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Wales



Public Health  
England

# Environmental Public Health in Wales Annual Review 2018/19



## Highlights and achievements

From **April 2018 – March 2019**, we:-

- developed our first 5-year strategic plan to help us deliver existing priorities and develop capacity and capability for the future.
- responded to over 500 incidents, enquiries and consultations from health boards, local authorities, emergency services, Natural Resources Wales, Welsh Government and the public.
- shared our expertise by delivering environmental health protection training on the national and international stage (notably chemical incident management).
- strengthened environmental health protection awareness and resilience by supporting stakeholders, managers and workshops in Wales including air quality, transport and planning.
- published research papers to support and inform the delivery of our service and develop the evidence base so that others can learn too.
- celebrated academic and professional achievements within the team.
- embedded governance and audit mechanisms across our work programmes to identify learning points and improve the quality of services we deliver.

## Our Service

The Environmental Public Health Service is a collaboration between Public Health Wales Environmental Public Health Team and Public Health England's Centre for Radiation, Chemicals and Environmental Hazards in the Wales office. We aim "to minimise exposures to, and health impacts from, environmental hazards, and help create healthy, fair and sustainable communities" through six work-streams.

1. To provide effective reactive and proactive advice and support to reduce environmental health risks and inequalities (**risk assessment and management**)
2. To define the environmental burden of disease in Wales through research and surveillance (**information and knowledge**)
3. To reduce the environmental burden of disease (and inequalities) by advocating for evidence based changes to policy, legislation and practice (**advocacy and risk mitigation**)
4. To strengthen early warning, notification and management of national and global environmental public health risks (**emerging threats**)
5. To develop and sustain environmental public health capacity and resilience through awareness raising, teaching and training (**capacity and capability**)
6. To be a centre of excellence (**service quality and governance**)

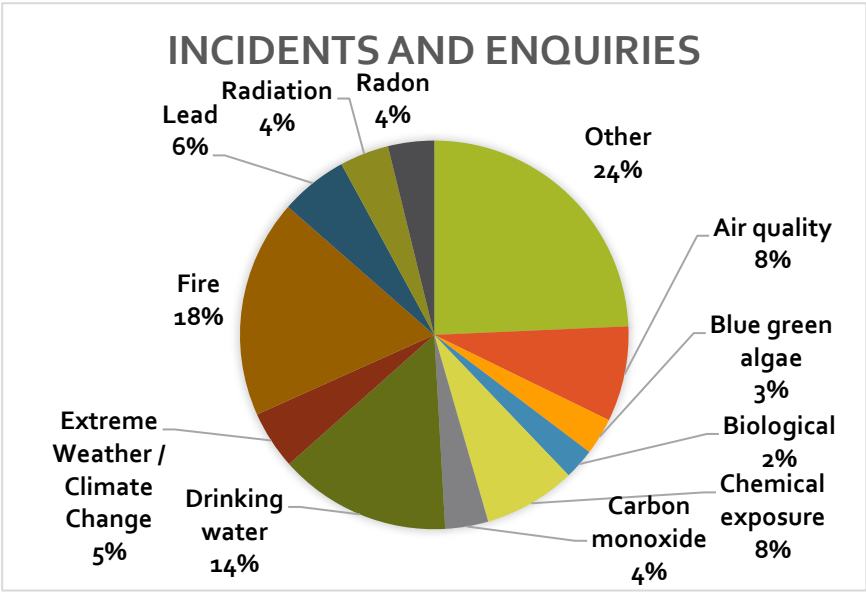
# 1.Risk assessment and management

## Incidents and enquiries

In 2018/19 we responded to 400 acute incidents, chronic environmental public health concerns and general enquiries on a wide range of subjects (Figure 1). For example:

Political and public awareness of **air quality** has never been higher and is reflected by the number of queries that we have received. We respond to acute incidents that impact air quality and also work proactively locally and nationally to improve air quality, minimise risks and reduce the burden of air pollution on health.

Figure 1- Incidents and Enquiries (April 2018 - March 2019)



Note: Some queries could sit in more than one theme, e.g. wildfires may be an acute fire or an air quality issue

**Lead** continues to pose risks to health for all ages, but especially children. We work with clinicians treating children and adults exposed to high levels of lead to determine and help manage the risk (e.g. in contaminated drinking water).

