

# HSE's Science and Evidence Delivery Plan 2018/2019

## Foreword

Science, engineering and evidence underpin the work of HSE, and provide a basis for robust decision making. It is a requirement for HSE under the HSW Act to, 'make such arrangements as it considers appropriate for the carrying out of research and the publication of the results of research and the provision of training and information, and encourage research and the provision of training and information by others'.

Our [Science and Evidence Strategy](#) and [Science and Evidence Investment Plan](#) describe how we do this, and the links to HSE's broader [strategy](#) and [plan](#) – this Science and Evidence Delivery Plan provides more detail on what we will actually deliver. Increasingly, our work is funded jointly with other organisations as '[Shared Research](#)', which enables us to develop shared solutions to problems faced by both the regulator and the regulated.

For the first time, we have also published our [Areas of Research Interest](#) so that others (including the Research Councils) can see the big questions we would like to address. Central to our approach are the science hubs; each provides a focus for thinking and enables us not only to consider the issues of today, but also how we might address the knowledge gaps to equip us to deal with the future world of work.

The outputs from our work include a suite of national statistics, post-implementation reviews, peer-reviewed publications, involvement in national and international committees as well as significant contributions to technical conferences and sector-specific events. Our knowledge is transferred through training and through commercial activities so that the information we generate is available in a suitable form for those who will benefit from it.

The data we collect is now informed by our Measuring Strategy to evaluate the success of HSE's interventions, and through growing external investment, we are able to create more intelligence from our cumulative data collected over the last 40 years for the benefit of others, both in the UK and overseas.

HSE's mission is the prevention of work-related death, injury and ill health. The science engineering and evidence that we provide each year supports this mission and enables a better working world.

**Professor Andrew Curran,**  
*Chief Scientific Adviser and  
Director of Research*

## Regulatory frameworks which are fit for the future

### **Vision: Regulatory frameworks which are fit for the future, ensuring health and safety compliance and enabling innovation in the workplace.**

The aim of the programme of work in this science hub is to develop our understanding of the current and future world of work and to ensure that our regulatory framework is fit for purpose.

In recent years, HSE has undertaken an extensive review of health and safety regulations and has simplified the regulatory framework, making legislation easier to understand and comply with. We will continue with this work, ensuring science, engineering evidence and analysis underpin and make a significant contribution to meeting the government's better regulation agenda and Business Improvement Target.

Research in this science hub will be developed to understand how well current regulatory frameworks can accommodate expected trends in work demographics, working patterns, technologies, health hazards, new uses for old substances and how regulatory frameworks may need to

change. It will also provide the evidence base to target improvements in regulation where required.

We will develop evidence for innovative approaches to regulation through collaboration across HSE and other government departments, to make sure we maintain our world-class reputation for regulatory excellence.

In line with government requirements, we will continue to provide science and evidence support to the ongoing Grenfell inquiries. We will share learning on blue tape issues and identify ways to promote proportionality in the health and safety (H&S) system.

Work in this science hub links to the following key actions in HSE's Business Plan:

- *Provide an effective regulatory framework*
- *Sustaining regulatory excellence*

### **What we delivered in 2017/18**

- Provided analytical support to policy development including impact assessments (eg for the Ionising Radiation Regulations) and post-implementation reviews (eg for the Control of Asbestos Regulations)
- Held stakeholder meeting with industry and technology providers on the role of wearable devices in helping to improve H&S outcomes
- Contributed to the evidence base being developed to address blue tape issues (where businesses and others place excessive and disproportionate H&S burdens upon each other, particularly small and medium enterprises (SMEs))

### **Our priorities for 2018/19**

Key drivers influencing the pace of change in both the workplace and our regulatory framework will be the UK's exit from the EU and its Industrial Strategy. To ensure that these drivers do not create or increase risks, and to enable the safe introduction of new technologies, some of our priorities this year will be to:

