

# Costs of occupational ill-health in construction

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## Occupational ill-health in construction

Employer costs £848M p.a.

Excluding cancers, fines, compensation, legal costs, loss of reputation and loss of future work

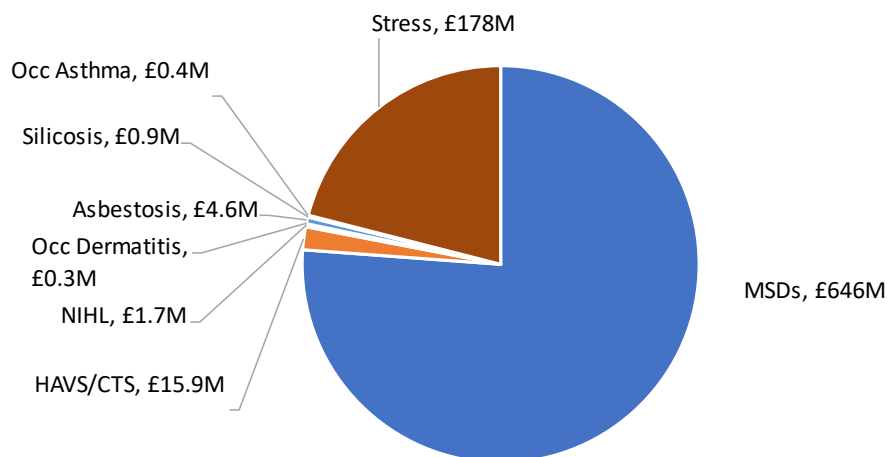


Figure 1: Annual costs to construction employers

Every year, occupational ill-health<sup>2</sup> costs construction employers £848million... and this excludes<sup>3</sup>:

- The costs to employers of prosecution by the Health and Safety Executive for failing to manage workplace health risks
- The cost of compensation claims made against employers by workers who have suffered ill-health as a consequence of their work
- Ill-health related to occupational cancers caused by work

The £848 million is just the cost to employers and excludes the costs borne by individuals, the industry as a whole and the wider society. Figure 2 shows that these costs are wide ranging and significant and the HSE estimates that the costs to the individual are almost three times the employers' costs<sup>4</sup>.

Occupational ill-health costs construction employers £848 million each year.

<sup>1</sup> Research funded by the Institution of Civil Engineers (ICE) - A summary presentation of this study was given at the ICE Health Summit, January 22<sup>nd</sup>, 2018

<sup>2</sup> Ill-health caused or made worse by work

<sup>3</sup> These extra costs are discussed separately later in this report

<sup>4</sup> [www.hse.gov.uk/statistics/overall/hssh1516.pdf?pdf=hssh1516](http://www.hse.gov.uk/statistics/overall/hssh1516.pdf?pdf=hssh1516)

