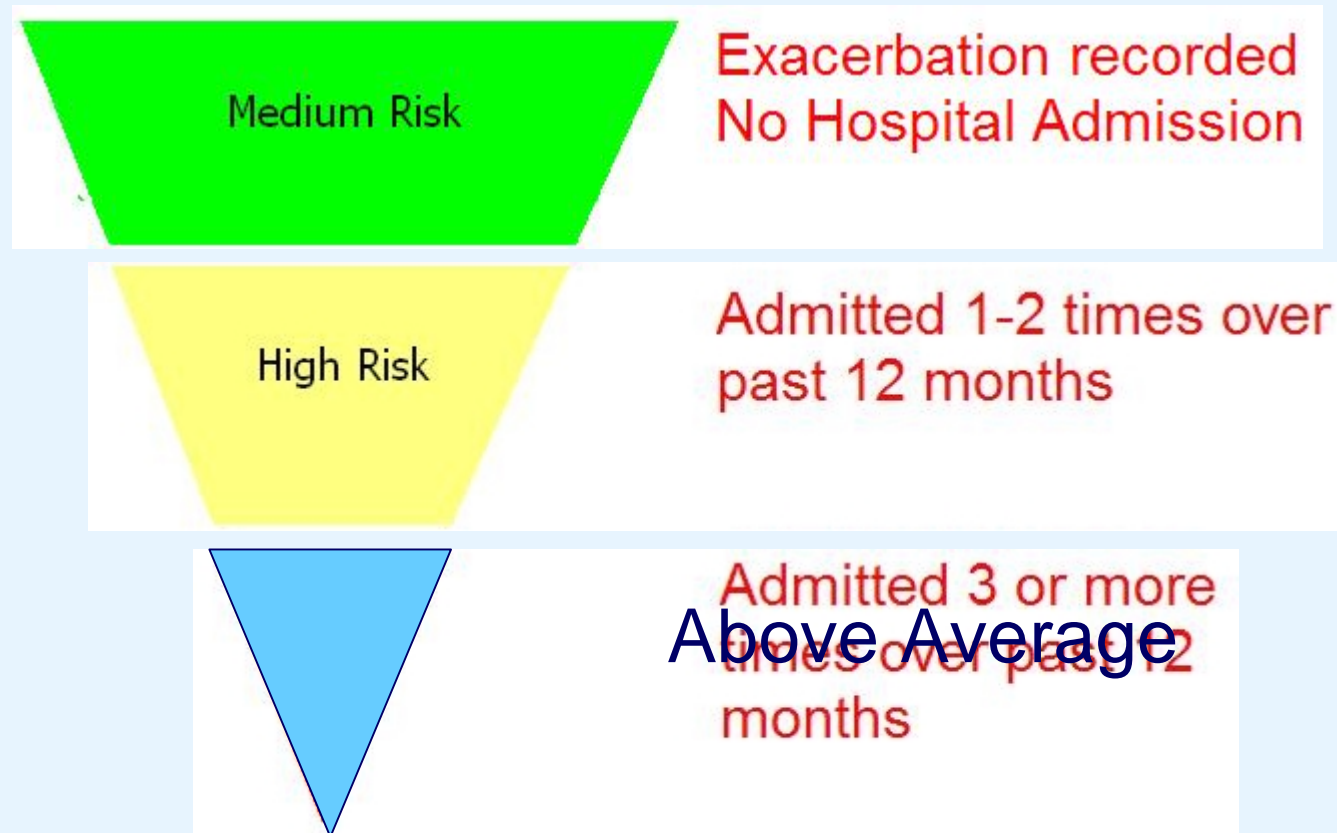


- Dr David Halpin: (Consultant Physician, Royal Devon and Exeter and recent Chair of NICE COPD guideline committee)
- Dr Mark Levy (GP Harrow, General Practice Airways Group and Editor of Primary Care Respiratory Journal)
- Sam Prigmore (Respiratory nurse practitioner St Georges Hospital London and vice chair of Association of Respiratory Nurse Specialists)
- Catherine Kelly (Support & Development manager SW Region of the British Lung Foundation)
- Dr Margaret Somerville (Public Health Consultant Peninsula Medical School)

