Environmental Public Health KRIC

Dr Huw Brunt and Dr Sarah J Jones

Spring 2025

GIG CYMRU NHS WALES
Iechyd Cyhoeddus Cymru
Public Health Wales

Environmental Public Health

What

- *"Branch of public health that monitors the relationship between human health and the environment, examining aspects of both our natural and human-made environment and their effect on human well-being"*
- *"Everything from the climate, to the food we eat, to the air we breathe plays into environmental health"*
- Seek to modify the health effects of air, land, water related harms, by addressing the determinants of air, land and water hazards
- **KRI Gap – summaries of "what works" to reduce environmental harms to health, including "who" needs to implement and "how" it is done**

Environmental Public Health

Why?

- Assessment of the overall burden is a significant challenge in such a broad field
- Generally low mortality, high morbidity; significant inequalities
- Health effects of environmental harms include
  - IHD, lung and other cancers, stroke, diabetes, COPD, asthma, Dementia, LBW, some infections, stress / anxiety, GI, developmental delay, obesity, Musculo-skeletal problems
  - Strong inequalities component – deprivation, age, sex, rurality
- GBD project estimates for air pollution - the largest environmental burden on health (2021, Wales)
  - 6.7% of IHD related Disability Adjusted Life Years (DALYs)
  - 4.8% of lung cancers
  - 7.6% of diabetes
  - 6.5% of COPD
  - Dementia, low birthweight, respiratory infection
- GBD groups Environmental and Occupational causes – difficult to unpick
- **KRI Gap – improved understanding of the burden of different EPH harms on health to people in Wales (*caveat – not at the expense of action to reduce those harms*)**

Environmental Public Health

Acute incident risks – UK National Risk Register

- CCA Category 1 responder
- *Natural and environmental hazards* e.g. wildfire, volcanic eruption, earthquake, storms, high temperatures and heatwaves, low temperatures, flooding, drought, air pollution.
- *Accidents and system failures* e.g. rail accident, maritime pollution incident, accident involving dangerous goods, power outage, civil nuclear accident, radiation release overseas or transported goods, accidental fire, explosion or chemical release at a COMAH site, water infrastructure failure or loss of drinking water, food supply contamination, major fire.
- OOH – Improved PHW EPRR arrangements.
  - 46 incidents reported to PHW EPRR since April 2024 – 83% have EPH implications
- **KRI Gap – completion of review of SLA / MOU with UKHSA so that in- and out-of-hours routes of reporting, responsibility and governance are clear internally and to all partners**

Environmental Public Health Service in Wales

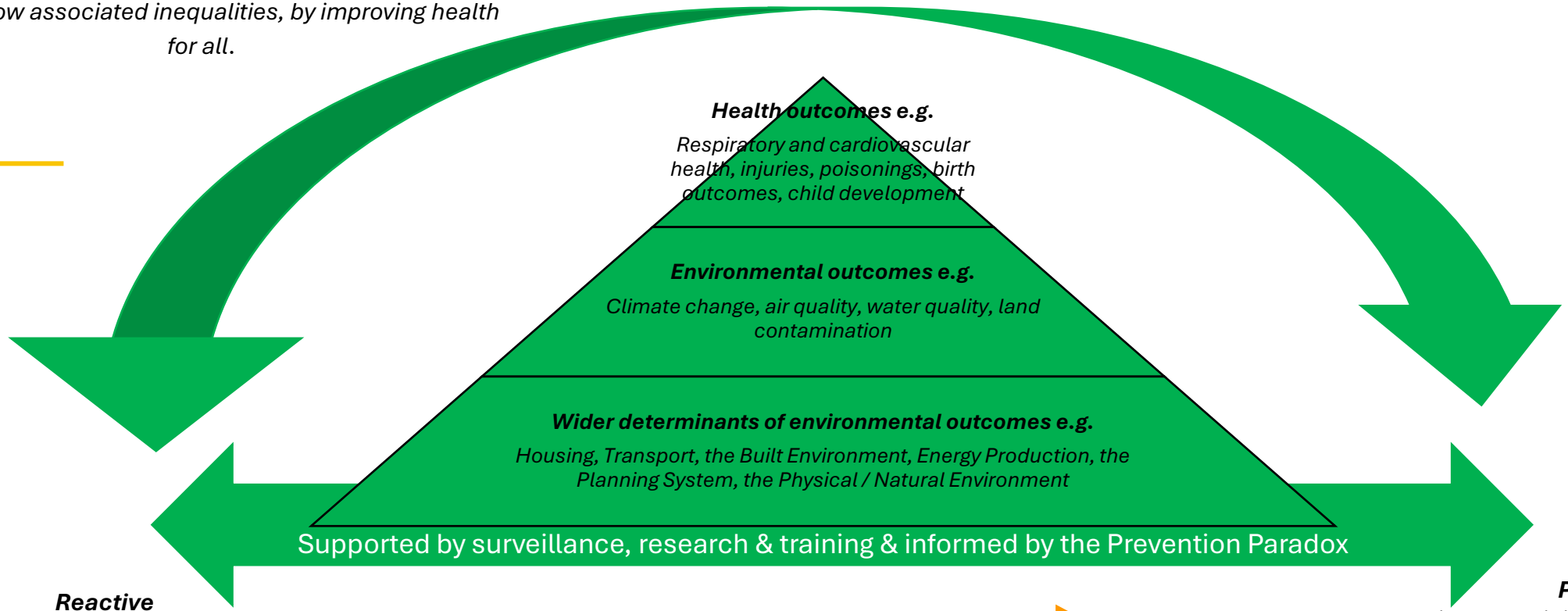
Function and demand

- Aims:-

  to protect health and prevent health harms from environmental hazards and a changing climate, increase health benefits linked to environmental assets, and narrow associated inequalities by improving health for all.

- It delivers on this mission through four priority areas;
  - Priority 1: EPH emergencies and incidents – prevention and response
  - Priority 2: Data and evidence review, interpretation and action
  - Priority 3: Climate change, weather and future and emerging threats to health
  - Priority 4: Wider determinants of EPH and creating fair, sustainable communities
- Priorities are not mutually exclusive; broad categories that describe the general focus of the action
- Narrowing inequalities gaps by improving outcomes for all is critical

Mission - to protect health and prevent health harms from environmental hazards and a changing climate, increase health benefits linked to environmental assets, and narrow associated inequalities, by improving health for all.



WG EPH policy team priority

Reactive
Assessing and managing acute and chronic exposures and concerns
Priority 1

Prevention
Preventing and minimising exposures and supporting the development of fair, healthy and sustainable environments
Priorities 2, 3, 4

NHS Wales stated priority - prevention

Health gain

Service workload

Current alignment

- Incident management (priority 1)
- Limited / low health and health care service burden
- High WG EPH policy team priority
- Very high service / team resources burden
- Focus of most of current workload

- Prevention (priorities 2, 3 and 4)
- NHS Wales priority
- Very high health and health care service burden
- Time limited by incident management burden
- Very minor part of current workload