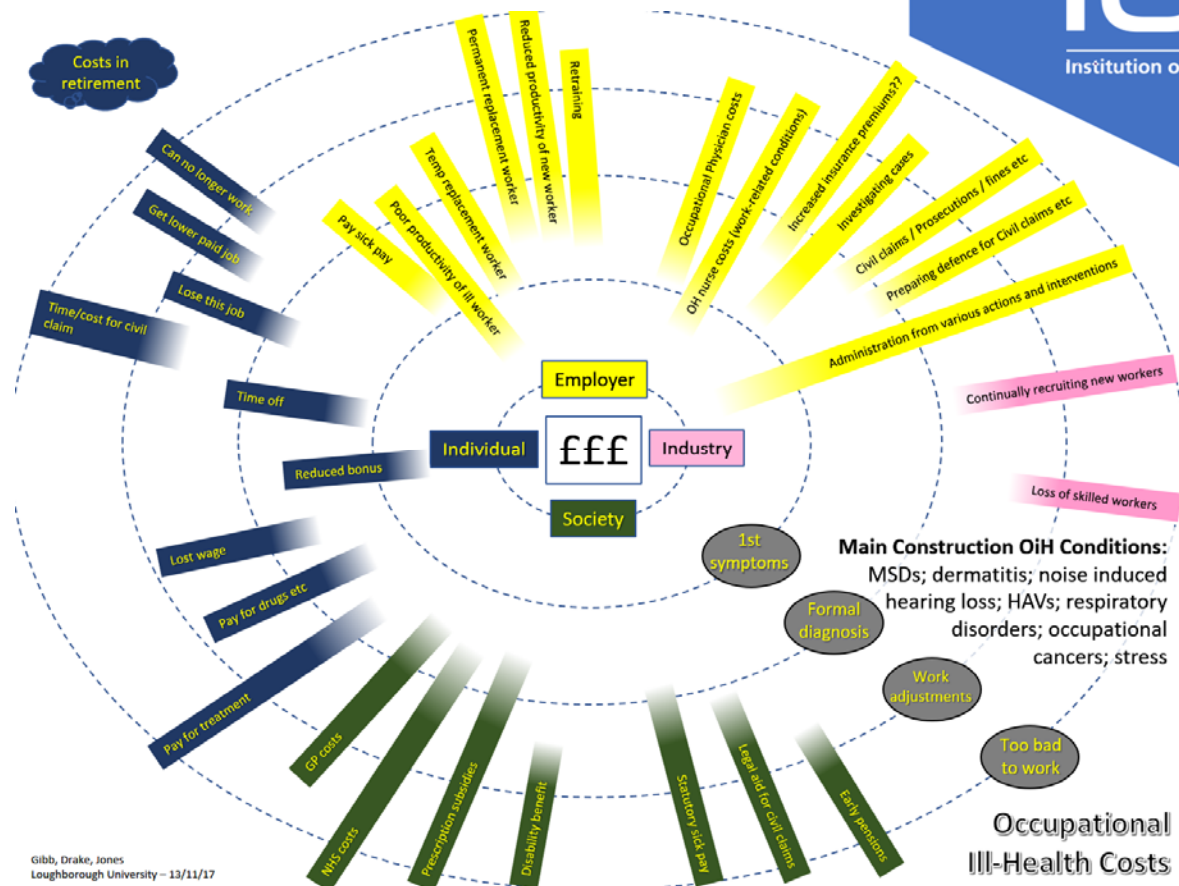


Figure 2 The wider costs of occupational ill-health

The calculations also focus only on the financial cost of ill-health, ignoring the difficult to quantify substantial impact of illness on the wellbeing, happiness and life experience of sufferers and their families; and the effect this has on the reputation and progress of the construction industry and individual organisations.

Gathering accurate information about occupational ill-health and its impacts is difficult due to the long latency of many conditions. In addition, the construction sector has a large itinerant workforce, as well as a high percentage of workers not directly employed. This means that employers may both inherit and transfer ill-health consequences, again making it difficult to get a true understanding of the cost and impacts. There are also substantial limitations in the data available, particularly relating to the incidence and prevalence of many conditions.

Consequently, the headline figure is likely to be a substantial underestimate of the true costs.

**The headline figure is likely to be a substantial underestimate**

Nevertheless, it is important to get an understanding of these costs to ensure that employers understand the scale of the problem. Managing occupational ill-health risks not only has potential to save employers money, but it can also bring additional benefits such as a healthier workforce, increased productivity and improved business credibility.

## Research scope and methods

This research has considered the following occupational ill-health conditions<sup>5</sup>:

- Musculoskeletal disorders (MSDs)
- Hand-arm vibration syndrome (HAVS) and Carpal tunnel syndrome(CTS)
- Stress-related ill-health
- Occupational dermatitis
- Noise induced hearing loss (NIHL)
- Occupational asthma<sup>6</sup>
- Asbestosis and Silicosis

The headline calculations are underpinned by two figures:

1. The number of workers believed to be suffering from each condition
2. The costs arising from each case of ill health

The number of affected workers is based on the following sources:

- The annual Labour Force Survey (LFS), managed by the Office for National Statistics (ONS) asks a sample of around 37,000 households whether they suffer from any health condition which they believe is caused or made worse by their work (self-reported work-related illness survey module)
- THOR (The Health and Occupational Research network) collates case data from a sample of Occupational

Physicians, other consultant physicians and GPs. It includes a number of separate schemes such as EPIDERM, SWORD and THOR-GP. These numbers are believed to be a substantial underestimate as work attribution of ill-health is difficult; and many construction workers do not have access to occupational health care.

