Public Health
Jersey

Welcome & introductions

Public Health Jersey

PFAS Scientific Advisory Panel Report 2:

What it says and what it means

Professor Peter Bradley, Director of Public Health and Grace Norman, Deputy Director of Public Health

Engagement event for Affected Islanders, Les Ormes, 26th November 2024

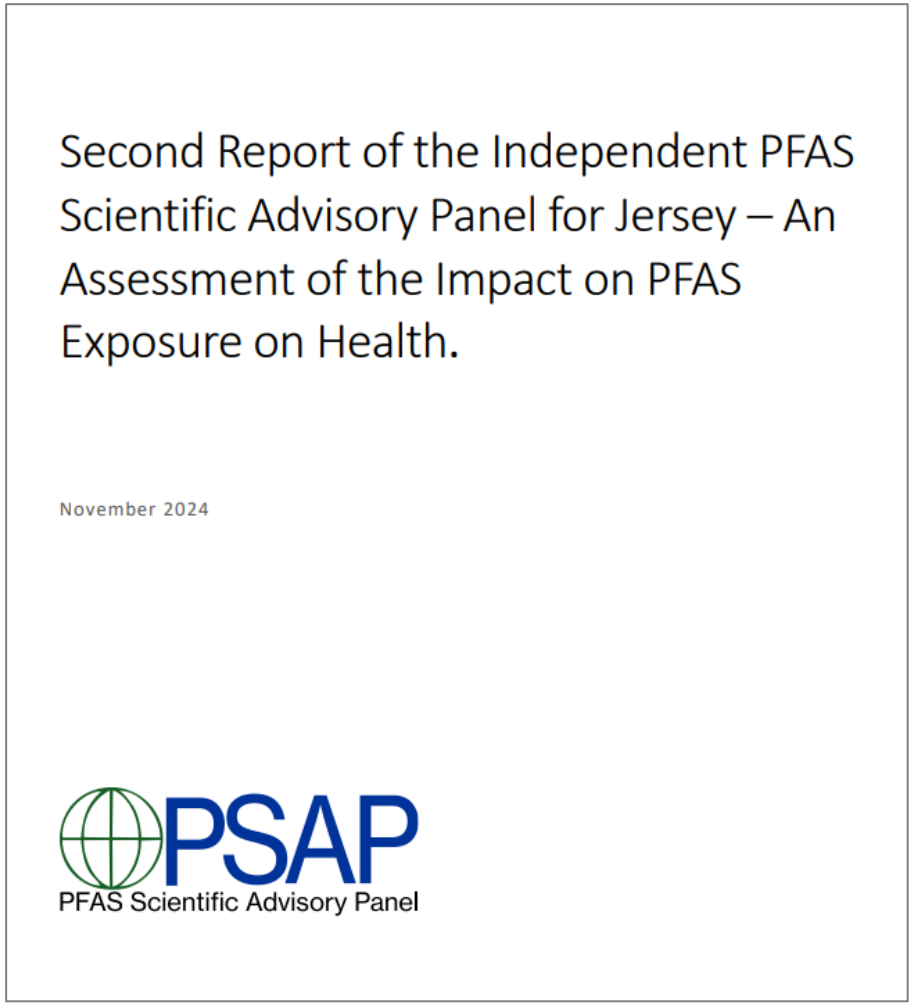
Background

- Historic use of PFAS-containing fire fighting foam at airport which led to run off into private water supplies
- Blood testing in 2022 on plume residents identified higher than expected levels
- Independent Scientific Advisory Panel:
  - Chair: Dr Steve Hajioff – background translating science into policy
  - Health: Dr Tony Fletcher – expert researcher in human impact of PFAS hotspots
  - Environment: Professor Ian Cousins – expert researcher in sources, transport & fate of PFAS in the environment

- Delivering 4-5 reports: 3 health, 1 environment, 1 update report
- Today is about report 2: An assessment of the impact of PFAS exposure on health

Structure of this presentation

1. What the Scientific Advisory Panel did
2. What they found and what that means
3. What they recommended & the Government's response



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What the Panel did

What the Panel did

- Affected Islanders were asked about the health conditions they felt were related to PFAS
- Reviewed the human evidence for conditions associated with PFAS & all the conditions the Affected Islanders raised
- Heard from professionals who study PFAS to explain their research & discussed findings, in particular from hotspots worldwide

Studying human health impacts of environmental exposures

- Difficult area of scientific study
- Panel have used the best quality human studies that are available
- PFAS international study areas:
  - AFFF:
    - Ronneby, Sweden
    - Western Australia
  - Manufacturing:
    - C8, West Virginia, USA
    - Veneto, Italy
- Findings are about health impacts of PFAS hotspots
- In Jersey, this relates to historic exposure around the airport
- Not generalisable beyond this

The plume area

Important things to bear in mind

This isn’t a perfect science…

- We don’t know exactly what exposure there’s been in the plume area
- Not finding a link doesn’t mean that a link isn’t there
- It’s harder to find associations with rarer conditions
- Association doesn’t equal causation