- Further develop our approach to using our evidence base in informing future regulatory approaches to ensure serious risks are diagnosed and proportionate action is taken
- Provide analytical support to policy development including impact assessments and post-implementation reviews
- Contribute to the government's work on the UK's exit from the European Union, including preparing for any necessary changes to the chemicals regulatory regime
- Continue to engage with thought leaders and industry about improvements to our regulatory approach, ensuring a wide range of views are considered and any change in process is appropriate and proportionate
- Provide a clearer understanding of the interaction between HSE's regulatory framework and the UK's Industrial Strategy, ensuring that HSE remains an enabling regulator for innovation in the workplace
- Progress work that will help us understand the role of technology in helping to support our regulatory framework. This will range from exploring trends and drivers for change in regulatory approaches, to opportunities for enhancing our regulatory functions through use of technology such as the 'Internet of Things'

### **Our objectives for 2018/19**

- Develop a framework to support HSE research focusing on disruptive technologies within the UK Industrial Strategy
- Develop at least one project that will provide evidence to support HSE in the area of 'Regtech'

## Our key projects for delivery 18/19 and beyond

<i>Impact &amp; analysis</i>	Estimating the economic and social impacts of prospective legislative changes, eg transposition of the Carcinogens and Mutagens Directive; and post-implementation reviews of past changes, eg Mines Regulations and Explosives Regulations	<b>Ongoing</b>
	Supporting HSE and wider government with EU exit analyses	<b>Ongoing</b>
<i>International standards</i>	Development of a methodology to establish and evaluate risk zones around large, rigid-frame dump trucks	<b>Q1<sup>1</sup></b>
<i>Regulatory approaches</i>	Evaluate wireless sensor networks for workplace exposure monitoring and how they can support HSE's regulatory functions	<b>2018</b>
<i>Local exhaust ventilation (LEV)</i>	Investigate the feasibility of using effective commissioning of LEV to establish benchmarks for performance monitoring and potentially replace the need for annual statutory test (TE <sub>XT</sub> )	<b>2018</b>
<i>Work-related road risk review</i>	Review of current published information to assess the advances industry has made in managing vehicle fleet and driver safety, including current issues and evidence of success and failure	<b>Q3</b>

## Links to #HelpGBworkwell

<sup>1</sup> The dates given for all delivery/milestones are based on the latest information and therefore subject to change.

## The right evidence for the future

### **Vision: To take a long-term view on the development of the evidence base that can support HSE's long-term strategic approach.**

HSE's work is underpinned by robust scientific evidence. Our evidence base needs updating to reflect the rapid and complex changes in the workplace, workforce, working patterns and the working environment, and, as a result, the changes of HSE's priorities and intervention strategies.

To ensure our evidence gathering systems continue to be effective and efficient – not only fit for current priorities and intervention strategies but also flexible enough to meet future challenges – we need to make our evidence base coherent, strategic, future-proofed, and focused on priority areas.

We will keep abreast of the advances in measurement science and technology to

improve evidence gathering. We will make best use of new data collection, modelling and analytical techniques to provide insight for our decisions on prioritisation, targeted intervention, tracking progress and evaluation of impact.

We will also share technical expertise in data analytics and measurement science with other regulators and enhance our regulatory intelligence networks.

Work in this science hub links to the following key actions in HSE's Business Plan:

- *Lead and engage with others to improve workplace health and safety*
- *Sustaining regulatory excellence*

### **What we delivered in 2017/18**

- Published a comprehensive suite of health and safety statistics, to time and quality standards and with further enhanced presentation
- Developed a Measuring Strategy to evaluate the success of HSE's interventions, using the Health and Work programme as a pilot
- Developed a vision of an occupational health surveillance system for HSE and

requirements for system development, eg coordinated approach for conducting population surveys, developing a Workplace Intelligence System for Exposure-control in GB (WISE-GB) and exploring a system for identification of new and emerging risks

### **Our priorities for 2018/19**

- Deliver a package of measurement plans to improve our understanding of the impact of HSE's activity in the wider health and safety system
- Develop further WISE-GB
- Explore suitable approaches to meet challenges and opportunities of advances in measurement science and technology
- Collect, compile and publish statistics on work-related ill health, injuries and associated impacts
- Provide ongoing reactive statistical and analytical supports to HSE's policy, sector and operational teams

