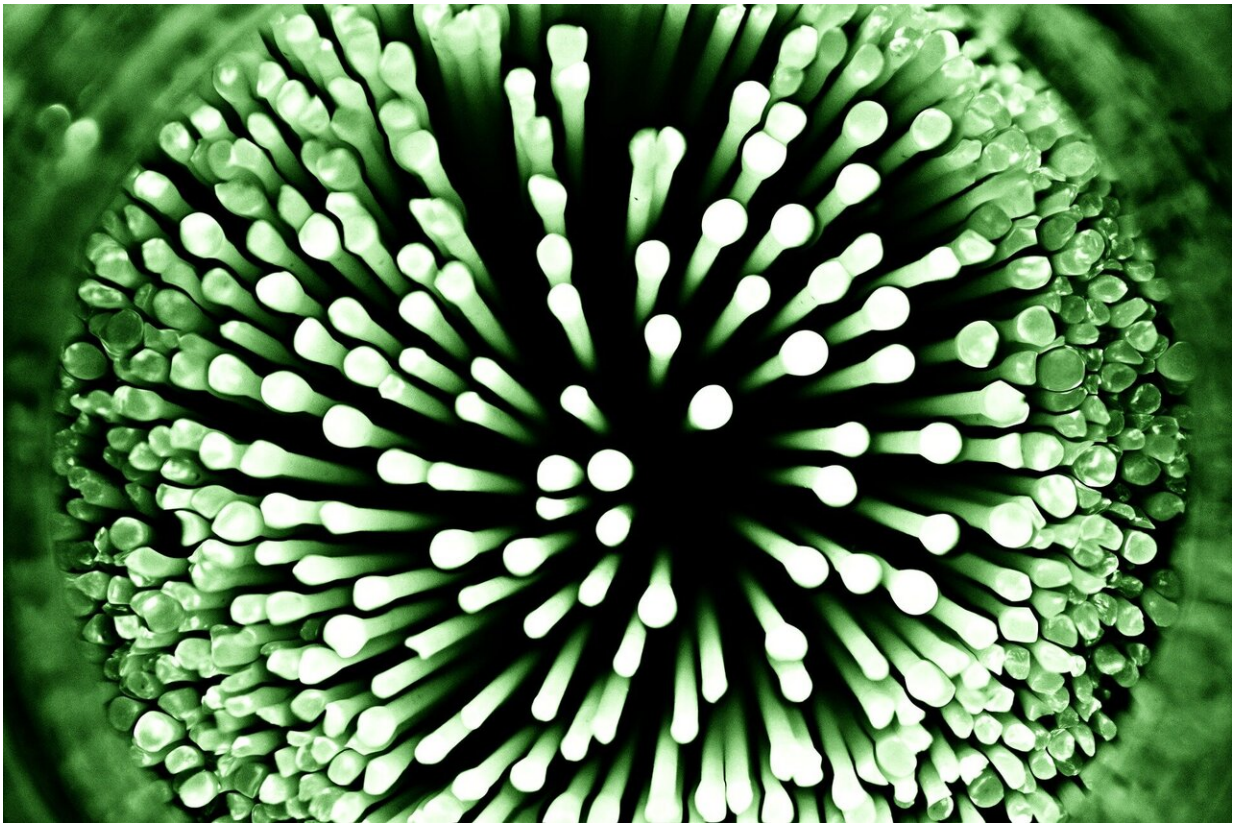


# A layered approach is needed to prevent infections from becoming harder to treat

April 21 2022

---



Credit: CC0 Public Domain

Counteracting antimicrobial resistance needs a multipronged approach, including training, labeling food products, working with the media and changing mindsets, according to a new study.

Antimicrobial resistance occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines, making infections harder to treat and increasing the risk of disease spread, severe illness and death. It claimed 1.27 million lives in 2019. It threatens health, social and economic well-being, and spreads as a result of actions taken across human, animal, agricultural and environmental systems, sometimes referred to as the One Health system.

The study, conducted by researchers at the University of Waterloo, in partnership with colleagues and collaborators from Canada, Sweden and Switzerland, set out to identify the factors influencing antimicrobial resistance in the European food system and places to intervene.

The researchers conducted workshops over two days with participants representing perspectives from government, non-government and healthcare organizations, as well as industry and private consultants. Participants identified 91 factors across the One Health spectrum that influence antimicrobial resistance, with 331 connections between them and many feedback loops. They also identified possible places within this system to target their interventions, which were then classified as shallow or deep.

"Shallow leverage points for intervention are places in the system that may be easier to implement with less potential to change the behavior of the whole system that gives rise to antimicrobial resistance," said Irene Lambraki, lead author and a researcher in the School of Public Health Sciences at Waterloo. An example would be increasing the number of staff trained in infection prevention and control in healthcare settings.

"Deep leverage points are places that are more challenging to change yet have greater potential to sustainably transform system behavior," she said. "These include delivering information in the system to places where it's currently missing or informing people of the consequences of their

actions to motivate [behavior change](#).

"The deepest lever participants identified was about changing the mindset that underpins how our systems operate, which is very profit-driven. For example, trying to get leaders to place [economic value](#) on health rather than generating profits for shareholders and prioritizing the achievement of the Sustainable Development Goals could create ripple effects across the system in ways that transform antimicrobial use—a major driver of antimicrobial resistance—and mitigate antimicrobial resistance."

Researchers also identified five additional overarching factors that impact the entire system: regulations, leadership, media, collaboration and [climate change](#).

"The study underscores the complexity of antimicrobial resistance problem, points to the need for global collaboration and coordinated multi-level and multipronged interventions targeting different sectors to effectively and sustainably address the antimicrobial resistance crisis," said principal investigator Shannon Majowicz, also in the School of Public Health Sciences.

The study, "Factors influencing [antimicrobial resistance](#) in the European food system and potential leverage points for intervention: A participatory, One Health study," was published in *PLOS ONE* with researchers from Canada, Sweden, Switzerland and the U.K.

**More information:** Irene Anna Lambraki et al, Factors influencing antimicrobial resistance in the European food system and potential leverage points for intervention: A participatory, One Health study, *PLOS ONE* (2022). [DOI: 10.1371/journal.pone.0263914](https://doi.org/10.1371/journal.pone.0263914)

Provided by University of Waterloo

Citation: A layered approach is needed to prevent infections from becoming harder to treat (2022, April 21) retrieved 11 July 2024 from <https://phys.org/news/2022-04-layered-approach-infections-harder.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.