- Animal studies can find more extreme results, but animal studies don’t tell us nearly as much about human health as human studies. Their purpose is to guide scientists where to start looking in humans

Consistency of evidence

- Some findings from different areas have consistent findings… but not always
- Can many reasons for this, for example:
  - Exposure to different mixes of PFAS
  - Different quantities of exposure (which are hard to quantify)
  - Natural differences between the populations

- This is why the Panel reached some conclusions which are not replicated in every study
- Where there was inconsistency in findings, the Panel used the findings from the Ronneby, because it’s the place which is most similar to the Jersey plume

Main source of comparison for Jersey

- Ronneby, Sweden
- Area of similar contamination to the airport plume hotspot:
  - Same type of AFFF
  - Exposure through drinking water
  - Similar levels of exposure:
    - But different time gap between expected peak of contamination & testing
    - Panel calculated what the Jersey levels may have been had there been less time between mains water being extended & blood testing
  - Much larger population than our plume area: 28,000
    - Easier to find differences in disease patterns

Taken together, means that Ronneby is a reasonable comparison to the Jersey airport plume

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What the Panel found & what that means

Scientific literature suggests that there are health harms associated with hotspot-levels of PFAS

Health conditions associated with hotspot PFAS exposure

Figure 6: Summary of findings from literature review

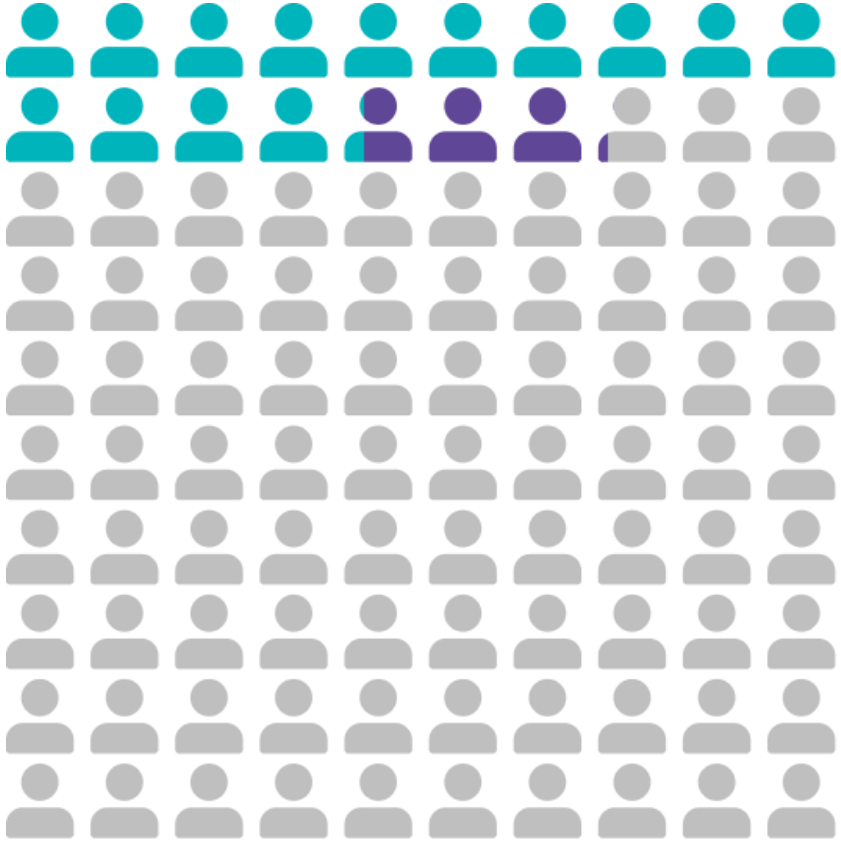
Most likely	Increased cholesterol
	Reduced vaccination efficiency in children
	Reduced duration of breastfeeding in exposed mothers
Probably	Kidney Cancer
	Testicular Cancer
	Liver function
Possibly	Type 2 diabetes
	Osteoporosis linked fractures
	Polycystic Ovarian Syndrome (PCOS)
	Reduced birthweight
	Learning and development issues
	Bladder cancer
	Thyroid Disease
Unlikely	Ulcerative Colitis
	Pregnancy induced hypertension

It should be noted that this assessment only includes conditions where research has been done, there may be other conditions linked to PFAS exposure for which there is no research to draw upon.