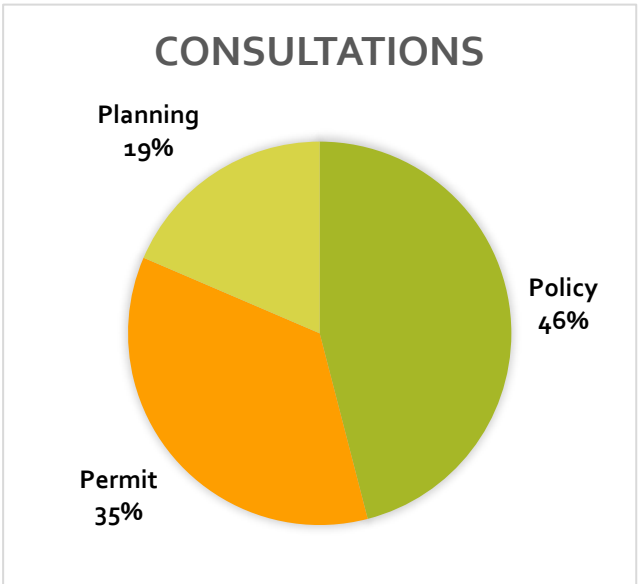
We have seen more **radiation-related** enquiries than before, including concerns about radon and EMF, mobile phone masts and 5G. We continue to work with Public Health England to ensure we have the latest evidence to provide people and policy makers with up to date, high quality information on these subjects.

## Planning, permit and policy consultations

We respond to consultations, including supporting health boards to respond to planning and industrial permitting applications, and provide comments to inform and help shape UK and Welsh Government policy.

We responded to 124 consultations, in the last year. Most (46%) were policy consultations or requests for expert commentary (Figure 2). The rest supported the formal planning and environmental permitting processes. We responded to almost twice as many permits (n=44) as planning applications (n=23). But, the chance to influence how an industrial process, infrastructure or housing estate is designed and operated (to protect and improve the health of the population) is at and before the planning stage, rather than permitting. So, next year we will be looking at how we work with regulators and planners to make sure that we contribute when and where we can have the best impact and achieve the most health gain.

Figure 2- Number of consultations (April 2018 – March 2019)



## Incident case studies

### Wildfires

In the summer of 2018, there were a number of large wildfires across Wales; Mynydd Llantysillo, near Llangollen, Denbighshire, burnt for four weeks. Twmbarlwn Mountain, near Risca, Caerphilly, burnt for over two weeks. In Wales, there is a dedicated multi-agency task force to tackle the issue called Operation Dawns Glaw. It involves all three Fire and Rescue Services, Police, Welsh Government, Natural Resources Wales, Met Office and Environmental Public Health.



To support Dawns Glaw, we developed a Wildfire Risk Assessment and Communication Toolkit. It shows how to risk assess wildfires and guides public health action and includes information for the public, issued through traditional and social media platforms. We also joined regular meetings with partners and assessed the effects of the wildfires so we could support collective public health focussed action.



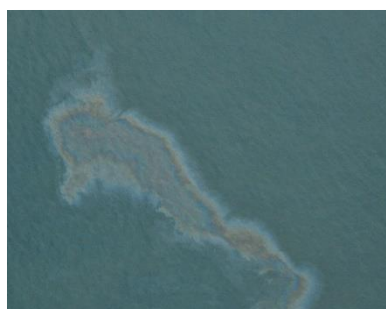
Source: BBC

### Oil spills

In January 2019, heavy fuel oil leaked from a fuel line on a jetty at the Valero Refinery, Pembrokeshire. Oil entered Milford Haven, part of the Pembrokeshire marine special area of conservation, a busy fishery, port and with beaches popular with dog walkers. Initial estimates were that up to 10,000 litres of fuel were lost. Oil was found in the Haven waters and on local beaches. A multi-agency **incident management team** co-ordinated daily beach inspections and clean up, aerial surveys, boom deployment, advice to beach users and regular press releases. We provided regular updates to Welsh Government.

As core members of the Wales Environment Group, the formal advisory group for marine incidents under the UK National Contingency Plan, we advised on the health effects of exposure to fuel oil, including for people encountering oil residues on beaches.

The incident lasted nearly 2 weeks, during which time the source was identified and managed, with affected areas monitored until clear of pollution. A formal debrief was co-ordinated by Pembrokeshire Council thereby allows learning and improvement of our responses to any similar incidents in the future.