Priority 1 - Environmental Incident Management

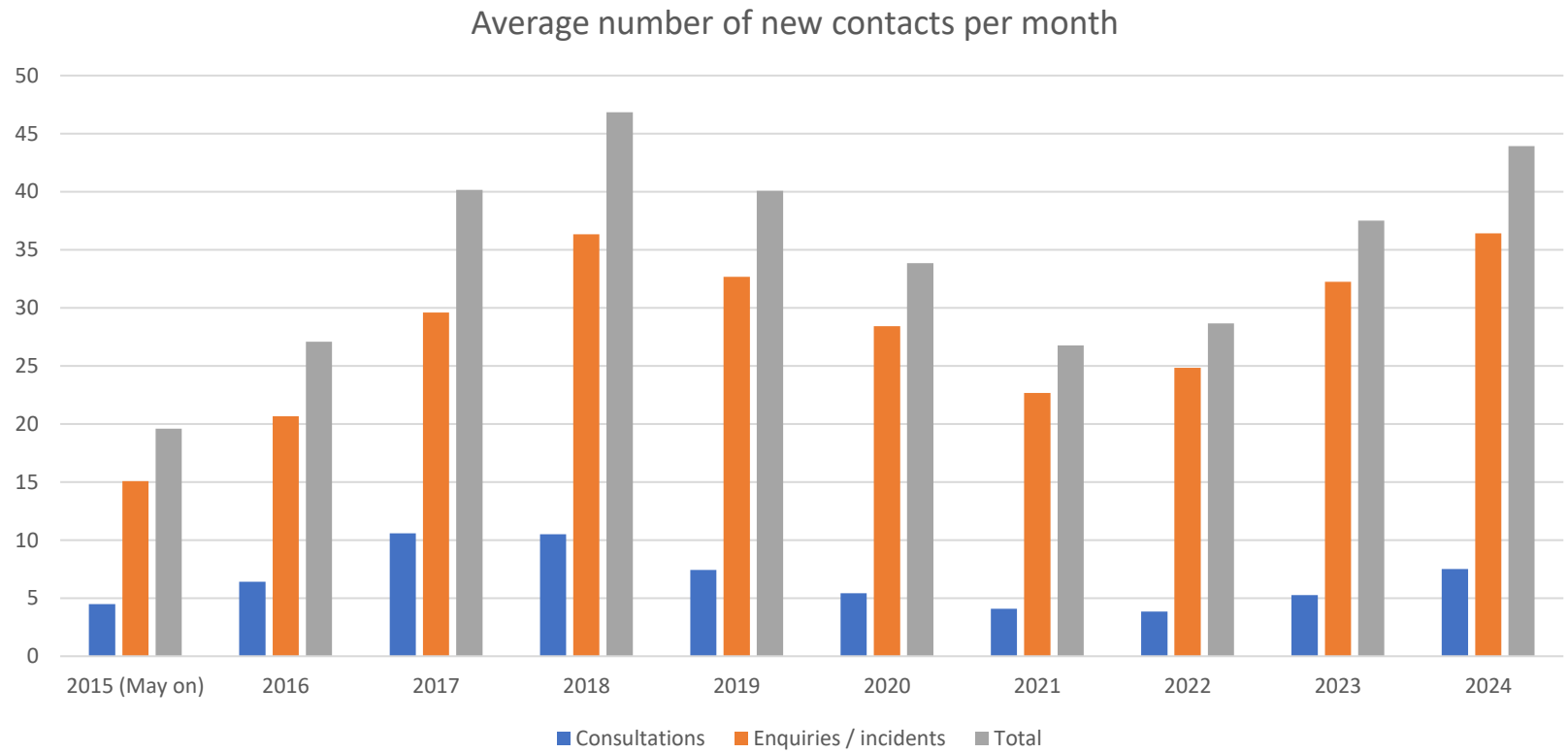
Definitions and management

- Environmental incidents are identified and managed by
  - 22 LAs, 3 FRSs, NRW, FSA, DWI/DCWW/HD, MO, 7HBs, WAST, 4 Police Forces, UKHSA, HSE, MCA, 4 LRF
  - Incident management is led by the relevant regulator
- *An environmental incident, in public health terms, is an acute or chronic event where there are, or could be, people exposed to chemicals and/or other environmental hazards, which cause, or could cause, health harms.*
- Different agencies work to different definitions
  - NRW - 'A specific occurrence, which is brought to our attention, is within our areas of responsibility, which may have an environmental and/or operational impact and may require NRW response.'
- Health effects - potential or actual, acute or chronic, specific or non-specific, short or long term
- PHW
  - 24/7/365 health protection service advising and supporting others to interpret, manage and communicate incident risks.
  - Assess and monitor population impacts, and risks, where possible to inform targeted intervention.
  - no regulatory role or responsibility, no direct patient management role
  - cannot "tell" or "force" a regulator to take specific action

Priority 1

Incident Management – and associated processes and activities

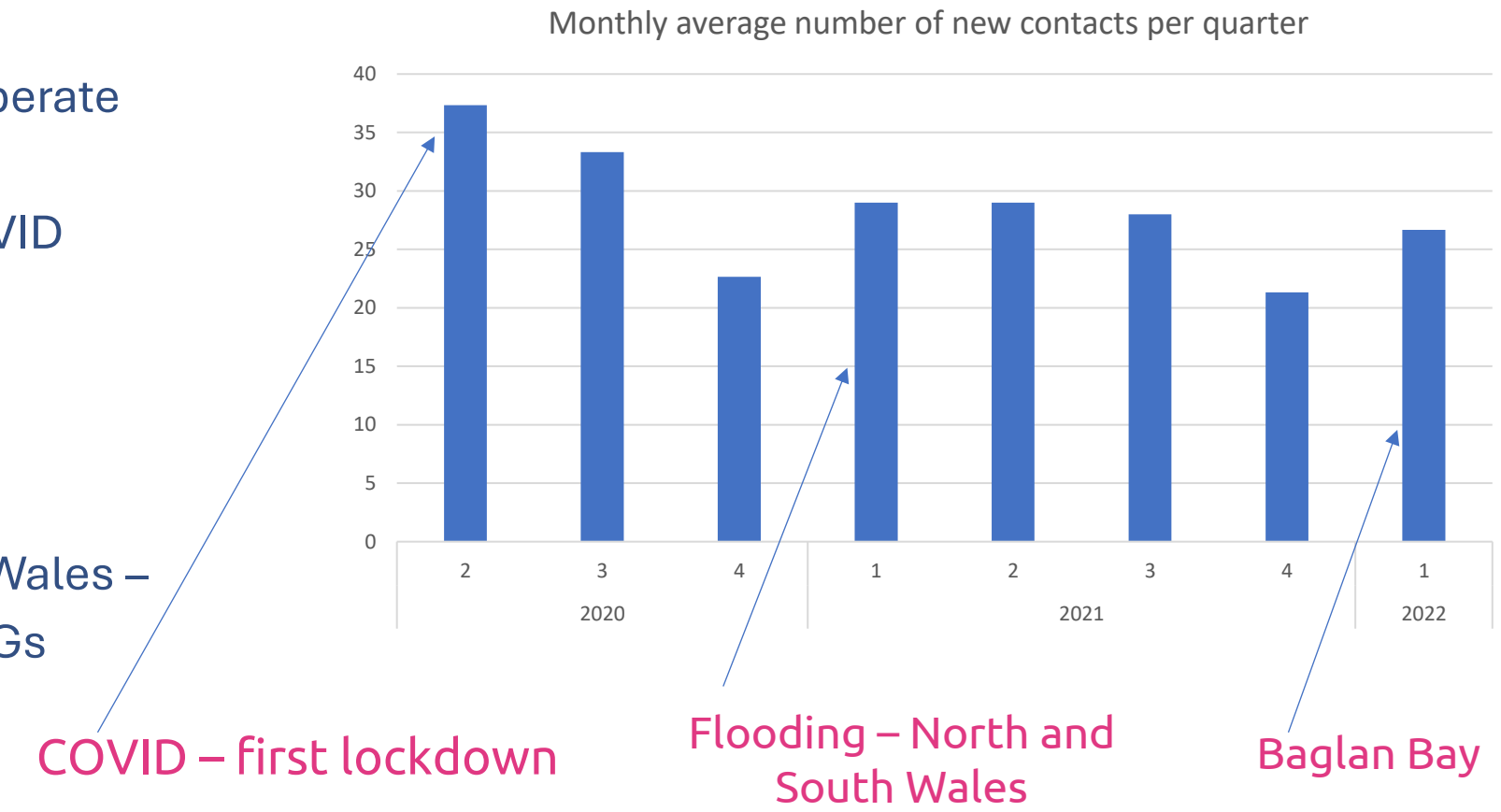
- Civil Contingencies Act (CCA) Category 1 responder
- Acute incident management, chronic events, general queries
- Only shows new contacts, not workload
- Incident management perpetuates and increases the need for incident management



Priority 1

Incident management – during COVID

- EPH service continued to operate during COVID – PHW team delivered both EPH and COVID roles
- Pandemics don't "stop" environmental and adverse weather events
- Significant flooding across Wales – numerous IMTs / TCGs / SCGs
- Baglan Bay Power Station – predictable and avoidable



Priority 1

Case study – acute incident – Synthite fire

- Fire and explosion 30 April 2024 (Tues), controlled by 1 May (Wed)
- Initial air quality concerns, public health risk assessment confirmed low risk to public
- Significant media coverage
- Air quality monitoring discussed and deemed not needed
- DCWW detected formaldehyde in the River Alun (feeds River Dee) during routine testing downstream of Synthite (Wed)
- River Dee source of drinking water abstractions for North Wales and North-West England – risk to the water supplies for 3M people
- FRS tracked leak of run-off
- Leak stopped
- Formaldehyde levels started to drop (Fri morning)
- Full EPH team involved all week attending CCA meetings, preparing updates, contributing to media statements, carrying out risk assessments