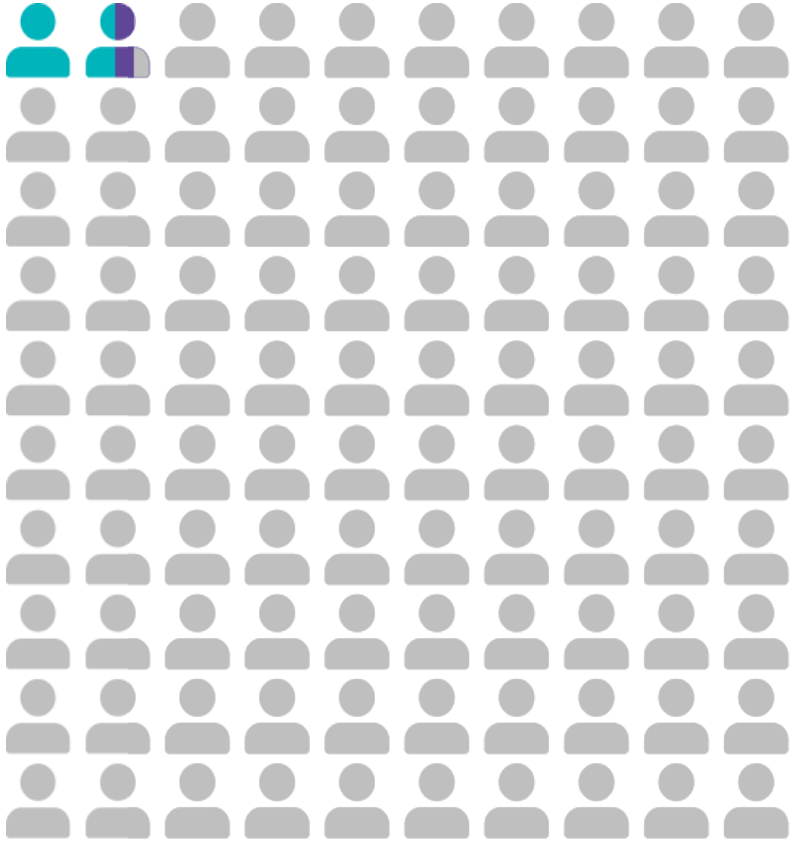
Cancer

- World Health Organisation in 2024 assessed PFAS for whether they cause cancer:
  - PFOA ‘sufficient evidence’ that it is carcinogenic
  - PFOS ‘possibly’ causes cancer
- In Ronneby, there was an estimated 20% increase in the risk of each type of cancer at hotspot levels, although is some uncertainty in this figure
- When trying to understand what an increase in risk means, you need to factor in the original risk of a condition is

Understanding additional risk – an example



Common cancer
Lifetime risk: 14 per 100 (14%)
Additional 20%: 3 extra cases per 100 people



Uncommon cancer
Lifetime risk: 1.5 per 100 (1.5%)
Additional 20%: 0.3 extra cases per 100

What does this mean for the plume area?

	Kidney cancer - males	Kidney cancer - females	Testicular cancer - males
Expected to develop the condition in general population, per 100 people	2.6	1.5	0.45
Extra cases due to exposure, per 100 people	0.6	0.3	0.09
People unaffected, per 100 people	96.8	98.2	99.4

Healthcare services

- Islanders reported concerns about the level of understanding and information provided by healthcare professionals regarding PFAS-related health risks. This has contributed to worry and left them with a lack of clarity on appropriate measures to take.
- GPs in Jersey expressed a need for up-to-date information and expertise on PFAS.

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What the Panel have recommended & the Government's response

PFAS Panel Report 2 Recommendations

1. Higher level of suspicion

- When PFAS-exposed people exhibit symptoms which are consistent with **kidney cancer or testicular cancer**, clinicians should have a higher level of suspicion of cancer than in unexposed populations.
- Where a person is at increased risk of **osteoporosis** and is also PFAS-exposed, clinicians should consider a lower threshold for investigating whether osteoporosis is present.

2. Usual care

- PFAS-exposed persons found to have elevated serum **cholesterol** should have their cholesterol managed in the usual way (e.g. diet, statins).
- **Childhood vaccination** should be promoted across the population to ensure that those less likely to mount a strong vaccine response (such as those exposed to PFAS) are protected through herd immunity.
- **Breastfeeding** has significant health benefits and should be promoted in PFAS-exposed populations as it is in the wider population.
- Regular **testicular self-examination** should be considered in PFAS-exposed populations.

PFAS Panel Report 2 Recommendations

3. Access to information

- A **concise knowledge-based resource** on PFAS exposure and health should be made available to the public and health professionals in Jersey.
- Health professionals should have access to accurate information to help manage any concerns about **breastfeeding** in PFAS-exposed populations.

4. Access to services

- A **health professional** with particular expertise in PFAS and health should be made available **to clinicians** in Jersey to offer technical support in caring for PFAS-exposed patients.
- People who live in communities with increased PFAS exposure should be offered access to **talking therapies** to support their psychological health and wellbeing.