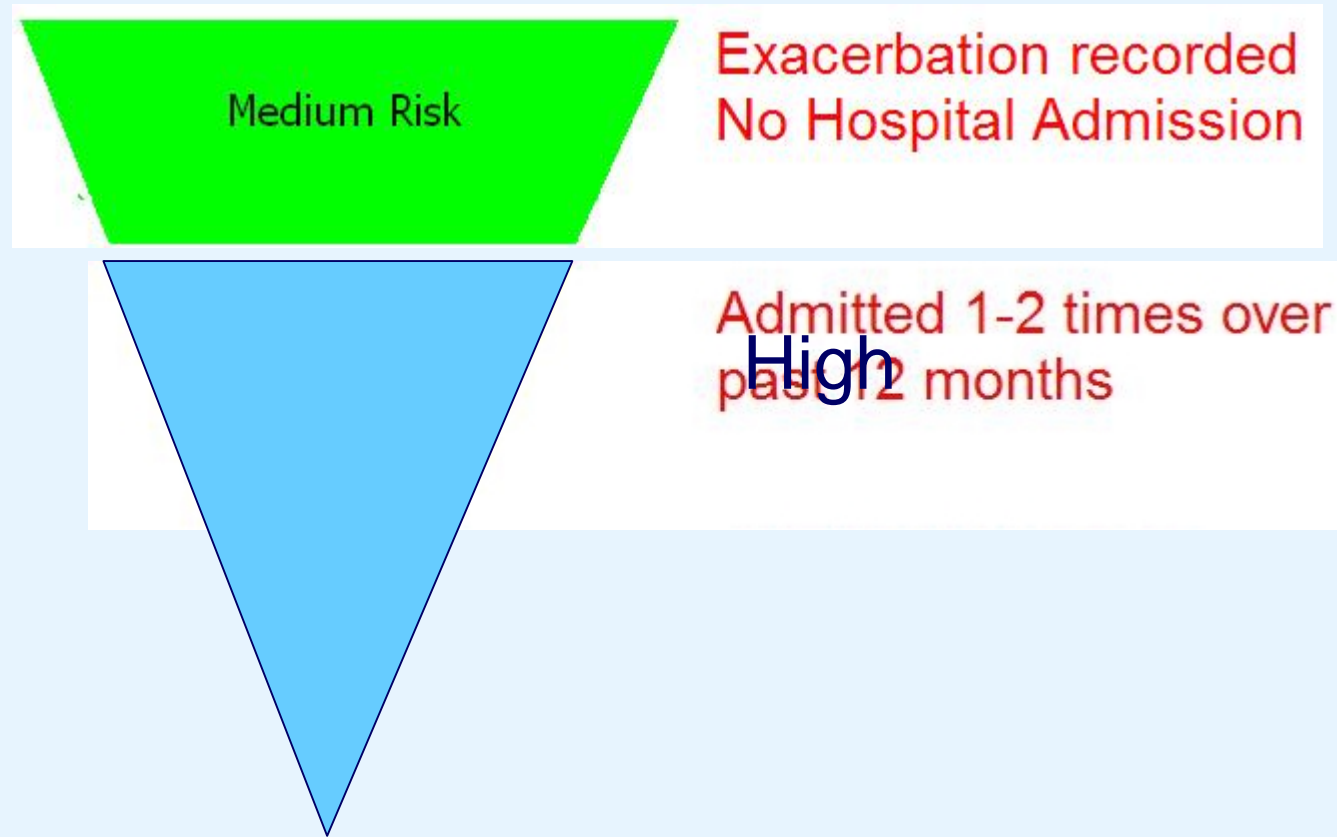
COPD Advisory group role



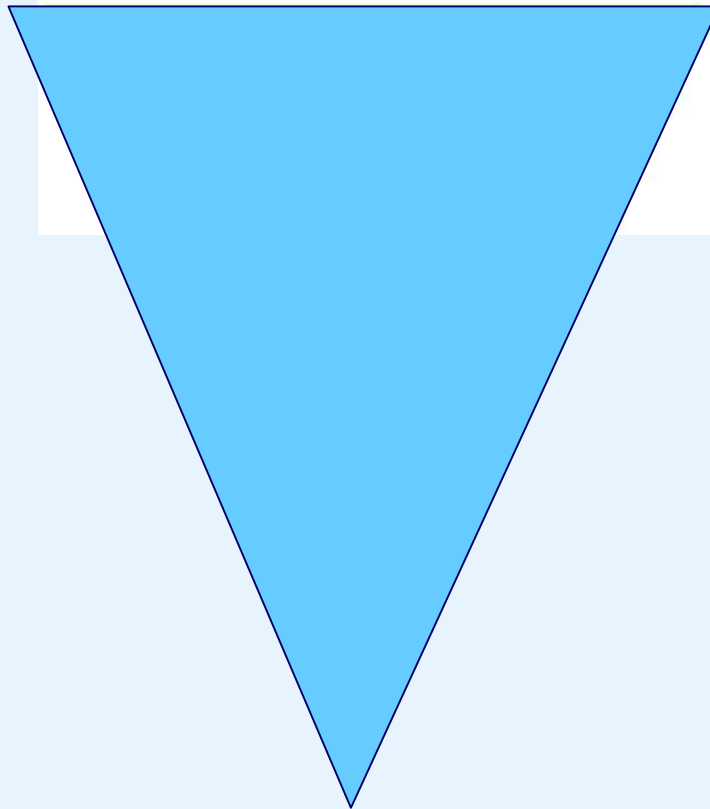
Stratification of COPD patients



Stratification of COPD patients



Stratification of COPD patients



Exacerbation recorded
VERY HIGH
No Hospital Admission

Converting risk into action



PCT (s)	Action 1	Action 2	Action 3	Action 4
