Tobacco Dependence & HIV: Case for change

Helping Smokers Quit
Adding value to HIV Care?
BHIVA Conference: Best Practice Session 13 Nov 2015

Louise Restrick, integrated consultant respiratory physician, Whittington Health & Islington CCG
London Senate Helping Smokers Quit Team
London Respiratory Network Lead
Statistics on Smoking, England 2015

In terms of the proportion of deaths attributable to smoking, the diseases with the highest proportions were:

- 85 per cent (1,000) of deaths from chronic obstructive lung disease
- 80 per cent (22,800) of deaths from trachea, lung and bronchus cancer
- 79 per cent (500) of deaths from cancers of the larynx
- 77 per cent (18,900) of deaths as a result of chronic airway obstruction
- 65 per cent (4,100) of deaths from cancers of the oesophagus
- 63 per cent (1,300) of deaths from cancers of the upper respiratory sites
- 58 per cent (3,200) from aortic aneurysms

Table 4.6

4.5 Local Tobacco Control Profiles

The Local Tobacco Control Profiles for England present information on smoking-attributable hospital admissions and mortality at Local Authority (LA) level. These form part of a suite of indicators that are tailored to the needs of local users and cover the health problems caused by smoking, the prevalence of smoking at local level and the extent to which services across the NHS and LAs are tackling smoking and the problems it causes. They are outcome-focused, relevant to the major modern challenges of tobacco control and provide local commissioners and services, a set of up-to-date information as well as an indication of trends over time.

Figure 4.5 - Estimated deaths attributable to smoking, as a percentage of all deaths from that disease\(^1\), by gender, 2013

More than 1 in 3 respiratory deaths the result of tobacco dependence

~ 35%

COPD and Lung Cancer

---

1. Among adults aged 35 and over.

Source: Office for National Statistics, Annual Mortality Statistics, 2013 date of death registration: Crown Copyright

Copyright © 2015 re-used with permission of the Office for National Statistics.
**Tobacco dependence and COPD**

**Smoking status**

<table>
<thead>
<tr>
<th>Known</th>
<th>National audit (13414)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>92% 12390</td>
</tr>
</tbody>
</table>

If known (12390):

<table>
<thead>
<tr>
<th>Current smoker</th>
<th>37% 4528</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex-smoker (stopped prior to hospital admission)</td>
<td>61% 7552</td>
</tr>
<tr>
<td>Never smoked</td>
<td>3% 310</td>
</tr>
</tbody>
</table>

More than 1 in 3 people admitted with COPD remain tobacco or nicotine dependent ~37%

Unchanged in 10 years
Value Framework: work with patients, improve outcomes and reduce costs

Porter ME; Lee TH
NEJM 2010;363:2477-2481; 2481-2483

Value = Health Outcomes

Health Outcomes
Patient defined bundle of care

Cost

stewardship of resources

for population

* includes experience
What is High Value Respiratory Care? COPD ‘Value’ Pyramid

**Editorial**

Figure 1 The pyramid of value for COPD interventions developed by the London Respiratory Network with input from The London School of Economics. This pyramid gives estimates of cost per quality adjusted life year gained. LABA = long-acting \( \beta_2 \) agonist; QALY = quality adjusted life year.

- **Stop Smoking Support with pharmacotherapy**: £2,000/QALY
- **Pulmonary Rehabilitation**: £2,000-8,000/QALY
- **Tiotropium**: £7,000/QALY
- **LABA**: £8,000/QALY
- **Triple Therapy**: £7,000-£187,000/QALY
- **Telehealth for chronic disease**: £92,000/QALY

*(not specific to COPD)*
Evidence-based treatment for tobacco dependence in COPD

‘Offer nicotine replacement therapy, **varenicline** or bupropion (unless contraindicated) combined with a support programme to optimise quit rates... **to all people with COPD who still smoke at every opportunity.**’
40% COPD admissions tobacco dependent: Do we treat tobacco dependence?

More than 40% people admitted with COPD who are tobacco dependent do not have a record of having been ‘given smoking cessation advice during admission’
Adding value to hospital admission: Treating nicotine dependence

‘Smoking’ is tobacco/nicotine dependence

Sick smokers are admitted to ... hospitals

Evidence based quit smoking is the most important treatment for nicotine dependence in sick smokers:

Behaviour change support and prescribed quit smoking medication

As supporting people who are nicotine dependent and have respiratory disease to quit is their key treatment ...

... effective quit smoking is our clinical responsibility
Adding value to respiratory ward admission: Evidence-based treatment of nicotine dependence

Integral part of clinical care
Consultant led - all team members responsibility
Skilled behaviour change support
Quit smoking advisor key member in MDT
Multiple interventions on the ward
Co-ordinated follow up in clinic and at home

Team have and use Carbon Monoxide (CO) monitors
Range of NRT and varenicline available and prescribed

Quit Smoking Advisors
Impact of tobacco dependence in people living with HIV?

