



Science and Evidence Strategy 2016 - 2020

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FOREWORD

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Great Britain's record on work-related safety and health is one of the best in the world. High-quality science, evidence and analysis underpin Great Britain's risk-based, goal-setting regulatory regime and are vital for ensuring effective and proportionate risk management that protects workers and safeguards the public while enabling productivity, innovation and growth.

For over a hundred years, HSE (and its forerunners) has invested in science, evidence and analysis to understand risks to health and safety and how to control them. The lessons we learn from investigating major incidents, the cutting-edge evidence we generate and synthesise from applied health and safety research, and our work to address challenges from new working practices and to develop the evidence base to enable safe introduction of new technologies, are a vital contribution to the health and safety system. We rigorously prioritise our scientific investment to maximise our impact on work-related health and safety and ensure that we use robust, best available evidence to underpin our regulatory policy and operations. We use networks and strategic partnerships - including those with industry, academia, international research institutes, and co-regulators - to develop and synthesise evidence. The breadth of our scientific and analytical capability and the benefits of our inter-disciplinary approach are widely appreciated. Our specialists undertake a wide range of investigation, research, services and advice that is directly funded by industry and other regulators across government and overseas.

The case studies of HSE science in our *2016 Science Review*¹ illustrate its impact and quality: enabling innovation and growth, securing justice, and transferring knowledge to the health and safety system.

HSE's science and evidence strategy is predicated on the use and development of practical, solution-oriented science, maximising the synergies from our regulatory work and our investment in science, and the science we undertake with direct funding from industry and other stakeholders. We uphold the highest standards of scientific ethics, and are committed to peer-review and open access to research outcomes. In our strategy we set out our 'science and evidence cycle': anticipating challenges to health and safety; providing robust evidence for effective risk control; underpinning regulatory policy and operational decisions; protecting workers and safeguarding the public by developing interventions; and catalysing engagement within the health and safety system and improving performance.

Science and evidence is at the heart of HSE's work. Our science and evidence strategy aims to maximise its contribution to delivering the wider strategy for the health and safety system, *Helping Great Britain Work Well*².

- 1) HSE Annual Science Review, 2016, <http://www.hse.gov.uk/research/content/science-review-2016.pdf>
- 2) Helping Great Britain Work Well, 2016, <http://www.hse.gov.uk/strategy/strategy-document.htm>

**Our Science and Evidence Cycle
Purpose and impact**



Our Science and Evidence Cycle **Purpose and impact**

We anticipate new challenges through foresight and synthesis of existing evidence.

We develop, synthesise and use evidence on the new and emerging health and safety challenges that come with social, economic and technological change. We combine the outputs of structured horizon scanning with our knowledge and insights from engagement with industry and other stakeholders - along with the expressed interests of our end-users - to develop the evidence needed to enable the health and safety system to anticipate and prepare for the workplace challenges of tomorrow.

We provide evidence to ensure risks resulting from work activities are effectively controlled.

We generate robust evidence on risks to health and safety and how to control them to provide the evidence base that in turn supports HSE's prioritised plan³ of effective health and safety interventions. This includes developing an understanding of why things fail through our forensic investigation of workplace accidents and ill health issues. We synthesise the available evidence base and create new evidence through solution-oriented, applied scientific and analytic research and incident investigation.

We underpin operational and policy activities.

We use our scientific and technical capability and the results of our scientific research and analyses to provide the evidence base to help HSE :

- lead and engage with others to improve workplace health and safety;
- provide an effective regulatory framework;
- secure effective management and control of risk; and
- reduce the likelihood of low-frequency, high-impact catastrophic incidents.

We protect workers and safeguard the public.

We develop our knowledge, understanding and insight about effective health and safety interventions by:

- applying new evidence, analyses and insight to test proposed interventions;
- ensuring that proposed interventions are informed and prioritised by using evidence, analysis and insight; and
- evaluating the impact of our scientific research and analyses on the health and safety outcomes for workers and the public.

We catalyse engagement by others and improve performance.

We evaluate the impact of our work in the shorter and longer terms, initially by assessing:

- the effectiveness of how we disseminate and transfer our knowledge e.g. through publications, presentations, training, standards, social media etc.; and
- how we have influenced the improved performance of others in the health and safety system with our evidence- and knowledge-based interventions.

In turn, these assessments identify lessons to be learned, new challenges for improving the health and safety system and opportunities to work with others through joint investment in research to solve shared problems.

3) HSE business plan <http://www.hse.gov.uk/aboutus/strategiesandplans/businessplans/plan1617.pdf>

Our Science and Evidence cycle Science at the heart of HSE's work

Our science has relevance, impact and value to HSE:

- it provides a challenge to, and has a positive impact on, decisions made in HSE;
- our scientists are trusted team members, responsive to the needs of their users; and
- we can demonstrate the impact of science's contribution to HSE's work.

Our science has relevance, impact and value to society:

- it is credible because it delivers solutions relevant to users and their needs;
- it is insightful about current and future work; and
- we can demonstrate the impact of science's wider contribution, in the knowledge transferred through interventions.

Our priority areas of scientific research and technical support for HSE⁴ will be identified through active engagement with the whole organisation, with research programmes managed through a small number of priority research hubs.

We apply the scientific method and ensure:

- our experts focus on what works, through robust analytical techniques and experimental rigour, and through developing evidence bases by using quality systems and applying their professional integrity;
- our work is subject to ethical scrutiny, peer review and external evaluation; and
- our scientific capabilities and facilities enable us to take an interdisciplinary approach to solving problems that can have multiple factors, enabling innovative solutions.



4) Science and Evidence Plan 2016-17 <http://www.hse.gov.uk/research/content/science-evidence-plan-1617.pdf>

We manage and develop the capabilities of our staff and facilities we invest in:

- scientists, in their knowledge and skills to ensure we have the capability to meet current and emerging science and evidence needs;
- new facilities, techniques and technologies, and maintain facilities unique to HSE to meet the current and emerging needs of the organisation; and
- information and knowledge management to ensure the full value of this important asset can be released.

Our scientists demonstrate important values and behaviours. They:

- keep up to date, anticipating new challenges from workplaces and research;
- are innovative, ethical, professional, methodical, focus on quality and demonstrate curiosity; and
- use their knowledge and skills to solve problems for end-users in the real world of work both in the UK and overseas.

We address the application of science across a range of HSE activities through:

- assuring the quality of scientific advice provided by specialists in other parts of HSE; and
- addressing professional issues through our heads of profession.

In working with others, we:

- demonstrate openness and integrity;
- develop credibility by being engaged with users, building and maintaining networks and strategic partnerships, and formally communicating the results of our work through peer-reviewed channels;
- collaborate and communicate with other researchers and organisations in shared research programmes; and
- conduct international research, applying our world class expertise.

Conclusion

HSE has:

- access to scientific knowledge and capability;
- a forensic health and safety capability that supports our investigations into dutyholders' compliance with the law;
- scientific evidence that helps us to be more effective;
- support for its policy approach with real world science;
- ready access to science to evaluate the impact of our work and to challenge our approach;
- assurance that our science is accessible to the end-user and visible to all stakeholders; and
- confidence that the knowledge we generate can be used to enable dutyholders to improve their performance and stimulate economic growth whilst protecting the health and safety of their employees and the public.