Report

ACMSF Annual Report 2023

Introduction

This is the thirty-second annual report of the ACMSF and covers the calendar year 2023. The aim of this report is to provide a brief background to the Committees' decisions. Those seeking further information on a particular subject can obtain details from the discussion papers and minutes, available from the Committee's website or ACMSF Secretariat.

The various issues addressed by the Committee since its inception are detailed in this and previous Annual Reports and in a series of subject-specific reports.

ACMSF is committed to opening up its work to public scrutiny. The agendas, minutes, and papers (subject to rare exceptions on grounds of commercial or other sensitivity) of the full Committee's meetings are publicly available and are posted on the ACMSF website. Also, on the Committee's website are summaries of meetings of the Working and *Ad Hoc* groups.

In common with other independent advisory committees, Committee members are required to follow a Code of Conduct which also gives guidance on how commercial interests should be declared. Members are required to declare any commercial interests on appointment and, again during meetings if a topic arises in which they have an interest. If a member declares a specific interest in a topic under discussion, and it is considered to be a conflict of interest, he or she may, at the Chairman's discretion be allowed to take part in the discussion but is excluded from decision-making. The Committee's Code of Conduct is available here and the Good Practice Agreement for Scientific Advisory Committees can be found on the FSA's website.

Membership

New appointments in 2023

Dr Inaki Deza-Cruz

Dr Adri Bester

Dr Roberto Vivancos

Retirements and resignations in 2023

Dr Gary Barker

Current membership and Declarations of Interests

Full details of the membership of the Committee and its Working and *Ad Hoc* Groups are given in Annex I. A Register of Members' Interests is at Annex II. In addition to the interests notified to the Secretariat and recorded at Annex II, Members are required to declare any direct commercial interest in matters under discussion at each meeting, in accordance with the ACMSF's Code of Practice. Declarations made are recorded in the minutes of each meeting.

Committee and Sub-Group meetings

The full Committee met three times in 2023. Meetings in February (chaired by Professor Bill Keevil) and October (chaired by Professor Dan Tucker) were plenary meetings open to the public. The June meeting was a joint plenary meeting open to the public and horizon scanning workshop (chaired by Professor Bill Keevil) which was held in closed session.

The Antimicrobial Resistance Working Group met three times in 2023, in March, July and November. All meetings were held virtually and were chaired by Professor Bill Keevil.

The Ad Hoc Group on toxin producing Clostridia in food met virtually in March, June and November. The meetings were chaired by Dr Gary Barker.

Meeting minutes in 2023

Minutes for the three plenary meetings are available on the committee's website ACMSF 2023 meetings .

Papers the committee considered in 2023

Paper Number	Name of Paper	Meeting Number	Date of Meeting
ACM/MIN/101	Minutes of the 101st meeting	102nd	09/02/2023
ACM/1402	Matters arising	102nd	09/02/2023
ACM/1403	Neurotoxin-producing Clostridia subgroup report	102nd	09/02/2023
ACM/1404	Survey of Infectious Intestinal Disease during COVID-19	102nd	09/02/2023
ACM/1405	Epidemiology of Foodborne Infections Group update	102nd	09/02/2023
ACM/1406	Incidents and outbreaks update	102nd	09/02/2023
ACM/1407	Risk assessment of the risk to vulnerable consumers from Listeria monocytogenes in ready-to-eat smoked fish	102nd	09/02/2023
ACM/1408	ACMSF workplan	102nd	09/02/2023
ACM/1409	Update from other SACs	102nd	09/02/2023
ACM/1410	Items of interest from the literature	102nd	09/02/2023
ACM/MIN/102	Minutes of the 102nd meeting	103rd	22/6/2023
ACM/1411	Matters arising	103rd	22/6/2023

ACM/1412	Epidemiology of Foodborne Infections Group update	103rd	22/6/2023
ACM/1413	Items from the literature	103rd	22/6/2023
ACM/1414	AMR NAP 2024-29 Commitments	103rd	22/6/2023
ACM/1415	workplan	103rd	22/6/2023
ACM/MIN/103	Minutes of the 103rd meeting	104th	19/10/2023
ACM/1416	Matters arising	104th	19/10/2023
ACM/1417	Items of literature	104th	19/10/2023
ACM/1418	Committee update	104th	19/10/2023
	Report on Botulinum Neurotoxin-Producing Clostridia	104th	19/10/2023

The Committee’s Work in 2023

Neurotoxin-producing Clostridia subgroup report

The main committee reviewed the work of the Neurotoxin-producing Clostridia subgroup at various points during the drafting of their report, providing comments, suggestions and final sign off.

Survey of Infectious Intestinal Disease (IID) during COVID-19

The committee considered the outcomes of this survey which tracks IID rates for major pathogens using confirmed laboratory reports and used online panel surveys to explore the impact of the COVID-19 pandemic on the prevalence of IID among the general population. The committee raised a concern about the effect

of rigorous statistical analysis on surveys such as this and to be careful that confounding effects are not exaggerated. The committee discussed the evidence that Mr Holland had provided in people not handwashing after using the bathroom. It was discussed that information on why people stop washing hands and why they don't is needed that the impact of interventions such as a handwashing campaign tends be short-lived. It was therefore recommended by the committee that a food safety campaign around handwashing be considered in the future.

