

Engaging citizens in emerging food safety risks: improving risk communication and identification

Novieta H Sari¹, Ludger Benighaus², Rodney Feliciano³, Erika Orszagh⁴,
Nicolas Moriceau³, and Lynn J. Frewer¹

Main takeaways

- Citizens tend to perceive emerging food safety risks, particularly those linked to climate change, as psychologically distant and less personally relevant than risks with immediate and observable effects.
 - Perceptions were broadly consistent across the countries studied, although some demographic differences were identified, including lower perceived risk among men.
 - Risk communication should make emerging food safety risks more personally relevant by connecting risk drivers, such as climate change, with local impacts and concrete, actionable behaviours.
 - A portfolio of communication mechanisms is needed to ensure that emerging food safety risk information reaches the wider population.
 - Citizen science can complement formal surveillance by providing observations relevant to emerging threats, but its early-warning value depends on effective verification and integration into institutional response and surveillance systems.
 - Social-media analytics can support the identification of emerging public concerns and inform risk communication, but social-media data are not representative of the wider population.
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Introduction

Climate change is disrupting weather patterns and affecting the resilience of agrifood systems, contributing to the emergence of new food safety risks. Addressing these risks requires policy action to support mitigation and adaptation. As part of this response, effective risk communication is needed to engage citizens with emerging food safety risks and potentially encourage mitigating and adaptive behaviours.

HOLiFOOD research shows that emerging food safety risks may be perceived as psychologically distant and therefore less personally relevant than risks with immediate and observable effects. The findings also point to a gap between recognising emerging risks and knowing what actions citizens can take to protect themselves, mitigate risks or adapt to them.

HOLiFOOD investigated citizen perceptions of emerging food safety risks across European countries and explored approaches to increasing citizen engagement, including citizen science and social-media analysis. The findings provide evidence for improving communication about emerging food safety risks and for exploring how citizen-generated information can complement emerging-risk identification.

Issue description

HOLiFOOD research provides further insight into why emerging food safety risks present a particular communication challenge. Qualitative HOLiFOOD research found that participants did not clearly distinguish emerging from existing food safety risks, but

differentiated systemic risks associated with drivers such as climate change from acute risks with immediate public-health impacts. Subsequent quantitative research showed that emerging food safety risks were perceived as psychologically distant and therefore less personally relevant.

The findings also point to a “perception-to-agency” gap: citizens may recognise emerging food safety risks while having limited information about what they can do to respond. For some participants, recognition of these risks coexisted with reliance on regulators and food businesses to manage them. This challenge was also observed among parents of young children, who showed little evidence of increased risk-information seeking or protective action despite being expected to represent a highly motivated group.

Citizens can also contribute information relevant to the identification of emerging threats. Citizen science can complement formal surveillance by enabling observations to be gathered across wider areas and over longer periods, while social-media analysis can help identify emerging public concerns. However, both approaches have limitations. Citizen-generated observations require effective verification and institutional follow-up, while social-media data are not representative of the population as a whole.

The policy challenge is therefore twofold: to make emerging food safety risks more personally relevant and actionable for citizens, and to determine how citizen-generated information can effectively complement established approaches to emerging-risk identification.

Key messages for policymakers

Recommendation #1

Make emerging food safety risks personally relevant and actionable

HOLiFOOD research indicates that emerging food safety risks, particularly those associated with climate change, may be perceived as psychologically distant and therefore less personally relevant. Risk communication should reduce this psychological distance by connecting emerging risks to impacts that are geographically, temporally and personally relevant to target audiences. Communication should also address the gap between recognising a risk and knowing how to respond to it. Messages should therefore connect risk drivers, such as climate change, with concrete and actionable information about protective, mitigating or adaptive behaviours that citizens can adopt.

Communication strategies should take account of differences between audiences. HOLiFOOD identified, for example, gender differences in perceived risk, with men reporting lower perceived risk from emerging food safety risks than women. Such findings can inform the development and testing of communication approaches tailored to different audience characteristics.