- Industrial Injuries Disablement Benefit (IIDB/DWP) claims. Again, the number of cases reported is likely to be considerably smaller than the true prevalence. Self-employed workers are not eligible to claim; claims are limited to individuals working in a narrowly defined range of jobs; and only those who have disability which exceeds 14% can claim.
- Expert opinion, based on experience of workforce prevalence from organisations which have effective health surveillance programmes; and previously published datasets following workforce health assessment, such as the Constructing Better Health study carried out between October 2004 and June 2006 (Tyers et al 2007).

Data about the potential costs of cases was gathered through interviews with industry and health professionals, review of published data and discussion with expert panels.

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<sup>5</sup> Occupational cancers, including Mesothelioma, have been studied but costs are not shown in the headline figures as the numbers are calculated differently. The biggest proportion is lung cancer, then Mesothelioma. It excludes silicosis prior to lung cancer.

Zand et al (2016), developing Rushton et al (2010), estimated total employer costs as £189M p.a. for 24 work-related cancers. This estimate includes loss of productivity, absence, administration, legal, compensation and enforcement action.

Because this pre-published figure includes fines and compensation, it has not been included in the overall Employers Costs quoted earlier. Furthermore, the figure is only an estimate due to the uncertainty of the relationship between individual cases and work.

<sup>6</sup> Chronic obstructive pulmonary disease (COPD) was excluded because of the difficulty distinguishing between smoking and work-related causation.

The costs have been split into four headings:

- **Labour costs** (*sick pay/SSP, overtime, presenteeism, lodgings*)
- **Occupational health and management costs** (*attending occupational health services, increased surveillance, administration/paperwork, rescheduling work*)
- **Extra costs** (*referrals/report, treatment, replacing workers, managing workers out of the business*)
- **Investigation and risk assessment costs** (*investigating cases, assessing risk, making adjustments*)

For each condition, cost estimates were calculated for different stages: first symptoms and diagnosis; the point of requiring workplace adjustments; and being unable to continue working. Where appropriate, the costs also take account of the different types of employment (white/blue collar, directly employed, agency or self-employed).

## Prosecution Data

Review of prosecutions<sup>7</sup> suggests that around 10% related to poorly managed health risks, with the remaining 90% relating to safety legislation. However, not all prosecutions are reported in this format; and this data is not specific to construction.

The HSE also publish prosecution data broken down by the specific legislation breached.

Out of 219 prosecutions against construction employers in 2016-2017, 30 arose from specific health-related legislation<sup>8</sup>.

The size of fines levied for breaches which put workers at risk of occupational ill-health vary and are higher for larger organisations with a greater ability to pay. Typical fines for both health and safety failings have increased substantially as a consequence of the 2016 Health and Safety Sentencing Guidelines (Figure 3<sup>9</sup>)



Figure 3 Fines levied following prosecutions for H&S breaches

It has not been possible to calculate the prosecution or civil claim costs for each condition because of the difficulties in gathering accurate statistics for health cases and the variation in fines and costs. Also, many civil claims are settled out of court and are rarely in the public domain. However, details of sample cases are included where they relate to specific health conditions, to illustrate the likely consequences to employers of poor management of health risks.

<sup>7</sup> Published through the HSE press office

<sup>8</sup> e.g. the Control of Asbestos Regulations 2012, the Control of Lead at Work Regulations 2002 and the Control of Vibration at Work Regulations 2005.

<sup>9</sup> These figures do not include costs to the employer in investigating or defending the prosecutions, or related court costs.

