WORK CANCER: THE FACTS

CANCER CAUSED BY WORK CLAIMS THE LIVES OF AT LEAST 666,000 PEOPLE A YEAR WORLDWIDE.

1 DEATH EVERY 47 SECONDS

iosh

WORKING TOGETHER TO BEAT OCCUPATIONAL CANCER

Cancer caused by what people do at work is nothing new. The first case of an occupational cancer in the UK was identified in 1775 – 'soot wart', a skin carcinoma suffered by chimney sweeps who were diagnosed as young as their late teens. It took another 150 years to find out that it was down to a carcinogen found in coal soot.

Today, asbestos claims well over 100,000 lives a year worldwide, and is the biggest work cancer killer. It was flagged up as a danger by the UK's Chief Factory Inspector in 1898 – the first recorded case of an occupational pulmonary death caused by exposure to asbestos followed the next year. But it wasn't until 1931 that the UK introduced the first law on asbestos. And it wasn't completely banned as a building material until 1999. In some parts of the world, it's still used as a building material today.

MYTH BUSTER: ONLY ASBESTOS CAN GIVE YOU CANCER

Sadly, a long way from reality. There's an A to Z of more than 50 substances that are implicated in work-caused cancers

Now we have the most compelling evidence yet of how much damage work-based carcinogens can cause – and it's not just down to asbestos. In 2012, Dr Lesley Rushton of Imperial College, London, published her comprehensive research report linking thousands of different cancer deaths with occupations – in other words, joining the dots between what killed an individual, and what they did for a living. This type of research has never before been tackled on such a scale, anywhere in the world, and shows the true cost of cancer in the UK:

- Almost 14,000 new cases of cancer caused by work are registered each year
- There are around 8,000 deaths a year from occupational cancer
- The annual financial cost to individuals, employers and the government for work-caused cancer is estimated in "double figure" billions

MYTH BUSTER: WORK CANCER CASES ARE DECLINING

Wrong. The number of mesothelioma deaths caused by exposure to asbestos in the UK, for example, has gone from just over 400 a year in 1982, to over 2,000 a year in 2010. Non-melanoma skin cancers caused by sun exposure are going up by 3–8 per cent a year worldwide

Cancer caused by work is the fifth biggest cause of avoidable cancer in the UK, behind lifestyle choices like smoking or diet. Five per cent of avoidable cancers in the UK are caused by work, often unknowingly. Many occupational cancers are predictable and preventable. Small changes in how work is managed or carried out can make a big difference in exposure levels and the resulting risk of getting cancer.

Over the last few decades, some carcinogens have been virtually eradicated in developed countries – we've seen, for example, innovative new paint or dry cleaning products which mean that risks have come right down for certain sectors. But new risks emerge – think about modern paint-spraying techniques or the health concerns that scientists have raised over some types of MDF. And other risks remain, often because of a sort of 'by product' effect – think about unintended, incidental exposure to asbestos fibres, stone dust, diesel fumes or solar radiation. They don't come in a tin handily marked with a skull and crossbones – but they can be lethal. And while Dr Rushton's recently published research report gives the UK picture, these risks are today faced across the world – from the East Midlands to the Middle East.

WHAT CAN KILL?

...ASBESTOS, COAL TARS, DIESEL FUMES, METALWORKING FLUIDS, MINERAL OILS, PESTICIDES, PITCHES, SILICA DUST, SOLAR RADIATION, SOLVENTS, TETRACHLOROETHYLENE, VARNISHES, WOOD DUSTS...

WHAT IS 'OCCUPATIONAL CANCER'?

The term 'occupational cancer' is used to describe all cancers contracted following exposure to a cancer-causing agent (carcinogen) at work – for example, welding fumes, silica dust or asbestos fibres. Many work cancers affect the lungs, skin or bladder. Recent research shows that even particular circumstances at work can cause cancer – for example, several studies suggest a link between breast cancer and women who do certain types of shiftwork for many years.