### **Our objectives for 2018/19**

- Develop our work to measure the impact of HSE's activity in the wider health and safety system, bringing together a package of measurement plans for the Health and Work programme (including measurements of attitudes, behaviours, control of exposures, and disease incidence)
- Produce a 'one-year-on' statement of progress regarding the evidence base supporting the Health and Work strategy, in collaboration with the Taking responsibility for health at work hub

## Our key projects for delivery 18/19 and beyond

<i>National statistics</i>	Publish a suite of health and safety statistics	<b>Q3</b>
<i>Monitoring and evaluation of interventions</i>	A longitudinal survey of employers and employees to measure changes in awareness, behaviours and control measures	<b>Ongoing</b>
	Monitoring and evaluation of the Going-to-the-Right-Places (GttRP) project	<b>Ongoing</b>
	Analysis of incidence and incidence trends of work-related ill health by sectors	<b>Q3</b>
<i>Data collection</i>	Measurement plans for monitoring and evaluation of the Health and Work programme	<b>Q4</b>
	Validation and implementation of Ill-health Prevention and Performance Indicator (IPPI) for collection of workplace exposure-control intelligence by HSE inspectors	<b>Ongoing</b>
	Capturing workplace exposure-control intelligence from health-related evaluation visits by HSE inspectors	<b>Q3</b>
<i>Measurement science and technology</i>	iPhone sound level meter application – feasibility study and selection	<b>Q1</b>
	Equipment assessments to support HSE knowledge on modern airborne disinfection	<b>Q1</b>
	Measuring asbestos in air and lung samples – assessment of an alternative method	<b>Q4</b>
	Development of a web-based automated FIND-IT tool with improved data matching and user interface functionality in support of the GttRP project	<b>Q4</b>
<i>Modelling and risk assessment</i>	Development and maintenance of risk assessment models and guidance on land use planning for major hazards	<b>Ongoing</b>
	Modelling of warehouse fires at whisky storage sites	<b>Q1</b>
	Evaluating the use of simulators in the assessment of competence in safety-critical roles	<b>Q2</b>
<i>Methodology</i>	HSE's modelling for predicting chlorine dispersion in the 'Jack Rabbit II' experiments	<b>Q4</b>
	Feasibility study to develop a national exposure intelligence system for priority hazard topics	<b>Q1</b>
	Development of a suitable approach to predict realistic pool areas and distances for large liquid spills	<b>Q1</b>
	Feasibility study of using existing data to develop an evidence-based risk profile for the construction sector	<b>Q3</b>

Links to #HelpGBworkwell

## The impact of demographic change on the health and safety of the future workforce

**Vision: To provide a body of evidence that supports mitigation, prevention and management of the impact of demographic changes on the health and safety of the future workforce that informs interventions and solutions and positions HSE as the thought leader in this area.**

A future health and safety challenge is how to manage the risks arising from changes in the demographic profile of Great Britain's workforce. The aim of this science hub is to identify emerging hazards and risks arising from these changes, including consideration of the interaction between demographic changes, and changes to the work environment and work organisation.

The topic of demographics is typically considered to involve the statistical study of human populations (eg in terms of size, distribution and characteristics), but we are adopting a wider interpretation of the term to cover contextual factors (eg changes in the workplace, including technological change and changes in exposures) and factors such as skills.

The longer-term aspirations for the demographics programme of work are to mitigate, prevent and manage the impact of adverse demographic changes on the health and safety of the workforce and help optimise efficient and productive future working. The outputs from the programme will inform appropriate interventions and solutions and position HSE as the thought leader in demographic change related to occupational health and safety.

Dutyholders will be better prepared and use appropriate interventions and solutions to manage demographic risks. Demographics evidence will be used to support delivery of commitments in our sector action plans and our policy making will be informed by demographic and foresight evidence so it is relevant for the future workforce.