## Construction employer costs for work-related ill-health conditions

### Stress, depression or anxiety

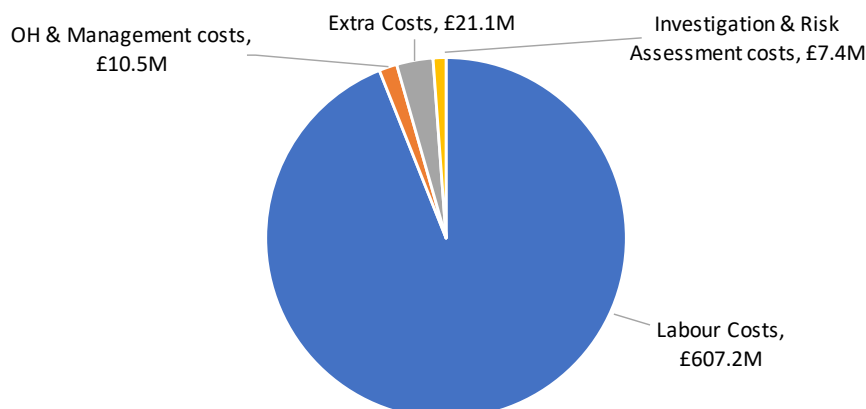
- Prevalence data: (LFS/ONS/HSE)
- Equates to £15k per case
- Affects both white and blue-collar workers
- Biggest cost is presenteeism. This has been calculated in-line with a Deloitte study<sup>10</sup> which demonstrates presenteeism costs for stress-related conditions are 2½ to 3 times the absence costs
- Around 280 construction workers each year commit suicide. This is up to 3.7 times the national average (ONS 2017) and work-related stress is likely to be a contributory factor in some of these cases.



### Musculoskeletal disorders (MSDs)

**MSDs**  
Employer costs:  
£646M p.a.

- Prevalence data (LFS/ONS/HSE)
- Equates to £12k per case
- High labour cost is mainly presenteeism rather than absence<sup>11</sup>
- Affects both white and blue-collar workers
- Mitigating costs, if applied appropriately, may reduce costs in the longer term e.g. paid-for physiotherapy sessions
- Potential compensation claims: can range from £9.5k (minor back injury with expected recovery) to £122k (for most severe)<sup>12</sup>



<sup>10</sup> Hampson and Siegel (2017)

<sup>11</sup> Labour calculations are based on the assumption that presenteeism for MSDs will be similar to presenteeism for stress.

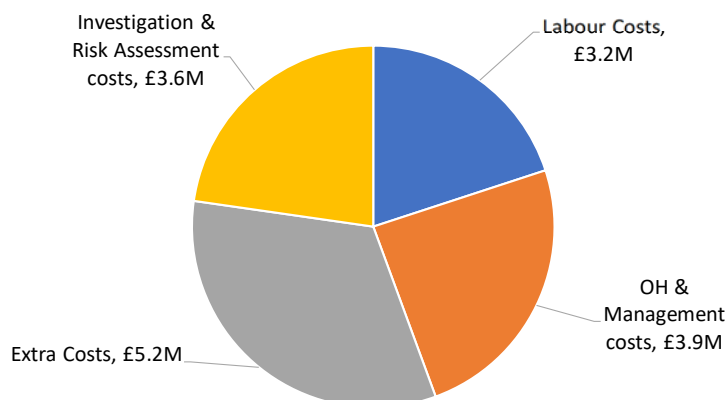
<sup>12</sup> Acute Injury claims specialist

## Hand-arm vibration syndrome (HAVS) / Carpal tunnel (CTS)

### HAVS/CTS

Employer costs:  
£15.9M p.a.

