



OLLSCOIL NA GAILLIMHÉ
UNIVERSITY OF GALWAY

One health and food safety

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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.

<https://www.fao.org/one-health/overview/one-health-overview/en#:~:text=One%20Health%20is%20an%20integrated,of%20people%2C%20animals%20and%20ecosystems.>



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 2nd]

Optimize

The best we can practically get – not zero risk



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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

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5751857/pdf/13028_2017_Article_355.pdf

Boqvist et al. *Acta Vet Scand* (2018) 60:1
<https://doi.org/10.1186/s13028-017-0355-3>


Acta Veterinaria Scandinavica

REVIEW

Open Access

Food safety challenges and One Health within Europe

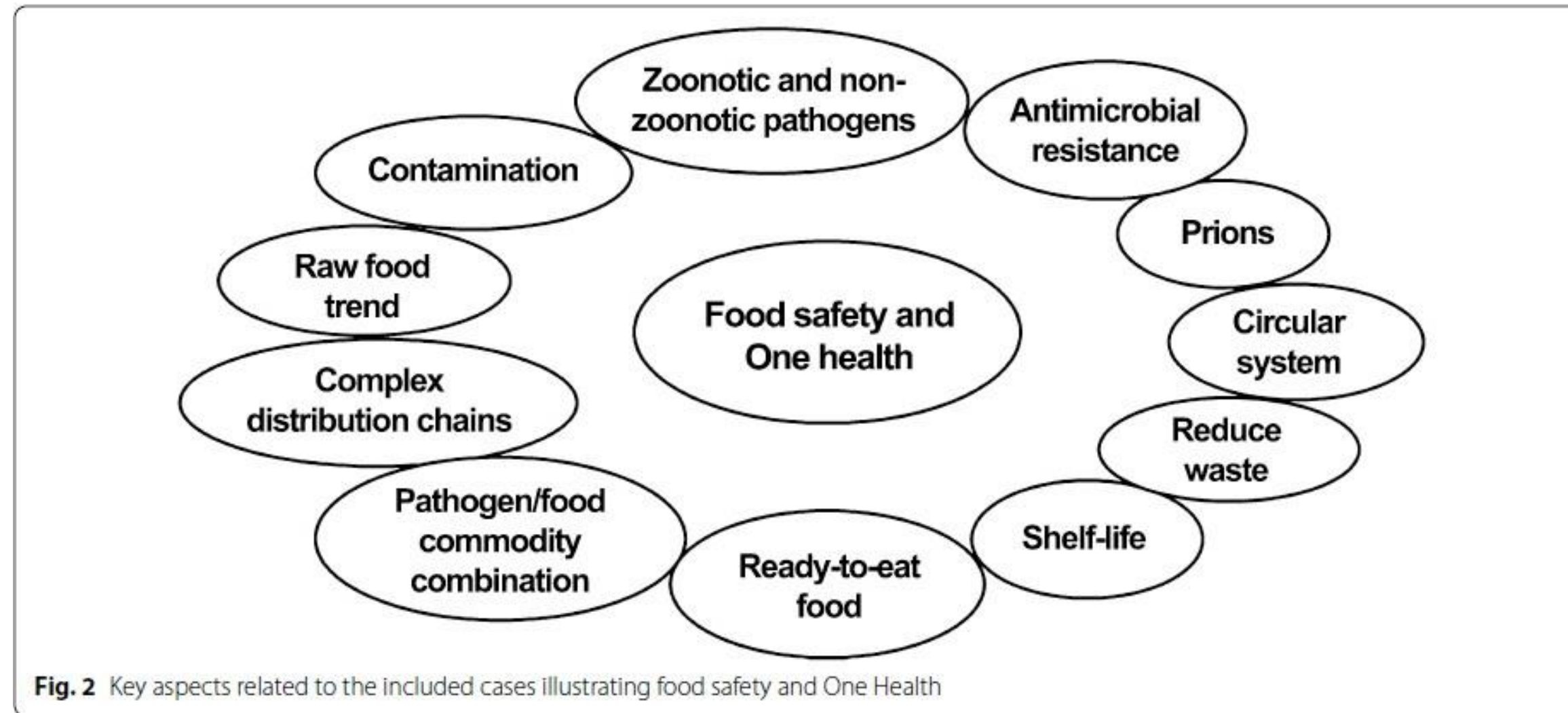


Sofia Boqvist^{*} , Karin Söderqvist and Ivar Vågsholm



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The web of relationships?



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**

[https://www.eufic.org/en/understanding-science/article/measuring-burden-of-disease-the-concept-of-qalys-and-dalys#:~:text=QALYs%20\(Quality%2DAdjusted%20Life%20Year,years%20in%20perfect%20health%20lost.](https://www.eufic.org/en/understanding-science/article/measuring-burden-of-disease-the-concept-of-qalys-and-dalys#:~:text=QALYs%20(Quality%2DAdjusted%20Life%20Year,years%20in%20perfect%20health%20lost.)



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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

<https://iufost.org/sites/default/files/IUFoST%20SIB.%20Antimicrobial%20Resistance-%20A%20Food%20Safety%20Concern.07.2023.pdf>



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



Article

Genomic Epidemiology Identifies Azole Resistance Due to TR₃₄/L98H in European *Aspergillus fumigatus* Causing COVID-19-Associated Pulmonary Aspergillosis

Benjamin C. Simmons ^{1,2,*}, Johanna Rhodes ^{1,3}, Thomas R. Rogers ⁴, Paul E. Verweij ^{3,5,6}, Alireza Abdolrasouli ^{7,8}, Silke Schelenz ^{9,10}, Samuel J. Hemmings ¹, Alida Fe Talento ^{4,11,12}, Auveen Griffin ¹³, Mary Mansfield ⁴, David Sheehan ⁴, Thijs Bosch ⁶ and Matthew C. Fisher ¹



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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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Should you do anything about it?

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

The planet does not need us, we need the planet



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