**PATH-SAFE TECHNOLOGY READINESS LEVEL & FEASABILTY STUDY**

**Pre-engagement Advert**

**Background**

The Pathogen Surveillance in Agriculture, Food and Environment ([PATH-SAFE](https://www.food.gov.uk/news-alerts/news/ps192-million-for-cross-government-surveillance-project-to-protect-public-health)) programme is a £19.2m Shared Outcomes Fund ([SOF](https://www.gov.uk/government/publications/spending-review-2020-documents/spending-review-2020#shared-outcomes-fund)) research programme. It aims to develop a national surveillance network, using the latest DNA-sequencing technology and environmental sampling to improve the detection and tracking of foodborne human pathogens and AMR through the whole agri-food system from farm-to-fork.   The heart of this ‘virtual’ network will be a new data platform that will permit the analysis, storage and sharing of pathogen sequence and source data, collected from multiple locations across the UK by diverse government and public organisations including the Food Standards Agency (FSA), Food Standards Scotland (FSS), Department of Health and Social Care (DHSC), Department for Environment Food and Rural Affairs (Defra) and others across the devolved administrations.  This single, user-friendly data system will enable rapid identification and tracking of foodborne pathogens and antimicrobial resistance (AMR), improving public health, and minimising the economic and public health impact of outbreaks.

The government has highlighted that the development of new diagnostics and improved access to and use of surveillance data are key levers to tackle this rapid rise and the associated costs of foodborne disease (FBD) and drug-resistant infections through agriculture, food, and the environment.

**Rationale:**

FBD is a major public health risk with 2.4 million individual illnesses and more than 16,000 hospitalisations per year[[1]](#footnote-2). The vast majority of human disease is caused by a handful of pathogens which, in most cases, enter the food chain from farmed animals or the environment. In addition to FBD, the agri-food supply chain also poses a risk for the transmission of AMR as it is transmitted through food, animals, humans, or water. The ability to detect and identify pathogens early and to accurately trace FBD outbreaks to their source are critical steps to improve public health and reduce the economic costs associated with them.

For these reasons, various government departments already undertake surveillance activities (i.e., by taking and analysing samples from food, livestock, and humans) to identify the pathogens causing an illness, to assess levels of contamination or trace the source and transmission pathways of FBD pathogens and AMR. These activities are critical to effecting better control strategies, but recent advances in technology and data management offer the opportunity to create a step change in surveillance, to protect public health. Surveillance data can allow monitoring of FBD and AMR through the food chain and aids our understanding of endemic disease, informing the design of suitable interventions: knowing when and where diseases are present in the food chain can help us understand how they got there and how they can be controlled[[2]](#footnote-3).

Diagnostics tools are available at various stages of deployment for the detection of FBD and AMR in-field. If successful, these tools may overcome the limitations of more conventional methods of detection which can be laborious and slow to provide results. Rapid analysis allows detection of foodborne pathogens at an early stage to prevent outbreaks which can present a severe threat to health.

**Workstreams**

The PATHSAFE programme has 4 core workstreams (WS) as detailed below.  This pre-engagement advert relates to **Workstream 3a**.

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| **WS**   | **Title**   | **Description**   |
| 1   | Establish a curated, national foodborne disease genomic data platform   | To create a ‘user-friendly’ platform for the rapid interrogation and archiving of genomic data.   |
| 2   | Develop a pilot infrastructure for regular, multi-location sampling.   | Pilot infrastructure to provide WGS data from regular, multi-location sampling of wastewater and food products.  |
| 3   | Understand the feasibility of using portable diagnostics as inspection tools.   | **WS3a will investigate the Technology Readiness Levels (TRL) of new portable diagnostics. The results of these studies will inform options for in-field testing and/or development.** WS3b will investigate the use of wastewater methodologies and complementary diagnostic tool development to test for Norovirus in a contained setting.   |
| 4   | Develop a pilot environmental AMR Surveillance system   | To understand the nature and extent of AMR in the environment, the drivers that influence this, and the development of a One Health platform focussed on environmental data that will enable a scaled-up surveillance programme to be undertaken.   |

**Open tender overview**

Tenders will be invited to carry out a horizon scanning and technology readiness level (TRL) study to help the programme understand what end users need, what technologies are available and what stages they are at in terms of deployment. Following this activity, the supplier will recommend at least two technologies that can be tested in-field as rapid diagnostic tools for use in a relevant setting and will undertake a feasibility study.

**Timelines:**

* Questions are welcome from interested parties until **16.30 20th May** and should be submitted to PATHSAFE@food.gov.uk. Responses will be posted online by the end of May, in advance of the open tender. Individual discussions will not be possible at this time.
* It is expected that the open tender for this work will go live in June 2022 to close in July 2022.
* Work is expected to begin as soon as possible, but by the last week of September 2022 at the latest.
1. <https://www.food.gov.uk/research/foodborne-diseases/foodborne-disease-estimates-for-the-united-kingdom-in-2018>

 [↑](#footnote-ref-2)
2. <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/784894/UK_AMR_5_year_national_action_plan.pdf> [↑](#footnote-ref-3)