- Incidence data (IIDB/DWP), Prevalence (expert opinion)
- Equates to £375 per case
- Prosecution example: Wrexham council fined £150,000 + £10,900 costs (failure to address the issue of HAVS)<sup>13</sup>
- Potential compensation claim: average claim £7.5k + cost of defending claim (interview data)

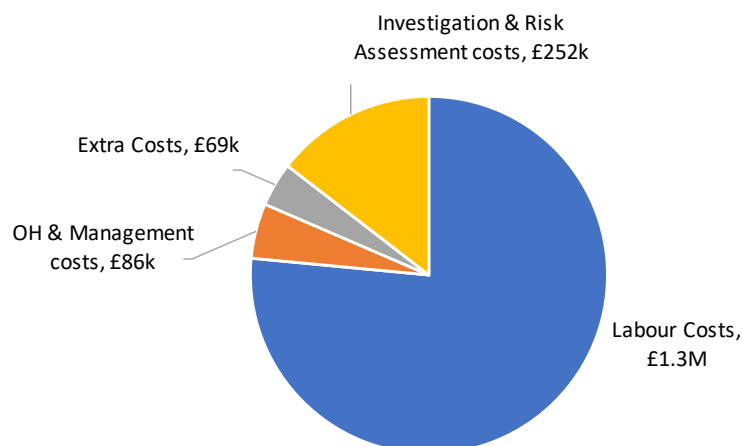


## Noise-induced hearing loss (NIHL)

### Noise-NIHL

Employer costs:  
£1.7M p.a.

- Incidence data (IIDB/DWP), Prevalence data (LFS/ONS)
- Equates to £1.2k per case
- Prosecution example: Fibreline Ltd fined £15k + £4.5k costs (excessive noise levels and failure to implement training and warnings)<sup>14</sup>
- Potential compensation costs awarded for injury are likely to be £5k to £37k (average £15k), in addition to any preparation costs incurred<sup>15</sup>.



<sup>13</sup> <http://www.bbc.co.uk/news/uk-wales-north-east-wales-41498675>

<sup>14</sup> <https://pulsarinstruments.com/blog/noise-work-prosecutions-hse/>

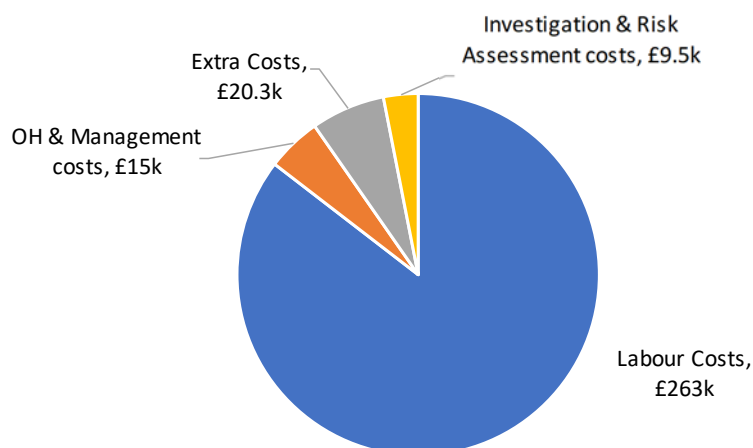
<sup>15</sup> *Guidelines for the Assessment of General Damages in Personal Injury Cases*

## Occupational Dermatitis

### Dermatitis

Employer costs:  
£0.3M p.a.

- Incidence data: THOR (EPIDERM)/IIDB/DWP
- Equates to £2.9k per case
- Prosecution example: TRP Polymer Solutions fined £40k + £6.5k costs (failed to assess risks from products). OSH advisor also prosecuted<sup>16</sup>.
- Potential compensation claim average for severe dermatitis: £10,960 - £15,300<sup>17</sup>

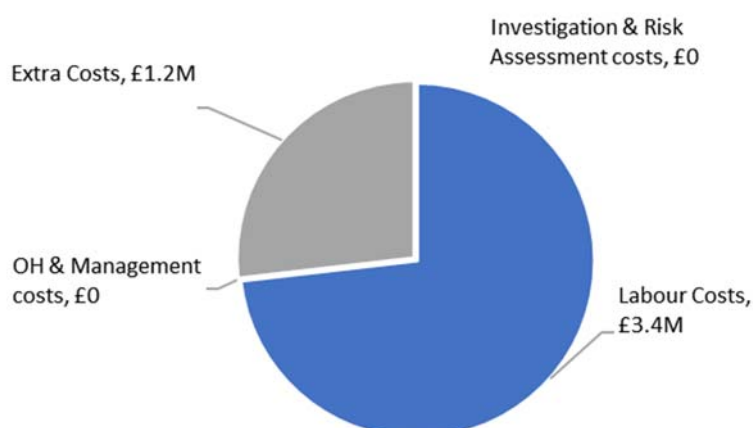


## Respiratory disorders (Asbestosis, Silicosis, Asthma)

### Asbestosis

Employer costs:  
£4.6M p.a.

