

# One Londoner's story of complex (unmet?) respiratory needs



**Making best use of:  
oximetry, peak flow, spirometry, smoking cessation  
& inhaler 'know-how'  
as tools in every-day care  
... to improve outcomes and reduce inequalities**

Dr Louise Restrict, integrated consultant respiratory physician, Siobhan Kennedy, lead respiratory nurse specialist & Ameet Vaghela, lead respiratory pharmacist,  
Whittington Health respiratory team

**London Nurses & Midwives Homelessness Network Workshop  
Thurs 31 January 2-4pm 2019**

# Why this matters and how we could do this differently ...

## **‘Integrated Care’**

- ✓ Evidence-based
- ✓ Patient-centred
- ✓ Feels ‘joined up’ ...to the patient
- ✓ Outcome focused ...

1 in 53 Londoners ‘homeless’

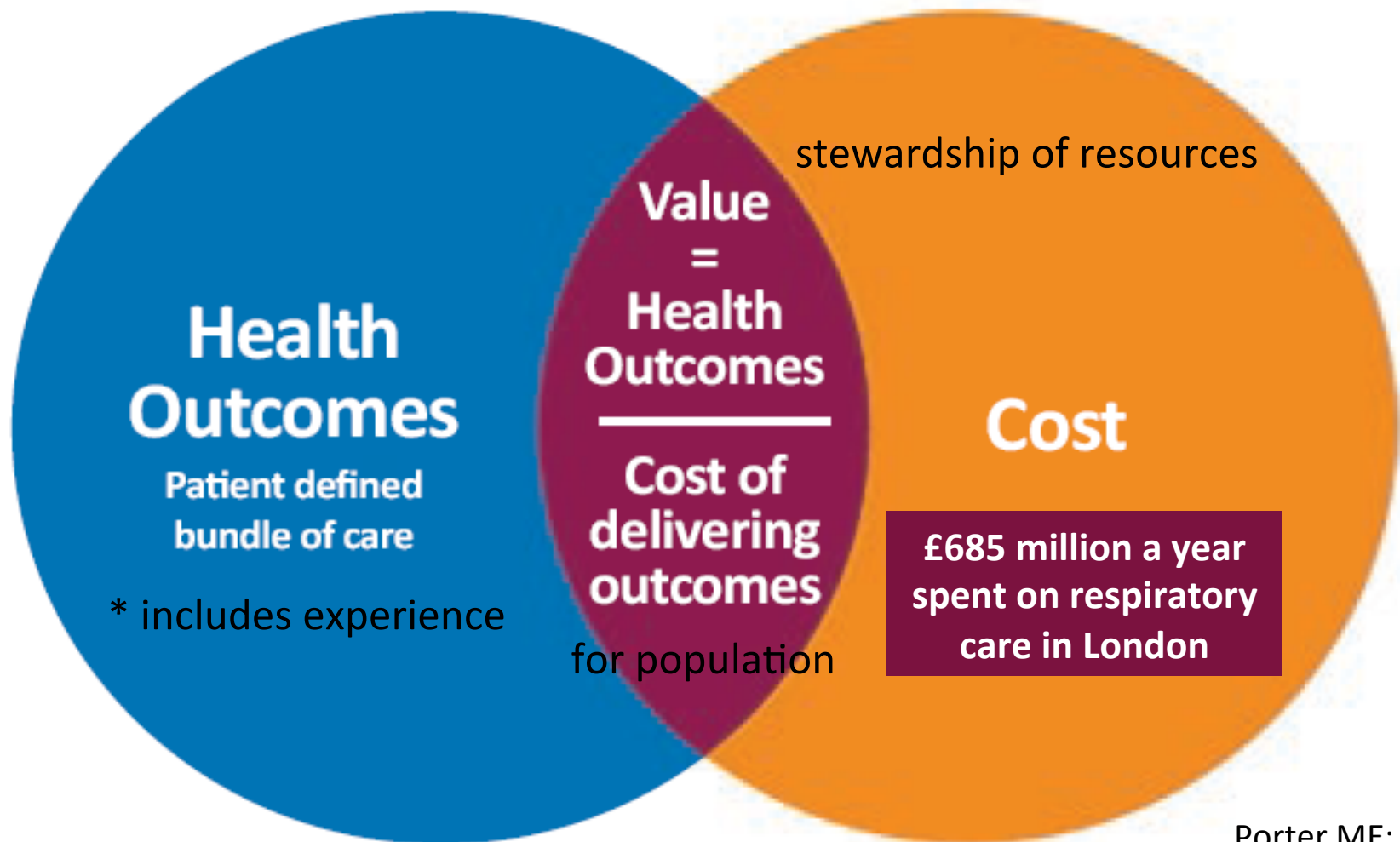
**2%** of population

Need better pathways of care that ‘work’

## **What and how**

- ‘Value’ framework
- Specific health professionals input - skills & competencies
- ‘Inter-disciplinary’ working
- Have to want to ‘make a difference’
- **Enabling all clinicians to deliver high value respiratory input!**

# Value Framework: work with patients, improve outcomes and reduce costs



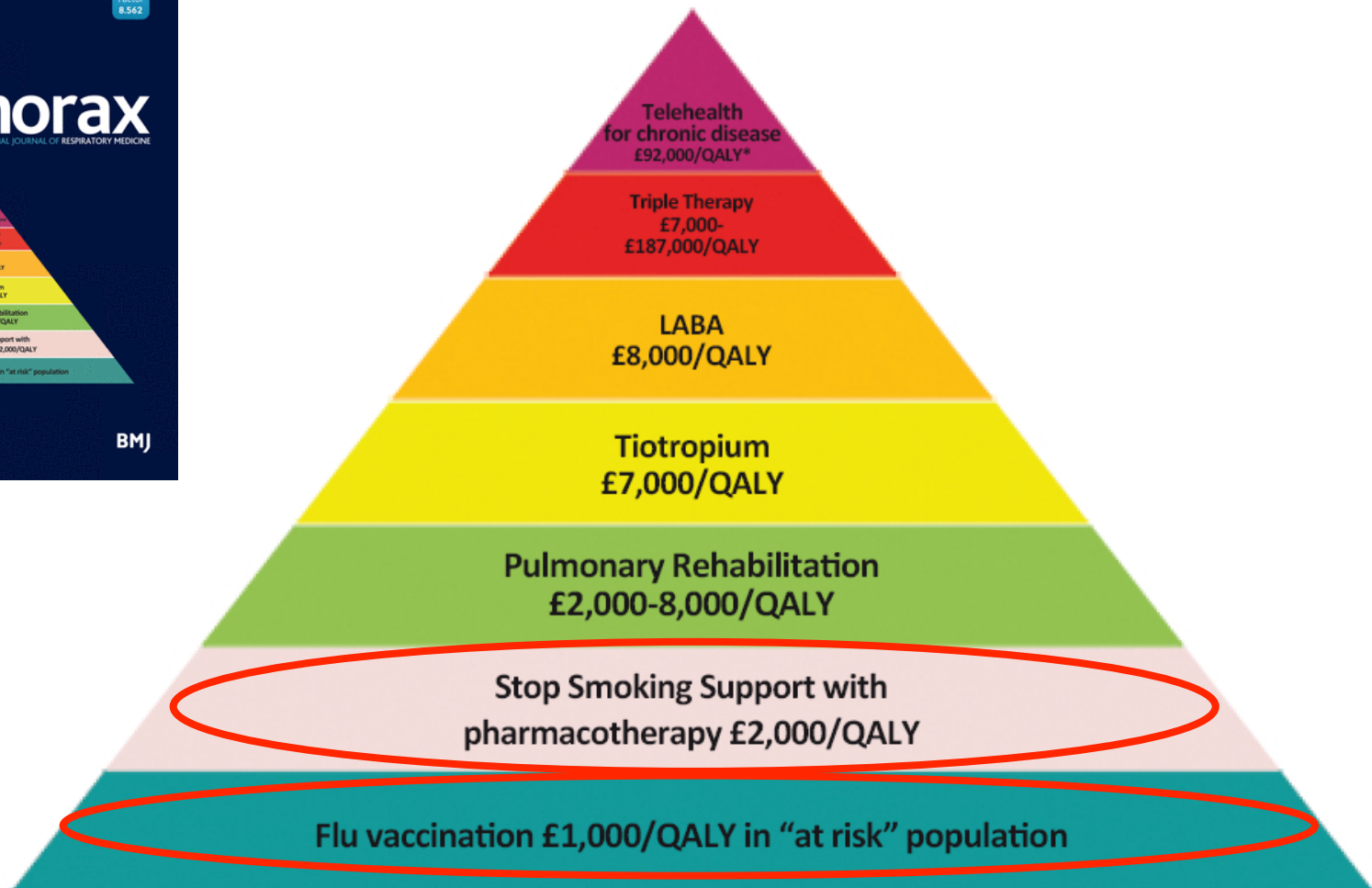
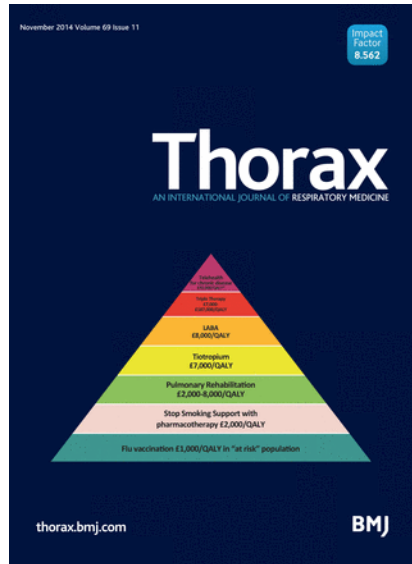
# What is High Value Respiratory Care?