Priority 1

Case study – Chronic Event – Withyhedge Landfill Site

- January 2024 EPH contacted by NRW about increasing numbers of public complaints about odours
- EPH recommended that source of odours was addressed and, if possible, monitoring data obtained to support public health risk assessment
- Limited role
  - Member of multi-agency partnership, don't lead it
  - No regulatory powers – can't "shut the site down" or tell anyone to "shut the site down"
  - Concerns that the site would be "orphaned"
- Concerns over community comms
  - Partners focusing on "pressure group"
  - Initial comms strategy saw pressure group receiving more information earlier than the rest of the community
  - Regulator now encouraging operator to lead on comms
- Operator voluntarily stopped receiving waste in May 2024, resumed January 2025
- Hywel Dda HB have regularly checked with primary and secondary care – no evidence of increased service use

Priority 1

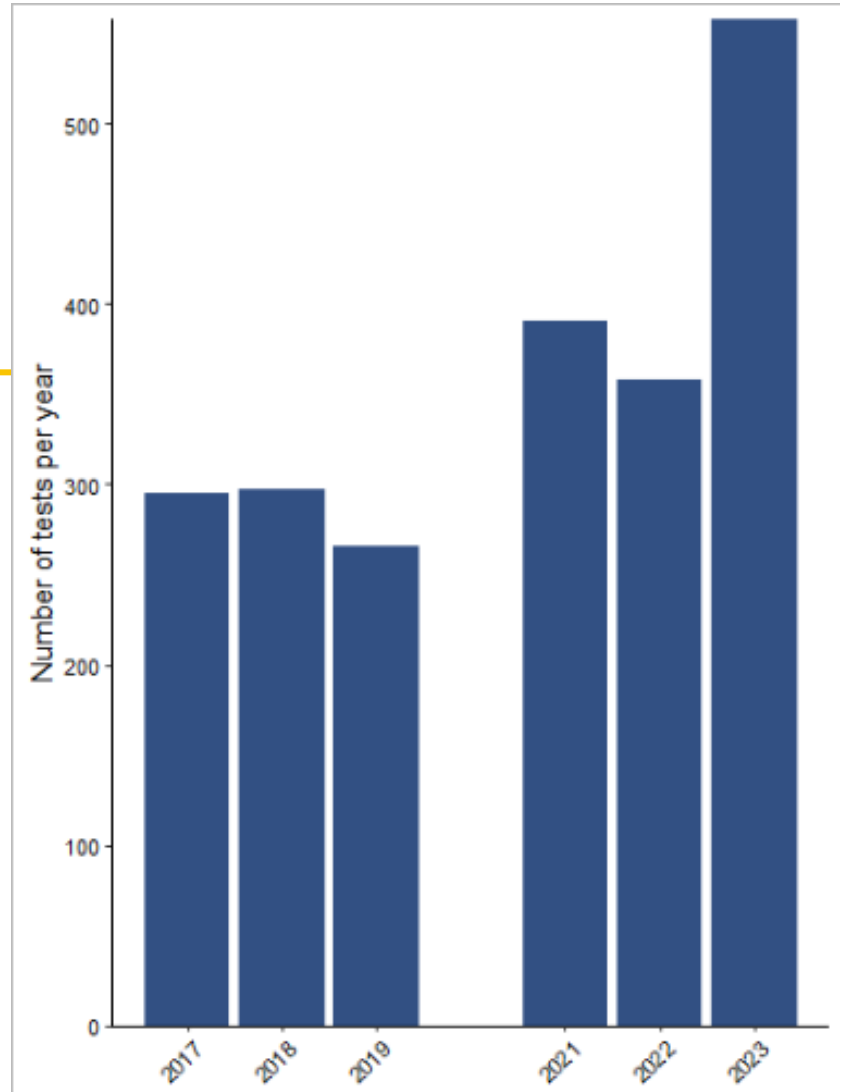
Case study – Chronic event - Withyhedge landfill (data to Feb 2025)

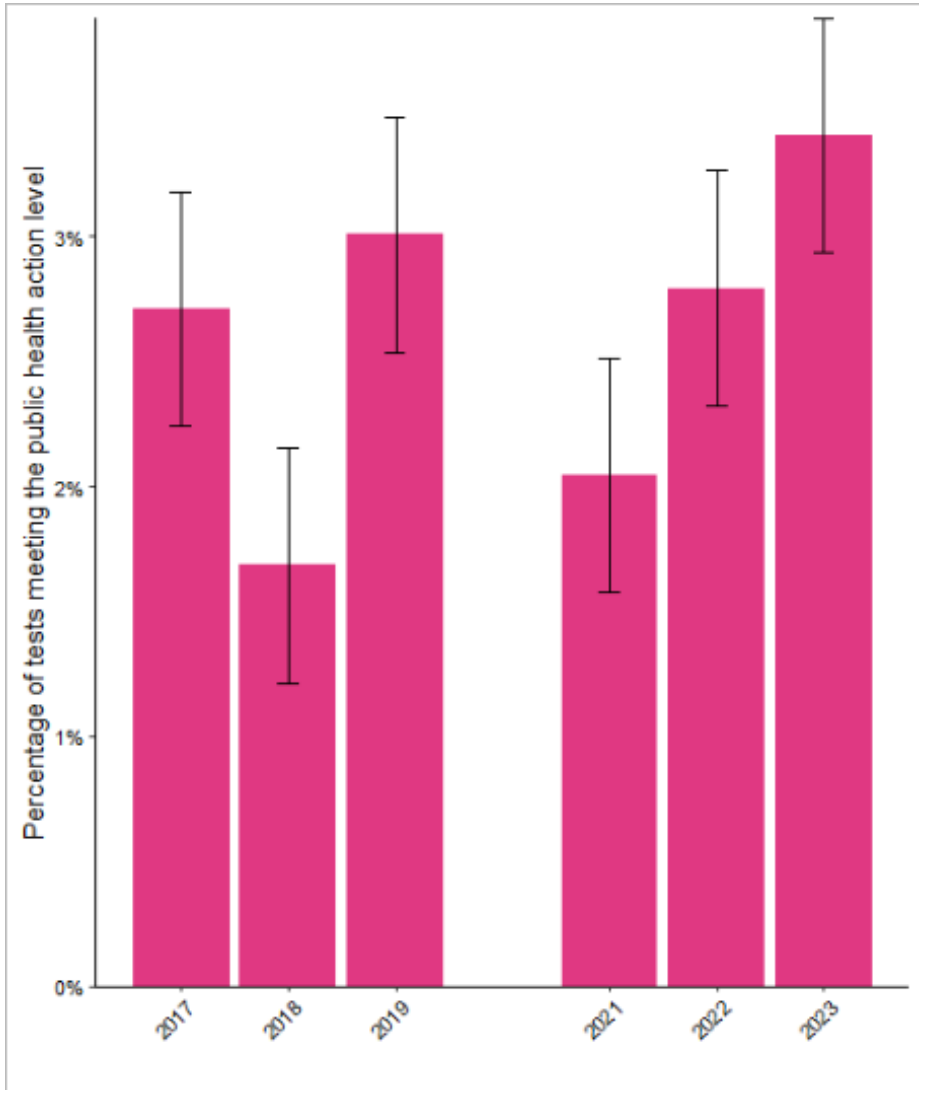
- 1 consultant has 1230 emails – at 5 minutes per email this gives a conservative estimate of 100 hours or 3 weeks on emails alone
- All of the EnvPH team have been involved in the response
- Drafting / responding to emails, carrying out risk assessments, media enquiries, IMG / AQG meetings, taking meeting notes, writing up meeting notes, FOIs, other public enquiries, political briefings, public meetings
- 245 items on the database record
- Comms, Handling Concerns, FOI, EnvPH (PHW and UKHSA), Execs

Priority 1… and 2

Example case study – Blood Lead - Informing prevention

- Cases of elevated blood lead have routinely been dealt with by EPH for many years.
- Previous EPH efforts to increase physician awareness that lead is still a problem
- Wales reduced the PH action level to 5ug/dL for children in around 2018/9 (before rest of UK)
  - Supported by the evidence base – no safe level of lead
  - Developed a “direct” lab reporting system in partnership with biochemistry labs across Wales
  - Early contact with physicians (evaluated)
  - Developed information leaflets for parents and adults with elevated blood lead
  - Developed clear SoPs for managing cases
  - Worked with Dwr Cymru Welsh Water and Hafren Dyfrydwy to provide water testing (and support ambition for a Lead Free Wales)
- Increase in testing for children from 350 cases pa 2017 to 550 in 2023 (early data suggest ~700 in 2024)
- EPH supported the identification of possible sources of lead for 19 children in 2023, compared with 9 in 2017
- In 2024, worked with Clinical Tox colleagues to develop All Wales Clinical Pathway
- In addition, work with DCWW / HD when they identify lead in drinking water supplies – after we’ve requested a test (PH does not access data on all tests)





•**Figure a:** Number and rate of initial blood tests taken for lead, per year in children. 2017 -2023. 2020 excluded because of restrictions on testing due to COVID-19.
•**Figure b:** Proportion of tests per 100,000 of the population meeting or exceeding the threshold for elevated blood lead in children at the threshold of 0.24umol/L in Wales. 2017 - 2023.