Source: MCA, 2019



Source: MCA, 2019

## 2. Information and knowledge

### Air pollution – reviewing evidence and evolving surveillance

**Air pollution**, poor health and deprivation interact - an effect called “triple jeopardy”. We worked in Cwm Taf with the Health Board, Local Authorities and Natural Resources Wales to find new ways to think about air pollution problems and solutions. We wanted to be able to consider the whole of the “triple jeopardy” scenario when deciding what to do and where, rather than just air pollution. We published a [paper](#) describing our pragmatic approach to do this and are now working with others in Public Health Wales to make it possible to do the same in the rest of Wales.

We are also working with Public Health England to look at how exposure to air pollution may change with the way we travel. Trying to encourage more people to travel by public transport or to walk or cycle, instead of using cars, is important in helping improve air quality. But, when we do this, we need to be able to explain what the negative effects are, if there are any, as well as the benefits. What we learn from this evidence review will help us to communicate clear messages that help us do this.

In addition, we are working with colleagues in Public Health Wales to build an environmental public health surveillance system. This will take time because we are using and linking hospital admissions and GP visits, as well as environmental hazard information (e.g. floods and wildfires, contaminated water and air pollution) to improve what we know about the effect of the environment on our health. However, we have started this by estimating the air pollution health burdens in Wales (Figure 3). These data help to describe the impact on health (using all-cause mortality outcome) from fine particulate and nitrogen dioxide air pollution concentrations (Figure 4). Next year, we will do more to expand our understanding of air pollution exposures and health and add lead and carbon monoxide exposures to the system too.

### Default 20mph speed limits

In 2017, we published a [paper](#) estimating the health benefits linked with adopting a **default speed limit of 20mph** instead of 30mph. Using this, last year we drafted a [Position Statement](#), and an evidence paper, on 20mph for Public Health Wales. In it, we concluded that **lowering the default speed limit to 20mph could have substantial public health benefits**. These include:

- Saving lives by reducing injury.
- Reduced noise, and safer and more cohesive communities that are more pleasant to live in.
- People are more likely to be encouraged to walk and cycle, which can help reduce air pollution locally.

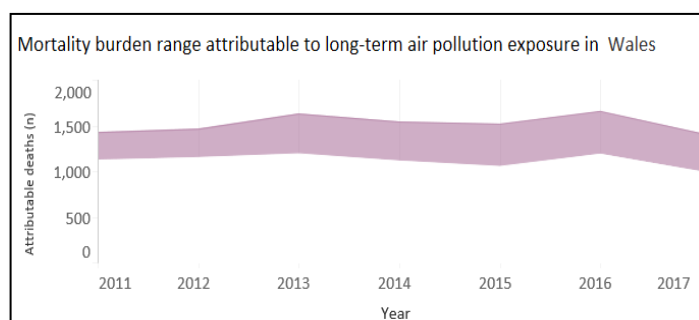


Figure 3- Mortality burden attributable to long-term air pollution, Wales

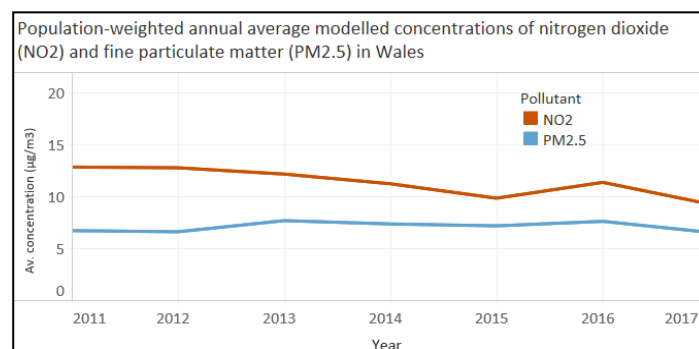


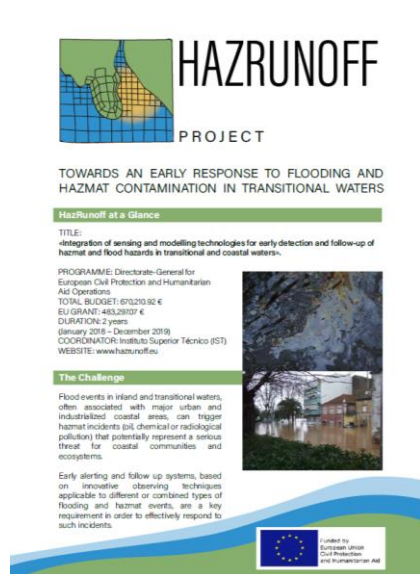
Figure 4- Modelled concentrations of air pollution, Wales