Government's response

- Government accepts in full the findings of the report
- Government accepts all of the recommendations

- Public Health will take the following actions:

    1. Make education available for GPs about PFAS & in particular about the need for a higher level of suspicion for kidney & testicular cancer & osteoporosis

    2. Make information available to midwives & health visitors about PFAS & breastfeeding

Government’s response

3. Create a resource on PFAS exposure and health for the public and health professionals

4. Offer a clinical review by a medical consultant with knowledge of PFAS for Affected Islanders tested by GoJ testing in 2022:

- This will include access to psychological support where appropriate
- To be operational in Q1 2025

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Thank you

Infrastructure and Environment

Gouvèrnément d'Jèrri

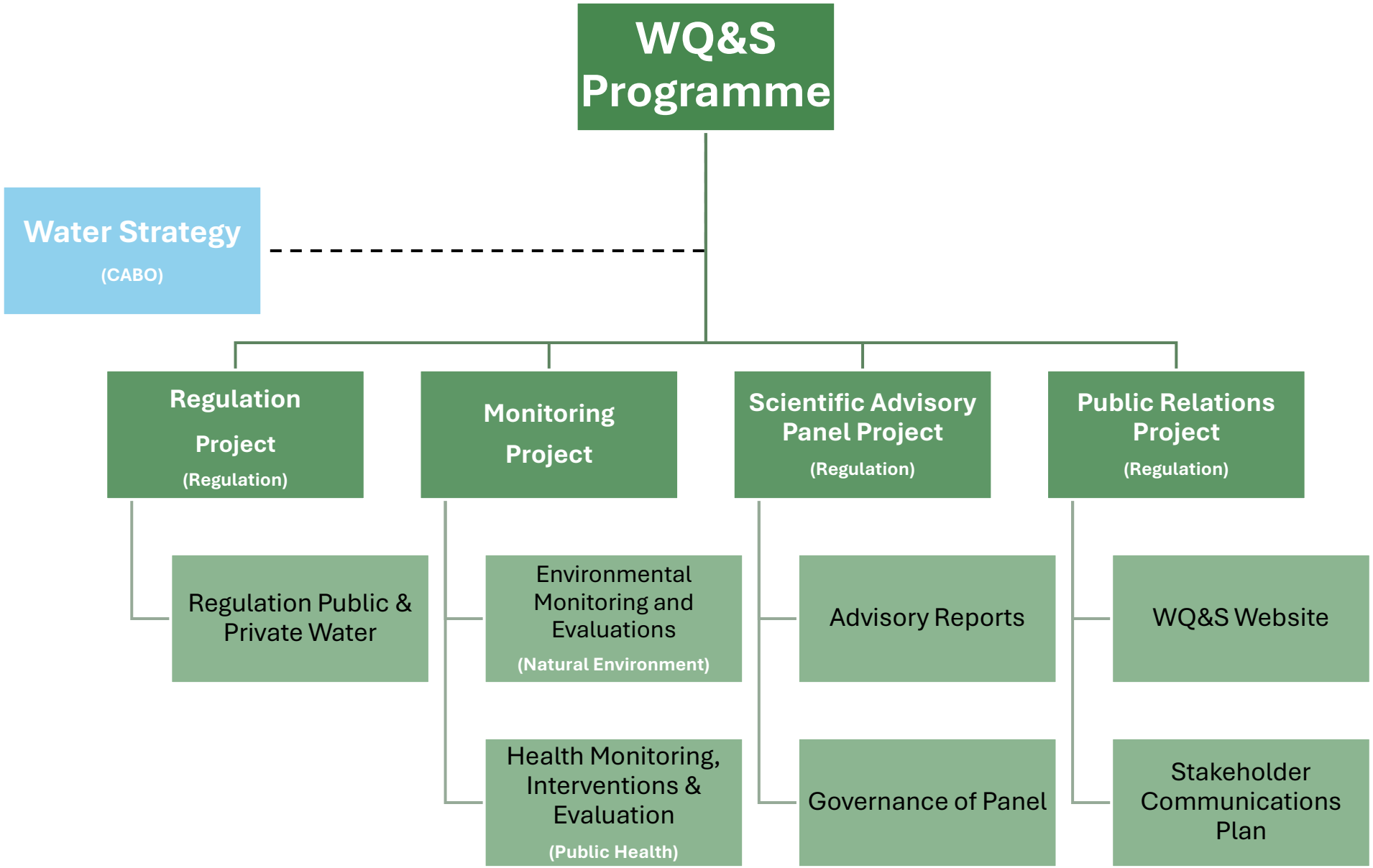
Water Quality and Safety Programme

Regulation Directorate, Group Director,
Kelly Whitehead

Public Meeting 26th November 2024

Water Quality and Safety Programme

- Water Quality and Safety is currently split across three directorates
- Ministers support prioritising and coordinating Water Quality and Safety as a key programme
- The programme shows commitment to improving Water Quality including PFAS
- It ensures the ongoing work of the Scientific Advisory Panel
- The Regulation Directorate will lead Water Quality and Safety programme
- Stakeholder engagement will be streamlined, single point of contact
  - regulationenquiries@gov.je.