- Incidence data (IIDB/DWP)
- Equates to £6.4k per case
- Most cases will be diagnosed after worker has retired, so OH & management costs will be negligible. Investigation costs would be linked to prosecution and/or compensation claim so not included.
- Prosecution example: In 2017, three companies were fined after workers were exposed to asbestos while refurbishing a school. Balfour Beatty Regional Construction Ltd was fined £500,000 + £32k costs; NPS London Limited £370k + £32k costs; Squibb Group Ltd £400k + £175k costs<sup>18</sup>
- Potential compensation claim: huge range - severe cases from £50k - £1M+ (serious disability where asbestosis progression can result in premature death); moderate cases from £10k - £50k (where asbestosis has an impact on social life or physical activity)<sup>19</sup>



<sup>16</sup> <https://www.healthandsafetyatwork.com/health/trp-polymer-hereford>

<sup>17</sup> *Quittance personal injury*

<sup>18</sup> <http://press.hse.gov.uk/2017/companies-fined-after-workers-exposed-to-asbestos>

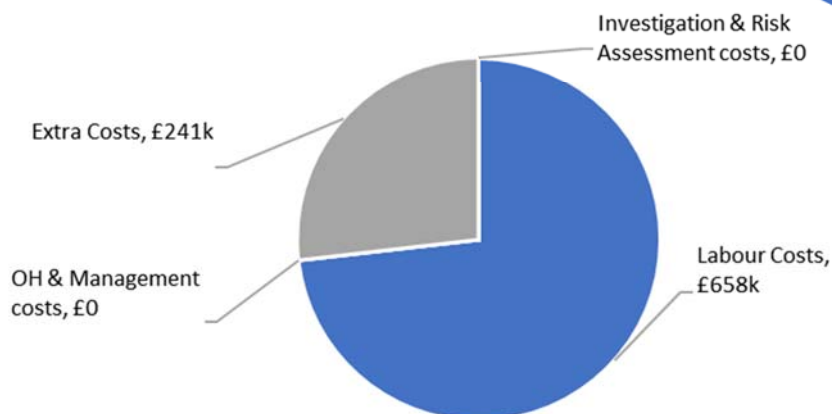
<sup>19</sup> *Tylers Solicitors*



## Silicosis

Employer costs:  
£0.9M p.a.

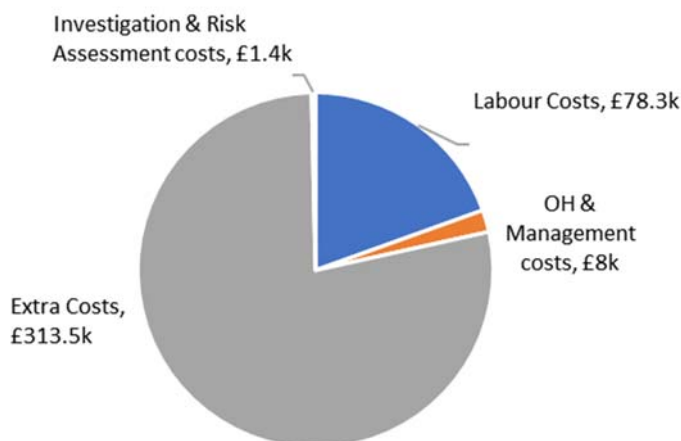
- Incidence data (IIDB/DWP)
- Equates to £6.4k per case
- Most cases will be diagnosed later in working life or worker has retired, so OH & management costs will be negligible. Investigation costs would be linked to prosecution and/or compensation claim so not included.
- Prosecution example: Stonyhurst College fined £100,000 + £31,547 costs in 2014 for failure to monitor or reduce the exposure of workers to silica dust<sup>20</sup>
- Compensation example: Mills v JP Barnes & Sons Ltd, 2013, an award of £10k + costs was made for mild silicosis in a worker who was also a heavy smoker, with the payment to increase if his symptoms worsen
- Compensation example: One website<sup>21</sup> quotes general damages of £48,000-£119,000 for severe lung disease based on the published Guidelines for the Assessment of General Damages



## Occupational Asthma

Employer costs: £0.4M p.a.

