Environmental Challenges in Health Protection

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- This interactive workshop uses a real environmental public health incident to explore the wider challenges of protecting health from environmental hazards in complex systems.

Aim of the workshop:

- Work through decision-making, uncertainty, and multi-agency leadership issues that are common across environmental health protection incidents
- Apply the learning to your own local contexts.

By the end of the session, participants will:

Identify **common challenges** in managing environmental health protection incidents

Explore how **multi-agency systems** respond to environmental risks affecting populations

Apply learning from a real incident to **other environmental hazards** in their own areas

Setting the Scene: Environmental Challenges in Health Protection

Q: What is an environmental challenge?

- Complex issues arising from the **physical, built, or natural environment,** creating a real or potential risk to health
- Where preventing or reducing harm requires action across **multiple organisations, sectors, or systems** rather than a single service response.

What makes something an environmental CHALLENGE (not just a problem)?

The **source of risk is environmental** (e.g. water, air, housing, land, infrastructure)

Exposure is often **invisible or delayed** (risk accumulates over time)

Accountability is fragmented (public, private, individual responsibility overlap)

The **health impact is unequal**, affecting vulnerable populations most

Resolution requires **systems leadership**, not just technical fixes

Some examples of environmental challenges

AIR QUALITY

DAMP AND MOULD

CHEMICAL EXPOSURE

LEGACY INDUSTRIAL CONTAMINATION

CLIMATE-RELATED ENVIRONMENTAL RISK

Exercise: Initial notification

A utilities company has notified you of a potential hazard affecting a cluster of residential properties in a local suburb.

Results show lead levels above the regulatory standard, and it is believed that the affected pipes are privately owned.

What are your first actions?

Who do you need around the table?

What are you most uncertain about at this stage?

Staffordshire's Elevated Lead Incident: Initial Notification

Severn Trent Water notified UKHSA of a cluster of residential properties in a local suburb which had elevated levels of lead in drinking water, above the regulatory. standard of 10 µg/L in their residential pipes.

Agree an appropriate mechanism to bring stakeholders together (TCG, IMT?) and designate a chair

Identify what we know – maps, elevated levels, testing schedule

Assess level of risk and whether residents are in immediate danger

Severn Trent Water
UKHSA
Staffordshire County Council
Stafford Borough Council
Staffordshire and Stoke on Trent ICB
Drinking Water Inspectorate

The health risks of lead in drinking water

The ownership of homes and demographics of the residents

Status of the homes and properties beyond the cluster

The Incident details

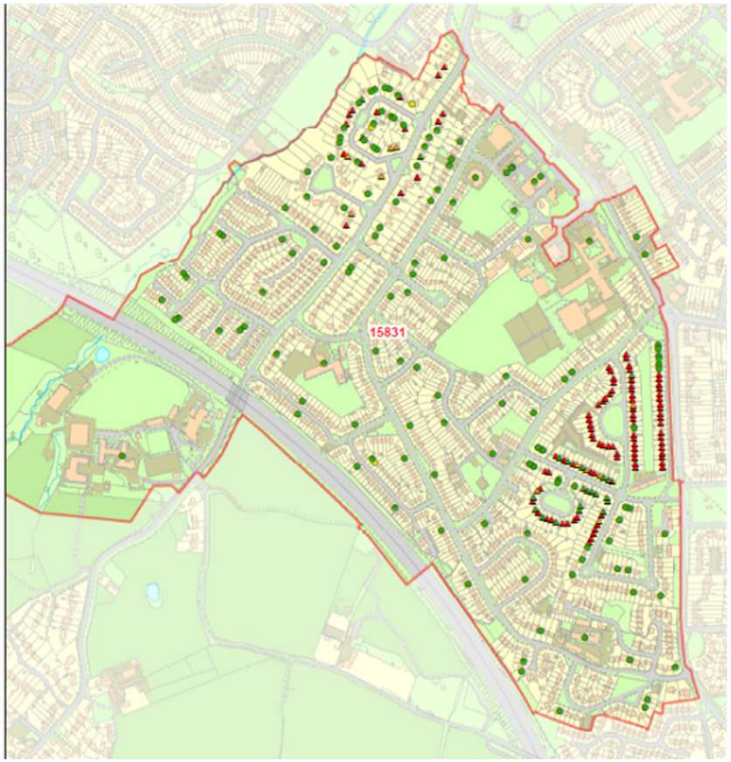
A routine drinking-water test identified **lead levels above the regulatory standard (10 µg/L)** in a property, triggering further investigation under a formal incident response framework

132 properties were identified as having **lead concentrations above the regulatory standard (10 µg/L)** in their drinking water supply.