### What we delivered in 2017/18

- Undertook and published the results of a collaborative project with Manchester University's Institute for Collaborative Research on Ageing and the Centre for Ageing Better, which explored the

There are ten areas where gaps in demographics knowledge and evidence have been identified:

- Understanding and managing extended working lives
- Competency and skills for the world of work
- Risk attitudes and behaviours
- Working with chronic conditions
- Impact of technology
- Insecure and remote working
- Impact of sedentary work
- Impact of occupational exposures on working for longer
- Women's health
- Understanding and managing communication and engagement in the future workforce

We worked to refine these into four priority areas of research interest for HSE which are set out in [HSE Areas of Research Interest](#): extended working lives; competency and skills; risk attitudes and behaviours; and working cultures (including understanding the health and safety impact of a 24/7 'always-on' working culture).

Work in this science hub will link to the following actions in HSE's Business Plan:

- *Secure effective management and control of risk*
- *Lead and engage with others to improve workplace health and safety*

[health effects of working into older age.](#)

Co-funding from the Economic and Social Research Council has been secured to continue this work

### Our priorities for 2018/19

Engagement with key stakeholders and discussions with HSE's demographics Science and Evidence Investment Governance Group confirmed that 'extended working lives' and 'working cultures' should be prioritised and taken forward as projects. Based on the findings from the two projects described below, more specific projects on these topics may be proposed.

The previously identified gaps in knowledge and evidence about the impact of demographic change on the health and safety of the future workforce will be also be reviewed, and projects will be proposed to address them as appropriate.

### Our objectives for 2018/19

- Engage with a minimum of 50 key stakeholders to improve HSE's current knowledge and understanding about the impact of demographic change on workplace health and safety
- Develop collaborative research with the Thomas Ashton Institute to increase the existing body of demographics evidence

### Our key projects for delivery 18/19 and beyond

<i>Extended working lives</i>	Scoping study to identify the focus for our work on managing health and safety risks from extended working lives. The aim is to obtain knowledge on the risks from extended working lives, and identify priority research projects for HSE. This study will build on our existing scoping work, and will consider the whole working life as well as the risks and benefits of extending working lives	<b>Q3</b>
<i>Gig economy</i>	Obtain knowledge to improve our understanding of the health and safety implications of the gig economy – is it 'old wine in a new bottle'?	<b>Q3</b>

### Links to #HelpGBworkwell

## The right intervention strategy for the British industrial asset base

**Vision: To have effective intervention strategies that enable innovation with the British industrial asset base while minimising risk and improving occupational health and safety.**

Great Britain has many highly specialised industries which are strategically important to the country's economy and social infrastructure including oil and gas, chemicals, explosives, mining and the bioeconomy, all operating assets within the major hazards sector. This sector can potentially cause great harm to their workers, the environment and the public if associated risks are not properly managed.

New technologies are also being introduced to secure the future energy supply and reduce carbon missions (eg renewables) and improve productivity. Work in this science hub will help ensure that HSE has the science and evidence needed to underpin our policy in key areas across the UK industrial asset base, to support HSE's operational activities now and in the future.

Our work will focus on developing our understanding of how materials and structures

degrade over time (asset life extension and decommissioning); informing risk-based inspection using non-destructive and autonomous techniques and how designers and manufacturers contribute to improvements in occupational health and safety.

We aim to have improved evidence on the emerging risks from new technologies, advanced manufacturing methods and ageing infrastructure, giving dutyholders and stakeholders a better understanding of their potential impact.

Work in this science hub links to the following key actions in HSE's Business Plan:

- *Reduce the likelihood of low-frequency, high-impact catastrophic incidents*
- *Secure effective management and control of risk*

### What we delivered 2017/18

- To begin to address the knowledge gaps about how materials and structures degrade over time, several projects have delivered findings, eg offshore valve degradation – root causes and composites degradation. The composites project is being further developed as a

shared research project with industry on composite wraps. We are also working with industry in looking to further develop a project on the integrity of corroded bolted flanged joints on offshore installations

### Our priorities for 2018/19

- Support the key elements of leadership, worker involvement, competence and asset integrity across all major hazard sectors
- Focus on decommissioning and ageing infrastructure, and the integrity of new assets and emerging technologies
- Provide scientific support to interventions targeted on the control of high-consequence risks from cooling towers, fairgrounds and major construction projects and other priority issues across the major hazards industries
- Provide scientific support to laboratory inspections in support of the World Health Organisation global polio eradication programme

