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HEALTH AND SAFETY MANAGEMENT

An Alternative Approach to Reducing
Accidents, Injury and Illness at Work

John White

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Preface

Statistics repeatedly tell us that human error contributes directly to approximately 80% of workplace accidents, incidents and near misses, while statistics from the Health and Safety Executive (HSE) illustrate a steady stagnation in the rate of reduction of accidents, injuries and time taken off work due to ill health. At a time when our awareness and application of health and safety strategies and policies, together with health and safety culture, are at their most advanced state, we should perhaps collectively expect the statistics to reflect this through a higher rate of reduction.

In order to continue to achieve a reduction in the accident statistics, I strongly believe that alongside providing effective systems, procedures and training, it is essential to explore ways of managing the human dynamic more effectively. This belief is backed up by my conversations with several leading figures in major construction projects and my experiences in managing high-risk outdoor activities over a 25-year period.

By applying a range of new and existing principles, including free-thinking hazard identification and marginal gain and using lessons drawn from sport and the high-risk world of outdoor adventure, this book provides a variety of practical solutions that will in turn:

- Reduce the incidence of human error in the workplace
- Reduce the number of accidents, incidents and near misses
- Reduce time taken off work due to injury or ill health

The benefits of such an approach are good for the individual, families, healthcare system, employer and society in general.



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Author

Following training in landscape management, John took up various positions with the Lake District National Park Authority, including Volunteers Coordinator and National Park Ranger for the busy central Lake District. After qualifying as a lecturer in countryside management, he went on to set up and run a successful mountain guiding business, which led to a variety of work with colleges, universities and a range of businesses. John also developed Highpoint and Lakes Challenge, a business providing team- and relationship-building events for a wide range of clients including English Partnerships, The Olympic Delivery Authority, Tideway and Loughborough University. He also worked as Director of Conservation and Development for a leading conservation organization.

John is an accomplished climber with over 100 first ascents to his name from Africa to North America, and he has led expeditions to Greenland alongside climbing throughout the Alps and in many European countries. A keen naturalist, he was extensively involved in birds of prey protection schemes and retains a long-standing interest in the natural world.

John has managed health and safety in many difficult and extreme environments and sports and has been responsible for the safety of many thousands of participants in outdoor events. He set up a detailed health and safety policy for a leading conservation organization and was responsible for the safe working of hundreds of volunteers alongside full-time staff.

Previous works by the author include:

Rock Climbing in Northern England
Rock Climbing in Langdale
AA Classic Walks and Tours in France
AA Secret France
AA Touring France
Classic Walks in Great Britain
Classic Walks of the World
(All as contributing author)
Walking in the Stubai Alps
The Indoor Climbing Manual

John has also written extensively for outdoor magazines on topics ranging from navigation skills to winter driving.



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Introduction

Cumbria's Lake District produces some memorable weather, though unfortunately most of it is memorable for the wrong reasons, as the devastating floods caused by Storm Desmond in 2015 demonstrated only too well.

However, every now and then the grey clouds disperse and we're treated to one of those 'blue sky' days that are so magnificent, so sublime, that one can't help but feel uplifted with a sense of euphoria and joy. It was on such a day in the winter of 2016 that my old climbing pal Wilf Williamson and I set off to ascend Blencathra via the infamous Sharp Edge, a delightfully defined, rocky ridge that provides a strikingly direct line to the summit plateau. An accident black spot, the edge has been the scene of numerous incidents and fatalities over the years, particularly in wet or snowy conditions, so we were mentally prepared for this and appropriately equipped and experienced.

Our walk to the ridge was very pleasant and we reached Scales Tarn, a small body of water nestling in a high corrie beneath Sharp Edge. A steep shale path led up to the start of the edge proper, and we could see that the sun had melted snow from the south side of the ridge, whereas the north side was in the full and determined grip of winter, plastered with ice and rock-hard snow. Though well within our capabilities, we took great care in picking our way along the ridge's craggy crest, staying well away from the treacherous terrain in the shade to our right.

The final steep slopes leading to the summit plateau were streaked with ribbons of hard snow that required care and concentration, but before long our rocky scramble had finished, and we stood on the gentle slopes of the plateau, difficulties behind us, gazing across sparkling snowfields to distant views of dozens of snow-capped peaks etched against a deep blue sky. It was magnificent.