WQ&S Programme
Water Strategy
(CABO)
Regulation Project
(Regulation)
Monitoring Project
Scientific Advisory Panel Project
(Regulation)
Public Relations Project
(Regulation)
Regulation Public & Private Water
Environmental Monitoring and Evaluations
(Natural Environment)
Health Monitoring, Interventions & Evaluation
(Public Health)
Advisory Reports
Governance of Panel
WQ&S Website
Stakeholder Communications Plan

Next Steps

- Review progress on implementation of Report One Recommendations
- Review and consider implementation of Report Two Recommendations
- Report Three Publication and Recommendations considered
- Report Four Scoping, Research and Drafting
- Report Four Publication and Recommendations considered
- Continuation of Scientific Panel sessions conducted in public and Ministerial public meetings

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Update and Questions
Minister for the Environment - Steve Luce
Minister for Health and Social Services – Tom Binet

Update from Previous Meetings

- Ministers have arranged personal blood tests
- Ministers support the recommendations of Report 2
- Enhancing the education of medical professionals regarding PFAS
- Report 4 will focus on PFAS in the environment and measures to reduce
- Improved communication on PFAS is an aim of the programme
- Water Quality and Safety Regulation and Monitoring is a key priority

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Questions

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Supplementary slides

Cholesterol

- Higher levels of ‘bad’ cholesterol (LDL) which typically increases the risk of heart disease and strokes
- In Ronneby, there was a 7% increase in total cholesterol & a 9% increase in LDL cholesterol
- This could be a clinically relevant increase for some people

Reduced vaccine effectiveness in children

- Exposure to PFOA & PFOS is thought to cause mild to moderate immune suppression
- Consistent finding
- Exposure to PFAS is associated with reduced antibody response to childhood vaccines – diphtheria, tetanus and rubella
- Studies haven’t found an increase in these diseases, thought to be, in part, because of herd immunity

- The European Food Safety Authority (EFSA) & the USA’s Environmental Protection Agency (EPA) have set limits based on the decreased vaccine response:
  - EFSA set a ‘tolerable weekly intake’ for food
  - EPA set water limits

Cancer

- IARC (2024) determined that:
  - **Disease specific evidence:**
    - **PFOA**: there was “limited” evidence linking PFAS with in kidney & testicular cancers
    - **PFOS:** there was ‘inadequate’ evidence linking PFAS to any type of cancer
- IARC assessed two types of PFAS as a carcinogen and concluded :
    - There is sufficient evidence that PFOA is a carcinogen
    - There is not enough evidence to confirm PFOS is a carcinogen, but they concluded that it ‘possibly’ causes cancer
- In Ronneby, there was an estimated 20% increase in the risk of each type of cancer at hotspot levels