### Our objectives for 2018/19

- Engage with internal and external stakeholders from the major hazards sector to identify emerging risks arising from the impact of new technologies on ageing infrastructure and generate at least one strategic shared research project targeting this area within 12 months
- Evaluate at least two projects from the asset base science hub that have been completed for 6-12 months minimum, using established methods and report findings to include reflections on the effectiveness of the evaluation process, along with details of the benefits realised

### Our key projects for delivery 18/19 and beyond

<i>Structural safety</i>	To establish the risk to offshore installations of structural damage when exposed to extreme environmental loading	<b>2019</b>
<i>Flammable atmospheres and thermal effects</i>	To advance the fundamental understanding of the factors affecting severity of vapour cloud explosions	<b>2019</b>
<i>Plant and machinery</i>	Soft landing systems – an evidence-based review	<b>Q2</b>
	To evaluate the efficacy of secondary guarding on mobile elevated work platforms (MEWPs), from both an engineering and human factors perspective	<b>Q3</b>
<i>Composites</i>	Evaluation of hazards presented by composite materials	<b>Q1</b>

### Links to #HelpGBworkwell

## Taking responsibility for health at work

**Vision: To identify, develop and analyse the evidence base needed to help people in the health and safety system ensure a healthy, productive workforce.**

We will commission work under this priority area to identify and develop the evidence necessary for HSE to implement its Health and Work programme, and more widely, to help people in the health and safety system take greater responsibility for health at work.

The Health and Work programme will focus HSE's major efforts on those conditions that are widespread, have life-limiting or life-altering impacts, and the greatest economic consequences. Stress, musculoskeletal disorders (MSDs) and occupational lung diseases are foremost among these.

Despite these occupational ill-health conditions being extensively researched internationally,

significant evidence gaps remain, particularly in relation to the contemporary situation in Great Britain, in respect of practical and effective control measures, and evidence-based evaluations of successful interventions.

The rapidly changing nature of work also means that in the future other health issues, such as ageing workforces, obesity, sedentary behaviour and cardiovascular disease, may become increasingly important.

Work in this science hub area links to the following key action in HSE's Business Plan:

- *Lead and engage with others to improve workplace health and safety*

### What we delivered in 2017/18

- Evidence to underpin the three-year Health and Work programme to reduce levels of work-related stress, MSDs and occupational lung disease
- Survey of standards of control and exposures to carcinogens and respiratory sensitisers in foundries
- Reviews of exposure, control and health risks from diesel engine exhaust emissions; efficiency of controls for respirable crystalline silica in stoneworking; and the effectiveness of mental health first-aid training
- Updates and digitalisation of risk assessment tools including the Manual Handling Assessment Chart (MAC) tool and the Managements Standards for work-related stress

### **Our priorities for 2018/19**

- Provide evidence and analysis to support the implementation and evaluation of HSE's activities and interventions on priority health risks under the Health and Work programme and sector plans
- Consider options for setting up a longitudinal cohort of workers with chronic occupational health conditions (eg breathing problems, MSDs and work-related stress) to improve our understanding of the impact of work-related ill health and how the work environment and role can be optimised to enable continued work
- Expand our collection of health outcome data using digital tools and data-sharing agreements with occupational health providers, dutyholders and other stakeholders
- Improve our understanding of the future nature and burden of occupational disease, taking account of the changing world of work and the likely long-term impact of interventions, using virtual epidemiological modelling
- Develop a programme of research to assess the effectiveness of the Management Standards and other interventions that aim to reduce the incidence of work-related stress

### **Our objectives for 2018/19**

- Produce a 'one-year-on' statement of progress regarding the evidence base supporting the Health and Work strategy, in collaboration with the Right evidence for the future hub
- Pilot a new internal knowledge and evidence management system for health-related topics