## Eg COPD 'Value' Pyramid



NHS  
England

London Strategic  
Clinical Networks



\*(not specific to COPD)

London Respiratory Network: Collective clinical leadership for respiratory health [www.networks.nhs.uk/nhs-networks/london-lungs](http://www.networks.nhs.uk/nhs-networks/london-lungs) @LondonLungs



# What does 'value' look like for patients with respiratory illnesses?

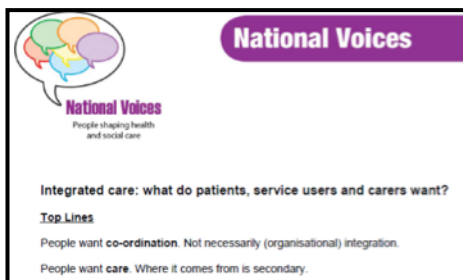


'I don't want to die'



'breathlessness is **frightening** and disabling'

'hospitals & GP teams don't talk to each other enough'

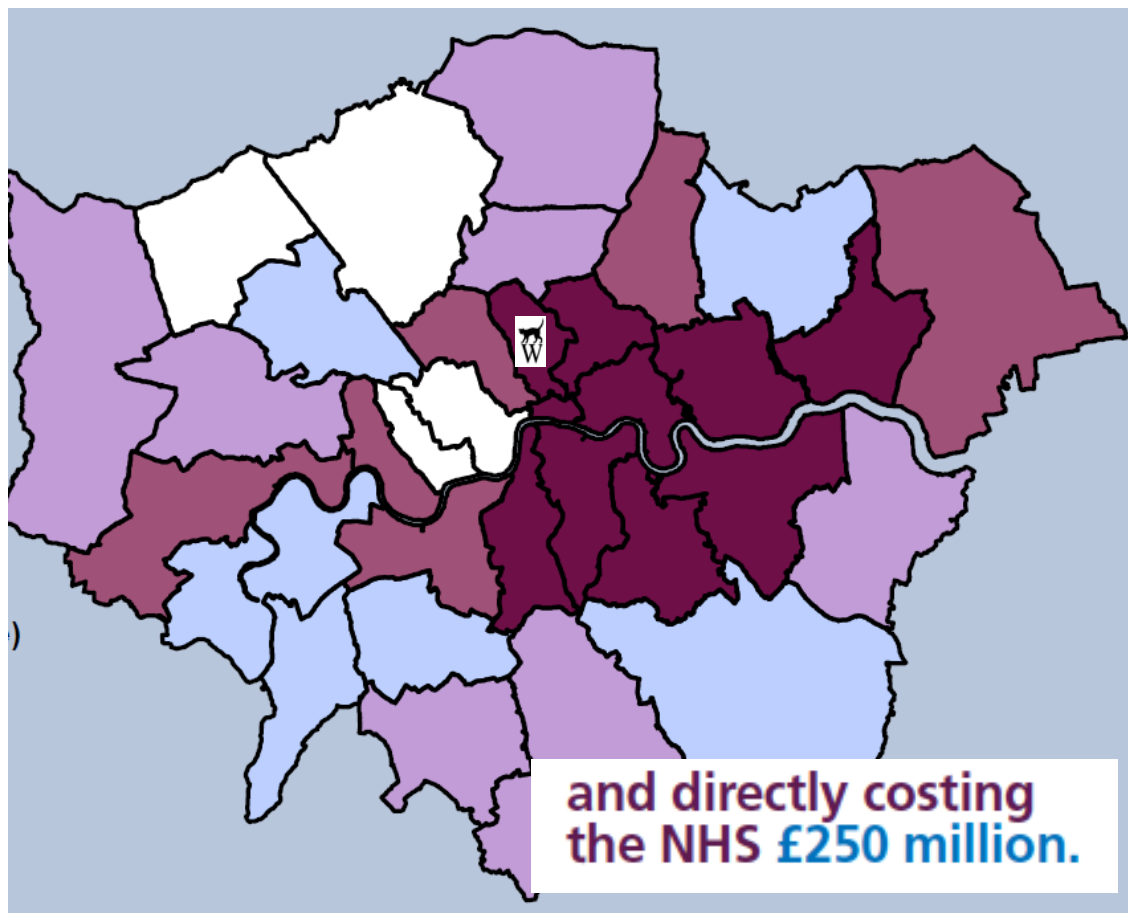


'I want 'better' conversations with those involved in my care'

# Londoners' dying from smoking



1,125,000 smokers in London and smoking causes 8,175 deaths/year\*



## Legend

Local authority area

Rate per 100,000 population  
(directly age-standardised)  
aged over 35 years, 2006-2008  
by national quintiles

118.72 to 156.38 (best quintile)
156.39 to 177.27
177.28 to 203.48
203.49 to 243.13
243.14 to 360.28 (worst quintile)



Based on Ordnance Survey material.  
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*'1 in 5 deaths due to smoking'*

\*London Senate Helping Smokers Quit Programme Report 2016

# Impact of respiratory disease in homeless population



Respiratory symptoms and illnesses major issue  
1 in 5 'asthma' diagnosis  
2/3 'chest infections'

High rates of hospital admissions  
1/10 'pneumonia'; 90% treated in hospital

'Frightening breathlessness' reported as symptom in >30%

Mean age of death in men who are homeless 47 years  
Mean age of death in women who are homeless 43 years

Symptoms seen as consequence of situation not underlying disease  
Drug use makes detection of illness difficult

# Impact of 'smoking' in homeless population



**85% current smokers ie tobacco dependent**  
1 in 6 'crack' smokers; 1 in 3 previous 'crack'

**Half reported wanting to stop smoking**  
2/3 previously tried to stop before; 1 in 5 in last year

**Only 1 in 2 offered advice on treatment for tobacco dependence ...**

# What does 'value' in respiratory care look like for patients experiencing homelessness?

'I don't want to die'\*

**449** homeless people died on the streets or in temporary accommodation last year (to 10/18)

**10 x** increase in homelessness deaths in last 5 yrs

'breathlessness is **frightening** and disabling'\*

'**Frightening** breathlessness' symptom in >30% people who are homeless

'hospitals & GP teams don't talk to each other enough'\*

!!!

'I want 'better' conversations with those involved in my care'\*

!!!

# One patient's story



# 44 year old man presented to ED April 2016

## **Presenting symptom**

'Chest pain'

## **Story of symptom**

'Known angina'

Left chest pain going down left arm

Numbness left hand

## **PMH**

Atrial fibrillation

Type II diabetes mellitus

Raised BMI

Current tobacco smoker

Psoriasis

London Ambulance Service notes  
'Struggling to breathe' in the street  
Policeman called ambulance

# 44 year old man presented to ED with chest pain...and breathlessness



‘Looked well’

Pulse 50/min

BP 145/85

Apyrexial

Atrial fibrillation (AF)

Tar stained fingers

Respiratory rate **22**/minute

Saturation on air **94%** then dropped to **87%**

‘Widespread bilateral wheeze; no crackles’

Initial medical team impression and diagnosis:

‘Cardiac wheeze’

