PATH-SAFE Newsletter December 2024

PATH-SAFE is a Shared Outcomes Fund (SOF) research programme which aims to pilot a national surveillance programme for foodborne diseases and antimicrobial resistance.

Hello!

Welcome to the?Pathogen Surveillance in Agriculture, Food and the Environment (PATH-SAFE) programme?newsletter for December 2024. Wishing you all a very festive holiday season!?

PATH-SAFE is a?4-year, UK wide, cross government programme, led by the FSA and supported by £24m funding from the HMT Shared Outcomes Fund (SOF) and match funding from a range of government and academic delivery partners.? The programme is working to develop a pilot national surveillance network, using the latest DNA-sequencing technology and environmental sampling, to improve the detection, and tracking of foodborne human pathogens and antimicrobial resistance (AMR) through the whole agri-food system from farm-to-fork. ?

This newsletter at a glance:

- news and key updates
- key outputs
- progress updates?

News and key updates

Evaluation

The evaluation aims to identify areas for learning and improvement and to assess the outcomes of?PATH-SAFE?that improve surveillance infrastructure.??The Phase 1 Evaluation Report has now been published.

Key findings include:

- PATH-SAFE has been successful in setting up robust structures for governance and oversight, collaboration and linking with the wider surveillance community
- PATH-SAFE has produced knowledge about foodborne pathogens (FBPs), AMR and surveillance approaches that can subsequently lead to improved surveillance practices, but additional activities are needed to ??achieve lasting impact to surveillance practices in the UK

Connections

The programme continues to connect with other programmes, initiatives and activities from across government and beyond. Some examples from our interactions this quarter include:

- UK Microbial Forensics Consortium (UKMFC) – Presentation

- Genomics of Animal and Plant Health Disease Centre Phase 2 (GAP-DC2) Onsite diagnostics Workshop – Attendee
- National Biosurveillance Network (NBN) Roadshow - Attendee
- Fera Symposium - Presentation
- Food Safety Research Network (FSRN) Advancing STEC Diagnostics Workshop - Attendee
- One Health AMR Surveillance Workshop - Organiser
- Data Sharing Workshop - Organiser
- EU Agri Attaché AMR Meeting - Presentation
- UKRI Tackling Infections Theme AMR Network Launches – Network member
- Advisory Committee on the Microbiological Safety of Food (ACMSF) meeting and ACMSF AMR working group meeting – Presentation
- Campden BRI "Hot topics in food microbiology" Event - Presentation

Communications

World Antimicrobial Awareness Week (WAAW) 2024: WAAW is a global campaign to raise awareness and understanding of AMR and promote best practices among One Health stakeholders to reduce the emergence and spread of drug-resistant infections. PATH-SAFE has featured in a number of communications from across the partnership, including social media and blog posts. Link to these can be found on the events and communications section of the PATH-SAFE website.

Key outputs

The latest publications include:

Summary articles:

- Coordinated surveillance of foodborne pathogens and antimicrobial resistance: insights from the PATH-SAFE pilot: Published in October in Future Microbiology. The article is a high-level overview of the programme's work, highlighting the breadth of projects and the programme's highly collaborative nature.
- How the PATH-SAFE programme has driven forward our understanding of AMR in UK animals: Published in November in The Microbiologist, Applied Microbiology International's digital magazine. This piece highlights how evidence generated within PATH-SAFE has progressed the understanding of AMR prevalence and transmission and illustrates the significant benefits that well-funded, coordinated, cross-sectoral initiatives can deliver.
- Monitoring antimicrobial resistance in the environment: Published in October on gov.uk, a piece within the Environment Agency's?Creating a Better Place blog.

Journal articles:

- Pilot surveillance of antimicrobial resistance in river catchments in England: Published 24 October 2024 on gov.uk, a pilot approach to detection, identification and quantification of antimicrobial resistance in three selected river catchments in England.
- Development of experimental approaches for determining concentrations of antifungals that select for resistance: Published 24 October 2024 on gov.uk, methods for the determination of the lowest concentration of antifungals that can lead to a selective advantage for resistant organisms.
- Determining selective concentrations for antibiotics and antifungals in natural environments : Published 24 October 2024 on gov.uk, this project determined the concentrations of specified antimicrobials at which selection for resistance may occur.