A year or so previously, I'd invested in a pair of ultra-lightweight walking boots that I'd tested in a wide range of conditions. In particular, their grip on slippery surfaces such as snow was very impressive. As we walked over the frozen snowfields, I noticed that Wilf was having to use his boots to kick steps in the hard snow and was finding the going quite tough, whereas I, in my 'super boots', was able to walk comfortably on the icy surface.

I thought I should point out to Wilf how superior my choice of footwear was, but a moment later and before I could utter a word, my feet went from under me in a flash, my arms flapped in a vain attempt to retain balance, but the inevitable happened and I landed very hard, very painfully and very embarrassingly on my coccyx.

I'd fallen (in this case literally) for the oldest trick in the accident prevention book. It's like an inverse take on a magician's sleight of hand that relies on distraction. I was distracted partly by the stunning beauty and the banter of the moment and partly by the focus on one issue, the grip of the boot. Now I've run hundreds of winter mountaineering and winter hillwalking training courses. I've gone to great lengths to help people gain skills and confidence and learn about the hidden dangers that can catch the unwary in hard, wintry conditions. I've taught them to walk and climb on snow and ice, to use crampons and ice axes, to survive and enjoy the unique rewards



Sharp Edge, Blencathra, Lake District.

that come from being on the mountains in deep winter. I've participated in dozens of rescues in similar conditions and even witnessed, many times, people falling in exactly the same way I did. So what happened?

It's best demonstrated by looking back to an injury that befell a member of our mountain rescue team returning from a rescue one dark winter's evening. The rocky path we were descending was frozen hard, and surface water had frozen solid. On top of this was a light covering of new snow, and it wasn't possible to tell if your next step was going to be onto rock with a light cover of snow (OK) or hard ice with a light cover of snow (not OK!). We put crampons on; some didn't. Minutes later I heard an agonised shout next to me. I turned, and etched in the light of my headtorch I saw one of our larger team member's feet shoot out from under him and kick the air in vain before he landed on his back with a thump you could hear in the car park a quarter of a mile away. Our rescue tally for the night suddenly doubled!

That's exactly what happened to me. Though the majority of the summit snowfield consisted of firm snow that my boots gripped supremely, there were a very few small patches of ice, lightly covered with a dusting of snow, that were indistinguishable from the rest of the snowfield. I'd strayed onto one of these, slipped and landed flat on the base of my spine. In my career I'd shown hundreds, if not thousands, of people this very hazard, and I'd witnessed lots of people falling in this way, yet it still happened to me.

Why? As I intimated earlier, it was to do with distraction, deception and perception.

The first factor relates to perception of risk. Our route that day took in Sharp Edge – an accident black spot, some of which was encased in hard snow and ice and from which a fall could be deadly. Our focus was on this part of the route, and having completed it, our perception of risk reduced significantly. This is the deception, though unlike the magician, we are deceiving ourselves rather than an

audience. Moving from a very high-risk situation to a lower-risk situation does not mean that risk has been removed, yet this is the deception that we experience.

The second factor is distraction. In this case, I was distracted and lost focus due to two factors – the beauty of the moment and the humour of the moment. The beauty of the moment is important and an underrated factor as a distractor. The scenery and blue skies created a sense of euphoria and happiness that in turn reduced my focus on risk. The humour of the moment, the banter between friends, also acted as a distraction from the potential risks. End result – a slip, a fall, a big bruise and an even bigger laugh for my friend.

I reflected on that momentary lack of concentration and resulting slip and wondered how I could prevent it ever happening again. I came to the conclusion that I couldn't, but what I could do was reduce the chances of it recurring even further, to a level at which it was highly unlikely to happen. To do this, I would need to rethink my whole attitude, develop a different, free-thinking approach to hazards and hone this to a whole new level.

Accidents in the workplace and at leisure cost us individually, cost and inconvenience our families and cost business and society vast sums, yet in recent years the statistics show a gradual flattening in the level of accidents, injuries and time taken off work due to ill health. This is at a time when our knowledge and understanding of health and safety and the levels of support available are at an all-time high. I believe that in order to make further reductions in the numbers of accidents and incidents occurring in the workplace, and to reduce absence due to ill health, we need to look beyond the excellent work that has been done to improve safety through systems, procedures, training and equipment to new ways of managing the human component, new ways of understanding and dealing with factors such as distraction, failure to concentrate or overconfidence.