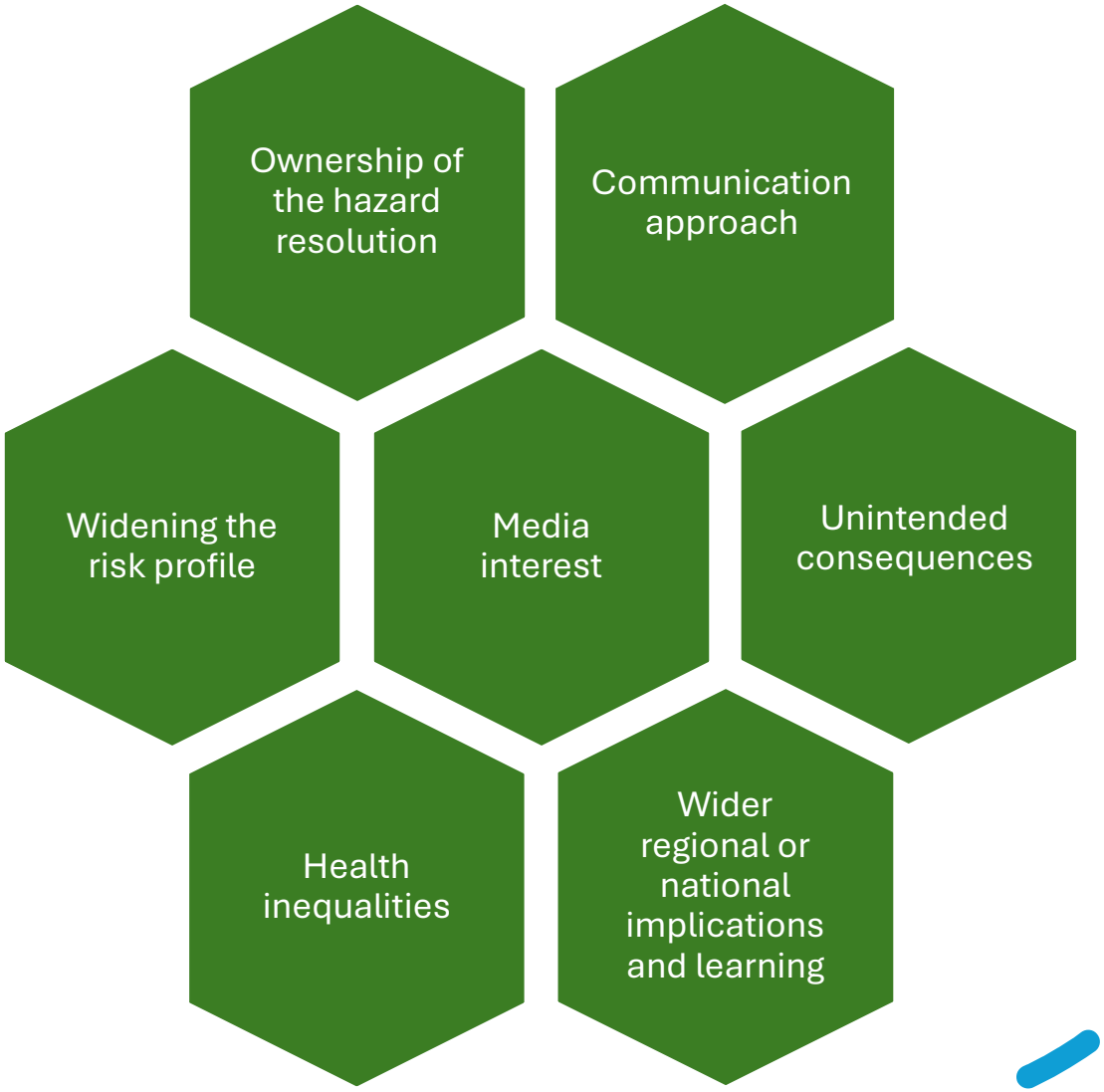
The incident was linked to **legacy lead service pipes**, predominantly in **properties built before 1970**, where responsibility for the **supply pipe rests with the property owner**, not the water company.

A **Tactical Coordinating Group (TCG)** was convened, involving **UKHSA, the water provider, the Drinking Water Inspectorate, NHS partners, Staffordshire Public Health, and Stafford Borough Council**, to coordinate response actions and decision-making.

Lead exposure, even at low levels, can affect **cardiovascular, neurological, immune and reproductive health. Young children and pregnant women** are at highest risk. There is **no safe level** of lead exposure and long-term exposure is linked to **early labour, developmental delays, and behavioural changes**.