- Incidence data: THOR (SWORD /IIDB/DWP and expert opinion)  
Equates to £26k per case
- Due to difficulty of determining causal factors, there is likely to be high under-diagnosis - therefore experts added costs for presenteeism for workers who have not been diagnosed but are affected (this additional cost has been included in 'extra costs')
- Prosecution example: Bakery prosecuted £2k fine + £6k costs for failing to protect workers from flour dust (this included other breaches)<sup>22</sup>
- Compensation claim: average range £14k to £50k<sup>23</sup>



<sup>20</sup> [www.healthandsafetyatwork.com/coshh/stonyhurst-silicosis](http://www.healthandsafetyatwork.com/coshh/stonyhurst-silicosis)

<sup>21</sup> [www.accident-claim-expert.co.uk](http://www.accident-claim-expert.co.uk)

<sup>22</sup> <https://www.lighthouseiskservices.com/2012/04/bakery-fined-hses-proactive-prosecution/>

<sup>23</sup> Tylers solicitors



## Concluding thoughts

This report has estimated the costs to construction employers of work-related ill-health. It is necessarily based on statistics which are incomplete and possibly inaccurate.

For example, the labour force survey relies on lay-people's perception of medical conditions that may not be medically verified. The estimates are derived from a sample population so subject to a margin of error, responses can be completed by proxy and limited information is available on possible causal factors for conditions.

Other figures, from cases reported through formal mechanisms such as THOR and IIDB are subject to substantial underreporting and are likely to represent only the 'tip of the iceberg' for conditions such as occupational dermatitis, occupational asthma and HAVS.

Demonstrating work relatedness can be particularly difficult. For conditions such as asthma and dermatitis it can take many years before the link is made. In other conditions such as MSDs and stress-related conditions, there may be multiple factors and triggers, some of which are work-related, and some are not, which again complicates the picture.

Conditions which are particularly damaging and life-limiting, such as those caused by silica and asbestos exposure, don't show high costs for employers in this analysis. This is due to the long latency of the conditions, and the fact that most cases will only have a substantial impact in the last few years of working life or, more likely, after retirement. Thus the costs to employers are relatively low, obscuring the massive costs, financial and otherwise, to individuals and societies of failing to manage these risks.

Overall the impact of occupational ill-health is clearly substantial. For MSDs and stress-related ill-health the highest costs to the employer come from presenteeism: workers with poorly managed health conditions, reluctant to report due to fear of dismissal, or simply because they can't afford to take time off, struggling on with greatly reduced productivity. These costs affect organisations of all types and all sizes, but are often invisible.

The construction industry has committed itself to addressing health risks. To really drive change, intervention is necessary throughout industry, including at the level of SMEs who employ the majority of workers. Risk needs to be tackled at source - at an industry level it might be helpful to consider the culture and standard practices which can contribute to risk, such as long working hours, long commutes, living away from home and poor welfare. For individual companies, there is a need for design for health interventions, reducing exposure to manual handling, dust and vibration. But it is also important to ensure that known control measures such as dust extraction, face fitted PPE and low noise/vibration tools are used more widely; and to improve recognition and diagnosis of medical conditions, by increasing access to health surveillance and ensuring workers feel able to declare conditions and seek support.

