Pathogen Surveillance in Agriculture, Food and the Environment (PATH-SAFE) ☑ pathsafe@food.gov.uk

At a glance...

Aim: Pilot a national surveillance system that better monitors and tracks of foodborne pathogens (FBP) and antimicrobial resistance (AMR) in the agri-food system and environment, taking a One Health approach.

Timeline: 2021-2024

Funding: **Shared Outcomes Fund**

Reduction in commercial losses Strengthen UK science excellence

£19.2m





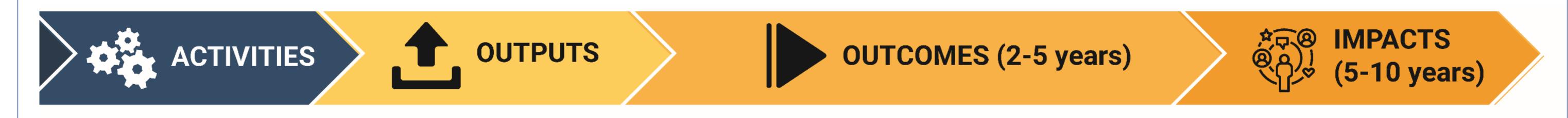
Efficient use of resources

Wider societal benefits

Over 50 partners in delivery and advisory capacities, our core bid partners are:



Theory of Change





Establish a curated and national FBP (and their AMR) genomic data platform with Salmonella as exemplar pathogen



Pilot new FBP and AMR surveillance approaches based on regular, multi-location sampling in a range of settings, combined with novel technologies (e.g. whole genome sequencing)



Map and test new and



Functional and scalable data platform that houses sequences of exemplar pathogens and their AMR genes

Data platform is interoperable and can interact with other systems like Enterobase and provide an interrogatable user interface



AMR and FBP curated sample data captured from multiple sources, and tested using novel analysis techniques

Combined evidence from the piloted FBP and AMR surveillance and modelling approaches



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Guide the use of novel and existing/repurposed rapid onsite FBP testing technology with improved knowledge of where further development is needed

Key stakeholders can more easily share

and access data across organisations

for rapid identification and tracking of

bringing together multiple data sources

foodborne pathogens and AMR,

Predictive assessment of risk and

new isolate through access to a

sequences and metadata

threat is enabled when assessing a

comparative repository of pathogen

Improved understanding of source

and international entry points

attribution and infection threat of FBP

and AMR through various environments

Additional knowledge of how to expand

existing surveillance mechanisms to

support a robust national surveillance

infrastructure and improved monitoring



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Improved monitoring helps track spread of food borne pathogens and AMR across the agri-food system and wider environment



Knowledge and technology is added to the UK's capability to respond to and build resilience to AMR threats



Policy makers make informed, evidence-based decisions which improves efficient use of resources and strengthens cross-government collaboration in FBP and AMR surveillance and management



Detection of pathogen emergence and spread supports development of mitigation strategies to stop increased incidence of foodborne illness

repurposed technologies for rapid onsite FBP testing in collaboration with end users



Develop a pilot AMR surveillance system based on mechanisms of AMR spread in the environment

TRL: Technology readiness level **WGS:** whole genome sequencing



TRL assessment of rapid onsite FBP testing tools with end users Evidence on utilising COVID-19 testing technology (LAMP) for FBP detection in wastewater

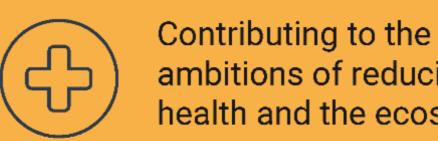


AMR surveillance framework and suite of diagnostics monitoring of AMR across the environment within a catchment area

Informed consideration, based on evidence surfaced, on how proactive, rapid and efficient management can be used to reduce the risk of FBP and AMR introduction into the wider environment and food systems



Key stakeholders and decision makers are brought together to engage with evidence and take forward policy recommendations



Contributing to the One Health ambitions of reducing threats to public health and the ecosystem





Reduced incidence of foodborne illness



Innovations enable step change in approach to FB-P/AMR surveillance and decision making promoting UK's food sector reputation internationally in FBP and AMR surveillance

Reduction of commercial losses from reduced food waste through prevention of **FBP** contamination