I'm utterly convinced that by approaching health and safety from an additional, different perspective, and by focusing on reducing human error through the way we look after the health, well-being and fitness of our workforce, it's possible to significantly reduce the numbers of accidents, incidents and near misses and to reduce the number of working days lost due to ill health and injury.

Many factors contribute to the occurrence of accidents, and often it's a combination of factors. Common contributors include distraction, failure to concentrate, not following instructions, forgetfulness, tiredness, changing circumstances, overconfidence and risk normalization. My stance is that by helping people to concentrate better, to remain focused for longer, to feel less tired, to assess risk more effectively, to identify hazards earlier and so on, we can incrementally make a real difference.

To do this, we may have to change the way our workforce eats and drinks and consider whether people are taking their breaks at the best times. We need to ensure their physical and mental well-being are taken into account and improved. Responsibility for health and safety issues needs to be shared, and every person needs to feel involved and listened to. Our workforces need to start thinking differently and adopt a free-thinking approach to hazard identification. We need to manage experience effectively and reduce the overconfidence and numbness to risk that can

appear over time. Recognition that people have different learning styles is essential, and we need to cater to this in our training and systems. Increasingly, we may need to consider the demographics of an ageing workforce alongside cultural and ethnic considerations. By accumulating small gains from these and many other ideas described here, we can make a real difference.

A healthy, fit and happy workforce trained in free-thinking hazard identification, knowledgeable about their diet, working in effective teams and genuinely taking responsibility for health and safety will be more effective, more productive and safer.

1 The History of Health and Safety

Health and safety are no different from any other sphere of life in that if we want to move forwards, it's a sound and well-proven idea to take a look at what's already happened.

Although we may trace the official structure of health and safety back perhaps to the early Factories Act of 1833, health and safety have been thought about and acted upon for thousands of years, in spirit if not in name. Amazonian tribes, for example, have hunted with darts tipped with poison as dangerous as most hazardous substances found in a modern chemical factory for thousands of years and they found ways of doing so safely.

In the 1700s – the 1700s BC, that is, the Ancient Babylonians are frequently credited as being the first civilisation to legislate to provide safer working practices, with Law 229 of The Code of Hammurabi:

If a builder build a house for a man and do not make its construction firm, and the house which he has built collapse and cause the death of the owner of the house, that builder shall be put to death.

Well, it would certainly make you think twice about the quality of your work! This oft-quoted phrase doesn't quite work for me as the start of health and safety, because it's simply punitive and does not address the issue of safety during the construction process.

Q: 'What did we have in place before health and safety?'

A: 'Natural selection'

This old joke does have an element of truth in it, because in earlier times, safety tended to have more of an individual or family-based bias. Many earlier civilisations exhibited some form of collective working, but often it was family based, with the basic need of protecting the individual and family taking priority.

As civilisations developed, larger-scale construction projects became commonplace and these inevitably involved huge amounts of labour. Building enormous pyramids, complex temples, amphitheatres, magnificent cathedrals and great cities, our ancestors worked collectively in roles that often carried high levels of risk. Those at the foot of the labour pyramid would have undoubtedly been exposed to the greatest risk, and as at many times in human history, when human labour was cheap, so too was life itself.

It's estimated that during the building of the Great Wall of China, hundreds of thousands of workers could have died as a result of overwork, malnutrition and the extreme working conditions. In the 1860s, 120,000 workers are estimated to have

perished during the construction of the Suez Canal, from a total workforce of 1.5 million – a fatality rate of 8%. During the construction of the Panama Canal, 25,000 people died from tropical disease, falls and crush injuries and the extremely hot and humid conditions. The Karakoram Highway might be the most magnificent stretch of road in the world, but 1300 people died in 1978 during its construction – many being buried in landslides.

Protective equipment would have been almost nonexistent, working hours long and hard, and safety very much left to the individual to deal with.

The development of civilisations and society, coupled with the parallel development of communication, has led to radical shifts in the way that safety has been perceived and dealt with.

