HSE/C’S RESPIRATORY STRATEGY

Maureen Meldrum
Industrial Chemicals Unit
CSD 1
March 2004
HSC/E’s Developing Chemicals Strategy

3 priority disease areas

- Skin
- Respiratory
- Cancer

Aim to contribute to government target of reducing the incidence of occupational ill-health by 20% by 2010.
Stages in development of respiratory strategy (excluding asthma).

2. Identify priorities using agreed selection criteria.
3. Develop strategy to focus attention/resource on real problem areas.
4. Implement plans.
5. Evaluate success.
Selection criteria

1. Severity of health effect.
2. Numbers of workers potentially affected.
3. Statistical evidence on disease incidence.
4. Costs to society.
5. Knowledge of exposure conditions/toxic potency of workplace respiratory hazards.
7. Lack of a specific regulatory position.
“Evidence-Base” for occupational respiratory diseases (excluding asthma)?

- What is the current scale/extent of ORD?
- What health conditions are involved? (excluding cancer)
- What substances/processes are responsible? (excluding infectious agents)
- Who are the populations most at risk?
### Development of evidence-base

**Published statistics**
- Industrial Injuries Scheme
- Death certificates
- SWORD*/OPRA*
- RIDDOR*

**Published literature**
- British Thoracic Society
- American Thoracic Society
- European Respiratory Society

**HSE in-house knowledge – FOD HID LAU**

*Surveillance of Work-related and Occupational Respiratory Disease  
*Occupational Physicians Reporting Activity  
*Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995
Evaluation of evidence-base.

Other than for coalmining (and arguably for silicosis), published statistics do not suggest a significant current problem for occupationally-induced respiratory ill health (excluding asthma).

HSE in-house knowledge identifies a large number of potential respiratory hazards in certain industry sectors, particularly manufacturing sector and agriculture, but not much on health consequences.

Published literature flags a potentially major issue with COPD.
Chronic obstructive pulmonary disease (COPD)

“COPD is a disease state characterised by airflow limitation that is not fully reversible. The airflow limitation is usually progressive and associated with an abnormal inflammatory response of the lungs to noxious particles or gases”.

Global Initiative on Obstructive Lung Disease (GOLD) 2003.

GOLD criteria for diagnosis are the presence of a postbronchodilator FEV1 <80% of the predicted value in combination with an FEV1/FVC ratio <70%.

The main cause of COPD is cigarette smoking. But it can also be caused and/or made worse, by occupational exposure to dusts, noxious gases and fumes.
COPD encompasses chronic bronchitis and emphysema.

Symptoms: chronic cough, sputum production, breathlessness. Condition is slow to develop. Rarely seen in people under 40 years old. It can be very disabling and is a leading cause of death. Severe unremitting asthma is classed as a COPD.
Evidence for work-related COPD.

- American Thoracic Society estimates that 15% of COPD in the general population is work-related.

- 30,000 people die each year in the UK from COPD.

- 600,000 diagnosed cases of COPD in the UK.

- NHS spends £500 million annually on treatment of COPD.

- COPD is the 4th leading cause of death worldwide.

- Large-scale population studies indicate main occupational causes include crystalline silica, glass fibre, ammonia, nitrogen oxides, sulphur dioxide, metal fumes.

- Occupations most at risk include construction, mining, textiles, rubber/leather/plastics and synthetic manufacture.
Population Attributable Risk for COPD

Due to confounding with cigarette smoking, assignment of occupational causation to COPD for an individual subject is difficult.

Epidemiologically, impact of work-related COPD is determined by comparing incidences of COPD in exposed and non-exposed populations.

Excess incidence in exposed population (after correcting for age/smoking etc) leads to the Population Attributable Risk (PAR)\% - assuming the proportion of exposed persons in the population is known or can be estimated.
In 2002, 1016 compensated cases of coalworkers’ pneumoconiosis under the Industrial Injuries Scheme.

25% of cases were under the age of 65 years.

In 2002, 475 coalminers received compensation for chronic bronchitis/emphysema.

Chronic bronchitis/emphysema is only subject to compensation as a prescribed industrial disease for coalminers with a minimum of 20 years underground work (since 1993).

Currently, there are only 6000 underground coalminers in the UK. There are proposals to increase stringency of the Respirable Dust Regulations.
In 2002, 148 workers compensated for silicosis under the Industrial Injuries Scheme. 30% of cases in workers <65 years old. No decline in incidence of silicosis in last 15 years.

Crystalline silica is also a cause of COPD. There is pathological evidence for emphysema in silica-exposed workers at autopsy. One review claims silica can cause COPD in the absence of radiological evidence of silicosis. No UK statistics on risks of COPD in silica exposed workers.

Crystalline silica is a cause of lung cancer. Since 1993, a handful of cases per year receive compensation for lung cancer attributed to silica under the Industrial Injuries Scheme. In 1999, 7 workers received compensation. Evidence on lung cancer emphasises need to reduce risks of silicosis.
Plan

Develop a generic plan for COPD involving:-
  Awareness raising
  Improved health surveillance
  Working with primary and secondary health care providers

Activities directed at specified causes of COPD:-

  Use crystalline silica as a pilot.

  Justified in view of large numbers of workers exposed and need to control risks of COPD and silicosis.

  Apply lessons learnt on silica to other causes.
Silica Action Plan

1. Development of new OEL
   a) CHAN already issued
   b) RIA almost complete
   c) Public consultation planned for mid 2004
   d) New EH40 guidance for longer workshifts

2. Development of SILICA Essentials

3. Validation of SILICA Essentials

4. Exposure monitoring programme

5. Communications and influencing activities.

6. Partnerships.
Evaluation of effectiveness of respiratory strategy

COPD is emerging as the overriding priority. But it is a slowly developing condition; “latent period” of 10-20 years. Awareness-raising and improved diagnosis may lead to an increase in reported cases by 2010.

Therefore, need surrogate measures of effectiveness such as:-

• Evidence for reductions in exposure to causative agents.

• Improved compliance with COSHH for dusts, irritant gases and fumes.

• Improved health surveillance.

• Increased HSE enforcement.