Recommendation #2

Use a portfolio of communication approaches to reach different citizen groups

HOLiFOOD findings indicate that social media and citizen-science activities engage only parts of the population, highlighting the need for a broader portfolio of communication approaches. Social media can support peer-to-peer discussion and provide insights into emerging public concerns, but only a subset of the population actively participates in these discussions. Social-media data should therefore not be treated as representative of wider public perceptions.

Citizen science can similarly increase engagement among participating citizens and those exposed to related activities, but its direct reach is also limited. Communication strategies should therefore use a portfolio of mechanisms, including social media, participatory approaches, traditional media and established public-health communication channels.

Recommendation #3

Strengthen the use of citizen-generated information to complement emerging-risk identification

Citizen-generated information can complement formal surveillance and contribute information relevant to the identification of emerging threats. Citizen science can enable observations to be gathered across wider areas and over longer periods, while social-media analysis can help identify emerging public concerns and indicate when communication about a particular issue may be needed.

However, collecting citizen-generated information is not sufficient. HOLiFOOD's analysis of citizen reporting of *Vespa velutina* showed that its early-warning value depends on the wider infrastructure through which observations are reported, verified, communicated to relevant institutions, incorporated into response measures and fed back into surveillance.

Verification and institutional coordination are particularly important for risks that cross national borders. Greater harmonisation of approaches to validating citizen-generated reports and communicating verified information between relevant organisations could strengthen their contribution to emerging-risk identification.

Social-media analytics should similarly be treated as a complementary source of information. They can help identify emerging public concerns and indicate when communication about a particular issue may be needed, but limitations in representativeness and geographical verification must be taken into account when interpreting the data.

Conclusion

HOLiFOOD research shows that effectively addressing emerging food safety risks requires greater attention to how citizens perceive risks, how they respond to risk information and how they can contribute information relevant to emerging-risk identification.

Communication strategies should make emerging risks more personally relevant and connect them to concrete, actionable behaviours, while using a range of communication channels to reach different population groups.

Citizen science and social-media analytics also offer opportunities to complement established approaches to emerging-risk identification. The contribution of citizen science depends on effective verification and links to institutional surveillance and response systems, while social-media data require careful interpretation given limitations in representativeness and geographical verification. Bringing these societal dimensions into emerging food safety risk communication and identification can help connect emerging risks with

personally relevant and actionable responses, while strengthening the contribution of citizen-generated information to emerging-risk identification.

Authors' affiliations

¹ Newcastle University

² Dialogik

³ INRAE

⁴ University of Veterinary Medicine Budapest

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HOLiFOOD. D5.4 – Report on semi-automated social media analysis approach, emerging risk scoring framework, user requirements for emerging risk detection instruments and barriers and facilitators for institutionalisation

<https://holifoodproject.eu/wp-content/uploads/2026/09/HolifoodD5.4.pdf>

Papers and document in preparation:

Spivey, T., Benighaus, L., Feliciano, R., Frewer, L.J., et al. *Citizen science & early warning infrastructure: A case study on V. velutina in Europe*. Paper in preparation.

Országh, E., Vribék, K., Frewer, L.J., Józwiak, Á. and Farkas, Zs. *What worries the crowd? Mapping public concerns in alternative protein discourse on X using natural language processing*. Paper in preparation.

Yue, M., Jin, S., Van der Berg, M., Sari, N.H., Frewer, L.J., et al. *Gender differences in emerging food-risk appraisal and information behaviour*. Paper in preparation.

Yue, M., Jin, S., Sari, N.H., Frewer, L.J., et al. *Consumers' evaluations of AI as an information source and a potential source of risk when used in food-safety decision-making*. Paper in preparation.

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and parents' responses to emerging food safety risks. Paper in preparation.

HOLiFOOD. D5.6 – *Guidance document on actions to facilitate the institutionalisation of proposed engagement measures*. Deliverable in preparation.