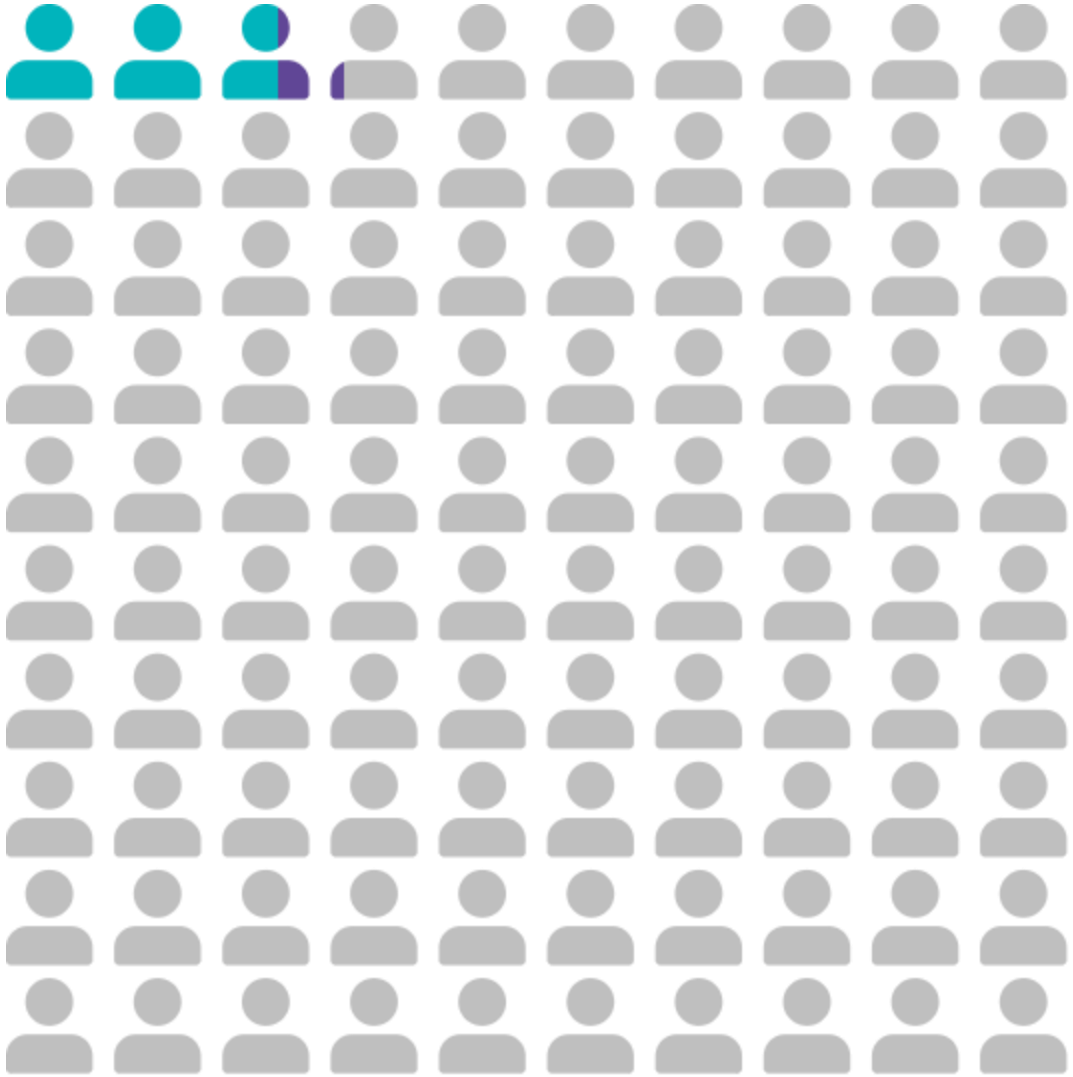
Interpreting kidney cancer risk

Indicator	Males	Females
Lifetime risk (general pop, %) *Description: Likelihood of developing kidney cancer*	**2.6**	**1.5**
Extra risk (PFAS exposed, %) *Description: The 20% extra risk caused by PFAS*	**0.5**	**0.3**
Absolute risk (Exposed, %) *Description: Sum of the likelihood + extra risk due to PFAS*	**3.1**	**1.8**
Cases per 1000 (general pop) *Description: Number of cases expected per 1,000 people in general pop*	**26.3**	**14.7**
Cases per 1000 (PFAS exposed) *Description: Number of cases expected per 1,000 for a plume pop*	**31.6**	**17.6**
Additional cases per 1,000 *Description: Number of cases attributed to PFAS, per 1,000 (for a hotspot population)*	**5.3**	**2.9**
Additional cases per 100 *Description: Number of cases attributed to PFAS, per 100 (for a hotspot population)*	**0.6**	**0.3**

Interpreting testicular cancer risk

Indicator	Males
Lifetime risk (general pop, %) *Description: Likelihood of developing kidney cancer*	**0.45**
Extra risk (PFAS exposed, %) *Description: The 20% extra risk caused by PFAS*	**0.09**
Absolute risk (Exposed, %) *Description: Sum of the likelihood + extra risk due to PFAS*	**0.55**
Cases per 1000 (general pop) *Description: Number of cases expected per 1,000 people in general pop*	**4.5**
Cases per 1000 (PFAS exposed) *Description: Number of cases expected per 1,000 for a plume pop*	**5.5**
Additional cases per 1,000 *Description: Number of cases attributed to PFAS, per 1,000*	**0.9**
Additional cases per 100 *Description: Number of cases attributed to PFAS, per 100*	**0.1**

Infographic – Kidney Cancer (Males)