- Determining concentrations of substances that influence development of antimicrobial resistance: Published 24th October 2024 on gov.uk, this report reviews the available data on concentrations at which selection for antimicrobial resistance has been reported for different antimicrobials and the approaches used to determine these concentrations.
- Potential impact of disinfectants on antimicrobial resistance development: Published 24 October 2024 on gov.uk, this report identifies the range of disinfectants currently used in the UK and reviewed available information on their potential role in the development of antimicrobial resistance.
- Risk screening and prioritisation tool for antimicrobial resistance in the environment: Published 24 October 2024 on gov.uk, a risk screening and prioritisation tool to assess antimicrobial resistance in the environment.
- Piloting wastewater-based surveillance of norovirus in England: Published 1 October 2024 in Water Research, this study took approximately 3,200 samples of wastewater from across England, previously collected for quantification of SARS-CoV-2, and re-analysed them for the quantification of norovirus genogroup I (GI) and II (GII).?Comparisons of national average norovirus concentrations in wastewater against concomitant norovirus reported case numbers showed a significant linear relationship.??
- Food-borne disease risk: biosurveillance in water networks: Published 12 September 2024 in Eurosurveillance, this meeting report details to presentations, group discussions, conclusion and recommendations of a workshops hosted by?Centre for Environment, Food and Aquaculture Science (Cefas) and Bangor University at the Royal Institution, London, on 31 January 2024.

The programme has also been included in the UK Veterinary Antibiotic Resistance and Sales Surveillance (UK-VARSS) 2023 Report, published on 19th November 2024. This year marks the 10th year of the UK-VARSS report bringing together data on antibiotic sales, usage, and resistance across animals in the UK. Chapter 3 of the report includes results from AMR surveillance pilot surveys, carried out under the PATH-SAFE programme, in healthy beef cattle, sheep, and milk from dairy cattle, providing initial baseline AMR data for ruminants. Please visit the website to find out the latest information about the programme and to browse the entire list of programme outputs, organised by theme.

Progress updates

More information about the aims of themes and projects can be found on?the programme website .

National FBD genomic data platform?– This work seeks to address the need for a national level, cross-government genomics capability which can perform analysis of genomic data and associated metadata to facilitate rapid identification of pathogen strains of interest and support elucidation of transmission pathways.

Update: Data sharing discussions continue with key partners (UKHSA, APHA, FSS, PHS and FSA) with a further workshop held in November. Discussions focused on considering the barriers to sharing, such as sensitivity of data and resource required, and how they can be overcome. Analyses of historical Salmonella data using the platform's existing analytics have shown its utility and value in identifying outbreak clusters at pace. Development of the platform to incorporate new analytics for?E.coli?and?Listeria continues to progress well.

On-site diagnostics?– The current aim of this work is to is to develop a set of recommendations for the use of onsite diagnostics for official controls in the food sector.

Update: A survey to collect feedback from a range of end users and key stakeholders (including those involved in the development of on-site diagnostic technologies, their deployment and also their accreditation) about what the recommendations should contain was conducted over

September and October. Results are being analysed and written up at present. Considerations are also being made towards selection of a case study for the final part of the project. The case study will be conducted between January – March 2025 and may take a modelling approach, looking at how the recommendations may be feasibly applied in several different settings.

AMR and FBD surveillance?– This suite of projects focuses on three key areas:

- Development of novel surveillance methodologies, approaches and tools
- Generation of data on the genomic diversity of a range of foodborne pathogens, and associated AMR, across the four nations of the UK to establish baselines and address knowledge gaps
- Exploration of whole genome sequence data to investigate foodborne pathogen and antimicrobial resistance transmission route

Update: All projects are progressing well through their sample collections and analysis stage. Key examples of achievements in this quarter include: The abattoir environment project has had some success in bringing abattoirs on board for the project after a limited response during the early stages of the project. A number of ports and a raw pet food manufacturer have been recruited to the imported raw pet food project; samples have been received and are being processed.

Phylogenetic analysis to identify related isolates and comparison of AMR genotypes across Sheep, Animal feed and raw bulk milk have been completed in the genomic characterisation project. Data for the Campylobacter project can be viewed on PubMLST, PATH-SAFE year 2 #160. The food sampling programme element of the E.coli and Salmonella infections in Scotland project is now complete. Dissemination of outputs from Phase 1 is ongoing (please see outputs section above).

For further information

For any questions or feedback please contact the team at pathsafe@food.gov.uk

To sign up to the SERD newsletter which contains PATH-SAFE news and link to our full newsletter please visit?Food Standards Agency UK (govdelivery.com)

To keep up to date on PATH-SAFE please visit?Pathogen Surveillance in Agriculture, Food and the Environment (PATH-SAFE) programme