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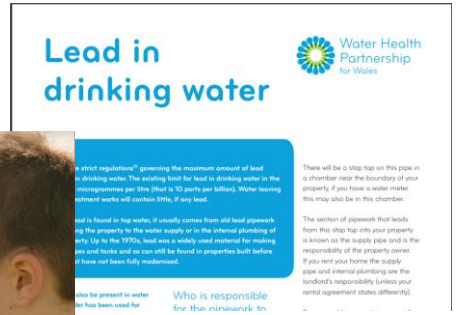

LEAD EXPOSURE IDENTIFIED

CASE

1. laboratory notification of elevated blood lead levels

AND/OR

2. clinician notification of patient with suspected lead exposure

Complete Lead Case Record Form

All Wales Lead Case Record Form final.doc

Follow Standard Operating Procedure for abnormal blood lead test result

Lead SOP final.docx

SITUATION

lead hazard with no identified human cases

Notification of public water source with high lead levels: *Follow Water Health Partnership's 'Response to Lead Failures'*

Response to Lead Failures (Wales).pdf

Non-water source of lead exposure: *Discussion with Environmental Public Health Team on a case by case basis*

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Lead Patient Information Sheet

For ADULTS who have had an abnormal blood test result

What is lead?

Lead is a metal that is found naturally around us. This means it is in soil, rock, air and water in different amounts depending on where you live. In the past, it was used to make lots of things, like petrol, paint, pipes, toys and even food tins, cooking pots and make-up. Some of these things are still made from lead in other parts of the world.

Lead can be harmful to people if they eat or drink it or breathe it in.

What are the effects of having high levels of lead in my blood?

We now know that there is no safe amount of lead for a person to be exposed to; but the risk is greater for children and for pregnant women because lead affects them more seriously.

Adults often feel no effects of lead unless they are exposed to very high doses over a short period of time ('acute exposure'), which is rare. If this does happen, you might need to be treated in hospital; if that is the case, you will already have been contacted by your doctors.

In most cases, an adult is exposed to lead in small doses over a longer period of time ('chronic exposure'). Often they may feel fine, with no obvious bad effects from the lead. Sometimes, they may feel more tired and weak, have headaches, not be hungry, have stomach pains, constipation and have disturbed sleep. In the long-term, even if a person is feeling fine, lead can have serious effects on health.

The usual treatment for exposure to lead is to find out how it happened and stop it happening again.

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FACTSHEET: LEAD EXPOSURE

Introduction

Lead is a metal that is found naturally around us. This means it is in soil, rock, air and water in different amounts depending on where you live. In the past, it was used to make lots of things, like petrol, paint, pipes, toys and even food tins, cooking pots and make-up. The good news is that lead was banned from products such as paint and petrol many years ago. But, there are still sources of lead in and around the places where we live and play, in layers of old paint or water pipes.

There is no safe level of lead exposure and even low levels of lead have been shown to affect IQ, ability to concentrate and to learn in young children. Lead can also affect the brain and nervous system.

Who is most at risk?

We can all be harmed by exposure to lead.

Children under the age of 6 years old are most susceptible because their nervous system is still developing. They are also most likely to come into contact with lead contaminated objects because they put their hands or other objects into their mouths. Pregnant women are also at risk as lead that the mother is exposed to can pass to the unborn baby.

People living in older housing (pre 1970s) may have lead water pipes or paint.

How could I be exposed to lead?

Although we no longer use lead in paint, petrol or in water pipes, it is still in our homes or in products from other countries. Some industries or hobbies such as fishing, shooting and stained glass making, may still use lead.

You may be exposed through the following ways:

Public health action

Cases

- Early notification
- Questionnaire – EPH work through with parents
- Investigation of sources e.g.
  - Drinking water
  - Soil
  - Hobbies
  - Cosmetics
  - Pica etc
- Always mindful of WFGA / onward PH concerns

THIS SECTION ONLY APPLIES TO UNDER 16s				
Name of school / playschool / nursery / childminder attended (under 16s only) *List all that apply, including recent changes*				
Is there any outdoor play equipment at school / playschool / nursery / childminder	**Yes**		**No**	
	If yes, give details			

THIS SECTION IS ABOUT JOBS AND APPLIES TO ALL ADULT CASES, AS WELL AS ADULTS LIVING WITH CHILD CASES		
For each adult at all resident addresses, please describe their main job, what the job entails and the main business of their employer	Adult 1	
	Adult 2	
	Adult 3	
	Adult 4	
	Adult 5	

Are any adults at any resident addresses involved in any of the following in work or as hobbies? *Ask them to think about the recent past too*				
Any known exposure to lead?	**Yes**		**No**	
Automotive / mechanic	**Yes**		**No**	
Asbestos removal	**Yes**		**No**	
Battery recycling / manufacture	**Yes**		**No**	
Boat building, painting or repair	**Yes**		**No**	
Brass or copper foundry work	**Yes**		**No**	
Bricklaying	**Yes**		**No**	
Bridge or steel structure: painting or sandblasting	**Yes**		**No**	
Cable laying or repair work	**Yes**		**No**	
Construction or demolition	**Yes**		**No**	
Ceramic / pottery glazing	**Yes**		**No**	
Enamelling	**Yes**		**No**	
Firing range staff or user	**Yes**		**No**	
Glass blowing or manufacture	**Yes**		**No**	
Jewellery making	**Yes**		**No**	
Lead smelting, bullets, fishing sinkers, dive weights, toy soldiers	**Yes**		**No**	
Paint, pigment or shellac manufacture	**Yes**		**No**	
Painting	**Yes**		**No**	

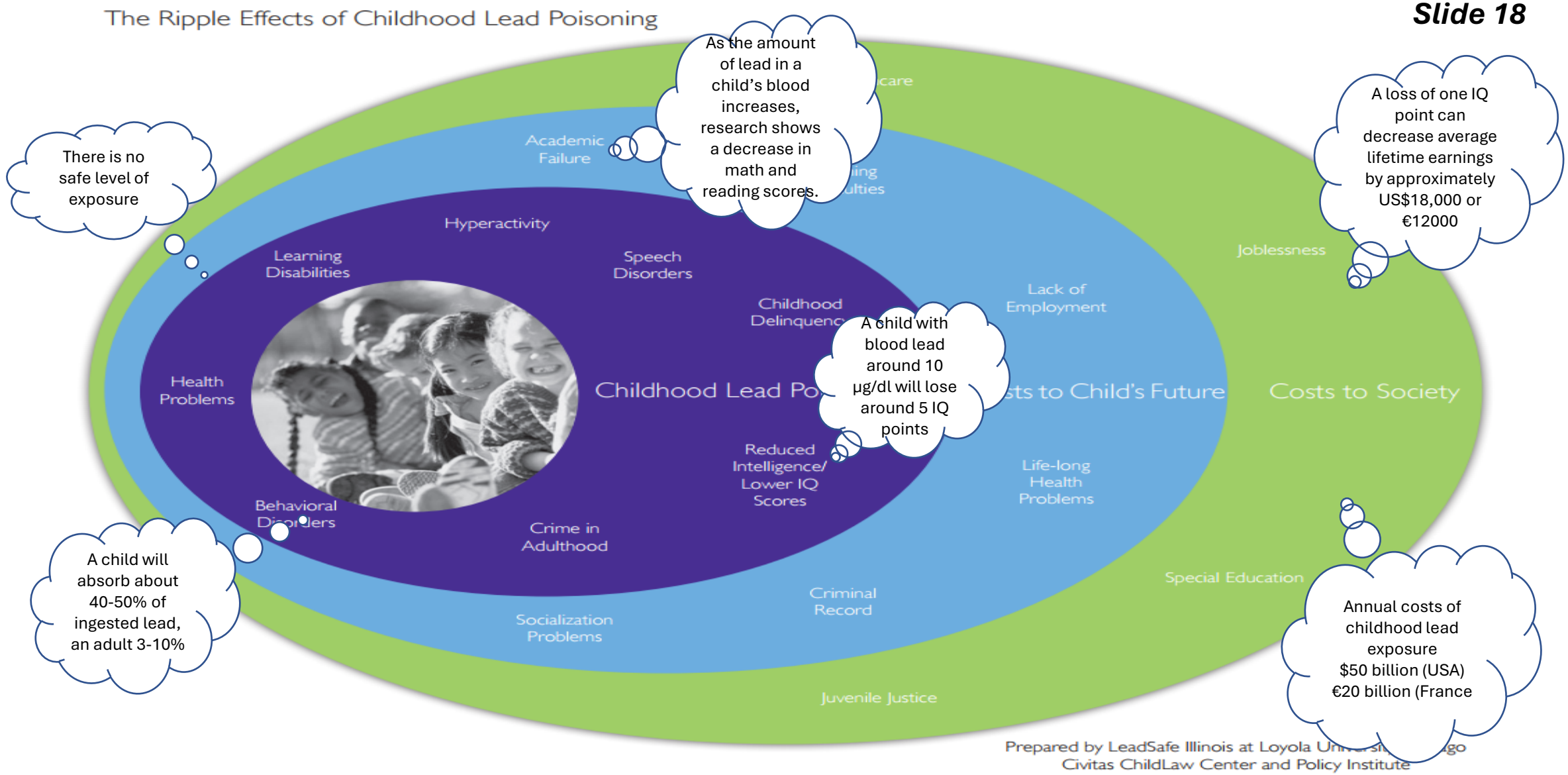
Hazardous waste site	**Yes**		**No**	
Lead industry site	**Yes**		**No**	
Battery manufacture and repair site	**Yes**		**No**	
House construction site	**Yes**		**No**	
Major roads	**Yes**		**No**	