Someone's chances of developing cancer caused by what they've been exposed to at work is, of course, influenced by factors ranging from whether they smoke to their family's health history. But it's widely accepted that exposure has a strong impact on the likelihood of getting a work-caused cancer, even without these. For example, the International Agency for Research on Cancer, part of WHO, compared the risks from diesel fumes to those from passive smoking, and estimated that people regularly exposed to diesel fumes at work are about 40 per cent more likely to develop lung cancer.

MYTH BUSTER: EXPOSURES ARE A THING OF THE PAST

Think again. When was the last time you went past a work site where a labourer was half hidden in a cloud of dust?

A CONSERVATIVE ESTIMATE?

Because of how data on work-related ill health are currently reported by specialist physicians and consultants, it's thought that the number of occupational cancer cases reported by physicians or assessed for compensation cases is only the tip of the iceberg

Some cancers are diagnosed up to 10 years after the sufferer has been exposed to a carcinogen at work. Others can take more than 35 years to develop.

Many cancers can be prevented by cutting down exposure to carcinogens. Some cancers can be detected early enough to be treated and cured. Even with late-stage cancer, the pain can be reduced and the disease slowed down. Early intervention is critical to increasing the chances of surviving cancer – and it relies on early detection.

LUNG, SKIN, BREAST AND BLADDER CANCERS ARE THE MOST COMMON WORK CANCERS

WHAT CAUSES CANCER AT WORK?

People are at risk of developing cancer if they are exposed to a carcinogen at work or particular work circumstances. Here are the 10 top causes of cancer deaths at work in the UK:

3,909 DEATHS
ASBESTOS

Although banned in many countries now, huge quantities still remain from original installation and pose risks when material is disturbed, for example during refurbishment, maintenance or demolition work

652 DEATHS

Diesel engine exhaust emissions – a range of different sectors using equipment from vehicles to generators

789 DEATHS

Respirable crystalline silica – commonly involved in block-cutting, stone-cutting, crushing, milling and drilling stonework

563 DEATHS

Mineral oils – used as lubricants by metal workers, machinists, engineers, in engine maintenance, and other activities, as well as in industries including printing, cosmetics and pharmaceuticals

231 DEATHS

Tetrachlorodibenzodioxin – found in certain herbicides, as well as in waste incineration, metal production, and fossil fuel and wood combustion

152 DEATHS

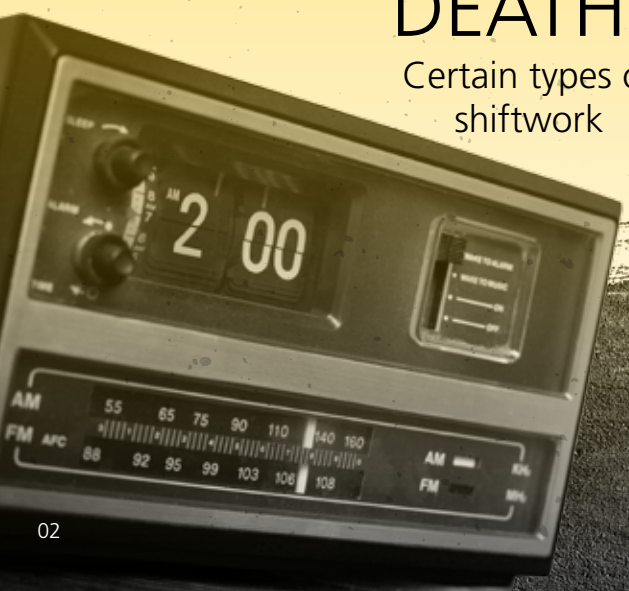
Welding fumes can contain carcinogenic compounds

184 DEATHS

Radon – exposure is often the result of working in environments with high levels of radon, especially cellars and storerooms

552 DEATHS

Certain types of shiftwork



249 DEATHS

Tobacco smoke (workplace exposures)

334 DEATHS

Painting and decorating products and activities

Top 10 causes of cancer deaths in the UK, attributable to occupational carcinogens in 2005. Source: The burden of occupational cancer in Great Britain (2012), Rushton *et al.*

WHY TAKE ACTION ON OCCUPATIONAL CANCER?