In the United Kingdom, the industrial revolution sparked a period during which profit became the driving force of a new industrial society. Profit as a priority, along with an established class system, produced a society in which profit was unashamedly built on a largely uneducated workforce that had a low life expectancy and little hope of progression and personal betterment. The labour force was under great pressure to work long hours in dangerous conditions simply to exist at a basic level. Mines, mills and factories were dangerous places and only our human, innate individual instinct for survival plus the attitudes of some more enlightened and thoughtful bosses prevented even higher levels of injury and mortality.

The Factories Act of 1802 and several subsequent acts prior to 1833 offered a glimmer of hope during an age renowned for its tough working conditions, early mortality and child exploitation, though their collective efforts to impose a maximum 12-hour working day for children in the cotton mills were widely evaded and ignored.

The Factories Act of 1833 introduced the first really serious attempt to combat difficult and dangerous working conditions, child exploitation and excessive working hours. The Act had little support from many quarters and proved very difficult to enforce, with four inspectors having to oversee 3,000 textile mills. Some of the regulations introduced in the Act were visionary and retain significance almost 200 years later. Fitting guards to machinery and the reporting of accidents were two areas covered by this act that are still critical components of modern health and safety.

A generation later, the Factories Act was extended to cover most workplaces, and inspectors were appointed to provide advice and ensure the laws were fully understood. However, the 30 or so people who worked in this role would have struggled to provide this service across the whole country.

1842 saw the introduction of the Mines Act following an investigation into the working conditions of miners. The commission found that accidents, long working hours and seriously dangerous and difficult working conditions, along with maltreatment of workers, were found to be the norm. Public outcry resulted and the Mines Act was brought into force.

The first inspector, Hugh Seymour Tremenhare, had limited powers, but undertook many prosecutions, investigated the condition of the mining community and made recommendations for training managers, reporting of fatal and serious accidents and provision of pithead baths and suitable habitation for mine workers. Later that century, the Quarries Act and the Metalliferous Mines Regulation led to the formation of the Quarries Inspectorate in 1895.

Progress was clearly very slow during the nineteenth century as far as health and safety were concerned, but one has to place this in the context of the time, an age during which massive technological advances were being made and in which engineering and construction underwent unparalleled development. The emphasis was very much on the creation of new designs, the development of new materials – many of which were harmful either in manufacture or as an end product – expansion and profit. The safety of the workforce was, sadly, somewhat left behind.

The first half of the twentieth century saw few changes, in part due to the effects of two world wars, and it wasn't until 1956 and the publishing of the Agriculture (Safety, Health and Welfare Provisions) Act that the safety of workers was once again brought to the fore, this time in Britain's highly important, increasingly mechanised and dangerous agricultural sector. Basic provisions for first aid and hygiene were made alongside setting out requirements for reporting and investigation of accidents and illnesses. The lifting of excessive weight was also controlled – although this didn't prevent my father carrying 100-kg sacks of corn about the farm where I grew up!

This last comment illustrates one of the big problems of that period in that both workers and management were brought up in a world significantly devoid of a health and safety culture. It's difficult to change entrenched human behaviour and expectation, so rather like in the case of the early Factories Act, many people carried on working the same way they always had, and it took many more years, lots more accidents and much more legislation before health and safety culture became more firmly embedded.

1974 saw the implementation of the Health and Safety at Work Act. Employers and employees were consulted during the formation of the Act, following which the Health and Safety Commission and Health and Safety Executive were established, the latter at the start of 1975. The HSE, along with local authorities, is still the major authority when it comes to enforcing health and safety today.

I can look back on this period with a degree of personal experience. At the time, I worked on the farm part time, and undertook some work experience with the local authority, in their forestry and parks and recreation departments. I can say with certainty that at the time I had no knowledge of the 1974 Act, and absolutely nothing changed with regard to the established working practices or my employer's attitude. In short, from a worker's perspective, nothing appeared to change within a large local authority following the publication of the Act. Once again, I'm sure that this was connected with the fact that health and safety culture was still new, not yet embedded in many sectors, and the local authorities found it difficult to implement. Accidents took place, but our collective response in terms of putting in place measures to prevent the same thing happening again was very poor. I recall our chief forester splitting his foot almost clean in two with a felling axe after it slipped sideways off a log he was attempting to split. He didn't wear safety boots, but the accident didn't prompt our employer to ensure that everyone wore them.

