PATH-SAFE

Issue 2, October 2022

Welcome

Welcome to the second Pathogen Surveillance in Agriculture, Food and the Environment (PATH-SAFE) programme newsletter. The programme is moving at pace and we have lots of exciting updates/features for you in this edition.

For any questions, feedback or to sign up to our mailing list please contact the team at **pathsafe@food.gov.uk**. To keep up to date on PATH-SAFE please visit Pathogen Surveillance in Agriculture, Food and Environment Programme | Food Standards Agency.

News

PATH-SAFE Website Launch

We are pleased to announce that our Programme website is now up and running and can be accessed at: Pathogen Surveillance in Agriculture, Food and Environment Programme | Food Standards Agency.

We will be updating the website regularly so please visit in between the quarterly newsletters to ensure you are kept up to date. Please contact us should you have any feedback on the page.

Evaluation

We have a new Evaluation Lead in place, Dr Niki Rust, who has been finalising the theory of change and a draft monitoring and evaluation plan for the programme, along with associated indicators and metrics. We are also in the process of appointing evaluation contractors who will undertake process and outcome evaluations of the programme. It is anticipated that the contractors will be in post by November 2022 and will continue until after the programme has ended to determine if the wider impacts of the pilot can feasibly be measured.

Other Key Announcements

- **WS3a "In-field diagnostic technologies"** project kicked off at the end of September, led by Fera in association with the University of Lincoln. The project aims to investigate the technology readiness levels (TRLs) of in-field FBD and AMR diagnostic technologies.
- **WS1a Data System** will be delivered using a consortium approach. An expression of interest took place in August and we are working up an approach. Delivery is expected to begin in January.
- **Historical samples** – the programme has been working to understand whether there are historical samples in freezers across government that may be relevant to the programme. We are also planning to run a call to Academia in the coming months for historical samples across the wider community.
- The **Food Safety Research Network** published their first call for proposals. Check out Food Safety Research Network: Call or guidance (Quadram.ac.uk) for further information. The network have also appointed Dr Melissa Antoniou-Kourounioti as their Networks and Partnerships Manager.

Workstream updates

Check out our new [Pathogen surveillance in agriculture food and environment programme: workstream breakdown](#) on our webpage for up to date information on all workstream progress. In this issue we will focus on UKHSA's activities in workstream 4 (WS4):

UKHSA is a collaborator on WS4, which focuses on delivering an agreed and tested methodology for environmental AMR surveillance and an 'exemplar' (pilot) software application for the collation and reporting of environmental AMR data. WS4 will also conduct the Discovery phase for a broader UK-wide One Health Surveillance System (OHSS).

WS4 aims to:

- Generate data on transmission of AMR through the environment through testing of samples from pilot river water catchment areas (led by EA and Defra);
- Develop an Environmental Surveillance System (ESS), comprising a software application to receive, store, process, analyse and visualise river water catchment area data for real-time monitoring and surveillance;
- Gather requirements to understand the feasibility of developing and deploying a One Health Surveillance System (OHSS) that will integrate AMR pathogen data collection throughout the ecosystem including humans, animals, food, and the environment.

Figure 1 below outlines the planned timeline of events for delivery of the ESS. The ESS Discovery phase, which gathered information on user needs, current systems, etc. was completed in June 2022. The planned date for the first phase of the build (Alpha) to begin is now October 2022. The Alpha phase will focus on developing and testing a prototype, and it's expected to take 12 weeks. In the meantime, the project's supplier, Deloitte, is working closely with UKHSA's Data, Analytics & Surveillance team to identify and align the ESS Exemplar with UKHSA's EDAP (Enterprise Data and Analytics Platform) where possible. After the Alpha phase is complete, the Beta phase will begin. During this phase, a working version of the system which can handle real-world usage will be developed and tested with a wider group of end-users. Finally, the system will be made live to a specific group of end-users, with iterative improvements made based on analytics and user feedback.

The next stages of the project will follow Agile methodology

DISCOVERY	ALPHA (12 weeks starting in Sep)	BETA (8 weeks)	LIVE (4 weeks)
Working out what your user needs are, what systems already exist to meet those needs, and how they are currently performing.	Building prototype(s) to meet user needs and testing it with users. You can think of this as the 'proof of concept' stage.	Building a working version of the product or service that can handle real world usage and work at scale, testing it in public and preparing to run it.	Launching the product or service to the public. Running and continuously improving it based on analytics and user feedback.