Does the case chew, eat or suck any of the following regularly?				
Paint	**Yes**		**No**	
Plaster	**Yes**		**No**	
Metal	**Yes**		**No**	
Soil	**Yes**		**No**	
Plants	**Yes**		**No**	
String	**Yes**		**No**	
Hair	**Yes**		**No**	
Cloth / clothing (contaminated with anything)	**Yes**		**No**	
Ice	**Yes**		**No**	
Matches	**Yes**		**No**	
Cigarettes	**Yes**		**No**	
Metal	**Yes**		**No**	
Chalks	**Yes**		**No**	
Fuels / oils	**Yes**		**No**	
Paint thinner	**Yes**		**No**	
Toilet paper	**Yes**		**No**	
Rocks	**Yes**		**No**	
Laundry detergent	**Yes**		**No**	
Bleach	**Yes**		**No**	
Keys	**Yes**		**No**	
Candles	**Yes**		**No**	
Pewter figurines	**Yes**		**No**	
Fishing Leads	**Yes**		**No**	
Lead figures and figurines	**Yes**		**No**	
Metal toys	**Yes**		**No**	
Plastic jewellery	**Yes**		**No**	
Plastic lunchboxes / bags	**Yes**		**No**	
Plastic toys	**Yes**		**No**	
Anything else? *Please specify*				

Priorities 1, 2 and 4 – Prevention of lead poisoning

Example case study

- Trying to…
  - Work with Early Years to include possible sources of lead in literature for new parents and managing pica for non-foods such as soil and paint
  - Continue to work with DCWW to develop methods for identifying higher risk homes
  - Contribute to WG consultations on Home Safety Risk Assessments
  - Finalise 2023 surveillance report
  - Contribute to Water Health Partnership Lead Group
- What we would like to do more of…
  - Understand regional variations in testing and other recommendations of surveillance report
  - Oversee annual surveillance report production
  - Increase time dedicated to identifying homes at higher risk of lead pipes – phosphate dosing is not a long-term solution
  - Consider whether there are links between lead pipes and private water supplies
  - Provide training and education for midwives and health visitors to reinforce the messages around pica, soils and paints
  - Establish a “healthy person” baseline of blood lead in Wales (building on Elwood et al, 1980s; EPH developed the idea of random sampling of Welsh Blood Service samples before COVID-19, but were not able to secure pump prime funding within PHW)
  - Consider how we can improve access to information on safer DIY
  - Work with PH Scotland to develop regular information and learning exchange
  - And more….


The Ripple Effects of Childhood Lead Poisoning
There is no safe level of exposure
As the amount of lead in a child's blood increases, research shows a decrease in math and reading scores.
A loss of one IQ point can decrease average lifetime earnings by approximately US$18,000 or €12000
Academic Failure
Hyperactivity
Learning Disabilities
Speech Disorders
Childhood Delinquency
Lack of Employment
Joblessness
Health Problems
Childhood Lead Poisoning
Costs to Child's Future
Costs to Society
A child with blood lead around 10 µg/dl will lose around 5 IQ points
Reduced Intelligence/ Lower IQ Scores
Life-long Health Problems
Behavioral Disorders
Crime in Adulthood
A child will absorb about 40-50% of ingested lead, an adult 3-10%
Special Education
Criminal Record
Socialization Problems
Annual costs of childhood lead exposure
$50 billion (USA)
€20 billion (France
Juvenile Justice
Prepared by LeadSafe Illinois at Loyola University Chicago
Civitas ChildLaw Center and Policy Institute

Priority 2 (and 1, 3, 4)
Health Board profiles

- Annual summaries of EPH events, by broad type of event
- Event classification is difficult; most events have many possible classifications e.g. fire / air quality, chemical contamination / drinking water quality

Asbestos	Extreme Weather
Air quality	Fire
Biological	Flood water
Blue green algae	Land contamination
Chemical contamination	Lead
Carbon monoxide	Nuisance
Drinking water	Radiation
Extreme Weather	

Environmental incidents
Incidents can range from those affecting few people, such as contaminated private water supplies, to a large-scale smouldering waste fire with a plume affecting local communities over some weeks. Working with partners (Welsh Government, local authorities and Natural Resources Wales) we have recently updated the Environmental Incident Management Guidance. This Guidance supports organisations to work together on environmental incidents that are smaller scale than those needing formal Command and Control structures, with a common purpose of protecting public health.

Public health advice on natural hazards
We have reviewed and updated our public health advice for hot and cold weather, as well as for coping with flooding. Health advice is also available for other weather-related health harms including from wildfire smoke, storms, high pollen counts, blue-green algal blooms, thunderstorm asthma and for those coping without a water supply. We have also recently produced guidance for Staying Safe in Outdoor Waters in Wales. Our advice is available year-round to support the public and partners. All our advice is available bilingually.

Work to reduce lead exposure
Lead is a persistent environmental toxin that can damage health, particularly in children, so it is vital to reduce exposure to it. We support and advise clinicians, patients and families when a child or adult's blood test shows evidence of lead exposure. Since 2023, we have also been conducting surveillance of lead test results and have seen an increase in both the number of blood tests taken for lead in children and in results that are above the paediatric public health action level of 0.24umol/L. We are working with colleagues in paediatrics, clinical toxicology and laboratories to improve awareness of, and notification and management processes for, lead exposure.

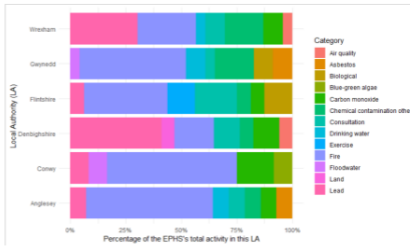
The role of the Wales Air Quality Cell
In 2023 we responded to fires in all Welsh HBs. Rarely, if a fire and/ or chemical release is major and likely to be sustained, the Welsh Air Quality Cell (WAQC) can be convened to consider local air quality issues. The WAQC decides on the need for collection, and interpretation, of air quality data to inform action to protect health. It is staffed by PHW, UKHSA and Natural Resources Wales.
In 2023, these partners reviewed and revised WAQC procedures, and Welsh Government funded upgraded monitoring equipment, to improve incident response.

Change in the default speed limit
In 2023, the default speed limit in Wales changed to 20mph. We supported Welsh Government with understanding the evidence on health benefits to support this change and we are continuing to review emerging evidence on it.
Although policy is still in its infancy, evidence to date indicates that average vehicle speeds have already dropped.
Evidence suggests that for every 1mph change in vehicle speeds there is a 3% to 6% decrease in crashes.
Best practice is to evaluate crash data 3 years post-implementation. Attributing changes in other health outcomes is also likely to be difficult, if not impossible, and will also be affected by COVID-related health effects.

Coal tip safety
In Autumn 2023, Welsh Government began a programme of work to improve the safety of disused coal tips. The owners of the affected land are being reminded of the presence of the tip and of their responsibilities. We have provided advice on the possible health implications of the notification process.