## Our key projects for delivery 18/19 and beyond

<i>Occupation lung disease</i>	Collation and analysis of exposure and health surveillance data on silica exposed workers	<b>Ongoing</b>
	Longitudinal study exposure and respiratory health in brick manufacturing, foundries and stoneworkers	<b>Ongoing</b>
	Low-dust control solutions for bakeries	<b>Q2</b>
	Selection and use of PPE to protect medical staff against infectious diseases	<b>Q2</b>
	Respiratory health risks from processing of natural and artificial stone	<b>2019</b>
	Occupational hygiene survey of control of diesel engine exhaust emissions in underground mine workings	<b>2019</b>
	Ambient levels of asbestos in current workplaces	<b>Starting 18/19</b>
	The use of biological monitoring to evaluate the sustainability of control improvements in electroplating	<b>2019</b>
<i>MSDs</i>	Workplace ergonomic assessments for high-risk tasks including single-person deliveries, beam and block flooring systems, use of telescopic poles, and removal of asbestos insulation boards from restricted access spaces	<b>Q4</b>
<i>Stress</i>	Support for the evaluation of the Management Standards pilots in healthcare, education and prisons	<b>Ongoing</b>

## Links to #HelpGBworkwell

## Lessons learned from investigations

**Vision: Equip HSE with a lesson-learning strategy that makes a tangible contribution to the prevention of death, injury and ill health in GB workplaces.**

HSE receives information on around 80 000 reportable health and safety incidents each year and around 4000 of these incidents are subsequently investigated. In addition, our inspectors carry out approximately 20 000 proactive workplace inspections each year, generating intelligence on prevailing working practices and areas of health and safety concern.

The potential for us to use these data sources to learn lessons, including why different failures in health and safety occur and how they might be prevented, is substantial.

Recent developments in, and increased use of, data analytic tools and applications, such as text mining, natural language processing,

predictive analytics and statistical machine learning, has meant generating data-driven insights and learning from health and safety data sources (particularly free text sources) is now more achievable.

The aim of this science hub is to ensure that the generation of lessons learned insights from our routine sources of health and safety data is maximised, and that these are used across HSE and the wider health and safety community. Benefits will include the development of more effective, targeted risk control strategies and guidance provided to industry. There will be opportunities for us to better engage with and influence stakeholder groups, particularly SMEs.

### Technical support for investigations, inspections and enforcement

HSE's main focus is on the health and safety of workers, but our regulatory interest extends to cover the impact on the general public, consumers and the environment. Of the inspections and investigations undertaken each year, a significant proportion require science or engineering knowledge to identify the causes of problems and to identify reasonable and practicable solutions.

We have specialists from over 20 disciplines who provide expert technical knowledge in support of investigations.

Work in this science hub links to the following key actions in HSE's Business Plan:

- *Secure effective risk management and control of risk*
- *Sustaining regulatory excellence*

### What we delivered in 2017/18

- Together with the University of Manchester, we established the Thomas Ashton Institute to draw on the combined knowledge and experience of the two organisations to inform and improve industry practice and regulatory intervention through research, teaching and data analytics
- Supported regulatory colleagues to improve the timely completion of investigations

### **Our priorities for 2018/19 and beyond – Lessons learned**

- Improve methods of capturing, recording and storing of knowledge generated by investigation activities, maximising the potential to generate wider learning
- Enhance our ability to make full use of the knowledge generated from investigation activities, particularly how it is brought together and synthesised
- Enhance our ability to generate data-driven knowledge, insights and learning from our diverse range of routine health and safety data sources, with emphasis on how it is brought together and analysed
- Enhance our ability to share knowledge, insights and learning, internally and across the wider health and safety system

### **Our priorities for 2018/19 and beyond – Technical support for investigations, inspections and enforcement**

- Sustain improvement in the provision of timely/immediate technical support to incident investigations, anywhere in Great Britain
- Development and deployment of appropriate new techniques and technologies that improve the effectiveness and efficiency of the enforcement process
- Provide specific investigation support and any subsequent enforcement activity including management of evidence and subsequent expert witness input

**Links to #HelpGBworkwell**

## Work with strategic stakeholders and key partners

HSE’s Shared Research programme supports external investment and collaboration with our research portfolio. Each project begins with a recognised gap in knowledge that both HSE and other stakeholders see a need to fill, to help us understand and better manage health and safety challenges.