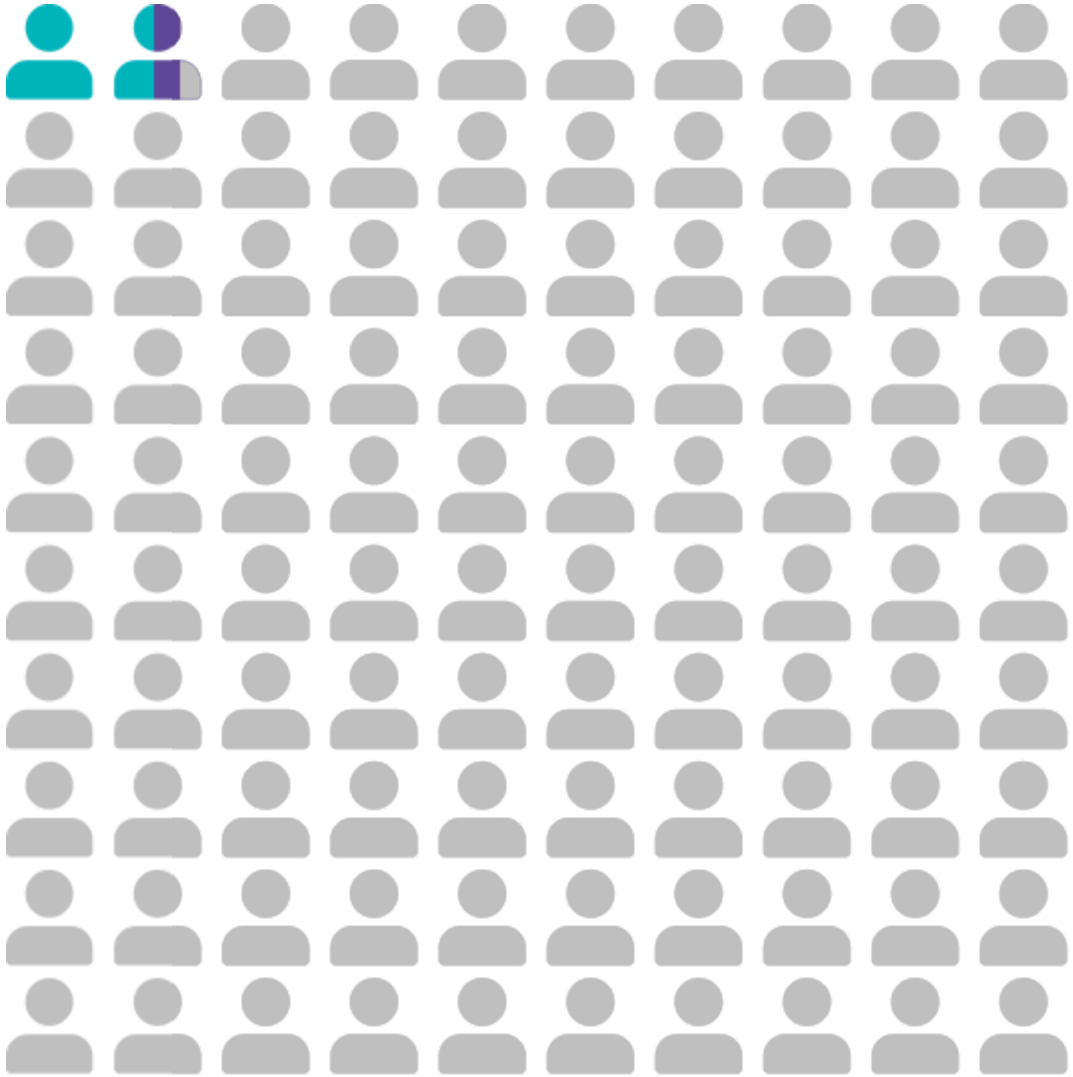


Population lifetime risk = 2.6% (2.6 cases per 100)

Exposed additional lifetime risk = +0.6% (+0.6 cases per 100)

Unaffected population = 96.8%

Infographic – Kidney Cancer (Females)

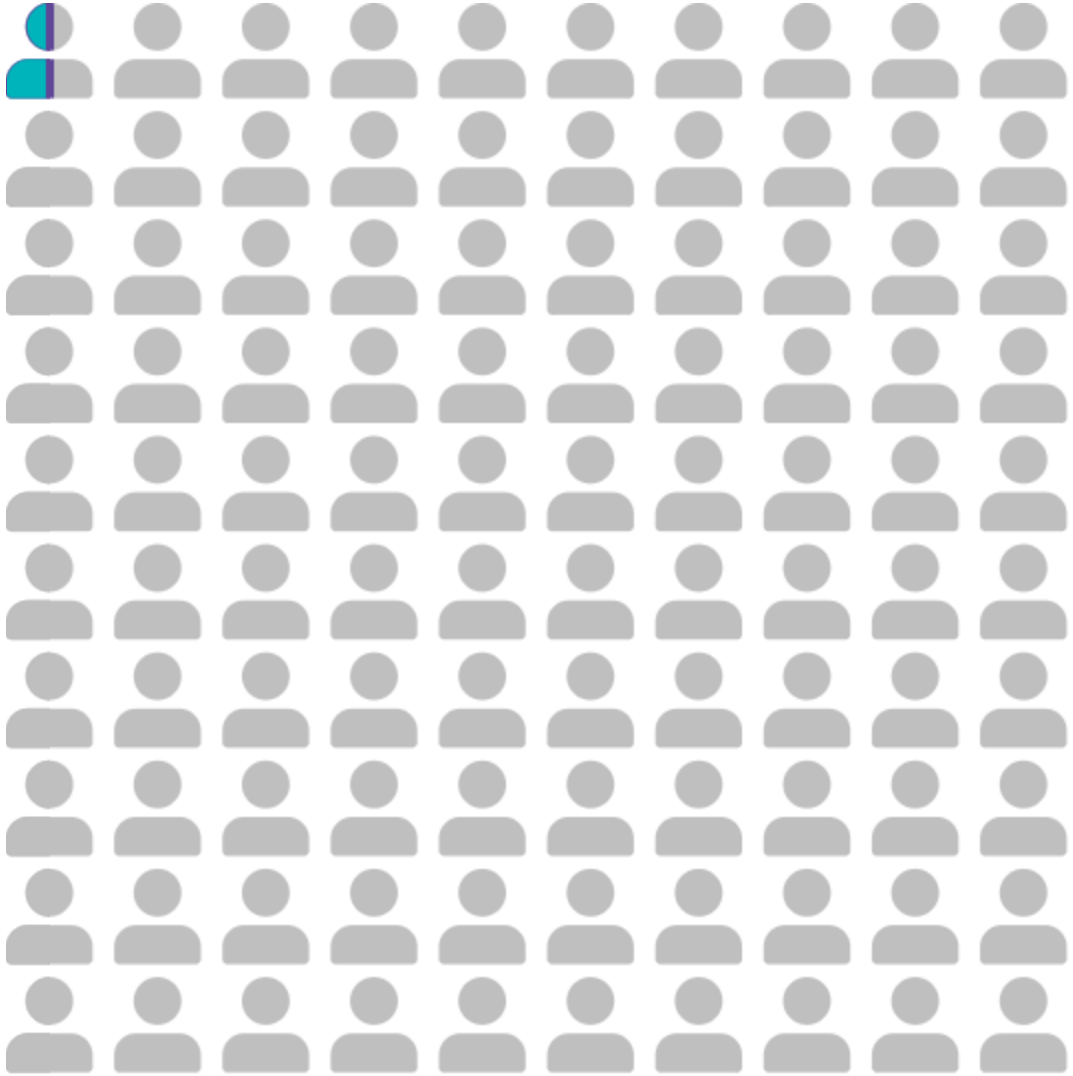


Population lifetime risk = 1.5% (1.5 cases per 100)