That said, the ensuing 30 years saw reductions in fatal and nonfatal injuries at work of approximately 70%, a figure that demonstrates the success of this and many further Acts in establishing a successful health and safety culture. It's also an interesting illustration of the length of time required to change working culture.

One of the subsequent key pieces of legislation was the Notification of Accidents and Dangerous Occurrences Regulations 1980. This required both employers and the self-employed to keep records of accidents and a range of other dangerous occurrences. The Reporting of Injuries, Diseases and Dangerous Occurrences Regulation 1995 – more commonly known as RIDDOR, superseded this Act. This legislation is vitally important not only in providing the basis for statistical analysis of accidents and incidents, but also in providing a continuous flow of information from which crucial lessons can be learned.

It wasn't until 1981 that the Health and Safety (First Aid) Regulations came into force to ensure that adequate first aid provision was available at all workplaces. This included ensuring that first aid equipment was available along with first aid training and the provision of information to employees about where the equipment and trained help was. I find it quite astonishing that it took until 1981 for such a basic provision to be addressed.

The later 1900s saw regulations come into force regarding pesticides, the control of asbestos at work, noise at work, manual handling, display screen equipment, provision and use of work equipment, personal protective equipment, construction (design and management) and construction (health and safety welfare).

It's interesting to look back at these regulations and observe the delays between general and open knowledge about a particular issue and the creation of regulations. For example, the dangers posed by pesticides were well known in the 1960s and 1970s, yet it took until 1986 before regulations on control of pesticides came into force. Asbestos was linked with lung disease in the 1930s, but regulations on control of asbestos at work did not appear until 1987.

On a similar theme, it has often taken a disaster of some type to kickstart health and safety action. The 1987 King's Cross Underground fire killed 31 people and injured many more. The Fennell Inquiry that followed identified many issues, including poorly trained staff who were 'woefully inequipped to meet the emergency that arose'. London Underground accepted 157 recommendations for safety improvements.

The Clapham train crash in 1988, in which 35 people were killed following a triple train collision, led to 93 recommendations for safety improvement and addressed the working hours of signalmen along with the installation of automatic train protection systems.

In 1988, the Piper Alpha offshore oil platform was destroyed following a series of explosions and a gas fire. Out of a total workforce of 226, 165 died, and the Cullen inquiry that followed appointed the Health and Safety Executive as the single regulatory body with responsibility for enforcing health and safety in the offshore oil and gas industries.

The Lyme Bay canoeing tragedy in 1993, in which eight youngsters on a commercially operated canoeing trip died, led to the formation of the Adventure Activities Licensing Authority, which in 2007 was integrated into the HSE.

The reason for mentioning these disasters is to reinforce the point that much health and safety legislation has often been reactive – a response to either a sudden, disastrous incident or the creeping realisation that substances we work with, or working practices, need to be controlled because they present unjustifiably high levels of risk.

This is a diametrically opposed response to the aims of this book, which are primarily to suggest ways of proactively managing the human factor in relation to health and safety.

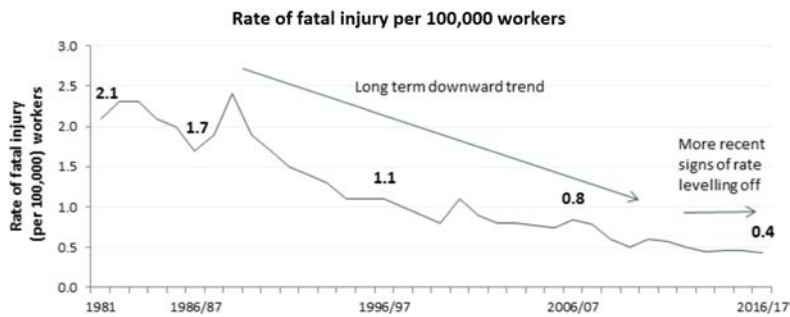
The early 2000s saw the launch of a 10-year 'Revitalising Health and Safety Strategy' and the 'Securing Health Together' strategy. This was in response to figures suggesting that the same proportion of people had been injured at work since the early 1990s. A further strategy was launched in 2009, aiming to develop 'Renewed momentum to improve Health and Safety performance'. This was in response to figures suggesting that the combined rate of illness and injury was the same as in 2004. These types of strategies highlight a different approach to health and safety at work – a move away from legislation, inspection and a focus on procedures towards a recognition that it was necessary to periodically reassess our approach towards health and safety and focus on illness and well-being alongside accident and injury.