Understanding health inequities
Building on previous work, we have been researching inequalities in local-level **air pollution** exposure between and within population groups, including between females and males. We have also been reviewing, alongside PHW's Communicable Disease Inclusion Health Programme (CDIHP), evidence on the impacts of environmental hazards and climate change on **socially excluded groups.** Finally, alongside health protection and microbiology colleagues, we are currently reviewing health risks and inequities related to using **private water supplies** in Wales.

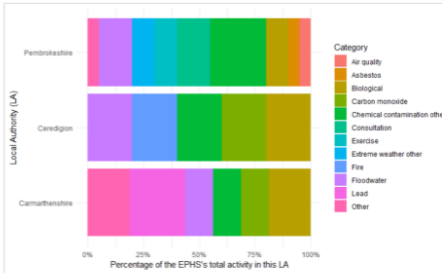
Environmental events that the Environmental Public Health Service Wales have responded to, by local authority, as a percentage of total activity and by type of event (Jan-Dec 2023)*



*percentages of activity provide an indication of the team's activity in this HB and cannot be used for comparisons between areas or over time.

Betsi Cadwaladr University Health Board (BCUHB)
In 2023, we responded to 105 environmental events (incidents, enquiries or consultations) in the BCUHB area. Most commonly these were fire (39%), lead incidents (16%) and chemical contamination (11%). Consultations included planning applications, infrastructure projects, marine licensing and recycling facilities.

Environmental events that the Environmental Public Health Service Wales have responded to, by local authority, as a percentage of total activity and by type of event (Jan-Dec 2023)*



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Hywel Dda University Health Board (HDUHB)
In 2023, we responded to 41 environmental events (incidents, enquiries or consultations) in the HDUHB area. Most commonly these were biological, chemical contamination and floodwater incidents. We also responded to elevated blood lead cases.

Priority 2 (and 1) - Information

Contacts with the Environmental Public Health Service

- Event recording - passive system (trend analysis impossible), an “event record” gives no indication of resources needed to respond
- Range
  - An individual with elevated blood lead or exposed to carbon monoxide
  - A fire burning over many days affecting large numbers of people
  - All-Wales heat episode
- Fire at place x
  - Queries about health effects from individuals / AMs
  - Query about permit / planning conditions associated with X
- Not just acute incidents, but also chronic and more general queries
  - Are there harms linked to a 5G mast located near to my home?
  - Should I buy a house in a radon affected area?
  - Assessment of AQ monitoring data at an industrial process
  - What happens if we turn off this power station?
- Partner agencies
  - NRW, LAs, FRS, WG other
  - Members of the public
- Does not include prevention work or e.g. requests for media interviews

Priority 3 – Climate change, weather and future and emerging threats to health

Private water supplies

- A mainly rural issue
- 77,000 homes in Wales on private water supplies (highest proportion in UK)
- WG holds data on where some / most of these are
- Changing climate means that there is the potential for increasing quality and sufficiency issues
- Planning does not include access to sufficient water
- Homes with PWS also likely to lack other mains services
- Advocating for a return to testing / enhanced testing regime
- Longer term consideration of how rural homes will access water (and other mains services)
- Identify current burden of ill-health (bugs / chemicals)
  - Other health effects?
- Identify actions needed to address sufficiency issues
  - Likely to be overlap with e.g. heating
  - Planning policy – holiday lets

Priority 3 – Climate change, weather and future and emerging threats to health

Prisons Climate Risk Assessment Tool

- Working with CDIHP / Health and Justice
- Asked by MOJ how prisons can prepare for the changing climate
- Reviewed the very limited evidence base
- Developed a simple climate risk assessment tool

Risk	Yes Measures already in place effective now and future? Reference evidence	No Needs more assessment. Proposed actions
Vulnerable Prisoners: Know who the high risk prisoners are and conduct regular welfare checks		
Able to monitor temperature across estate? And act on identified problems		
Able to monitor humidity across estate? And act on identified problems		
Social or civil unrest surge capacity?		
Capacity for increased migrants / refugees holding?		
Plans in place to manage disruptions to transport and other critical infrastructure?		
Heat		
Cells with curtains / blinds / ability to shade window?		
Single cells, cells on lower levels or cool spaces available for vulnerable?		
Fans, air conditioning / ventilation in areas with high traffic?		
Portable handheld fans available for vulnerable?		
Holding Cells & Waiting Rooms: Review capacity to reduce overcrowding and overheating?		
Drinking water available in all areas?		
Gym: Review and revise gym schedule to cooler times of day		
Sun cream and hats available during outdoor activity / exercise?		
Shaded areas in outdoor spaces		
Able to open windows?		
Able to provide details and alerts of forecast warm and hot weather e.g. Prisoner TV, Radio and health champions to deliver health messages?		
Able to safely switch off unnecessary electrical equipment to reduce heat?		
Clothing: Loose light weight, light coloured clothing available?		
Vehicles have air conditioning?		
Cold		
Is there an existing list as per heat?		
Warm clothing available?		
Damp and / or mould present?		
Power supply		
Resilient supply with back-up power generation available?		
Drinking Water		
Mains supply with back-up plan available?		
Private supply e.g. well or borehole, with back-up plan available?		
Flooding (risk to prison, access routes and supply chain)		
Known flood risk		
Sea level rise known risk?		
Wildfire		
Location at risk for wildfire e.g. near open grasslands or woodland		
Ever been affected by wildfire smoke?		
Location at risk for wildfire smoke		
Storms		
Estate resilient to wind and structural damage?		
Insect vectors & pests		
Able to spot invasive non-native species on the estate, and how to tackle them?		
Awareness of risk of Ticks		
Food safety and security		
Is food supply chain resilient to above risks?		
Make use of agriculture and farming projects across the estate that could help reduce the need for external food supplies e.g. allotments?		
Food temperature control measures in place with relevant training of food handlers?		

Priority 3 - Climate
Heat and Flooding

- Summer 2022, Wales experienced two episodes of extreme heat
  - Sunday 17th July to Wednesday 21st July, 2022 (term time)
  - Thursday 11th to Sunday 14th August 2022 (holiday time)
- Evidence of heat health effects
- ?tolerance of Welsh population / when do heat health effects start to emerge / where do people seek care
  - How all of these vary with age, sex, deprivation, geography
- Large number of messages
  - Hat, sleeves, water, sunscreen, stay indoors in the hottest part of the day
  - Outdoors – early / late, shade
  - Messages for young children, older people, recreational water users
- Do the messages reach the right people, are they understood, what more do we need to do and where?
  - Currently working with Policy Team and CCPB – research commissioned to start to answer this (heat and flooding)

Priority 3 - Climate

Summer 2022 - Environmental Drought declaration (NRW)

- Possible direct human health outcomes
  - People failing to drink enough water / wash their hands regularly
  - Private water supply contamination – chemicals / comm dis
  - Worry / stress / anxiety
- Recreational water use affected
  - Changes to temperature / depth
- Wildfire risks – and associated health effects
- Press technical briefing (September 8th)
- Surveillance of health effects needed (but mindful of Bonfire Night findings)

Priority 3 – Climate Change

What else…

- Aiming for “action” rather than “describing the problem”
- Covering both mitigation and adaption
- Trying to
  - Refine and evaluate RA
- What we would like to do more of
  - Develop advice and support around actions arising from RA
  - Adapt RA to other settings
  - Test and evaluate use in other settings

Priority 4 (and 1 and 2) - Carbon Monoxide

Surveillance and information for faith communities

- Data on incidence of CO poisoning are poor
- Difficult health outcome to monitor – non-specific symptoms
- France – 4* cases of UK, similar population size
- Preventable burden on health and health services
  - Post-COVID recovery (lowering the baseline)
  - Implications linked to cost of living crisis?
- Aiming to encourage greater knowledge of the prevention of CO poisoning and of the symptoms should it occur (secondary prevention)
- More difficult with people who have little / no English
- Pictograms more useful
- Delivered to faith communities across Cardiff
- Information published in “faith” newsletters

Priority 4 (and 1, 2 and 3) – Carbon monoxide
Actions

- Want to look more at…
  - Changing seasonality of cases
    - Currently more cases in autumn / winter
    - Heating systems “switched on”
    - Will this “level off” in milder winters?
    - Will warmer summers see more BBQ / caravan related cases?
  - Changing heating (cost / switch to air source)
  - How do our comms and prevention work need to respond?
  - Currently do not have access to the right data