## References

- Hampson E, Siegel S, 2017. Mental health and employers: the case for investment. Deloitte Report
- ONS, 2017. Suicide by occupation, England: 2011-2015. [www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/suicidebyoccupation/england2011to2015#main-points](http://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/suicidebyoccupation/england2011to2015#main-points)
- Rushton L, Bagga S, Bevan R, Brown T, Cherrie J, Holmes P, Hutchings S, Fortunato L, Slack R, Van Tongeren M, Young C, 2010. The burden of occupational cancer in Great Britain, Health and Safety Executive Research Report RR946
- Tyers C, Sinclair A, Lucy D, Cowling M, Gordon-Dseagu V, Rick J, 2007. Constructing Better Health, final evaluation report, Health and Safety Executive Research Report RR565
- Zand M, Rushbrook C, Spencer I, Donald K, Barnes A, 2016. Costs to Britain of work-related cancer. Health and Safety Executive Research Report RR1074.

## Annex 1: Main sources used

- HSE (who collate information from their own statistics such as RIDDOR and from secondary sources such as the LFS and THOR)
- IIDB/DWP (Industrial Injury Disablement Benefit), paid to workers with a prescribed health condition related to work in certain jobs
- LFS (Labour Force Survey, which asks a sample of the population annually to self-report if they have work related ill-health)
- ONS (Office of National Statistics)
- THOR (The Health and Occupation Research Network). This is the collective body which collects data on occupational health cases from Occupational Physicians, GPs and other specialists and incorporates SWORD, OPRA, EPIDERM etc
- SWORD (Surveillance of Work-Related and Occupational Respiratory Disease) – case reporting by around 400 Occupational Physicians, most report for only one sample month each year
- OPRA (Occupational Physicians Reporting Activity) – case reporting by around 300 Occupational Physicians or any work related ill-health (mostly MSDs and mental health), most report for only one sample month each year
- EPIDERM (Occupational skin surveillance) – case reporting by 150 consultant dermatologists, most report for only one sample month each year

## Annex 2: Experts consulted <sup>24</sup>

Alasdair Gray	<i>Celtic Contracts</i>
Andrew Brown	<i>BASCOL</i>
Caroline McLeod	<i>Kier</i>
Chris Packham	<i>Enviroderm</i>
Christina Butterworth	<i>FOHN</i>
Clare Forshaw	<i>HSL</i>
David Fishwick	<i>HSL</i>
David Lambert	<i>Kier</i>
Declan Davis	<i>Ferrovial</i>
Gavin Bye	<i>Costain</i>
Hayley Healey	<i>HSE</i>
Heather Bryant	<i>Balfour Beatty</i>
Ian Strudley	<i>Ex-HSE</i>
Ian Graham	<i>EDF Energy</i>
Jane Philippou	<i>British Gypsum</i>
Jennie Armstrong	<i>Tideway</i>
John Scott	<i>MSFitout</i>
Karen Baxter	<i>Park Health</i>
Kevin Fear	<i>CITB</i>
Lawrence Waterman	<i>British Safety Council</i>
Liz Bennett	<i>SID</i>
Margaret Grahamslaw	<i>B&amp;CE</i>
Margaret Sackey	<i>TfL / ICE H&amp;S panel</i>
Martie van Tongeren	<i>University of Manchester</i>
Martin Worthington	<i>Morgan Sindall</i>
Michael Zand	<i>HSE</i>
Mike Battman	<i>Gardiner &amp; Theobald</i>
Nick Bell	<i>Risk consultant</i>
Nick Pahl	<i>Soc Occ Medicine</i>
Patrick Manu	<i>UWE</i>
Paul Streeter	<i>Impact Building Services</i>
Peter Crosland	<i>CECA</i>
Philip Baker	<i>Consultant</i>
Ray Roberts	<i>TfL</i>
Richard Wilks	<i>Bell Group</i>
Robert Bullock	<i>Skanska</i>
Silvana Martin	<i>Laing O'Rourke</i>
Stacy Lewis	<i>Consultant</i>
Steve Crofts	<i>Tideway</i>
Tim Stevenson	<i>The Healthy Company.</i>
Tricia O'Neill	<i>Skanska</i>

<sup>24</sup> The research team acknowledge the significant contribution by many industry experts who provided information, were interviewed or attended workshops.