Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Public Health Medicine Environment and Health Group

Submission on the Ireland's Nitrates Action Programme

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Summary

The purpose of Ireland's Nitrates Action Programme is to protect the quality of our water from nitrates. While this may provide some protection of human health, the main risk to human health from organic fertiliser / slurry is from the microbiological hazard, which is not mentioned in the legislation.

Organic fertiliser / slurry contains the gut organisms from the animals on the farm. Some of these organisms are very dangerous to human health, and cause serious illness or even death e.g. Cryptosporidiosis and Verotoxigenic E. coli (VTEC). Ireland has the highest rates of both these illnesses in Europe.

The main Nitrates action that reduces risk from this biohazard is the buffer zone around water supplies. But there are weaknesses in this system:

- **Protection is only afforded to larger supplies and risk to individual people is not addressed**
- **Risk assessment by Local Authorities is required, but there is no requirement for this risk assessment to be evidence based or of a minimum quality – therefore there is inadequate attention to the risks inherent in Ireland's drinking water system**
- **Ireland's Derogation may also be contributing to the biohazard burden**

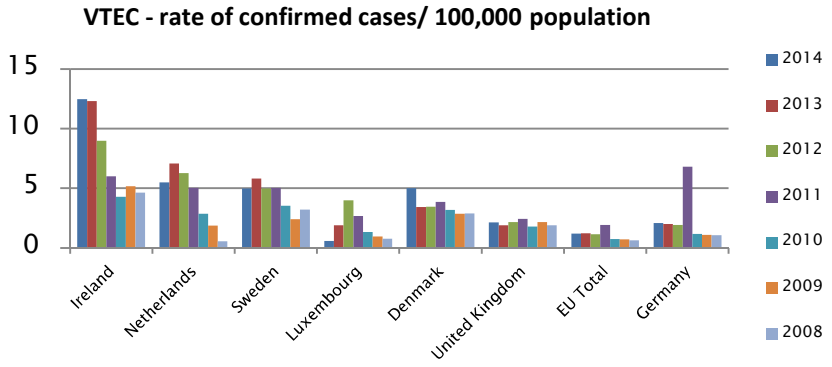
Health Risks

VTEC causes gastro-intestinal illness including bloody diarrhoea

10% of cases get Haemolytic Uraemic Syndrome (HUS), which causes kidney and other organ damage that may be permanent and may be fatal

Ireland has the highest rate in Europe

Reservoir – cattle and other ruminants



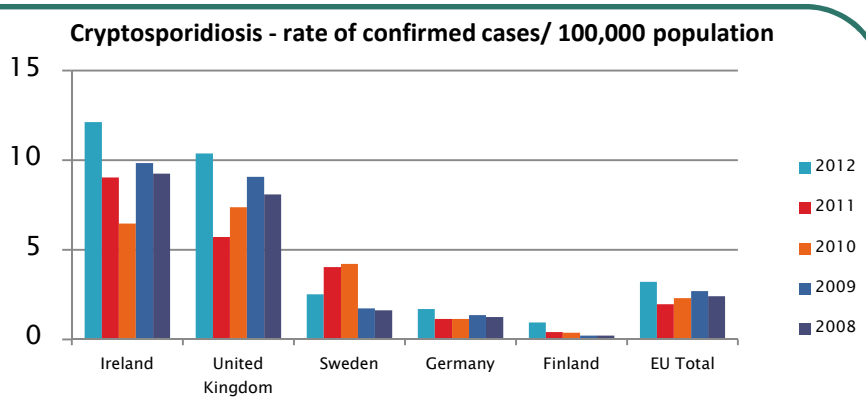
Source: EU summary report on zoonoses, zoonotic agents and food-borne outbreaks 2014

Health Risks

Cryptosporidiosis causes gastro-intestinal illness which is very dangerous to people who are severely immunocompromised e.g people who are undergoing cancer treatment.