Priority 4 – wider determinants of EPH, fair & sustainable communities

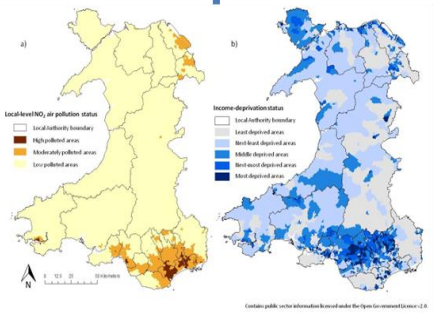
Air quality

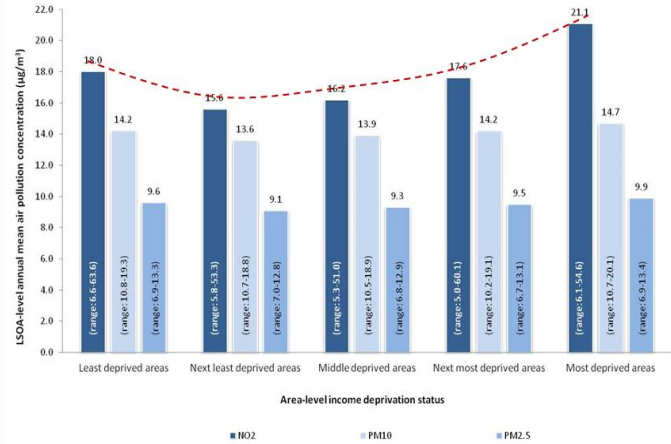
- Largest environmental burden on health (see earlier slides)
- Affects the health of everyone in Wales – to greater or lesser degree – and no “safe” level
- Range of sources – including transport, industry and natural sources – range of “solutions”
- Clear links between pollution concentrations, deprivation and health
- Action so far
  - Clean Air Advisory Panel (Air Quality and Soundscapes Act), and sub-panels
  - 20mph Default Speed limits
  - Working with Swansea University to improve understanding of what healthcare professionals want and need to know about air pollution
  - Supporting WG Raising Awareness of Air Pollution work
  - Health care service burden of Bonfire Night – will also inform data analysis during incident response
- What we would like to do more of
  - Advocate for stronger application of Planning Policy Wales 11
  - Support local authorities to use and apply HAP-RAP tool
  - Advocate for public transport and other local initiatives to support improved air quality
  - Further Bonfire Night related analyses
  - More “surveillance” generally, including intervention evaluation
  - Work more with Swansea University to study public knowledge of air pollution, how to avoid it / prevent it, how to manage health harms related to it

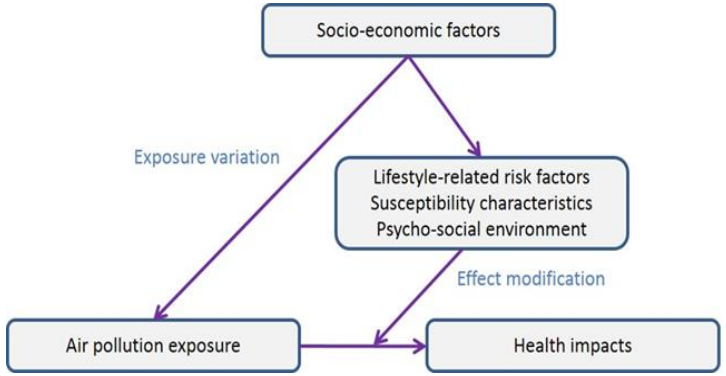
Priority 4 – Wider Dets of EPH

Air Quality

- 'Triple jeopardy'
- Air pollution exposure harms health – significant morbidity burden; mortality burden
- Air pollution worse in deprived areas (vulnerability/exposure)
- Health status worse in deprived areas (susceptibility)
- Relationship between air pollution and health is modified
- Interaction between air pollution, deprivation and existing inequalities can exacerbate disproportionate disease burdens
- Risk assessment need to look beyond air pollution data to consider public health context – problems and solutions
- Evidence published to inform policy development, notably statutory Local Air Quality Management Regime – a key part of Air Quality & Soundscapes (Wales) Act 2024.



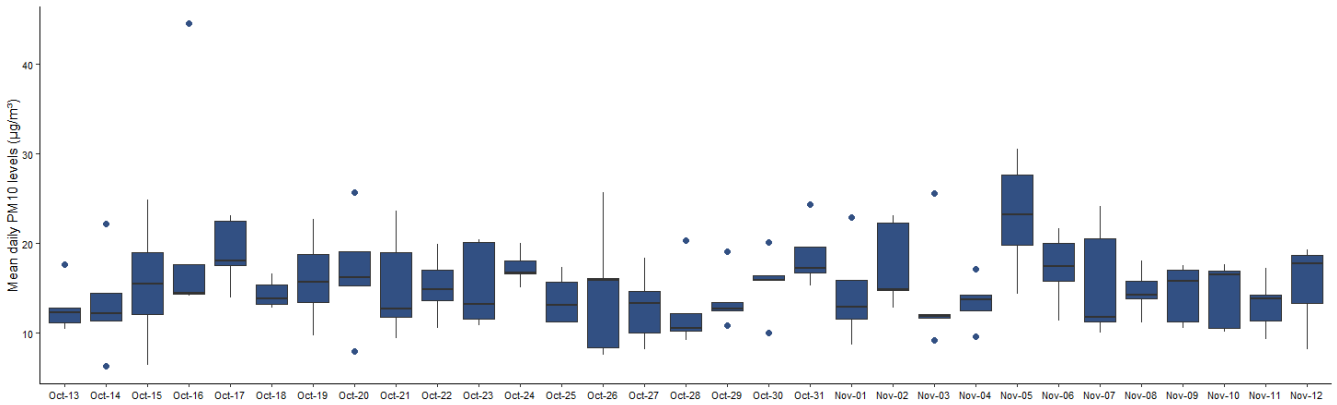


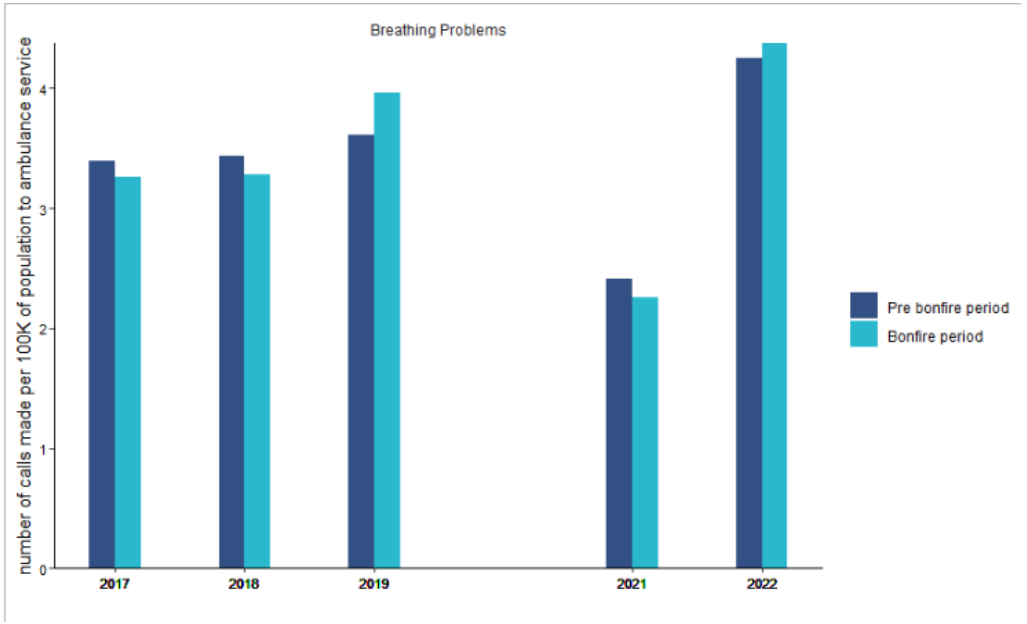


Brunt H, Barnes, J, Jones SJ *et al.* (2017). Air pollution, deprivation and health: understanding relationships to add value to local air quality management policy and practice in Wales, UK. *J Public Health*; 39 (3): 485-497.