At this point, it's worth a quick look at the HSE statistics. Fatalities at work have continued to decline overall since 1981, with a levelling off over the last 10 years to a figure of approximately 0.4–0.5 deaths per 100,000 workers. The number of injuries has shown a similar decline and a similar leveling-off trend since 2010. Instances of work-related ill health and occupational disease also fell through to 2011, from where they have risen very slightly. In broad terms, our health and safety policies and procedures have been working well, but the figures, not unexpectedly, have tended to plateau in the last few years. However, statistics in a general sense conceal other statistics hidden within them. The figures above cover all types of workplace and if, for example, the number of employees in low-risk occupations rises and the number employed in high-risk occupations lowers, a breakdown in those overall figures could portray a different story within different sectors.

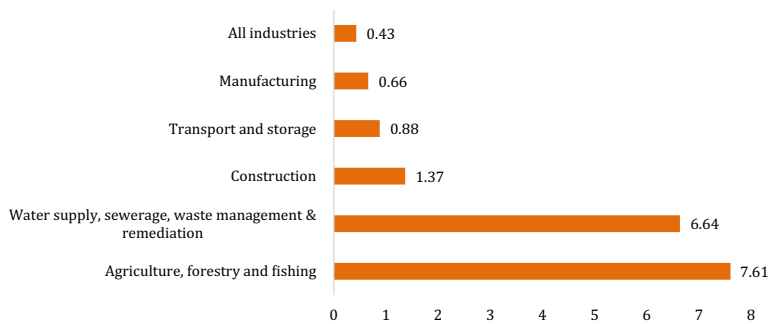
A couple of excellent, though troubling, examples of the statistics hidden within these overall trends is that 25% of fatal accidents involve workers over the age of 60, despite those workers making up only 10% of the workforce, and that agriculture has 8.61 fatalities per 100,000 workers compared with just 1.82 fatalities per 100,000 for construction.

Two further reports were published in 2010 and 2011. The first, Lord Young's review of health and safety – 'Common Sense – Common Safety' – was commissioned by the then Prime Minister David Cameron. 'The aim is to free business from unnecessary burdens and the fear of having to pay out unjustified damages claims and legal fees. Above all it means applying common sense not just to compensation, but to everyday decisions once again'.

The rationale behind the report is not difficult to understand, and in some ways the background to the report exemplifies the process of marginal change. Fifteen years ago I recall my father-in-law, an engineer involved in health and safety training, getting quite hot under the collar at the way in which health and safety were becoming increasingly frequently used as a scapegoat, an excuse for not doing something. He was steadfast in his view that health and safety were first and foremost enabling – enabling people to perform risk-carrying tasks as safely as possible and not providing an excuse as to why something could not be done.



Rate of fatal injuries to workers in the agriculture, forestry and fishing sector and other main sectors per 100,000 workers, 2016/17