Thousands of workers' lives are cut short by cancer caused by their jobs. Some lose their battle with cancer as young as their 30s. Even those who are diagnosed with occupational cancer later in life don't get off lightly – many cancers deliver a long, slow death sentence, with victims suffering an ever-shrinking quality of life at a time when they're getting ready to enjoy a well-earned retirement.

Cancer caused by work isn't inevitable – it's avoidable. Put simply, cutting exposure to carcinogens stops cancers developing. Spotting the signs of cancer early on means they can be treated, and even cured in some cases.

There is, of course, a strong moral argument for making sure that workers aren't exposed to dangerous substances as part of what they do for a living. And in many countries, controlling exposure to carcinogens is a legal requirement – either under explicit laws or under general health and safety protection legislation. Employers who don't get it right could be prosecuted and fined – and see their reputation take a hit too.

Social and healthcare systems bear the brunt of the costs of care, with some estimates putting the annual financial burden at over £10 billion in the UK alone.

MYTH BUSTER: SOME TYPES OF ASBESTOS CAN'T HARM YOU

This myth is outdated and dangerous. White, blue and brown asbestos are all carcinogenic

UNDER A LEGAL SPOTLIGHT

In the UK, the Health and Safety Executive imposes more than 40 improvement or prohibition notices a year for badly managed work involving risks from silica dust, and well over 200 notices for failing to control asbestos exposure properly. For asbestos failings alone, there are around 30 successful prosecutions through the courts each year. One major high street retailer was fined £1 million following an asbestos exposure

1 IN 5 WORKERS FACE A WORKPLACE CANCER RISK

EU CAREX

TOP 10 WORK CANCER REGISTRATIONS IN THE UK

01 LUNG
02 NON MELANOMA SKIN CANCER
03 BREAST
04 MESOTHELIOMA
05 BLADDER
06 OESOPHAGUS
07 STOMACH
08 NON HODGKIN LYMPHOMA
09 SINONASAL
10 LARYNX

TOP 10 WORK CANCER DEATHS IN THE UK

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02 MESOTHELIOMA
03 BREAST
04 BLADDER
05 OESOPHAGUS
06 STOMACH
07 NON HODGKIN LYMPHOMA
08 SINONASAL
09 NON MELANOMA SKIN CANCER
10 LEUKAEMIA

Source: The burden of occupational cancer in Great Britain (2012), Rushton *et al.*

NO TIME TO LOSE

IOSH's No Time to Lose campaign focuses on a range of carcinogenic exposures that are caused by work activities. We're aiming to raise awareness and offer practical support to businesses to help them tackle this significant occupational health issue. Go to **www.notimetolose.org.uk** to:

- access free information
- download or order free practical resources
- ask our expert panel for advice
- find out about events and CPD opportunities
- support the campaign
- pledge your commitment to tackling harmful exposures at work
- get the latest news on occupational cancer
- read our national action plan

OCCUPATIONAL CANCER IS BY FAR THE LARGEST CAUSE OF WORKPLACE DEATHS

International Labour Office

MYTH BUSTER: YOU ONLY GET OCCUPATIONAL CANCER LATE IN LIFE

Wrong. The first recorded case of death put down to asbestos was a 33-year-old man. If you get a work-related cancer, it's not necessarily about how old you are, but about how long you were exposed

TAKING ACTION GETS RESULTS

Tackling causes of occupational cancer works. In developed countries, some types of disease have virtually disappeared – from bladder cancer caused by aromatic amines to leukaemia caused by benzene

Sources: British Journal of Cancer, British Lung Foundation, CAREX (CARcinogen EXposure)/EU Europe Against Cancer Program, Health and Safety Executive, International Agency for Research on Cancer, International Commission on Occupational Health, International Labour Organization, Mesothelioma Center, Dr Lesley Rushton (Imperial College, London), Society of Occupational Medicine, World Health Organization.