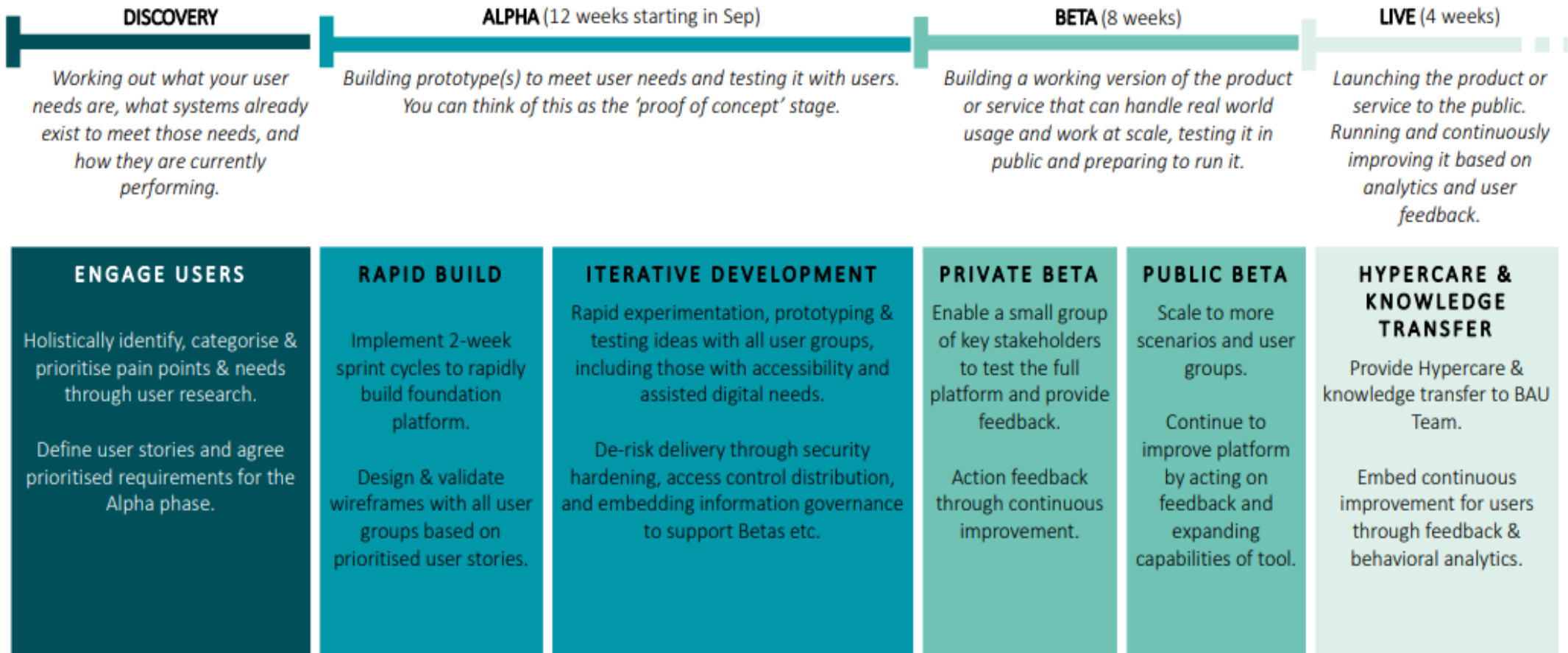| ENGAGE USERS	RAPID BUILD	ITERATIVE DEVELOPMENT	PRIVATE BETA	PUBLIC BETA	HYPERCARE & KNOWLEDGE TRANSFER
Holistically identify, categorise & prioritise pain points & needs through user research. Define user stories and agree prioritised requirements for the Alpha phase.	Implement 2-week sprint cycles to rapidly build foundation platform. Design & validate wireframes with all user groups based on prioritised user stories.	Rapid experimentation, prototyping & testing ideas with all user groups, including those with accessibility and assisted digital needs. De-risk delivery through security hardening, access control distribution, and embedding information governance to support Betas etc.	Enable a small group of key stakeholders to test the full platform and provide feedback. Action feedback through continuous improvement.	Scale to more scenarios and user groups. Continue to improve platform by acting on feedback and expanding capabilities of tool.	Provide Hypercare & knowledge transfer to BAU Team. Embed continuous improvement for users through feedback & behavioral analytics.

Figure 1: Next steps for the Environmental Surveillance System Exemplar

Meet the Programme

Each quarter we will spotlight people working across the programme. In this issue we are focussing on some of the technical leads working across WS4:

Tamsin Dewé, Head of AMR Surveillance and Evidence Veterinary Medicines Directorate (VMD)

I oversee the UK-wide surveillance programmes for AMR in animals, as well as the VMD's portfolio of AMR research. I used to be an equine/large animal vet before moving into infectious disease control and epidemiology. I am currently completing my PhD on the evolutionary epidemiology of AMR at Imperial College, part-time.

I am particularly motivated by understanding and managing AMR as a One Health problem. To do this, we need to improve our knowledge of the prevalence, transmission and evolution of AMR within and across different systems. It's exciting to be working with colleagues with a vast range of expertise, within the PATH-SAFE programme, to pilot new approaches to understanding the AMR landscape in this country.

Dr Wiebke Schmidt, Chief Scientist's Group, Environment Agency (EA)

Dr Wiebke Schmidt from the Environment Agency Chief Scientist's Group is part of workstream 4, which pilots surveillance for antimicrobial resistance (AMR) in the environment. AMR exists in natural environments, but as human, animal, and agricultural activities are increasing, so does the prevalence of AMR. This poses a potential health risk to people, animals, food sustainability, and ecosystems.

Bringing together a broad range of expertise, Wiebke, the Chief Scientist's Group, and the UKHSA team are testing a range of methodologies to examine AMR bacteria, fungi, and antimicrobial agents in the environment. To do this, different components of the environment (including river water, bioaerosols, shellfish) are being sampled. The team are also exploring issues associated with AMR exposure and transmission. This work will improve our understanding of the complex role the environment plays in the development of AMR.