~3000 HIV-infected individuals*  
Denmark 1995-2010 - 10 000 controls - followed up ~4 years

<table>
<thead>
<tr>
<th>Self-reported Smoking status</th>
<th>‘Smoker’</th>
<th>‘Ex-smoker’</th>
<th>‘Never Smoker’</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-infected individuals</td>
<td>47</td>
<td>18</td>
<td>35</td>
</tr>
<tr>
<td>Population Controls</td>
<td>20.6</td>
<td>32.8</td>
<td>46.6</td>
</tr>
</tbody>
</table>

*1500 excluded because missing data on smoking status ie 1 in 3!
Impact of tobacco dependence in people living with HIV

Kaplan-Meier curve showing survival by age stratified by HIV & smoking status

Mean age 42-45 years

223 deaths in 4 years ...

Age at death? Young

12 life-years lost ‘in association with’ smoking

5 life-years lost ‘in association with’ HIV

Impact of tobacco dependence in people living with HIV

~18 000 HIV-infected individuals US & Europe
46 000 eligible HIV-infected individuals
60% smokers

Higher mortality from cardiovascular disease & non-AIDS malignancies than non-smokers
7.9 life-years lost associated with smoking
5.9 life years lost associated with HIV

24 000 excluded due to lack of data on smoking status
ie information missing in more than half ...

What about respiratory illnesses?

Cannabis smoking and respiratory illness: inner city 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

*LJ Restrick, EV Cumbus, O Thomas, M Stern, European Respiratory Society Congress 2011; 38:776s
Cannabis smoking & lung cancer

Tunisia, Morocco & Algeria*

Odds Ratio for lung cancer if cannabis user >2

New Zealand** 79 cases lung cancer in under-55s

Risk of lung cancer increased:

- 8% for each joint-year cannabis smoking
- 7% for each pack-year cigarette smoking

>5 x Relative Risk with >10 joint-years cannabis

‘5% of lung cancer in those aged <55 years may be attributable to cannabis smoking.’

Sweden*** 49 000 male conscripts age 18-20 followed for 40 years

1.7% ‘heavy’ cannabis users ( >50 joints total ie ~1 joint-year )

Odd ratio of lung cancer >2 (adjusted for tobacco use)
## Cannabis smoking and respiratory illness: changing what we do ..... ASK

### Radiologist CT chest reporting:
‘Does this patient smoke cannabis?’
‘Appearance consistent with ‘cannabis lung’

Radiological diagnosis of emphysema, pneumothorax and bullae: case for tobacco and cannabis smoking histories

### SMOKING (including cannabis and other drugs)
- **Still smoking tobacco**: Yes ☐ No ☐
  - If yes, ................./ day. If ex-smoker, date given up ............
  - Pack years = \( \frac{\text{no. of cigarettes}}{20} \times \text{years} = \) ____
- **Still smoking cannabis**: Yes ☐ No ☐
  - Joint years = \( \frac{\text{no. of joints per day}}{20} \times \text{years} = \) ____
- **History of smoking other drugs e.g crack/ heroin**: Yes ☐ No ☐
  - If yes, state _______________  Frequency of use _______________
- **Still smoking other drugs e.g crack/ heroin**: Yes ☐ No ☐
Cannabis smoking and respiratory illness: changing what we do ... ADVISE
Impact of tobacco dependence in people living with HIV: Lung cancer

520 deaths in ~18,000 HIV-infected individuals
29% (152) AIDS-related
71% (368) deaths considered non-AIDS related

25% (94/368) due to non-AIDS malignant deaths
50% (47/94) due to cancers strongly related to tobacco smoking
lung, head-and-neck, oesophagus, pancreas & bladder cancer
96% (45/47) in tobacco smokers

Lung cancer accounted for 35% - all tobacco smokers
34/94 non-AIDS malignant deaths
6.5% all deaths in PLWH

Impact of cannabis smoking?