We then invite regulatory, industry and other stakeholders to discuss the idea in more detail, so that a research project scope can be clarified that will have significant benefits.

Industry and other stakeholders are then invited to contribute towards funding the research project along with HSE’s financial support. Typically, we will seek several sponsoring organisations to ensure we can undertake the best research to answer the

health and safety needs we’ve all identified. The project is led by HSE experts, often making use of our laboratory facilities in Buxton, using subcontractors if required.

Contributing partners help to shape the focus of the research activity, provide industry/stakeholder insights and gain ongoing access to emerging findings and benefit from early sight of outputs. We will seek to benefit further from the skillbase of the Thomas Ashton Institute.

Work in this area links to the following key actions in HSE’s Business Plan:

- *Lead and engage with others to improve workplace health and safety*
- *Growing commercial activities*

### What we delivered in 2017/18

- Behavioural change methodology, drawing on knowledge of HSE

psychologists and applying this across government for transformational change

## Our key projects for delivery 18/19 and beyond

<i>Composites</i>	Integrity of engineered composite repairs on pipework	<b>Ongoing</b>
<i>Escalator safety</i>	Human behaviour and design features	<b>Ongoing</b>
<i>Falls prevention</i>	Assessment of slip-resistant footwear for NHS healthcare workers (SSHEW)	<b>Ongoing</b>
<i>Thomas Ashton Institute</i>	Deliver two industry/government engagement events, to generate two new proposals generating orders	<b>Q4</b>
<i>New shared research</i>	Co-create four new shared research proposals to generate orders for joint-funded activities	<b>Q3</b>

## Links to #HelpGBworkwell

## Foresight

The workplace is changing at a very fast pace with many trends and drivers impacting on and shaping the future world of work. To respond to this challenge our Foresight Centre will continue to fulfil its core foresight, futures and knowledge-sharing functions, to identify potential threats, risks, emerging issues and opportunities to the health and safety system.

The outcomes from this work are intended to contribute to HSE and the wider health and safety system being able to keep pace with change – to be better placed to anticipate and tackle new health and safety challenges. We want to ensure we identify the trends that are shaping the future world of work so that issues can be addressed early enough – demonstrating that the health and safety system is an enabler of innovation and contributor to the UK's Industrial Strategy.

We will continue to carry out foresight and futures activities across a range of themes, including societal, technical, economic, environmental and political, to identify the issues with the potential to affect occupational health and safety. This intelligence will be used to develop our strategic evidence base of the future world of work and help support our science hub leads to identify gaps in knowledge, future research questions and potential shared research opportunities.

Work undertaken in the Foresight Centre links to the following key actions in HSE's Business Plan:

- *Sustaining regulatory excellence*
- *Provide an effective regulatory framework*

### What we delivered in 2017/18

- Presented our annual Foresight Report 2017/18 to the HSE Board and energy industry stakeholders, March 2018

## Our key projects for delivery 18/19 and beyond

*Reporting*

*Engagement*

Deliver the annual Foresight Report 2018/19

Work with others to address issues and opportunities arising from our foresight and futures activities

**Q4**

**Ongoing**

## Links to #HelpGBworkwell

## Capability and capacity

We continue to develop and maintain our scientific capability and capacity to optimise the contribution science makes to delivering HSE's mission. We have reviewed HSE's future science requirements and will implement a plan to ensure that we have the right skill set to deliver HSE's science and engineering requirements now and for the future.

Development of our staff is aligned with the Government Science and Engineering (GSE) Profession Strategy. We have a suite of frameworks to support HSE requirements and maintain capability and delivery across the entire breadth of science and technology requirements required by the organisation. The frameworks include:

- *Foresight and horizon scanning*: To ensure HSE's ability to respond proactively to future hazards and risks, this framework will support our futures team in delivering futures work and horizon scanning across the organisation.
- *Information and data infrastructure management*: This framework ensures that our science and evidence information and data sources, databases, data repositories and image libraries are effectively managed and maintained to ensure that all

data is up to date and can be readily and easily accessed by users.