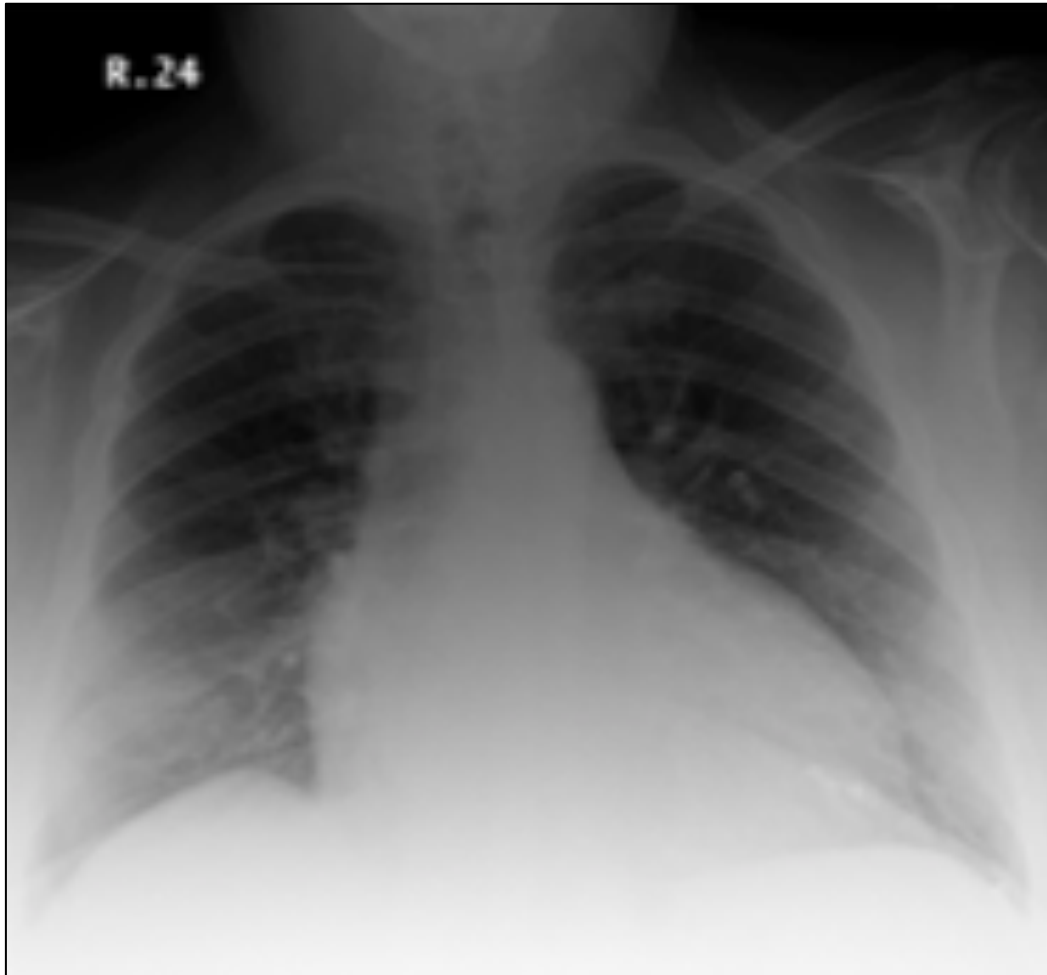
Progressive angina

Exacerbation of CCF



# 44 year old man with chest pain & breathlessness

## Chest X-Ray



ECG:  
Fast atrial fibrillation

# 44 year old man with chest pain & breathlessness - more of his story

Known to (several!) cardiology teams previously

Normal angiogram 2014

Known to have severe mitral regurgitation and atrial fibrillation

Good Left ventricular function

‘COPD’

Tobacco dependent ‘40 pack-year’ history

**1 pack 20 cigs/day for 1 yr = 1 pack-year**

Previous cannabis 15 ‘joint-year’ history

**1 joint/day for 1 yr = 1 joint-year**

Alcohol excess/dependence

# Cannabis smoking and respiratory illness: inner London experience & observations

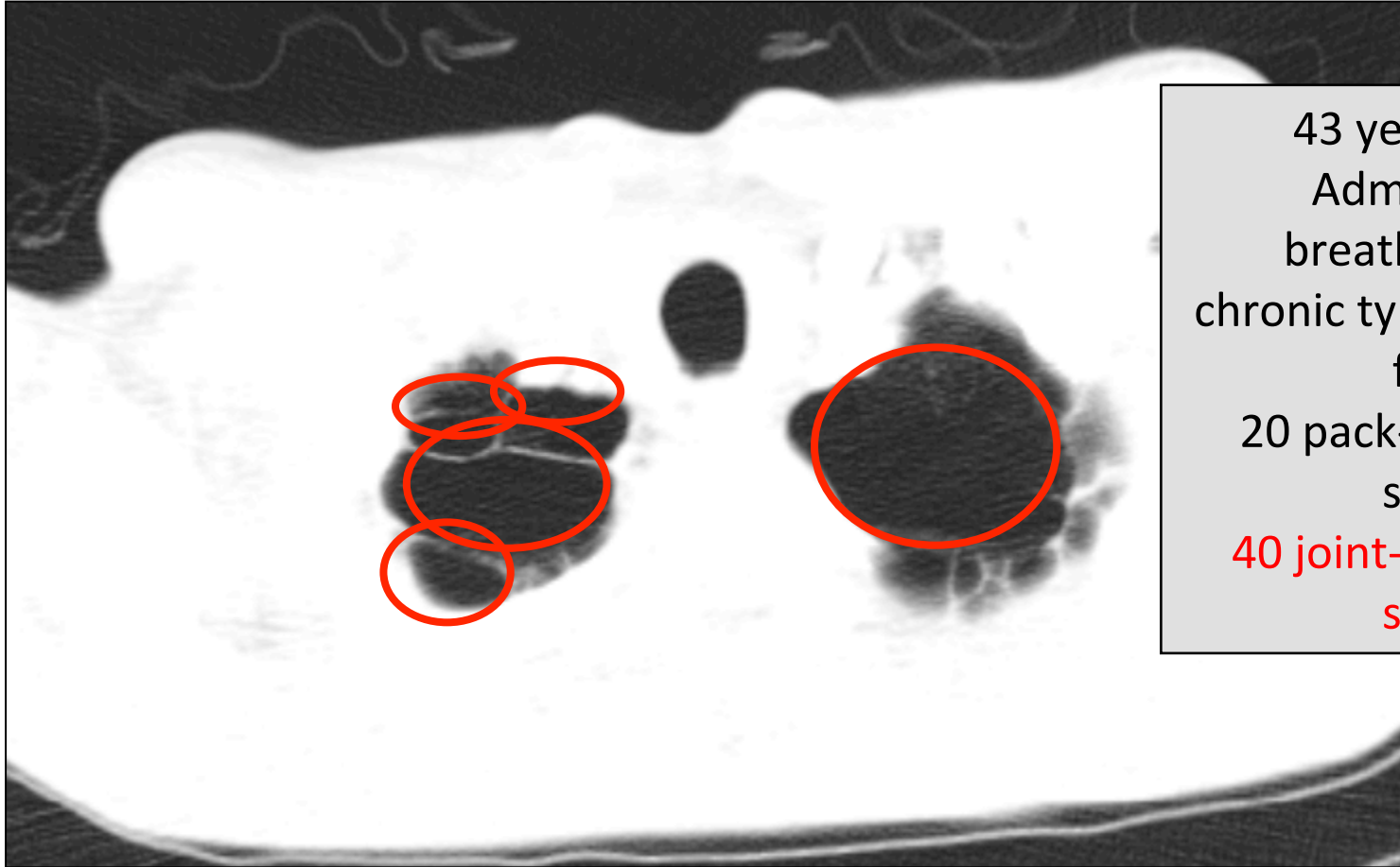


- 1 in 3 tobacco smokers in an inner city hospital population also smoke cannabis\*
- ✓ all groups in society
- ✓ have to ask not volunteered...



- History of tobacco **and cannabis smoking**
- ✓ Young people with pneumothorax
- ✓ Younger people with severe COPD with emphysema on CT
- ✓ Younger people with lung cancer

# Why we ask also ask about eg cannabis smoking: Emphysema & COPD in the under 50s



43 year old man  
Admitted with  
breathlessness &  
chronic type II respiratory  
failure  
20 pack-year tobacco  
smoker  
40 joint-year cannabis  
smoker

Severe 'bullous' emphysema = cannabis lung

# 44 year old man with chest pain & breathlessness - more of his story

## **‘COPD’**

1-2 courses ‘steroids’ /year. Only on inhaled salbutamol

Wakes at night thinking he can’t breathe and is going to die

Breathlessness varies +++; on a good day can walk for miles

Bad days 1-2 days/week - breathless at 10 metres

First cigarette within an hour of waking

Weight increased over last 10 years from 100 kg to 150 kg

‘CPAP’ ?from where >2 years ago not serviced/seen since

Does this ‘fit’ with a diagnosis of COPD?