Immediate Risk	✓ ✓			
Very High Risk	✓ ✓	✓ ✓		
High Risk	✓		✓	
Medium Risk	x			x

✓ = prepare for action within 14 days. ✓ ✓ = prepare for action within 7 days

Action 1 (Individual) medication, social support, heating, early symptoms etc.

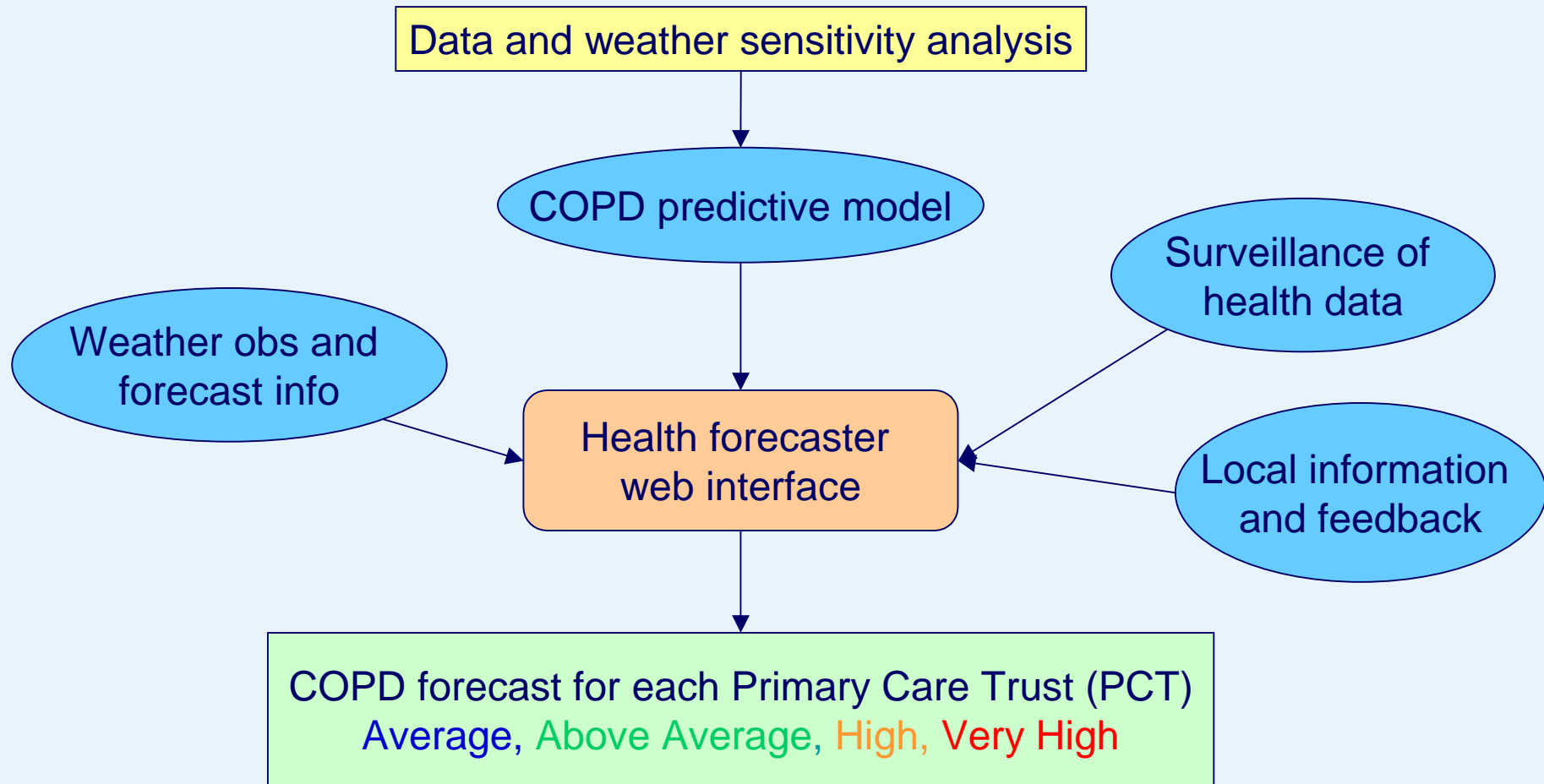
Action 2 (PCT) Baseline resource to attend to Small numbers of very high risk group