Exposed additional lifetime risk = +0.3% (+0.3 cases per 100)

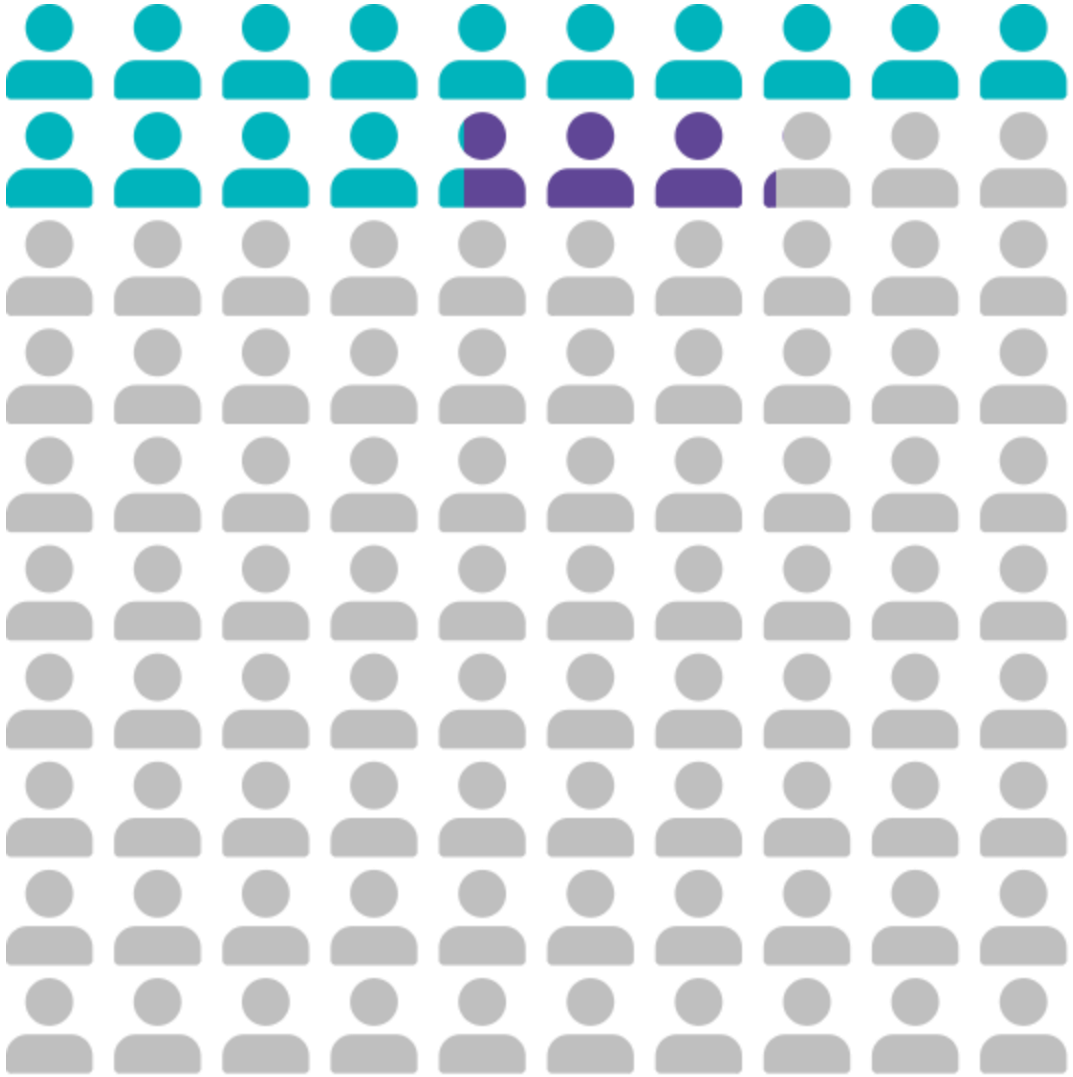
Unaffected population = 98.2%

Infographic – Testicular Cancer (Males)



- Population lifetime risk = 0.5% (0.5 cases per 100)
- Exposed additional lifetime risk = +0.1% (+0.1 cases per 100)
- Unaffected population = 99.4%

Infographic – Breast Cancer (Females)



Population lifetime risk = 14.3% (14.3 cases per 100)

Exposed additional lifetime risk = +2.9% (+2.9 cases per 100)

Unaffected population = 82.8%

Please note: This is an example to aid understanding about increased risk; it has not been suggested breast cancer is associated with PFAS exposure.