# What is COPD?

Lung disease characterised by progressive  
airway obstruction - not reversible  
85% caused by smoking

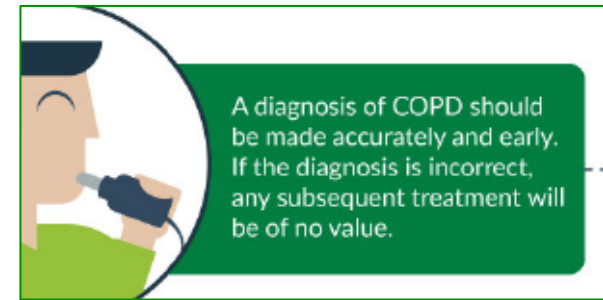
Causes gradually worsening breathlessness  
*NB Lots of other causes of worsening  
breathlessness in smokers*

*Only severe* COPD associated with low  
'baseline' oxygen saturation



# How do we diagnose COPD?

## History, CXR and ... SPIROMETRY



Story of breathlessness and/or cough ... that fits

Smoking history

tobacco and cannabis; pack-years and joint-years

Chest X-ray

**Spirometry**

But start with Peak Expiratory Flow

# What is Asthma?

Whittington Health 

Lung disease characterised by airway obstruction  
reversible spontaneously or with treatment

Causes breathlessness, chest tightness, cough &  
wheeze

Also made worse by smoking

O2 saturation normal except in v severe asthma





# Using Peak Expiratory Flow to keep patients safe

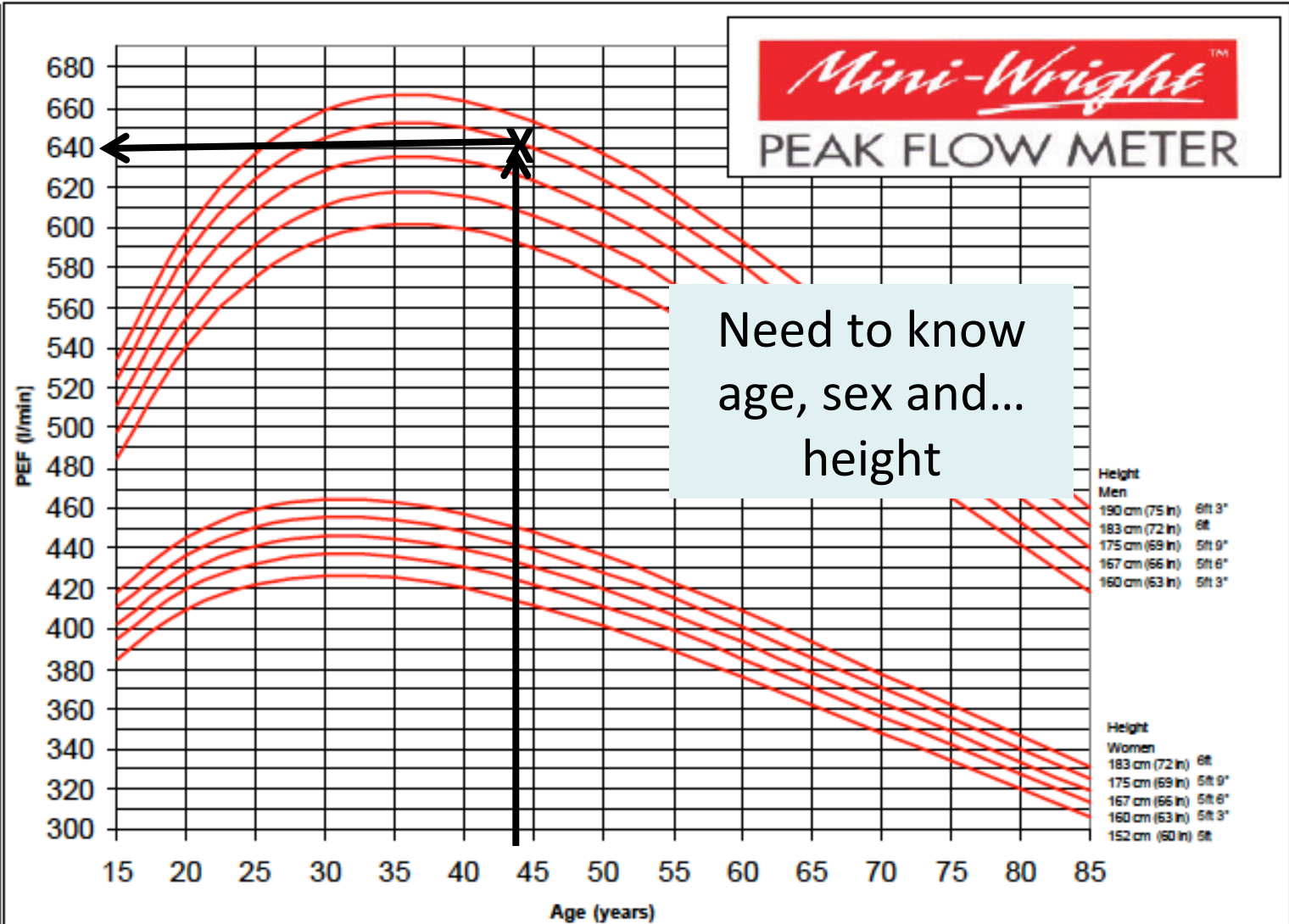
NORMAL PEAK FLOW VALUES  
DO NOT DOCUMENT ON THIS SIDE

Adapted by Clement  
Clarke for use with  
EN13826 / EU scale  
peak flow meters  
from Nunn AJ Gregg I,  
Br Med J 1989;  
298:1068-70

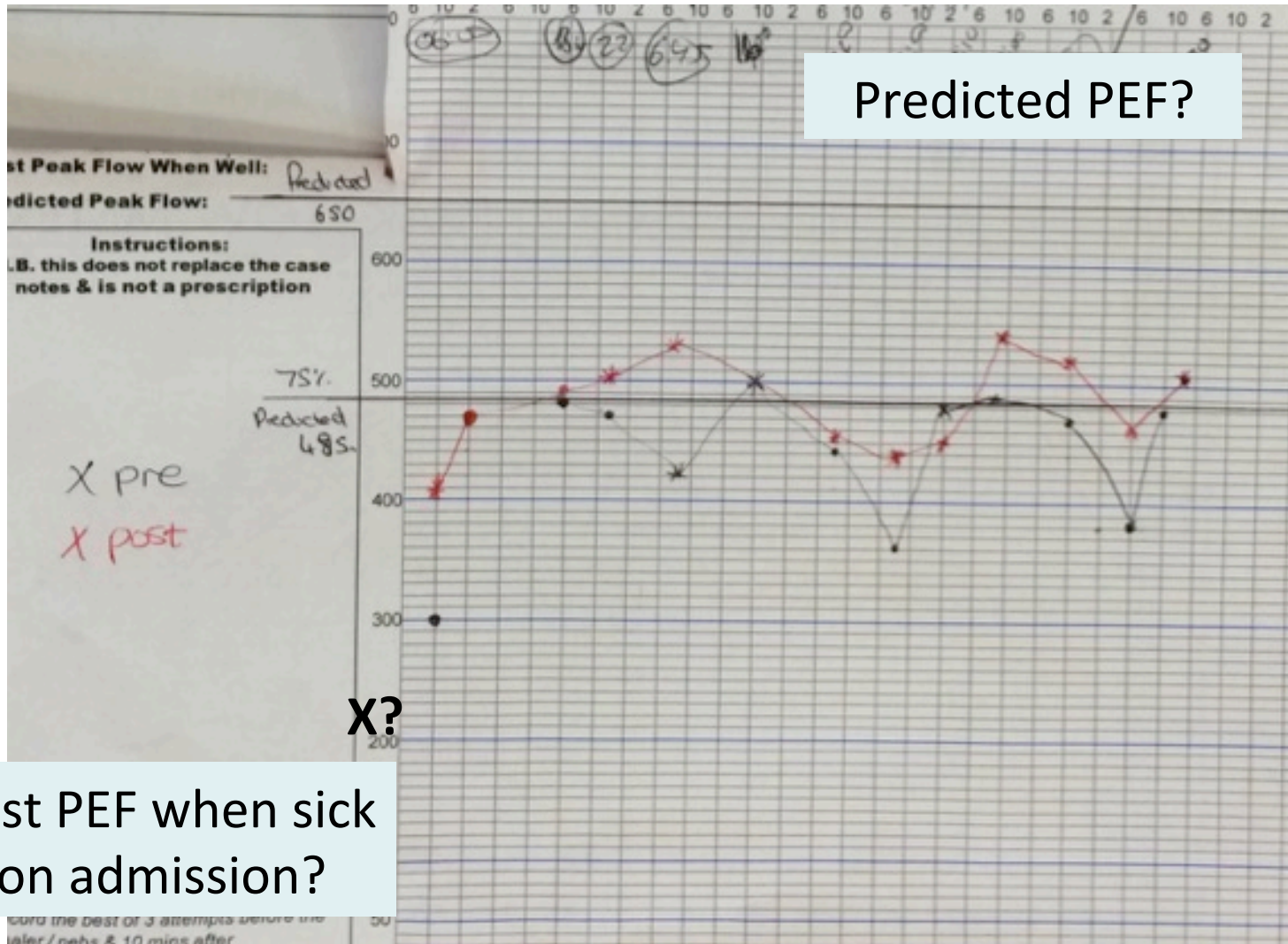
In men, readings up to  
100 L/min lower than  
predicted are within  
normal limits.