Ireland has the highest rate in Europe

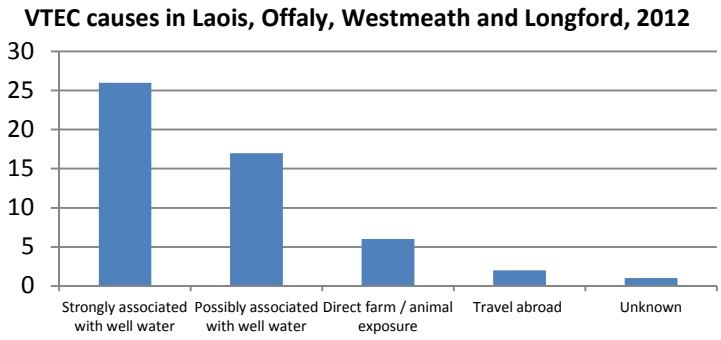
Reservoir – include cattle and sheep



ECDC Annual epidemiological report 2014 – food- and waterborne diseases and zoonoses

The risk from wells

In Ireland, there is very limited environmental investigation as to source of infections, but in 2012, in the Midlands the causes of all 52 primary cases were investigated. In 50% of them VTEC was found in the well water, and well water was a possible cause for another 33%



Current Weaknesses

Ireland has many risk factors for waterborne disease from private wells. Deficits include inadequate knowledge, legislation and governance, and doubtful evidence base for testing as a marker of safety

See Appendices 1 & 2

The Nitrates Action Programme is not focussed on, nor effective at, protecting human health.

Recommended solutions

1. If protecting health is important, this should be clearly stated
2. Incorporate risk assessment of biohazard into requirements for buffer zones
3. Health Impact Assessment of Ireland's Derogation (see Appendix 1)
4. Address the weaknesses as outlined in Appendix 2 – Inter-sectoral working is required to maximise the protection of human health

Appendix 1

What is Ireland's Derogation (see http://www.housing.gov.ie/ga/node/423)

- In 2014, Ireland was granted a derogation to allow intensive farmers a higher stocking rate of livestock manure, subject to them complying with strict rules that are overseen by the Department of Agriculture, Food and the Marine.
- The derogation increases the application limit of 170kg/ha of livestock manure to 210kg/ha each year. In Ireland, the derogation is of critical importance to the dairy industry and Food Harvest 2020 expansion plans. The current derogation will run to the end of 2017, when the third programme concludes

Appendix 2

Deficits - Reliance on Wells as a source of safe drinking water

- Ireland has a significant population exposed to unregulated untreated ground water supplies – many of the 720,000 people supplied by private groundwater sources (see http://www.epa.ie/pubs/advice/drinkingwater/Infographics_Eng_june2014.pdf)
- The use of private wells is more common in rural areas, where the source of these zoonotic pathogens is more likely to be present
- There is no legal requirement to build safe wells (eg IGI guidelines are not statutory). Frequently there is no sanitary seal so wells don't exclude contaminated water (see http://www.engineersjournal.ie/2013/10/31/groundwater-sources-out-of-sight-and-out-of-mind/)

Deficits - Legislation

- EU regulations place the emphasis on nitrates and pesticides rather than on biological hazards (see European Union (Good Agricultural Practice for Protection of Waters) Regulations 2014 at http://www.irishstatutebook.ie/eli/2014/si/31/made/en/pdf)
- Only drinking water for larger numbers of people is regulated – individuals including children are not protected on "exempted supplies" (see European Union (Drinking Water) Regulations 2014 at http://www.irishstatutebook.ie/eli/2014/si/122/made/en/print)

Deficits - Governance

- There is no coordinated policy in relation to safety of unregulated private water supplies
  - while local authorities have a duty to inform private well owners of the issues / risks under Drinking Water Regulations, they do not have a register of well-owners so awareness raising is quite incomplete
- Without a co-ordinated policy and systematic statutory risk assessment
  - local authorities can give grants for wells that are potentially unsafe
  - planning permission may be given without consideration of the safety of private drinking water

Deficits – Perverse Incentives

- Does the grant aiding of agriculture & slurry/waste management on farms exacerbate the volume of biohazard

Deficits - Testing

- Use of faecal indicator organisms for risk assessment – there is doubt as to their efficacy in health protection (see http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0093301&type=printable)
- Once-off sampling and infrequent monitoring may miss intermittent contamination, which from a health point of view is just as risky as continuous contamination as it may give false reassurance

Deficits – Knowledge for Risk Assessment

- There is limited understanding of the source to receptor pathway – better knowledge is required to disrupt the pathway most efficiently and effectively
- Risk assessments are relevant to several sectors but are not standardised or agreed across these sectors
- Buffer distances may or may not be protective