## **Maritime pollution**

Maritime and coastal pollution incident management planning and research is an important part of what we do. We have successfully completed our work on Project Mariner, a 2-year European funded project, with partners in Spain, Portugal and France. Mariner improved planning and response to hazardous chemical spills in European seas. We developed a web-based exercise tool and an e-learning training package for cross-border incidents and International Health Regulations, and shared all of Mariner's work with the rest of the UK.



We also began working on another European funded project called Hazrunoff. This work aims to improve detection and alerting of Hazmat and flooding incidents in rivers, coastal and transitional waters. It also involves collaboration with a number of European partners. Ultimately, it will deliver a framework to prioritise coastal industrial pollutants, a tool for rapid assessment of monitoring data and will evaluate the use of social media for incident alerts. It will be completed in early 2020 and what we produce will be available free online.

To implement some of the project outputs in practice, we continue to be part of the Wales Environment Groups and have attended meetings for West Wales and the Bristol Channel. These groups provide specialist advice during maritime incidents. Our role is to provide public health risk assessment and management advice during response (such as the Valero incident, described on page 3) and in planning group activities.

## **Understanding lead exposure in Wales**

As highlighted above, lead is still harming health many years after leaded paint and petrol were banned. Even being exposed to very low lead levels can permanently affect development and intelligence and cause behaviour problems. This means that it can also reduce academic and economic achievement and have long term adverse societal effects. These effects are most important for young children.

In September 2017, we decided that in Wales, we needed to act when young children were identified to have blood lead levels of 5µg/dL or more, instead of 10µg/dL. This decision was a first for the UK and we have been sharing our experiences with other UK public health agencies who are also looking to reduce their thresholds.

We have also been analysing the results of all tests of blood lead levels by age, sex and deprivation. This is the first large-scale analysis of blood lead levels in Wales since the 1980s and will also help understanding of lead exposure across the UK. A report and scientific paper will be published later in the year.

Finally, [\*Healthwise Wales\*](#) (a survey of lifestyle, health and wellbeing in Wales that will help to improve health of all of us) will include questions on lead from mid-2019. This will help us to learn more about how people may be exposed to lead in Wales and contribute to our work with the Water Health Partnership for Wales which wants to reduce lead in drinking water.



### 3. Advocacy and risk management

**Air pollution** is the biggest environmental threat to health with an estimated effect of 28,000-36,000 deaths attributed each year to air pollution exposure in the UK. We are supporting Wales' Clean Air Programme activities alongside Welsh Government, health boards, local authorities, Natural Resources Wales, and others, to make sure that public health is properly accounted for and embedded in these.

We also published guidance for NHS Wales called [Working together to reduce air pollution, risks and inequalities](#). It sets out the actions needed for risk assessment and prioritisation, engagement for action, communications, and championing air quality improvement within and beyond the NHS.

We worked on an evidence review: [reducing health risks associated with road traffic air pollution in Wales](#). Most air quality problems in Wales are the result of road traffic emissions and this review lists effective ways to reduce exposure to such pollution and reduce health risks.

We are also helping to make sure that we all have good quality **drinking water**. By working with other members of the [Water Health Partnership for Wales](#), we are taking forward projects on water insufficiency and drought, blue-green algae, private water supplies and lead in drinking water.

Our work to improve what we know about lead in drinking water and how we manage this has been highlighted as UK good practice by the Drinking Water Inspectorate. This is also helping us in our work with Welsh Government to achieve the shared commitment for a lead free Wales.



*Planning and health workshop*

#### **Workshops for practitioners and policy makers**

Air pollution, transport, planning and health are all closely linked.

In autumn 2018, we held two multi-agency workshops, one to look at **integrating transport and health\***, the other about **aligning planning and health**. Over 100 people from local authorities, Welsh Government, the voluntary sector and academia attended the sessions which combined presentation with discussion about the important challenges and improvements for the future through working together in these subject areas.