Smoking and life expectancy among HIV-infected individuals on antiretroviral therapy in Europe and North America.
Hellenberg M et al. AIDS 2015, 29:221–229
Does smoking matter in other respiratory illnesses? Pneumonia

Current smoking:

✓ Increases risk of getting community acquired pneumonia
✓ Increases risk of severe sepsis and hospitalisation
✓ Increases 30-day mortality ... independent of tobacco-related co-morbidity, age and co-morbid conditions
Smoking doubles the risk of pulmonary TB and related mortality
Increased risk of infection from exposure to second hand smoke and increased risk of relapse
15% of pulmonary TB diagnosed each year may be attributable to smoking alone*

Smoking cessation:
Reduces the risk of premature death from TB by 50%
Reduces the risk of infection in contacts
Reduces the risk of relapse*

Smoking cessation and respiratory disease in low-income and middle-income countries
Changing respiratory care to deliver evidence-based treatment of nicotine dependence

**Skilled** behaviour change support & medication
Quit smoking advisors working with respiratory teams
Respiratory team training in smoking cessation and prescribing ... and behaviour change skills

Smoking Cessation Advisors work on wards with patients ... and teams

50% 6 month quit rates
For **highly tobacco dependent** patients with varenicline and intensive support*

Helping Smokers Quit
London Senate Programme 2014-16

Treating tobacco dependency
Long-term condition that starts in childhood
Using established and evidence based pathways
Collective clinical leadership

Increasing the impact of therapy for people with HIV: tobacco consumption is the modifiable risk factor contributing most to the development of non-AIDS-defining events among persons living with HIV/AIDS.12
The Clinical Senate asks London’s health organisations to commit to CO4:

1. The ‘right’ CO nversation for every patient and staff member who smokes that gives him or her a chance to quit, referring if necessary.

2. Make routine desktop exhaled carbon monoxide (CO) monitoring by clinicians possible: “Would you like to know your level?”

3. Code the intervention so we can evaluate effectiveness – including death certification.

4. Commission the system to do this right: so right behaviours incentivised systematically.
Enabling CONversations: Clinicians trained in smoking cessation

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

The NHS Centre for Smoking Cessation and Training (NCSCT)
A short training module on how to deliver very brief advice on smoking.

Visit Training Module
Why we have and use a CO monitor on the ward, in clinic and on home visits

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

### Interpreting expired air carbon monoxide (CO) readings

<table>
<thead>
<tr>
<th>CO (ppm)</th>
<th>% CO Hb</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 and above</td>
<td>3.20+</td>
</tr>
<tr>
<td>18</td>
<td>2.88</td>
</tr>
<tr>
<td>17</td>
<td>2.72</td>
</tr>
<tr>
<td>16</td>
<td>2.56</td>
</tr>
<tr>
<td>15</td>
<td>2.40</td>
</tr>
<tr>
<td>14</td>
<td>2.24</td>
</tr>
<tr>
<td>13</td>
<td>2.08</td>
</tr>
<tr>
<td>12</td>
<td>1.92</td>
</tr>
<tr>
<td>11</td>
<td>1.76</td>
</tr>
<tr>
<td>10</td>
<td>1.60</td>
</tr>
<tr>
<td>9</td>
<td>1.44</td>
</tr>
<tr>
<td>8</td>
<td>1.28</td>
</tr>
<tr>
<td>7</td>
<td>1.12</td>
</tr>
<tr>
<td>6</td>
<td>0.96</td>
</tr>
<tr>
<td>5</td>
<td>0.80</td>
</tr>
<tr>
<td>4</td>
<td>0.64</td>
</tr>
<tr>
<td>3</td>
<td>0.48</td>
</tr>
<tr>
<td>2</td>
<td>0.32</td>
</tr>
<tr>
<td>1</td>
<td>0.16</td>
</tr>
</tbody>
</table>

- **Highly Dependent** - 20+ppm
- **Almost certainly smoking** - 10-20ppm
- **Possibly smoking** - 5-9ppm
- **Non-smoker** - 1-4ppm

Shisha smoker
Cannabis smoker

Why
we
have
to
use
a
CO
monitor
Why we recommend, offer & can prescribe varenicline for our nicotine dependent patients with COPD/respiratory illnesses

~500 smokers with severe COPD
Mean age 58 years
60 pack-years of smoking
High nicotine dependence

Access to skilled support
Prescribed NRT and varenicline

48.5% abstinence at 6 months
61% with varenicline and 44% with NRT
Safe
COding smoking status & interventions: national respiratory data

<table>
<thead>
<tr>
<th>Record</th>
<th>Smoking Status</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>COPD</td>
<td>✔</td>
<td>(✔)</td>
</tr>
<tr>
<td>Asthma (2011)</td>
<td>✔</td>
<td>✗</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>ILD</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>✗</td>
<td>✗</td>
</tr>
</tbody>
</table>
## Records of smoking as cause of death?