For women, the  
equivalent figure is  
85 L/min.  
Values are derived  
from Caucasian  
populations.

Height  
'6 foot'  
182 cm



# 44 year old man with chest pain & breathlessness - peak flow



Lowest PEF when sick  
eg on admission?

# **Workshop 1:**

## **Using Peak Flow and Spirometry**

**Tips to benefit patients you see who are  
experiencing homelessness**

**Making the right diagnosis!**

# Spirometry Results – what do they mean?

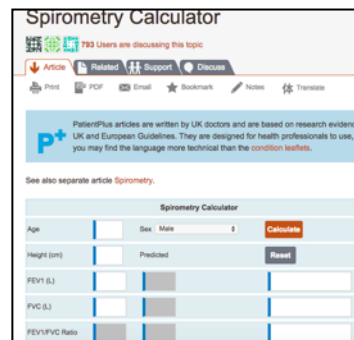
**FEV<sub>1</sub>** A number between ~ 0.5 and 4 Litres

**FVC** A number between ~ 1 and 5 Litres

**FEV<sub>1</sub> / FVC** Ratio

Ratio < 0.75 indicates obstruction

Calculate FEV<sub>1</sub> as % predicted for age, sex & **height**



The screenshot shows a web-based 'Spirometry Calculator'. At the top, it says '793 Users are discussing this topic'. Below this are links for 'Article', 'Related', 'Support', and 'Discuss'. There are also icons for 'Print', 'PDF', 'Email', 'Bookmark', 'Notes', and 'Translate'. A blue banner states: 'PatientPlus articles are written by UK doctors and are based on research evidence, UK and European Guidelines. They are designed for health professionals to use, so you may find the language more technical than the condition leaflets.' Below this, it says 'See also separate article Spirometry.' The calculator form itself has fields for 'Age', 'Sex' (with a dropdown menu set to 'Male'), and 'Height (cm)'. There is a 'Calculate' button next to the 'Sex' field and a 'Reset' button next to the 'Height' field. Below these are input fields for 'FEV1 (L)', 'FVC (L)', and 'FEV1/FVC Ratio', each with a 'Predicted' value shown in a grey box to its left.

**% predicted FEV1 is used to grade severity of COPD ...**  
*provided obstructive ratio ie < 0.75*

**Don't confuse % predicted FEV1 with ratio FEV1/FVC**

# 44 year old man with chest pain & breathlessness

## Spirometry

FEV<sub>1</sub> **2.65 L**

FVC 3.48 L

**0.76 ratio**

***Value of FEV<sub>1</sub> indicates severity***

**FEV<sub>1</sub> < 1 Litre = severe lung disease (any kind or v severe obesity)**

*FVC and Ratio* needed to confirm airway obstruction

< 0.75 ratio for obstruction

Then need to then calculate values of FEV<sub>1</sub> and FVC as % predicted

Height 182 cm\*

Weight 156 kg

BMI 47

Measure height...

Reported 'ft inches' often  
over-estimate

# 44 year old man with chest pain & breathlessness

## Spirometry

FEV1 **2.65 L**

FVC 3.48 L

**0.76 ratio**

Predicted FEV1 4.32 L

Predicted FVC 5.45 L

FEV1 % predicted **61%**

FVC % predicted 63%

Mixed picture; NOT Severe COPD

FEV1 too good

Not obstructive - BMI hides obstruction

...Obesity also reduces FEV1 and FVC numbers

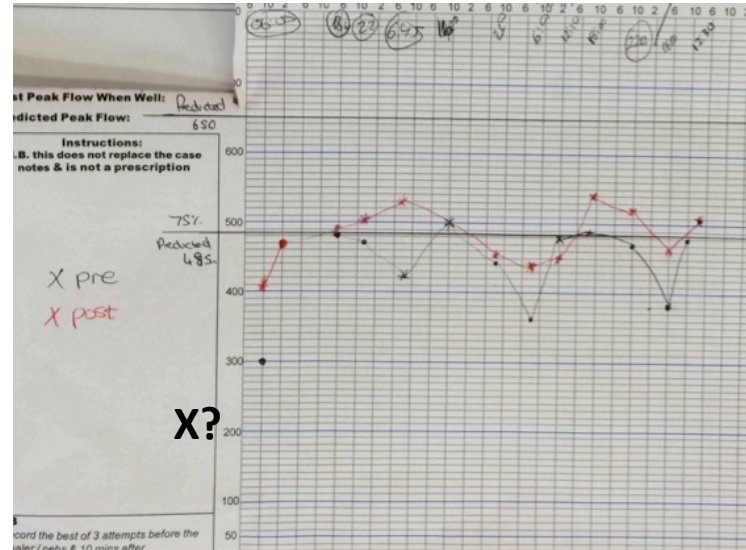
Height 182 cm\*

Weight 156 kg

BMI 47

**ASTHMA!**

## How severe was his asthma on admission?



If PEF was 200 L/min 31% predicted ...

In respiratory failure... saturation 89% on air

# Acute severe life-threatening asthma



# Using oxygen saturation to keeping patients safe

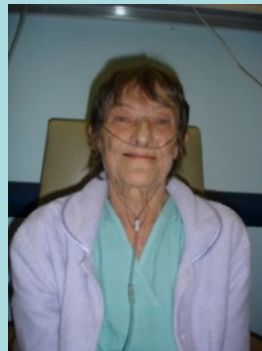
Care at home  
provided correct  
diagnosis made,  
correct  
treatment  
started AND  
patient feels in  
control of  
breathlessness

Breathlessness  
(symptom)

Respiratory Failure  
(low oxygen saturation)

**Respiratory  
failure  
=  
diagnosis and  
treatment in  
hospital**

Breathless  
and low oxygen  
saturation

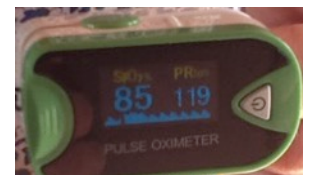


Breathless  
with normal  
oxygen  
saturation

Low oxygen  
saturation but  
not breathless

Ask and listen

Measure





# Keeping breathless patients safe measure oxygen saturation

Whittington Health **NHS**



Anyone assessing and caring  
for breathless patients

should have access to ... and use a pulse oximeter  
**...and** act on results

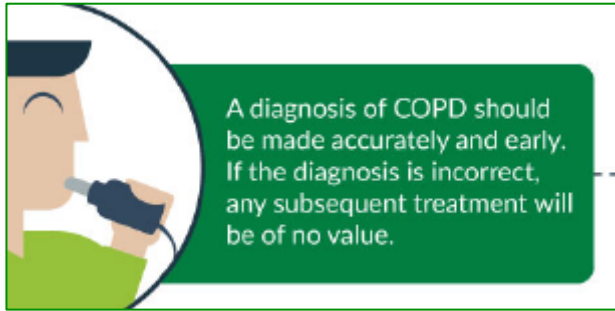
MD300 Pulse Oximeter

**£30**

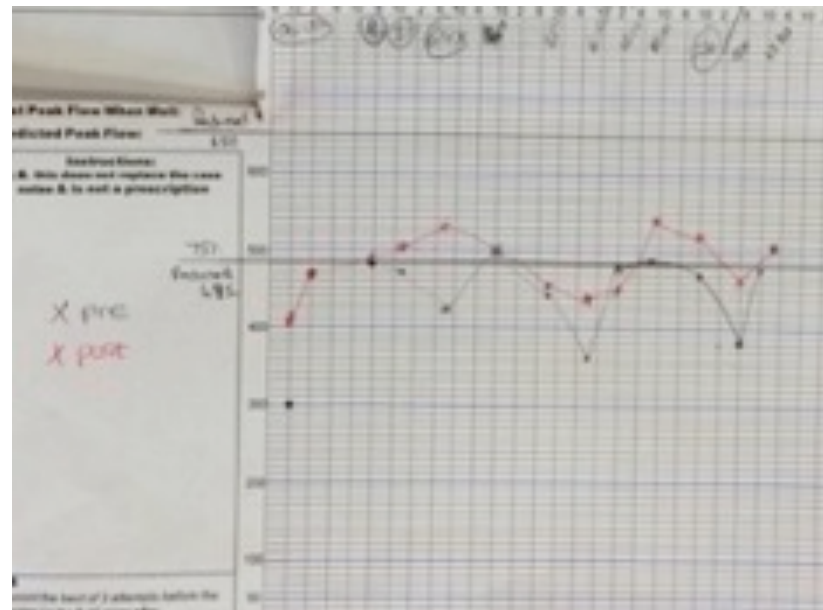


44 year old man  
Saturation on air 87%  
**'Acute respiratory failure'**  
Chest X-ray





# Breathless 'smoker' ≠ COPD



# Changing how we think about smoking



‘Smoking’ is tobacco/nicotine dependence  
**Treat** as we do other addictions? alcohol, drugs...