Priority 4… and 1 and 2
Bonfire Night

- Aiming to improve understanding of
  - Burden on health and air pollution of a major, predictable pollution episode
  - Where routine health datasets show a “signal” following a pollution episode
- Will inform policy
- Will inform assessment of the health effects of pollution incidents e.g. industrial or wildfires
- Findings – no obvious increase in health service use associated with Bonfire Night
- But – no detailed analysis of ED data

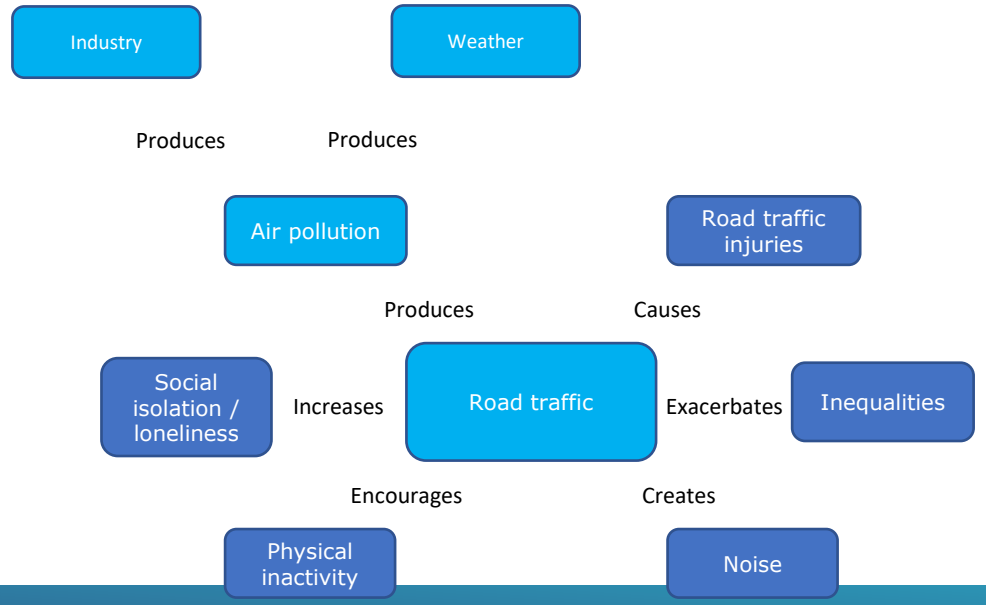




Priority 4 – Wider Dets of EPH (and PH)

Making the case…

”If all current 30 mph limit roads in Wales became 20 mph limits, it is estimated that 6–10 lives would be saved and 1200–2000 casualties avoided each year, at a value of prevention of £58M–£94M.”



Research report

Twenty miles per hour speed limits: a sustainable solution to public health problems in Wales

Sarah J Jones, Huw Brunt

► Additional material is published online only. To view please visit the journal online (http://dx.doi.org/10.1136/jech-2016-208859).

Public Health Wales, Cardiff, UK

Correspondence to
Dr Sarah Jones;
sarah.jones27@wales.nhs.uk

Received 22 December 2016
Revised 6 March 2017
Accepted 6 March 2017
Published Online First
3 April 2017

ABSTRACT

Background Prevention, rather than treatment, is the key to longer healthier lives. Identifying interventions that will impact positively on road traffic injuries, air quality and encourage active travel is a significant public health challenge. This paper aimed to explore whether 20 mph limits could be useful in achieving this.

Methods Research evidence was reviewed to identify the effect of 20 mph zones and limits on health and well-being. The evidence was then used to estimate the effect of a change to a 20 mph limit on road traffic casualties and air pollution. It was then mapped against the seven goals of the Well-being of Future Generations Act (2015).

Results If all current 30 mph limit roads in Wales became 20 mph limits, it is estimated that 6–10 lives would be saved and 1200–2000 casualties avoided each

distances outside schools. Zones include traffic calming which is intended to force vehicles to slow down. Limits, however, are usually only noted by signs posted on poles at the road side and roundels painted onto the road surface. A default 20 mph limit has been argued to just ‘make sense’.[2] Road safety charity Brake is actively campaigning for a 20 mph default, Royal Society for the Prevention of Accidents (RoSPA) for wider use of 20 mph zones. National Institute for Health and Care Excellence (NICE) and the British Medical Association (BMA) have recommended that city-wide or town-wide 20 mph limits should be introduced.[3 4] The Faculty of Public Health believes that 20 mph zones and limits are important to mitigate the health impacts of cars.[5] Royal College of Paediatrics and Child Health (RCPCH) Wales are also calling for 20 mph limits to encourage children in Wales to be healthy and physically active.[6]

Much of the focus to date has been on road safety, but the suggested benefits extend beyond this to improved air quality,[2 7–9] increased active travel,[2 10] narrowing of inequalities,[2 4 11] greater social inclusion,[2 11] reduced noise pollution[9 11 12] and greater community cohesion,[2 11] including viability of local businesses[2] (table 1[7 9 11–18]).

24 European OECD countries (EU24) estimates that 50% of air pollution deaths are due to road transport[12] and there is evidence that changes in driver behaviour linked with lower speed limits could reduce emissions.[9] For example, nitrogen oxides (NO_x) emissions under hard acceleration are two to four times higher than those of constant speed.[19] In Sweden, 20 mph limits have been associated with lower fuel use because of less starting and stopping, compared

Table 6 Contribution of changes in default speed limits from 30 to 20 mph to achieving the goals of the WFGA

Goal	Description	Contribution of 20 mph limits to WFGA
A prosperous Wales	Innovative, productive, low-carbon society. Recognises limits of global environment and uses resources efficiently and proportionately. Develops a skilled and well-educated population in an economy which develops wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work.	Improved motorised traffic flow increased walking and cycling due to fewer crashes, more time and space between vehicles and reduced fear of speeding traffic local economies more viable and socially resilient improved public transport and commercial vehicle flow. increased productivity with less ill health
A resilient Wales	Nation maintains and enhances a biodiverse natural environment with health functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change	As above, and improved air quality enhancing the natural environment and supporting ecological resilience.
A healthier Wales	A society in which physical and mental well-being is maximised and in which choices and behaviours that benefit future health are understood	As above, and improved cardiorespiratory health linked to improved air quality; improved general health linked to reduced noise pollution, reduced obesity and increased physical activity due to more active travel and outdoor play; improved mental health linked to all of above.
A more equal Wales	A society that enables people to fulfil their potential	As above and reduced inequalities since more deprived are greater ranges of traffic speeds and vehicle types.
A Wales of cohesive communities	Attractive, viable, safe and well-connected communities	As above and improved social cohesion and connectedness
A Wales of vibrant culture and thriving Welsh language	A society that promotes and protects culture, heritage and the Welsh language and which encourages people to participate in the arts, and sports and recreation	As above and increased walking, cycling and outdoor play
A globally responsible Wales	A nation which, when doing anything to improve the economic, social, environmental and cultural well-being of Wales takes account of whether doing such a thing may make a positive contribution to global well-being and the capacity to adapt to change	As above, and increased active travel, decreased fossil fuel reduced impacts of climate change.

WFGA, Well-being of Future Generations (Wales) Act 2015.

Priority 4 – Wider determinants of EPH…

20mph legislation

- Default speed limit changed from 30 to 20mph 17 September 2023
- Generally, RTC analyses carried out 3+ years post intervention
- Early data are promising, wider prevention of harms associated with cars is expected

1 year pre implementation v 1 year post	Pre			Post		
	Killed	Serious	Slight	Killed	Serious	Slight
20mph	5	51	280	17	296	1047
30mph	29	418	1619	7	78	280
Totals	34	469	1899	24	374	1327
Value of Prevention (£)	2,411,659	271,003	20,892	2,411,659	271,003	20,892
20mph (£)	12,058,295	13,821,153	5,849,760	40,998,203	80,216,888	21,873,924
30mph (£)	69,938,111	113,279,254	33,824,148	16,881,613	21,138,234	5,849,760
Totals (£)	81,996,406	127,100,407	39,673,908	57,879,816	101,355,122	27,723,684
Total pre 20+30	248,770,721		Killed	10 (-29.4%)		
Total post 20+30	186,958,622		Serious	95 (-20.3%)		
Savings	61,812,099		Slight	572 (-30.1%)		

Priorities 1, 2, 3 and 4
And there's more

- Responding to a range of consultations
  - Coal Tip safety
  - TAN15 – Development, flooding and coastal erosion
- Hinkley C Stakeholder Group
- Developing surveillance – lead, CO, health effects of air pollution
- Health protection contribution to climate emergency – extreme weather, prioritisation, surveillance – information for action
- Planning and Permitting responses
  - Including e.g. intensive farming and bioaerosols, TATA
- Domestic damp and moulds
- Water quality / land contamination
  - Swimmer's itch
- Reactive - Baglan Bay
  - Local private power plant operators went into receivership
  - Official Receiver to close plant, local businesses reliant on private supply to use generators while waiting to be moved to mains power
  - Worked with WG / LAs / NRW to assess effects of generator use on health and make case to keep plant open
- Planning and permitting - Barry Biomass
  - Controversial development with significant public and political interest
  - Independent commentary on planning / permitting applications