Action 3 (PCT) Increased resource required to deal with larger numbers of high risk.

Action 4 (PCT) Divert staff from routine work to cope with large numbers of patients.

- Moderate Disease
 - Phone call to check:
 - Heating
 - Diet
 - Medication
 - Social Support
 - Early symptoms
- Severe Disease
 - Visit to:
 - Current PF or FEV1
 - Possibly increase steroids
 - Arrange specialist nurse
 - Liaise with GP

Creating a COPD forecast for each PCT



Example COPD forecast: Mon 7th Feb



The COPD forecast for Walsall PCT for this week is: **Average**

Having been cooler over the weekend, milder air will dominate for much of this week. Temperatures will be near or above normal, but will be tempered by wind and rain later in the week.

The RCGP reported that overall levels of influenza-like-illness continued to fall in the w/e 30th Jan, but remained above baseline. NHS Direct report that the proportion of cold and flu calls saw a small rise in the w/e 2nd Feb, while the European Influenza Surveillance Scheme (EISS) report that influenza activity in Europe is predominately in children. This weekend most Out of Hours providers saw a fall in the level of activity from the over 65s compared to the previous weekend.

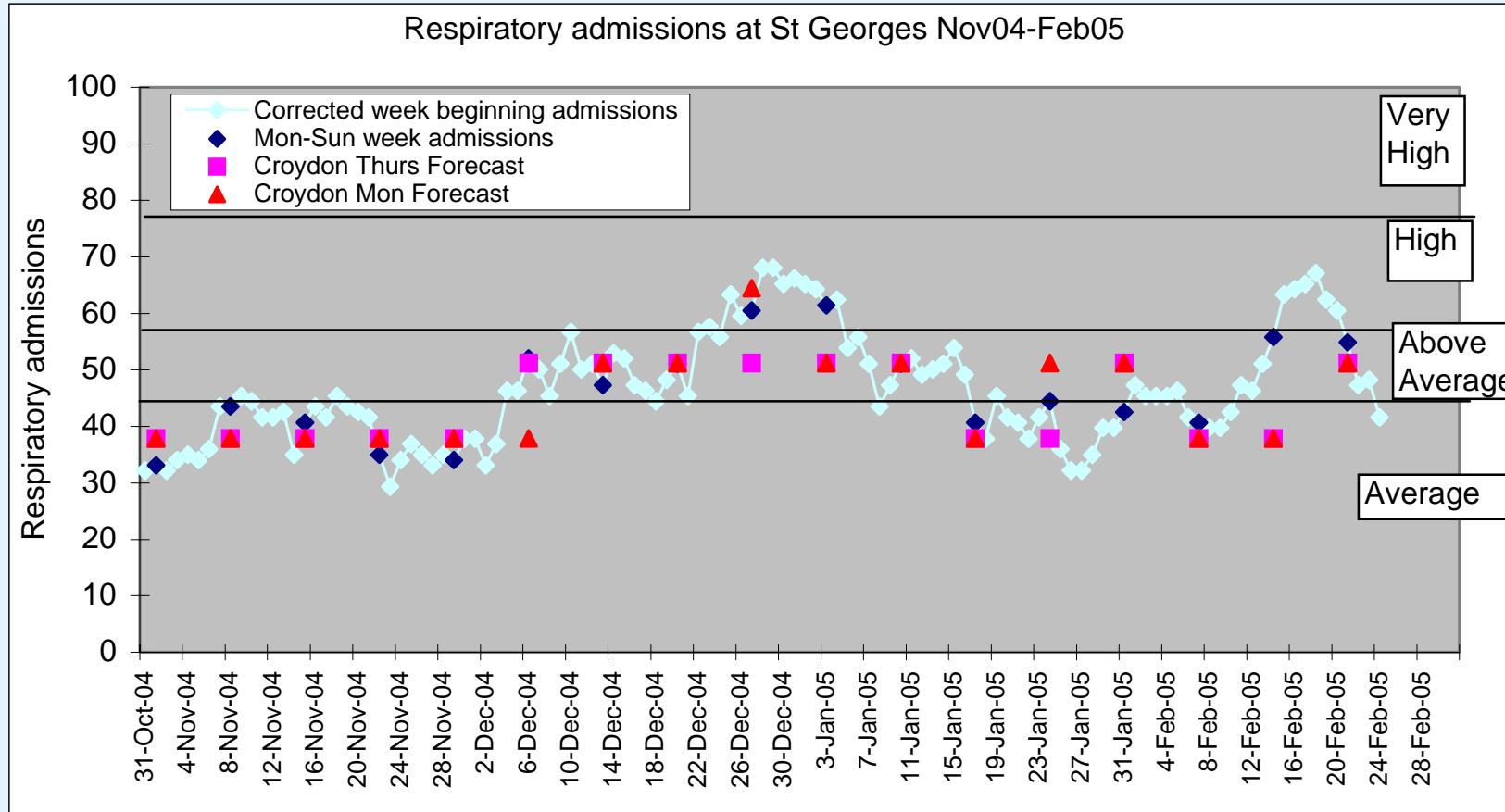
In the current climate of falling infections, the weather has not been cold enough to lead to an above average risk to COPD patients in your area.

- Central Liverpool PCT
 - “Agnes”, long term COPD patient, 5 previous admissions
 - Day out in cold weather (2 hours)
 - Faced Christmas in hospital

 - High risk from forecast
 - Agnes identified as high risk patient
 - District Nurse visited, prompted by forecast
 - Preventative care delivered, antibiotics and steroids

 - “Agnes” stayed at home over Christmas
 - “I think this is a marvellous scheme”

Results: Initial verification



- 12 correct forecast levels on both Thurs and Mon
- 2 forecasts correct either on Thurs or Mon
- 3 forecasts incorrect, but only out by one category
- 13/17 = 76% correct predictions
- 1/17 = 6% false alarms (i.e. 1 cat too high)
- 3/17 = 18% misses (i.e. 1 cat too low)

How can forecasts be used?



- Times of high activity are predictable
- Primary, Secondary and social care services need to share information in real time
- A collaborative approach to capacity and demand management optimises resources
- Prevention of admission is still the most effective way of controlling demand