Estimate of 666,000 global work-related cancer deaths annually: 'Roles of occupational safety and health organisations in global and regional prevention strategies', Takala *et al.*, International Commission on Occupational Health, 2009, **https://osha.europa.eu/en/press/articles/osh_org_prevention_strat**

RESEARCH

There is a significant body of research across the world looking at the connections between different cancers and the work that caused them, both nationally and on an international scale. Here is a selection:

- In the UK, the HSE-commissioned research into the burden of occupational cancer is the largest of its scale and type in the world. It concludes that 14,000 new cases of cancer caused by work are registered each year and there are around 8,000 deaths a year from occupational cancer **www.hse.gov.uk/research/rrpdf/rr931.pdf**

- A global overview of fatal work-related diseases concludes that occupational cancer represents over half of all occupational disease cases in established market economies **osha.lv/fop/slovenia/sl/publications/Global%20estimates%20of%20fatal%20WRD,AmIHJ,2007.pdf**

- The Global Occupational Health Network says that occupational exposure is the primary form of exposure to more than half of the chemicals, groups of chemicals, mixtures and specific exposures in the human environment, which have been classified by the IARC as carcinogenic for humans. It estimates that the proportion of cancer deaths in the general population attributable to occupational exposures in developed countries is 4–20 per cent. The Network concludes: "Occupational cancer is entirely preventable and interventions at the workplace can save millions of lives every year" **www.who.int/occupational_health/publications/newsletter/gohnet11e.pdf**

- A paper published in the US estimates that "the asbestos cancer epidemic may take as many as 10 million lives before asbestos is banned worldwide and exposures are brought to an end" **www.ncbi.nlm.nih.gov/pmc/articles/PMC1241855**

- A Canadian study found that long term night shiftwork in a diverse mix of occupations is associated with an increased risk of breast cancer **oem.bmj.com/content/70/12/831.full.pdf+html?sid=47f56ef5-6fc3-4d77-b26e-2c44343720dd**

- Danish research into women working in the military found that frequent night shiftwork increases the risk of getting breast cancer **oem.bmj.com/content/early/2012/05/11/oemed-2011-100240**

- Research into non-smoking Chinese men occupationally exposed to silica dust, diesel exhaust and painting work found an increased risk of lung cancer **www.ncbi.nlm.nih.gov/pmc/articles/PMC3039806**

- WHO concludes that 20–30 per cent of men and 5–20 per cent of women in the working age population could have been exposed to an occupational lung cancer risk during their working lives – exposures include asbestos, arsenic, beryllium, cadmium, chromium, diesel exhaust, nickel and silica **www.who.int/healthinfo/global_burden_disease/cra/en**

- According to the EU's Carcinogen Exposure database, about 32 million workers (23 per cent of those employed) were exposed to agents covered by CAREX. At least 22 million workers were exposed to IARC group 1 carcinogens. The most common exposures were solar radiation (9.1 million workers exposed at least 75 per cent of working time), environmental tobacco smoke (7.5 million workers exposed at least 75 per cent of working time), crystalline silica (3.2 million exposed), diesel exhaust (3 million), radon (2.7 million) and wood dust (2.6 million) **www.ncbi.nlm.nih.gov/pmc/articles/PMC1739859/pdf/v057p00010.pdf**

- A paper in an American journal looked at worldwide mortality and morbidity from lung cancer, leukaemia and malignant mesothelioma from occupational exposures to carcinogens, focusing on cases in 2000 resulting from past and current exposures. It concludes that exposure to occupational carcinogens was responsible for 152,000 deaths (lung cancer: 102,000; leukaemia: 7,000; malignant mesothelioma: 43,000) and 1.6 million 'disability adjusted life years' (lung cancer: 969,000; leukaemia: 101,000; malignant mesothelioma: 564,000) **www.who.int/quantifying_ehimpacts/global/2carcinogens.pdf**

- A paper published in an international environmental health journal summarises knowledge on occupational carcinogens, along with the jobs they are associated with. It concludes that 28 agents were "definite occupational carcinogens", 27 agents were "probable occupational carcinogens" with another 113 agents stated as possible occupational carcinogens **www.ncbi.nlm.nih.gov/pmc/articles/PMC1247606**

OVER 50 SUBSTANCES ARE LISTED AS KNOWN OR PROBABLE CAUSES OF WORKPLACE CANCER

International Agency for Research on Cancer

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