Explore the complexities of managing environmental hazards and risks



Staffordshire's Elevated Lead Incident

Ownership of the hazard resolution

Homeowners and Landlords responsibility

Partnership solutions:

Water provider's options
Enforcement options

Environmental incidents are frequently the responsibility of private owners

Enforcement challenges

Funding implications

Example – Walley's Quarry

Staffordshire's Elevated Lead Incident

Communication Approach

Reviewed information sent to affected residents

Communication to Health Care professionals

New tenants

Ask 'who needs to know what?'

Don't assume the public understand technical language

Take a health literacy approach

Plan for future scenarios

Example – flushing advice

Staffordshire's Elevated Lead Incident

Media interest

Upfront communication to residents prevented escalation

Pre-emptive statement prepared and agreed with all organisations

Informing elected members

Consider what the media will be interested in in advance

Resolve in advance if possible

Prepare to answer queries before they are asked

Examples

Gloucestershire's elevated lead

Walley's Quarry

Staffordshire's Elevated Lead Incident

Health Inequalities

Residents who replaced their pipes

Residents who ignored letters

Residents who chose not to replace pipes

Residents who could not afford to replace pipes

Funding streams considered and not found

Consider who is most adversely affected by environmental hazard and plan for resolution if possible:

Proximity

Accessibility

Awareness

Understanding

Resources

Staffordshire's Elevated Lead Incident

Widening the risk profile

Attempt to map all homes built before 1970

Attempt to map which residents were most likely to be at risk

Approx 5.7m properties in England – did you know?

Predict the potential scale beyond the initial hazard

Consider the potential wider impact of the hazard

Clinical challenges

Examples:

Flooding

Climate change

Staffordshire's Elevated Lead Incident

Unintended consequences

Phosphate dosing triggered release of arsenic

Consider potential implication of resolutions

Response to new hazards should be dealt with as per the original incident

Consider what the new hazard means to the original need

Staffordshire's Elevated Lead Incident

Wider regional or national implications and learning

Closure of incident

Justification of decisions taken

Letter to DEFRA

Follow up on actions

Agree circumstances for closure and move to recovery if required

Before an incident can be closed consider whether there is any learning for this and other systems

Are there any policy gaps that require escalation?

Plan for outstanding actions and decisions

Staffordshire Lead in Drinking Water Incident (2024)

The UK recognises access to safe drinking water as a fundamental human right. Approximately 8 million homes still contain lead pipes. The failure to inform residents of the risks and the lack of affordable resolutions means inequities in exposure risk and long-term health outcomes.

The Incident

A Staffordshire resident requested a routine drinking water test, uncovering **lead levels above the UK regulatory standard (10 µg/L)**.

Subsequent sampling exposed **a wider cluster** of contamination

A major multi-agency **public health response** involved UKHSA, Staffordshire County Council, Severn Trent Water, NHS partners, Stafford Borough Council and the Drinking Water Inspectorate.

Health Impact of Lead Exposure

Lead exposure, even at low levels, can affect **cardiovascular, neurological, immune and reproductive health.**

Young children and pregnant women are at highest risk.

There is **no safe level** of lead exposure.

Long term exposure is linked to **early labour, developmental delays, and behavioural changes.**

The Multi-Agency Response

- 'Do Not Drink' notices issued to households
- Contamination traced to private supply pipes, not the water company's communication pipes
- Rapid targeted sampling and risk mapping
- Public buildings inspected for evidence of elevated lead levels, to protect vulnerable groups
- Clear, accessible communication to residents, GPs and midwives
- Homeowner guidance on lead pipe replacement
- Deployment of orthophosphoric acid dosing to reduce lead dissolution
- Enforcement action with private landlords failing to act

Our Recommendations to the Minister for Water

- **Routine testing** for homes built before 1970
- **Mandatory disclosure** of lead piping during property sales
- **Landlord requirements** to identify and replace lead supply pipes
- **Financial support schemes** for homeowners to replace their lead water pipes
- **Reduction of UK lead standard** from 10 µg/L to 5 µg/L to align with the EU

Data at a Glance

- 132 properties issued 'do not drink' notices
- 483.7 µg/L - Highest lead reading detected
- 60 properties remain on 'do not drink' notices (March 26)
- 5.7 million homes in England with lead pipes

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Key Take Aways: Discussion in pairs

Common challenges in managing environmental health protection incidents

Importance of a **multi-agency systems** respond to environmental risks affecting populations

How might you apply learning to **other environmental hazards** in your own areas