One health and food safety

Martin Cormican
One Health
What is it and why should I care?

What is it?
What is the relevance to food safety?
What should I/my organisation do about it?
What is Health?

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

https://www.who.int/about/accountability/governance/constitution

Can we apply/modify that definition for health of animals and the health of the environment as well as to human health?

A state of sustainable balance and not merely the absence of discrete categories of harm
What is One Health?

One Health is an integrated, unifying approach that aims to **sustainably balance and optimize the health of people, animals and ecosystems.** It recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent.

Sustainable and Optimize

*Sustainability*
development that meets the needs of the present without compromising the ability of future
generations to meet their own needs
[Earth Overshoot Day 2023 was August 2\textsuperscript{nd}]

*Optimize*
*The best we can practically get – not zero risk*
Balancing is very hard and is that what we mean?

Does balance mean that mean trade-offs?

How do we perform on in the present balancing health of people who are powerful against those who are not powerful?

How do we perform on balancing immediate health/wants of people against long term health of people?

Are we prepared to consider trade off any human health with animal health/environmental health?

Do we mean to say?

sustainably optimize the health of people with the least practical impact on health of animals and ecosystems recognising that the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent
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One Health and Food Safety


Acta Veterinaria Scandinavica

REVIEW

Food safety challenges and One Health within Europe

Sofia Boqvist, Karin Soderqvist and Ivar Vagsholm

Ollsoil Na Gaillimhe
UniversitY Of Galway
The web of relationships?

Fig. 2. Key aspects related to the included cases illustrating food safety and One Health.

- Food safety and One health
- Zoonotic and non-zoonotic pathogens
- Antimicrobial resistance
- Prions
- Circular system
- Reduce waste
- Shelf-life
- Ready-to-eat food
- Pathogen/food commodity combination
- Complex distribution chains
- Raw food trend
- Contamination
One Health and Food Safety

Optimizing Human Health Impact of Food Safety Policy
Where do we invest the resources?
How do we know if it is working?

Measuring disease burden
Quality adjusted life years (QUALY)
Disability adjusted life years (DALY)

Source attribution for disease


How quickly we change from speaking of health to speaking disability and disease
Examples from Boqvist *et al*

Norovirus and raspberries (not a zoonotic pathogen)
shiga-toxin *E. coli* (STEC) and sprouts (not always zoonotic)
*L. monocytogenes* in Ready to Eat foods
Antimicrobial Resistance and Food
Transmissible Spongiform Encephalopathy (TSE)
Antimicrobials and antimicrobial resistance

Antimicrobial residues and food safety

Antimicrobial resistance and food safety
  Resistant organisms
  Resistant genes

Antimicrobial use and animal health and welfare

Antimicrobial residues in the environment

AMR is more than bacteria *Aspergillus fumigatus*

*A. fumigatus* is a common fungus (*Aspergillus flavus* more familiar in food safety context)

Important cause of disease in some people with conditions that place them at increased risk

Resistance to the azole antifungal drug class rapidly increasing

In the environment between 2.2 to 20% of isolates are azole-resistant

As high as 95.2% in Vietnam

Appears to be related to azole use in plant food production
More than infection and a long history

A nod to Harvey Washington Wiley (1844-1930) and other pioneers

https://www.fda.gov/about-fda/fda-leadership-1907-today/harvey-wiley

Tuna and mercury (anthropogenic and biogeochemical mercury inputs)

DDT (dichlorodiphenyl-trichloroethane) – food and malaria control

PFAS (Per- and polyfluoroalkyl substances) in water and food

Glyphosate and food safety

Global warming (including extreme weather events)
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The goal of “sustainably balancing and optimize the health of people, animals and ecosystems is determined by values

Are these values that the organization shares?

Does it fit within the organizations mandate?

Has it a utility in advancing the organizations goals?

Where does it sit among other priorities?
Options

Do nothing

Do minimum /token

Use it when it suits the purpose

Make it a core value
And finally on saving the planet?

The planet does not need us, we need the planet

The Way to Wonderland, by Mary Stewart, 1920
Website of the British Library.