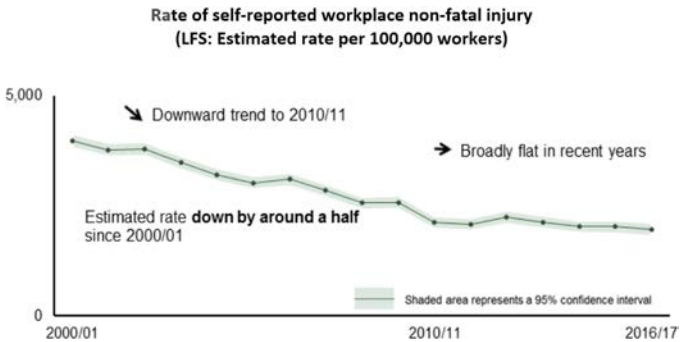
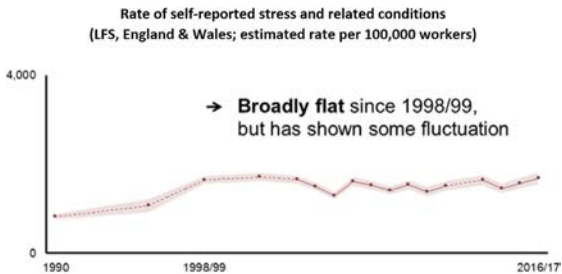
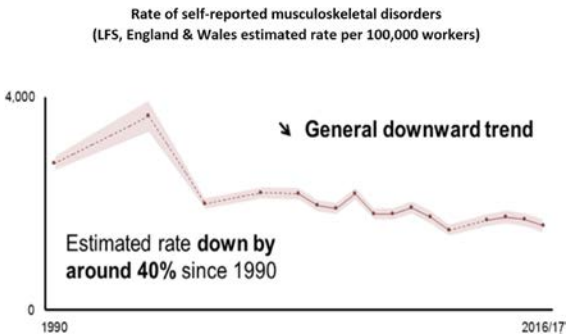
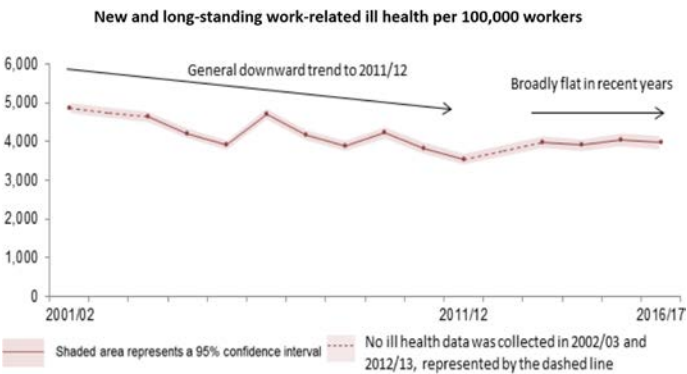
The overall statistics can hide unacceptably high fatality rates within certain sectors.

This very negative and limiting side to health and safety grew slowly and steadily, arising predominantly out of a misunderstanding of the principles of health and safety, and perhaps too often out of a misguided individual approach that simply wanted a get-out clause.

A readjustment of attitude towards health and safety was certainly required, and the Young Report addressed a range of issues from tackling ‘compensation culture’ through to insurance requirements, health and safety requirements in low-hazard workplaces and a reduction in the level of health and safety regulation in terms of school visits and outdoor education.

The second report, ‘Reclaiming Health and Safety for All: An Independent Review of Health and Safety Legislation’ by Professor Ragnar Lofstedt, was commissioned by the Employment Minister, Chris Grayling. The report was controversial, with many concerns raised by professional health and safety bodies, though many supported the overall aim of streamlining legislation and reducing the burden on British businesses.

Over the years, the health and safety movement has demonstrated significant success in reducing the number of people killed or injured in workplace accidents. As a movement, it gained significant momentum during the latter years of the twentieth century and the early years of the twenty-first century; indeed, some saw it as a self-perpetuating behemoth in need of some sort of restraint. As with many initiatives



HSE statistics show a general levelling-off trend.

that affect society in such a major way, there is a tendency for the pendulum to swing to either side of an idealistic central point, and recent feeling reflects this, with concerns about some aspects of health and safety being overzealous, too restrictive and overlegislated.

For me, the underlying principle historically is that of finding ways of enabling tasks to be performed safely by reducing the risk to an acceptable level. Equipment design, protective equipment, training, effective systems and procedures all help towards this end, but to progress further and continue to see a fall in the number of accidents, injuries and near misses, we need to have a fundamentally different additional approach that centres on people as well.

There is clear evidence that this approach is now being used in some sectors. Leading the way have been some of the major construction projects such as London 2012, Crossrail, Tideway and HS2. With stated zero-tolerance approaches to accidents and a clear aim of placing safety ahead of all else, these projects have also started to address the human component of health and safety management in a different way, for example, with the introduction of a range of measures that aim to monitor and improve workforce fitness, in the recognition that this will reduce both accident levels and incidences of ill health.

After a period in which accident and injury rates along with levels of ill health in the workplace have stagnated, the time is ripe for a new approach to managing workplace health and safety. We need to build on the successes of some of the largest construction projects and roll them out across a wider range of project and business sizes and organization types. We need to recognize the crucial role that managing the human component of health and safety can play and embed this into every place of work. Over time, this will make a real difference, and as a result we should expect to see a further decline in workplace accidents and injuries and a significant reduction in time taken off due to ill health.