- *Science credibility*: We are committed to ensuring we maintain our reputation and credibility in the delivery of world-class applied science and evidence. This framework supports our membership of national and international scientific expert committees and networks. It supports work to raise the profile of our science and evidence with industry and health and safety professionals.
- *Science publication*: This framework supports the production of peer-reviewed journal and conference papers and national and international conference presentations.
- *Science innovation*: This framework will support our science teams in exploring novel ideas and activities which need to be undertaken in a short timeframe to maximise potential benefits.

Work in this area links to the following key actions in HSE's Business Plan:

- *Investing in people and capability*
- *Sustaining regulatory excellence*

### What we delivered in 2017/18

- Published over 100 peer-reviewed papers, articles and research reports

## Links to #HelpGBworkwell

## Governance, assurance and engagement

HSE's Science, Engineering and Evidence Assurance Committee is a panel of independent external experts and a subcommittee of the HSE Board. It provides assurance to the Board on the quality and relevance of our science and evidence strategy and delivery.

Science and Evidence Investment Governance Groups (SEIGGs) also include independent external experts and, for each of the science hubs, provide assurance to the Science and Evidence Investment Governance Board of direction and progress. HSE's Evaluation Committee is independently evaluating the performance and benefits of the science hubs.

HSE's Workplace Health Expert Committee provides formal, expert scientific opinion to our Chief Scientific Adviser and gives HSE access to independent, authoritative, impartial and timely expertise on workplace health.

Publication of our scientific and analytical work in peer-reviewed journals and conference proceedings is used as part of maintaining the credibility of our scientific capability, in its capacity to inform and underpin operational regulatory and policy-making functions. Additionally, demonstration of science quality is provided by challenge through the courts for expert witness evidence.

HSE's [Ethical Statement](#) for science sets out our commitment to the highest possible ethical standards of behaviour and conduct

throughout all facets of the work we do while meeting all legal requirements. We have a Research Ethics Panel for work involving human tissue, subjects or data which is accredited to the University of Sheffield Medical School Research Ethics Panel (REP). For potentially higher-risk research, we obtain ethical review from either this REP or an NHS REP as appropriate.

We will build understanding of HSE's use of applied science through the dissemination of our annual Science Review containing case studies of impact. We will advance knowledge of potential emerging risks and issues for health and safety through our annual Foresight Report. We will extend opportunities for further external communications and engagement via digital and social media and by holding an annual science lecture.

We will engage with stakeholders through involvement in HSE Board and industry events and attendance at conferences. We will also work with appropriate government professions and international scientific networks such as the Partnership for European Research in Occupational Safety and Health ([PEROSH](#)) and the International Commission on Occupational Health.

Work in this area links to the following key action in HSE's Business Plan:

- *Lead and engage with others to improve workplace health and safety*

### What we delivered in 2017/18

- Presented the annual Science Review 2018 at the open HSE Board meeting including energy industry stakeholders, March 2018
- Held the inaugural HSE Science Lecture, at the Go Home Healthy campaign launch, September 2017
- Formed HSE's science hub SEIGGs and held inaugural meetings for each

## Our key projects for delivery 18/19 and beyond

<i>Engagement</i>	Hold HSE Annual Science Lecture	<b>Q1</b>
	Launch 'HSE Science' Twitter account	<b>Q2</b>
	Deliver the Annual Science Review 2019	<b>Q4</b>
<i>Governance</i>	Hold meetings of the SEIGGs	<b>Ongoing</b>

## Links to #HelpGBworkwell

## Annex A

**Helping Great Britain Work Well:** six strategic themes

**Acting together:** promoting broader ownership of health and safety in Great Britain

**Tackling ill health:** highlighting and tackling the costs of work-related ill health

**Managing risk well:** simplifying risk management and helping businesses to grow

**Supporting small employers:** giving SMEs simple advice so they know what they have to do

**Keeping pace with change:** anticipating and tackling new health and safety changes

**Sharing our success:** promoting the benefits of Great Britain's world-class health and safety