We wrote recommendations following both workshops and are using them to guide what we do next (including also linking with sustainability and wellbeing). For example, we are working with Public Health Wales policy colleagues to establish a Public Health Wales 'Planning for Health hub'. This will help us to be more consistent and co-ordinated when we respond to local and national planning policy and applications issues. We hope this will lead to healthier, fairer and more sustainable communities.

*\*This transport workshop was one of the first year products of a Clinical Research Time Award for one team member. This award, from Health and Care Research Wales, is intended to support research opportunities. We are using it to improve understanding of how transport affects health and how health affects transport choices.*

## 4. Emerging threats

### **WHO Collaborating Centre**

The WHO Collaborating Centre for the Public Health Management of Chemical Exposures (WHO CC) has a number of responsibilities. These include the providing timely advice and assistance during chemical incidents and events and developing guidance and tools to help public health professionals assess, prioritise, manage and mitigate health effects from exposure to chemical hazards. Our recent efforts have included editing a WHO manual on the disease outbreaks of unknown cause (currently being peer-reviewed). To support our work, we have developed a range of teaching and training materials and we contribute to international training programmes organised by the WHO such as the recent training in Mongolia detailed below.

### **Chemical Incident Management**

In 2018, the Ministry of Health in Mongolia obtained funding to build capacity for the public health management of chemical incidents associated with mining. We in the WHO Collaborating Centre delivered a training course in Ulaan Baatar in September 2018 to help build health service capacity and resilience. It was opened by the Vice Minister of Health and the Director General of the National Centre for Public Health in Mongolia. We covered risk assessment and mitigation, environmental public health, occupational health and environmental epidemiology and clinical toxicology with a focus on mining (both large scale and artisanal mining).



*Picture: WHO Collaborating Centre delegation (from left): Andrew Kibble (EPHS), Dr James Coulson (Cardiff and Vale NHS Trust), Professor David Russell (EPHS), Dr Peter Sykes (Cardiff Metropolitan University)*

Teaching was based around the disaster/emergency management cycle, with presentations supported by case studies, group work and learning materials including environmental public health datasheets. We also ran a table-top exercise based around an incident in a gold mining community. Sixty delegates from across Mongolia attended. Feedback was very positive; 85% of delegates agreed that the training had met their expectations.

After the course, the WHO Collaborating Centre wrote a report outlining a public health model for managing chemical incidents that will help the Ministry of Health in Mongolia comply with International Health Regulations.

### **Global Health Security Initiative (GHSI)**

We co-chair and represent the UK at the Chemical Events Working Group comprising of the G7 nations (Canada, France, Germany, Italy, Japan, United Kingdom and the United States) and Mexico. The group has produced guidance for National Focal Points (designated centres for communicating with the World Health Organization on international health issues) and public health professionals on the chemical aspects of the International Health Regulations (2005). There is an e-learning package to go with the guidance and this sets out the chemical incident notification process.

We were also involved in a GHSI workshop in Boston, USA, in November 2018 that contributed to a public health position statement on risks from the use and availability of synthetic opioids, including fentanyl which are powerful drugs that are far more potent than morphine.



## 5. Capacity and capability

We provide teaching and training for practitioners and in academic settings. For example:

### **Emergency planning**

Following the events in Salisbury, the CEO of Public Health Wales and the Chief Constable of South Wales Police requested that the service develop and deliver a table top chemical exercise for all four Local Resilience Fora (LRF) in Wales. This exercise – “Exercise Melyn” - examined the Strategic Coordinating Group (SCG) response to a deliberate chemical release in a populated fictional location. Objectives included testing LRF Chemical Biological Radiological Nuclear (CBRN) plans, assessing the ability to share information and consideration of the external pressures such an event would place on the SCG. Over 100 staff from across LRFs and partner organisations attended the exercises. Feedback was captured in a formal debrief report which made several recommendations to improve planning and preparedness for CBRN events in Wales. These recommendations are currently being considered by Welsh Government.



### **Extreme events**

We are supporting the Climate Change Risk Assessment process led by Welsh Government. We have also raised awareness of climate change-related health risks at meetings of national expert groups; for example, in relation to water insufficiency issues (at Water Health Partnership), flooding (at National Flood Group), changes in urban air quality (at Welsh Air Quality Forum) and vector-borne disease implications (at various public health sessions). We continue to work with Natural Resources Wales to promote risk awareness amongst Public Services Boards across Wales and have provided dedicated lectures through our ongoing university teaching.