... especially as we now have very (more?) effective  
treatment for tobacco dependence

# Changing how we think about smoking



A relapsing and remitting long-term condition  
that starts in childhood



# Enabling conversations

Whittington Health **NHS**

## Very Brief Advice on Smoking

30 seconds to save a life

### ASK

#### AND RECORD SMOKING STATUS

Is the patient a smoker, ex-smoker or a non-smoker?

### ADVISE

#### ON THE BEST WAY OF QUITTING

The best way of stopping smoking is with a combination of medication and specialist support.

### ACT

#### ON PATIENT'S RESPONSE

Build confidence, give information, refer, prescribe. They are up to four times more likely to quit successfully with support.

REFER THEM TO THEIR LOCAL NHS STOP SMOKING SERVICE

## Online training module

[WWW.NCSCT.CO.UK/VBA](http://WWW.NCSCT.CO.UK/VBA)

How important?

0 1 2 3 4 5 6 7 8 9 10

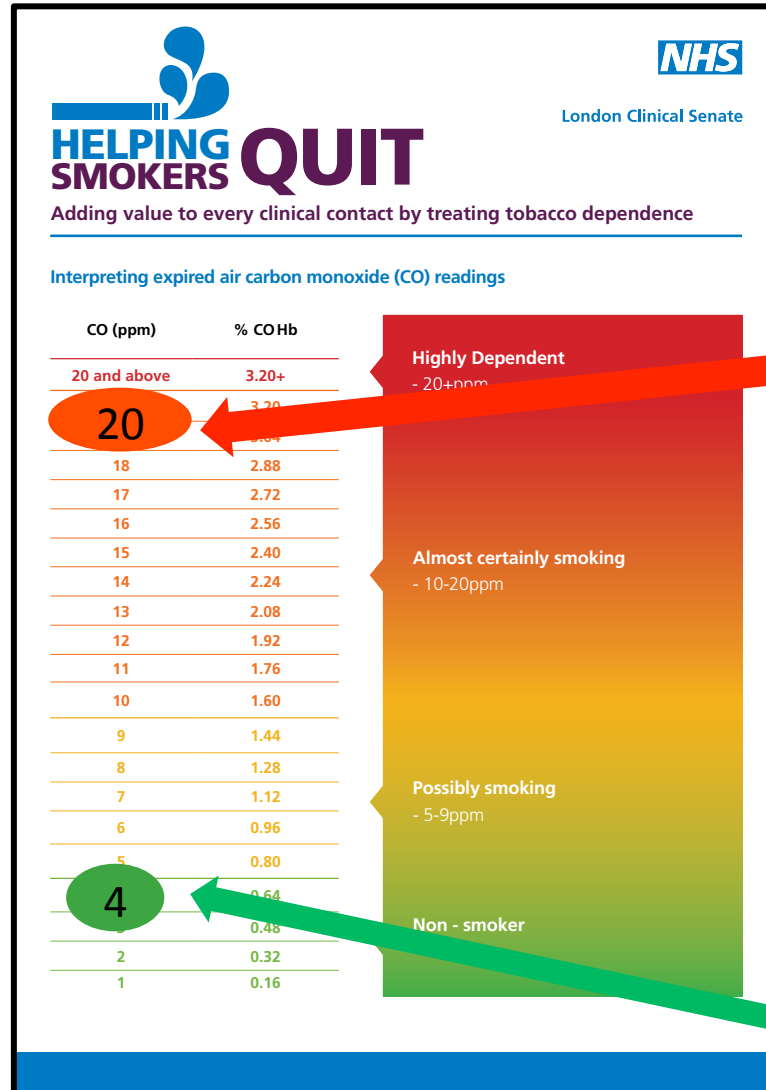
How confident?

The screenshot shows the NCSCT website with a blue header. The navigation menu includes: HOME, ABOUT, TRAINING, RESEARCH, DELIVERY, RESOURCES, and CONTACT. A search bar is located on the right. The main content area features a video player with the title "30 Seconds to save a life" and a video thumbnail showing a healthcare professional interacting with a patient. To the right of the video player, the text reads: "The NHS Centre for Smoking Cessation and Training (NCSCT)" and "A short training module on how to deliver very brief advice on smoking." Below this text is a button labeled "Visit Training Module". At the bottom of the page, the text "NHS Centre for Smoking Cessation and Training" is displayed.

# Use a CO machine if you have access to one ...

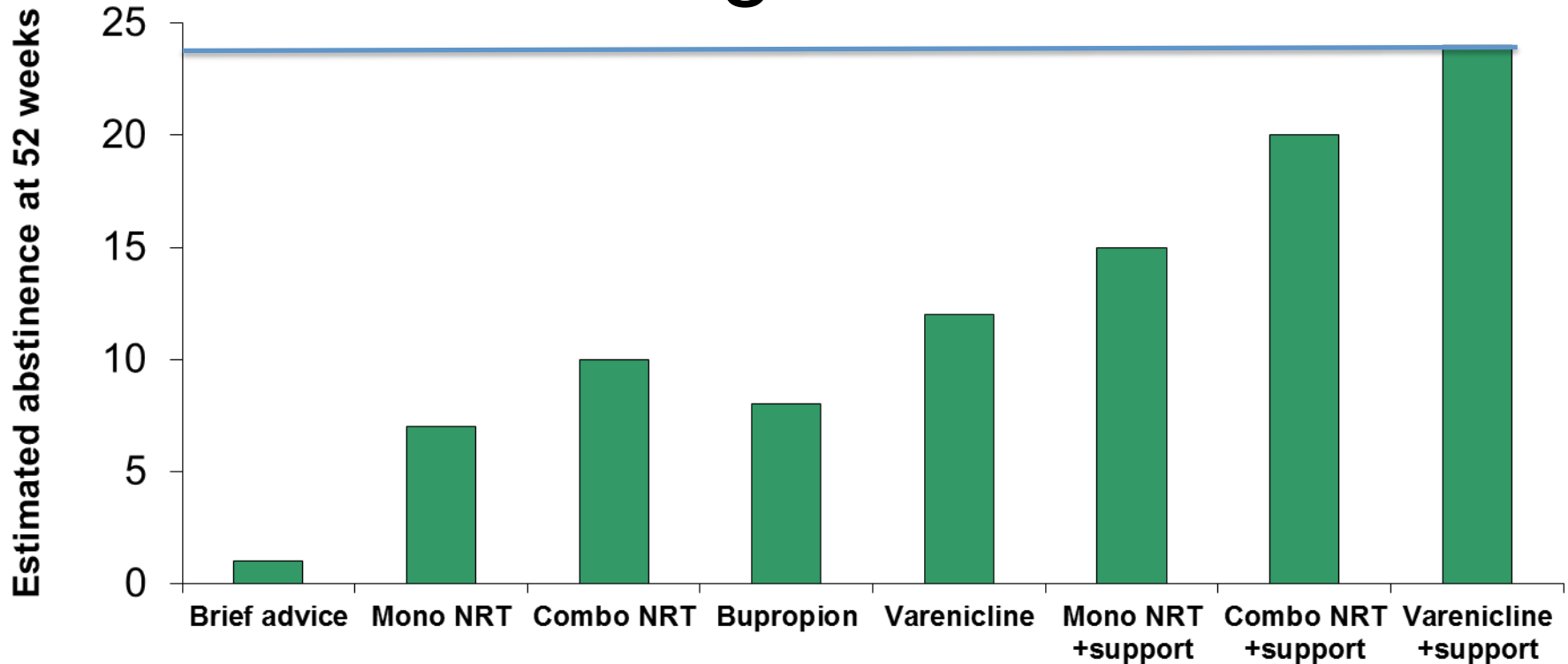


Cheap ~ £150  
Quick - easy to use  
Diagnostic:  
Smoking contributing  
Tobacco dependence  
Motivational tool  
Outcome measure