### South Africa

‘Smoker five years ago?’ included on death notifications since 1998

### England

Smoking as cause of death without referral to coroner since 1992 …

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>No. of deaths (% of total)</th>
<th>Smoking cited as underlying COD (part I)</th>
<th>Smoking cited as a contributory factor (part II)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carcinoma of lung or bronchus</td>
<td>145 (7.3%)</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>COPD &amp; Emphysema</td>
<td>134 (6.7%)</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Smoking included as cause of death in fewer than 1% of deaths due to lung cancer or COPD although smoking known cause of >85% of both
Code: smoking on death certificates

Consultant input into death certificates for all in hospital deaths

Tobacco smoking recording in Part 1 for deaths due to:
Lung cancer, COPD, other cancers and diseases caused by smoking

Importance and confidence – TRAINING
HIV New Diagnoses, Treatment and Care in the UK 2015 report

85,489 people accessing HIV care
91% on ART, of whom 95% virally suppressed

41% live in London

613 people with HIV died

Nearly half (48%) > 45 yrs old

COmission the system to do this right
Clinical leadership and incentives

‘HIV specialist treatment and care in the UK remains excellent’

Smoking prevalence & interventions?
Monitoring according to national guidelines

- Patients having a documented 10-year cardiovascular disease (CVD) risk calculated within 1 year of first presentation and within the last 3 years (target: 70% each).

- Patients with a smoking history documented in the last 2 years (target: 95%) and blood pressure (BP) recorded in the last year (target: 95%).

12 Standards of Care for People Living with HIV

1. HIV testing and diagnosis
2. Access to, and retention in, HIV treatment and care
3. Provision of outpatient treatment and care for HIV, and access to care for complex comorbidity
4. Safe ARV prescribing: Effective medicines management
5. Inpatient care for people living with HIV
6. Psychological care
7. Sexual health and identification of contacts at risk of infection
8. Reproductive health
9. Self-management
10. Participation of people with HIV in their care
11. Competencies
12. Information for public health surveillance, commissioning, audit and research
Monitoring according to national guidelines

- Patients having a documented 10-year cardiovascular disease (CVD) risk calculated within 1 year of first presentation and within the last 3 years (target: 70% each).

- Patients with a smoking history documented in the last 2 years (target: 95%) and blood pressure (BP) recorded in the last year (target: 95%).

Standards & Outcome Measures?

Smoking prevalence in PLWH?

Risk assessment - Pack years? Cannabis? Joint-years?

Tobacco dependence identified & treated in every setting

- Smoking cessation offered & by trained professional?

- % all staff trained in smoking cessation eg VBA, Level 1

- Evidence-based smoking cessation – trained staff, CO readings, NRT & varenicline prescriptions?

6/12 or 1 year quit rates?

Smoking attributable mortality and age at death
Interpreting expired air carbon monoxide (CO) readings

<table>
<thead>
<tr>
<th>CO (ppm)</th>
<th>% COHb</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 and above</td>
<td>3.20+</td>
</tr>
<tr>
<td>20</td>
<td>3.20</td>
</tr>
<tr>
<td>19</td>
<td>3.04</td>
</tr>
<tr>
<td>18</td>
<td>2.80</td>
</tr>
<tr>
<td>17</td>
<td>2.72</td>
</tr>
<tr>
<td>16</td>
<td>2.60</td>
</tr>
<tr>
<td>15</td>
<td>2.58</td>
</tr>
<tr>
<td>14</td>
<td>2.40</td>
</tr>
<tr>
<td>13</td>
<td>2.24</td>
</tr>
<tr>
<td>12</td>
<td>2.08</td>
</tr>
<tr>
<td>11</td>
<td>1.92</td>
</tr>
<tr>
<td>10</td>
<td>1.79</td>
</tr>
<tr>
<td>9</td>
<td>1.66</td>
</tr>
<tr>
<td>8</td>
<td>1.53</td>
</tr>
<tr>
<td>7</td>
<td>1.44</td>
</tr>
<tr>
<td>6</td>
<td>1.35</td>
</tr>
<tr>
<td>5</td>
<td>0.98</td>
</tr>
<tr>
<td>4</td>
<td>0.80</td>
</tr>
<tr>
<td>3</td>
<td>0.64</td>
</tr>
<tr>
<td>2</td>
<td>0.48</td>
</tr>
<tr>
<td>1</td>
<td>0.33</td>
</tr>
<tr>
<td>0</td>
<td>0.17</td>
</tr>
</tbody>
</table>

- **Highly Dependent**
  - > 3ppm
- **Almost certainly smoking**
  - 10-20ppm
- **Possibly smoking**
  - 5-9ppm
- **Non-smoker**
  - < 4ppm
- **20+ppm**
  - Highly Dependent

Learn how to provide this high value intervention at http://elearning.ncsct.co.uk/vba-stage_1.

The 20 minutes that will have more impact than anything else you do.

**Learn how to provide the high value intervention at:**

http://www.londonsenate.nhs.uk/helping-smokers-quit/