### **Incident notification**

We have been working with Wales' Fire & Rescue Services to improve incident notification arrangements that require public health risk management. Together, we have refined our shared notification protocol for fires and explosions, chemical spills and accidents, radiation incidents, deliberate releases and carbon monoxide. This has been updated on service computer systems and we have also provided training to control room staff to raise awareness. We will monitor the impact of the changes to determine whether there is an increase in the proportion of appropriate incident notifications in the future.





## 6. Service quality and governance

### Joint strategic and operational plans

We have written our first five-year service plan, covering 2018 to 2023, and linked this to the Public Health Wales and Public Health England strategic plans. We are using this plan to guide, design and deliver our shared annual work plan. The annual plan lists tasks for each team member, aligned with our service work streams, and helps us monitor and measure our overall performance.



### Audits

When we are contacted to respond to an incident or enquiry, the query is managed by our Duty Desk. Each day, two members of the team are designated as the Duty Scientist and Duty Manager; together they are the "Duty Desk" and deal with any issues as they arise. To support our Duty Desk, we continue to develop our operating procedures and service standards that specify how queries should be handled and recorded. We have recently audited our first full year of operation against our service standards. This showed that we provide a timely and efficient response.

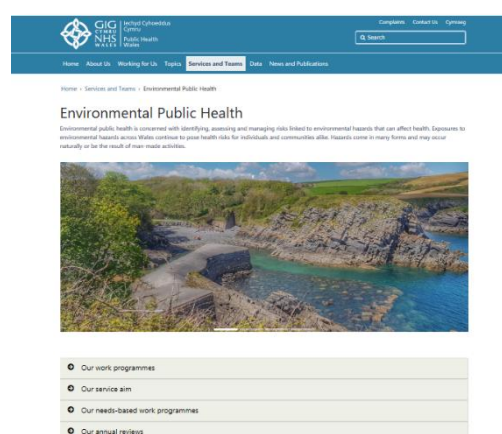
Our team members, and wider health protection colleagues, were asked about the way the Duty Desk works. Questions were based on our operating procedures and answers were very positive. We have identified some learning points and these are addressed in our work plan, for example, being clearer over the roles and responsibilities of the Duty Scientist and Duty Manager, including in relation to sign off and incident management. We are also reviewing the information provided at handover and what is and is not needed.

### Case review

Case reviews are part of our regular team meetings. Each quarter we discuss three randomly selected queries. We look at record keeping, risk assessment and risk management to identify learning points. As part of our governance arrangements, learning points are identified and subsequently acted upon to improve the quality of the service we provide.

### Webpage

We are currently working to update our pages on the new Public Health Wales [website](#). These pages show up to date findings across all of our key areas of work, as well as publications from our team. These pages are important to informing people and organisations about the work we do and sharing our annual reviews.



## 7. Looking forward

Much like last year, our next twelve months look busy. We have used our learning to shape the team's work-plan for next year and our key new tasks include:

### Assessing and managing risks

- Updating our subject-specific operating procedures to inform and improve service delivery.
- Working with partners to improve understanding of how scientific and technical advice is provided in emergencies.
- Strengthening staff competency, through a programme of exercises, to ensure everyone has the opportunity to participate in internal and external exercises.

### Information and knowledge

- Strengthening our environmental public health surveillance to include air quality indicators, lead and carbon monoxide exposures and changes in temperatures.
- Supporting Welsh Government's Clean Air Programme to develop a new national air quality monitoring network based on places such as schools and NHS premises.

### Shaping policy and practice

- Helping to shape the Clean Air Plan for Wales and informing the development of a new Local Air Quality Management regime.
- Working to ensure that transport is treated, and addressed, as a 'wider determinant of health' and supporting Welsh Government to introduce 20mph speed limits.
- Offering expert advice to inform contaminated land, climate risks, water quality and environmental sustainability policy.
- Producing a paper on the potential for environmental public health in Wales.
- Working with others in Public Health Wales, Welsh Government and planners to influence policy around planning and health impact policy development.

### Looking and working beyond Wales

- Modernising our approach to risk communication, global evidence and social media.
- Scoping the public health implications of microplastics in the environment.

### Building capacity and resilience

- Refreshing and revising environmental public health teaching and training.

### Service quality improvement

- Improving our routine data management, including integrating with wider health protection systems.

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