# Effectiveness of smoking cessation










‘Support’ = specialist individual behavioural support

Reference: West R, Owen L (2012) Estimates of 52-week continuous abstinence rates following selected smoking cessation interventions in England. [www.smokinginengland.info](http://www.smokinginengland.info) Version 2

# Making it easier to prescribe for tobacco dependence ...

Whittington Health 

## Nicotine Replacement Therapy (NRT) and Varenicline (Champix®) Prescribing Guide for Adults

Product*	How does it work	Patient	Prescription	Contraindications	Common side effects	What do patients tell us
<b>Nicorette®</b> Nicotine Patch <a href="#">Video</a>	 Absorbed through the skin. Works best if applied to clean, dry, non-hairy areas of skin (hip, upper arm or chest).	For smokers who require regular therapy	25 mg or 15mg per 16 hours (Nicorette Invisi®) (day time smokers) 21mg, 14mg or 7mg per 24 hours (Nicorette®) (for morning cravings or waking up at night to smoke)	Skin problems (eczema) Allergic reactions Caution: Uncontrolled hyperthyroidism and hepatic or renal impairment.	Possible localised skin marking / irritation e.g. blistering, burning, redness or pruritic	<ul style="list-style-type: none"> <li>• Easy to use and widely tolerated</li> <li>• Steady-state nicotine levels achieved within 10 hours of application</li> <li>• The 24-hour patch helps clients who get up to smoke during early morning or in the night</li> </ul>
<b>Nicotine Gum</b> <a href="#">Video</a>	 Absorbed through lining of the mouth when parried between gum and cheek after chewing	For smokers who require a fast-acting product as and when required	2mg, 4mg or 6mg pm Up to 15 pieces per day	Under 12 years old. Caution: Uncontrolled hyperthyroidism, hepatic or renal impairment. If swallowed can exacerbate peptic ulcers	Gastrointestinal hiccups, heartburn, nausea, colic, mouth or throat irritation	
<b>Nicotine Lozenges</b> <a href="#">Video</a>	 Absorbed through lining of mouth when parried between gum and cheek after dissolving		2mg or 4mg pm Up to 15 lozenges per day	Under 12 years old. Caution: Uncontrolled hyperthyroidism and hepatic or renal impairment. If swallowed can exacerbate peptic ulcers	Hiccups, nausea, mouth irritation	
<b>Nicotine sublingual tablets (Murotab®)</b> <a href="#">Video</a>	 Sublingual absorption		2 mg or 4mg pm Up to 40 tablets per day	Caution: Uncontrolled hyperthyroidism, hepatic or renal impairment. If swallowed can exacerbate peptic ulcers	Headache, throat irritation	
<b>Nicotine Inhalator</b> <a href="#">Video</a>	 Absorbed through lining of the mouth. When using it, suck with short shallow puffs		15mg/cartridge pm Up to 6 cartridges per day	Under 12 years old Caution: Lung disease, uncontrolled hyperthyroidism and hepatic or renal impairment. If swallowed can exacerbate peptic ulcers	Headache, throat irritation	
<b>Nicotine Oral Spray (QuikMist®)</b> <a href="#">Video</a>	 Absorbed through lining of the mouth		1mg/spray pm Up to 64 sprays per day (or up to 4 sprays an hour for 16hrs/day)	Under 12 years old Caution: Uncontrolled hyperthyroidism and hepatic or renal impairment. If swallowed can exacerbate peptic ulcers		
<b>Varenicline (Champix®)</b> <a href="#">Video</a>	 Partial nicotinic receptor agonist and antagonist 12-week course	Long term / highly tobacco dependent smokers	Day 1-3: 0.5mg once daily Day 4-7: 0.5mg twice daily Day 8 onwards: 1mg twice daily for 11 weeks  For inpatients, combine with NRT during first 7-14 days	Not for pregnant & lactating women and non-smokers  Caution: Epilepsy, cardiovascular disease, psychiatric illness. Discontinue if patient develops agitation, depression or suicidal thoughts		

\*Click and Control to go to Summary of Product Characteristics (Available at: [www.medicines.org.uk](http://www.medicines.org.uk))

Written by Myra Stern (Integrated Care Respiratory Consultant). Updated by Ameet Vaghela (Lead Pharmacist).  
Updated 09/02/2018. Review date 09/02/2020.





# **Workshop 2:**

## **Identifying and treating tobacco dependence**

**Tips to benefit patients you see who are experiencing homelessness**

# 44 yr old man: identifying and treating tobacco dependence



Started smoking age 15 – 40 pack-years

Wakes 7.30 am first cigarette 8.30am.

CO reading 23. (Had smoked approx 40 mins before reading).  
I discussed Champix with him and initially he agreed but then changed his mind requesting mouthspray. He is using the inhalator which he finds useful for the hand to mouth.  
Cannot use patches, cause flare up with his psoriasis.  
Discussed with him about setting a quit day and there after not a single puff.  
Will review him in 2/3 days.

Janet Edwards.  
Stop Smoking Specialist.

reased to 9/10

on

Seen by Smoking Cessation Specialist on ward

Started on Varenicline

# 44 year old man with chest pain & breathlessness - more of story



Left school aged 16    Worked in construction

Not worked since age 30 - carer for mother for 8 years til her death

6 years ago several deaths in family inc brother from MI < 50 years old and mother who he lived with

Depression - not coping - evicted

Homeless - sleeping 'rough' for 8 months around Trafalgar Square

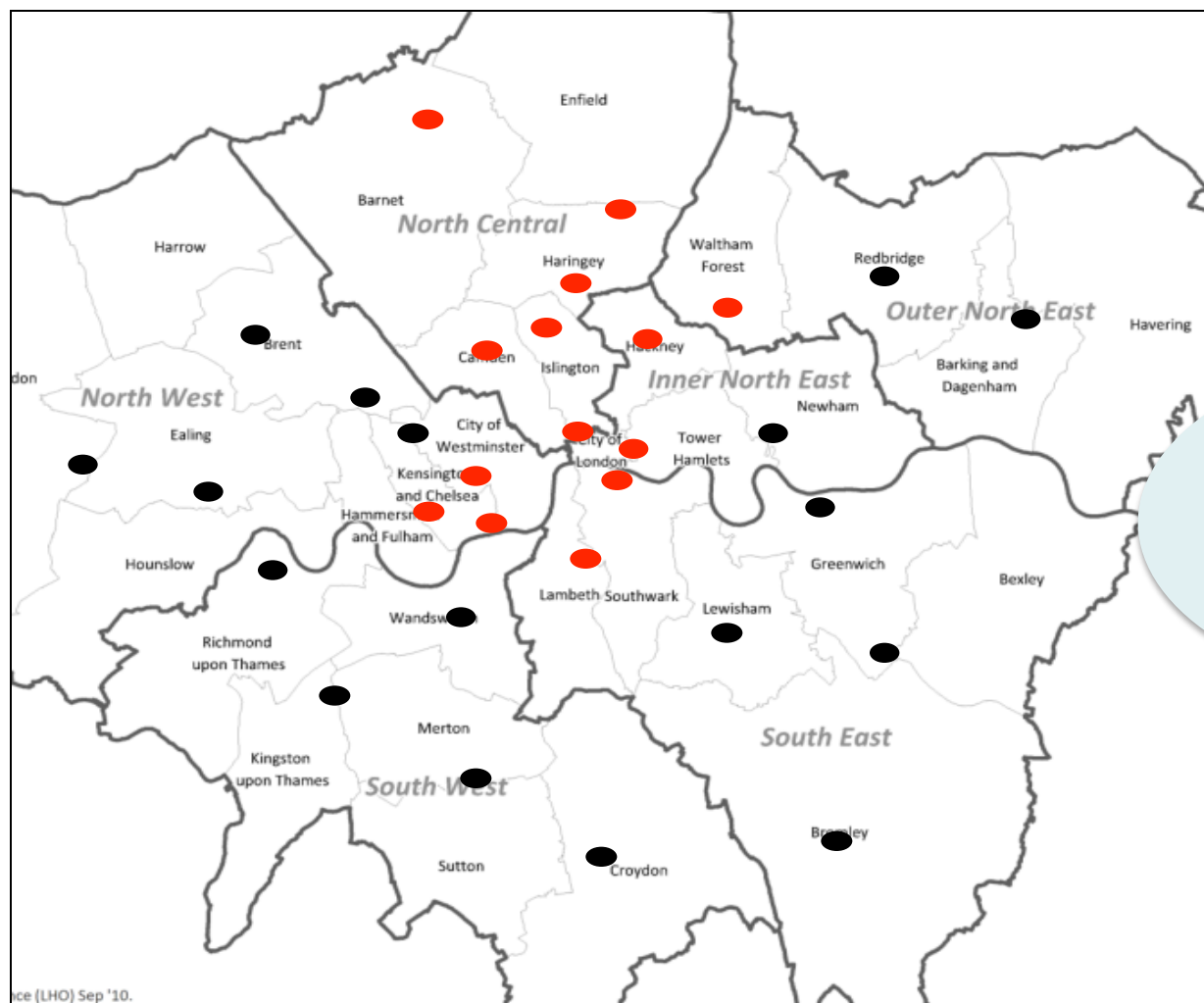
'Found' by Outreach Homelessness Team

'Placed' in hostel in local Borough

Frequent hospital admissions & attendances ~ every 2 weeks

# 44 year old man – care not ‘working’

>25 admissions to different hospitals across London 2015-16



● 'Acute' Hospital

● 44 year old man  
emergency admission  
to hospital

‘Homeless people  
attend ED 5x as much,  
stay three times as  
long and cost up to 8x  
as much as the general  
population.’

**Health Services for Homeless  
People in London**

Case for Action  
May 2015

*Transforming London's health and care together*

# Inter-disciplinary working: information gathering & trying to join up care



Whittington named  
hospital

Registered with  
new GP in another  
Borough



Worked with  
London Ambulance  
Service  
'Patient Specific  
Protocol'  
Asthma not COPD!

# Respiratory & other MDT colleagues interventions to address ...

## **New diagnosis of asthma**

Mild COPD

Tobacco dependence

Untreated Obstructive Sleep Apnoea

Severe Mitral Regurgitation

Atrial Fibrillation

Morbid obesity

?Previous alcohol dependence

Temporary accommodation

No money and in debt

Episodes of frightening and disabling breathlessness ....

## **Respiratory Nurse Specialist**

Smoking Cessation Specialist

## **Respiratory Pharmacist**

Respiratory Physiologist

Respiratory Physiotherapist

Respiratory Psychologist

Dietician

Cardiology Team

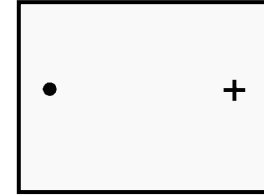
Diabetes Team

Mental Health Liaison Team

Alcohol Liaison Specialist



# Inhalers and Smoking: Blind spots and low value care?



26% use an 'inhaler'  
90% of those using an inhalers are current smokers ...

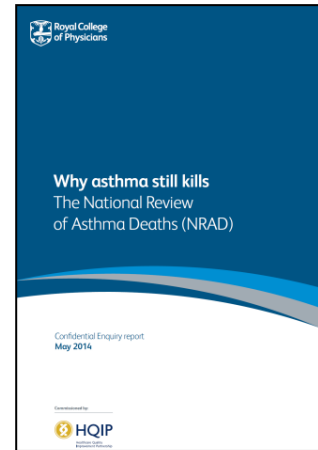




# Does 'smoking' matter in asthma?

## 2014 National Review of Asthma Deaths

46% of deaths could have been prevented



More than 1 in 5 (23%) adults who died from asthma  
'smoked tobacco'

In 1 in 20 smoking status not documented

Smoked drugs not asked about ... but  
Substance misuse contributed to **6%** deaths

# Evidence-based treatment for asthma: key role of respiratory nurse specialists

Teach about what asthma is – not the same as ‘breathlessness’

Identify and remove triggers - including inhaled smoke

Enable understanding and self-management

**Evidence-based inhaled therapy prescribed ...and used**

Personalised asthma action plan (PAAP)



# Workshop 3:

## What you need to know about inhalers

### Asthma and COPD

Tips to benefit patients you see who  
are experiencing homelessness



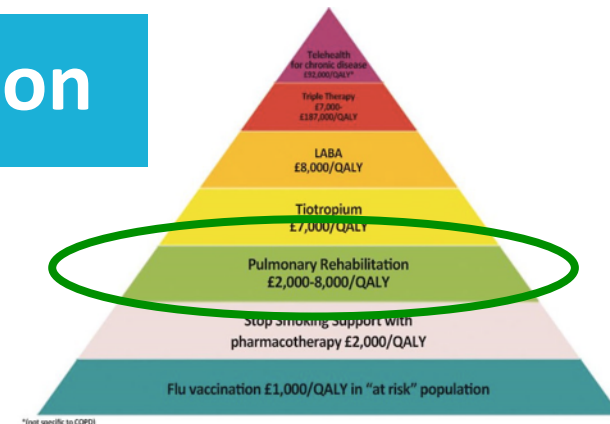
# 44 year old man - more of his story

## understanding beliefs

multiple losses and the meaning of his own physical health symptoms. He described the traumatic emotional impact of the loss of his mother (to lung disease with previous heart attacks), his brother and uncle (to heart attacks) and another uncle (RTA) all in 2010. We explored the shift in his perception of his own health and mortality during this year and his fear that "when is it my turn?". He was able to reflect insightfully into the way that this increased feeling of fragility subsequently altered the meaning of breathlessness for him. He identified breathlessness as a key fear trigger, quoting the example of walking and becoming breathless which he interpreted as a sign of approaching mortality ("I'm dying" or "I must have cancer").

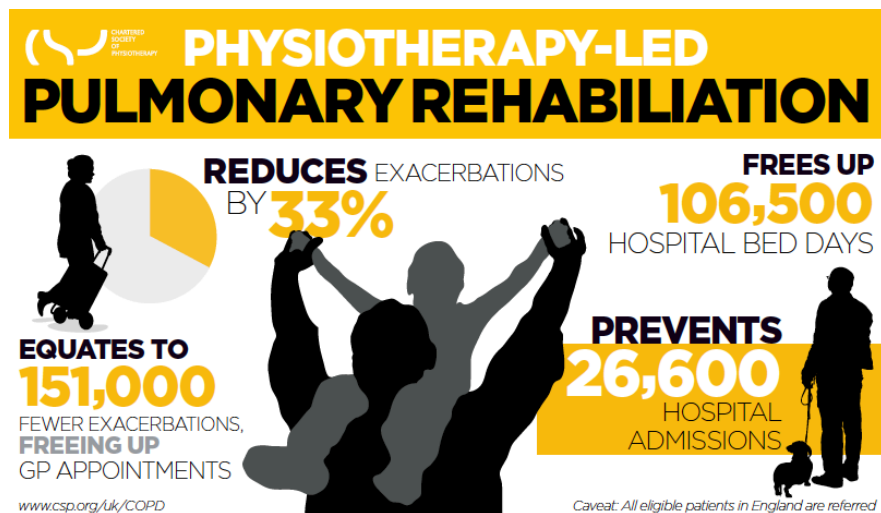
- V. relieved to learn that "I have asthma not angina".
  - Fears that "I'm about to die of an MI or lung cancer" reduced from previous  $\frac{9}{10}$  to  $\frac{3}{10}$ .
- Meaning of breathlessness changed:
- "Able to tolerate breathlessness from exertion now. Gave me example where calmed self with controlled breathing + reassurance "It's only asthma", (when previously would've become v. frightened)

# Referred to Pulmonary Rehabilitation



Offer to anyone with limiting breathlessness  
... having made right diagnosis and treated  
underlying cause!

2 hours twice a week for 8 weeks; choice of days/local venues  
Personalised supervised activity programme with education sessions



Would you like to be able to...

- 'breathe better?'
- 'feel good?'
- 'do more?'

# 44 year old man: outcomes & update



Stopped smoking ... for 3 weeks  
'Completed' Pulmonary Rehabilitation 12/16 sessions  
Taking medication including inhalers regularly  
Using CPAP every night  
No longer alcohol dependent

<u>Outcomes measures</u>	<u>Pre Rehab</u>	<u>Post Rehab</u>
<b>Exercise Test:</b> 6MWT walk test on air	320 metres	410* metres
<b>Oxygen saturations (start/end of exercise test)</b>	Start: 99%	Start: 95%

Only one admission  
in next 6 months...

Since then further admissions driven by:  
No money (til benefits sorted again)  
Had to move from hostel – temporary accomodation in different Borough ...

Still tobacco dependent but less – harm reduction  
Weight increased to >200 kg BMI 60

BUT no admissions for frightening breathlessness  
All 'appropriate' admissions: Low oxygen saturation and/or low PEF



# Addressing unmet respiratory needs in people experiencing homelessness:

## 5 TOP TIPS

1. Ask about breathlessness: and has it been frightening
2. Push for making accurate diagnosis: CXR & spirometry
3. Identify who is sick: by using oximeter
4. Ask about all kinds of smoking: and offer treatment
5. Treat tobacco dependence in evidence-based way

**QUESTIONS?**