Risk assessment of the risk to vulnerable consumers from *Listeria monocytogenes* in ready-to-eat smoked fish

The committee were asked to consider the risk assessment was commissioned in March 2022 due to an outbreak of *L. monocytogenes* linked to smoked fish resulting in 12 cases, and 3 deaths from November 2020 to March 2022 and its conclusions that no safe dose could be determined for vulnerable groups i.e., pregnant women, unborn and newly delivered infants, those aged over 65 and those who are considered clinically vulnerable due to a medical condition or treatment. The risk for these groups should therefore be considered higher than that for the immune competent population. The prevalence data suggests a likelihood of contamination with *L. monocytogenes*, and that cold smoked fish to have levels 3 to 8 times more than that in hot smoked. The committee discussed the unusual pathogenicity islands identified by sequencing the outbreak strains which were associated with more virulent types of infection. Although the advice by the committee was that detection of whole populations of *Listeria* was the most appropriate method for regulation, it was acknowledged that a better understanding at the molecular level may be helpful for risk managers, is useful for traceability and may be useful in assessing the significance of *Listeria* in the food chain in future years. It was recommended that stating in the report that 'no safe dose could be determined' could be interpretated two ways; that there was not enough information to justify any decision or that as low as one cell per gram is sufficient to cause illness. It was recommended that this statement be properly qualified. It was suggested by the committee that as cold smoked products pose a higher risk than hot smoked, there could be the potential for producers to move toward primarily hot smoked methods.

Epidemiology of Foodborne Infections Group

The committee were updated on key discussions at recent EFIG meetings, including *Salmonella* in Livestock production, the National Control Programme

data, Animal Feed and *Salmonella* (including Dogs and *Salmonella*), human infection data (summary of key pathogens for 2021), food surveillance in England, Scotland and Wales, *Campylobacter* enhanced surveillance project, FSA thresholds for four main pathogens and PATH-SAFE: Tracking Foodborne Pathogens and Antimicrobial Resistant Microbes.

A number of comments were made by the committee and suggestions on how to represent the data in the report.

Incidents and outbreaks update

The committee were provided with a summary of FSA incidents from the last full year (2021/2022) and this year (April-Oct 2022). The committee had a number of suggestions on clarifications needed in the report such as which incidents are hazards that have been recognized and responded to, and which present a risk to the food chain that needs to be dealt with. A suggestion was also made to better distinguish between source and cause and to distinguish between direct cause and root cause.

Update/milestones of the third study of infectious intestinal disease in the UK project (IID3).

The study is intended to estimate the true burden of intestinal disease in the UK by giving an estimate of underreporting and providing an estimate of pathogens which are causing a certain percentage of infectious intestinal disease.

The committee were given brief updates at each meeting in 2023 on the ongoing results of the IID3 project in order to support and advise the ongoing work of the project. Individual members also reviewed and provided feedback on the pilot study report published in early 2023.

Presentation on Phage Use in Food Production

Due to a request from members at a previous meeting the committee were given a an overview of where phage are used in food production, examples of companies and applications of the technology, considerations for the regulation of phage in industry and an overview of Food Safety Research Network Projects. The committee found the information provided very useful and had a number of follow up questions to the presentation.

Horizon Scanning Workshop

Along with the June 2023 plenary session a horizon scanning workshop was run on the focus of climate change. Members were asked the following question: How in your opinion is climate change likely to affect the microbiological safety of food in the UK via the following areas? In particular they were asked to consider:

- Both trends (higher average temperatures) and increasing frequency of extreme weather events (flooding, drought, forest fires)
- Timescales (0-10 years, 10-20 years, 20+ years)
- Indicators: how will we know if the effect is happening?
- Likelihood and magnitude of effect
- New as well as existing hazards
- Key evidence gaps
- How CC might affect, and be affected by/mitigated by, other drivers
- Any recommended actions for the ACMSF, the FSA, other government departments and agencies, and external stakeholders.

Specific actions to climate change associated challenges, highlighted by the Committee, are listed in the final report ACMSF Horizon Scanning Workshop 2023 summary of discussions and outputs | Advisory Committee on the Microbiological Safety of food. However, there are several actions which have widespread implications across multiple sectors, in tackling microbiology safety concerns in food as a result of climate change. These broadly fall into three categories: information gathering to predict and plan for specific risks, education of consumers and collaboration, particularly with other government departments.

For example, in order to prepare for the impacts on food safety the Committee highlighted the need to work with the Met Office to receive the greatest possible warning of extreme weather events and plan preparations ahead of time to develop a rapid response capability. Furthermore, a need to identify and collate information on imported foods and develop scope to source similar foods from other countries, or move to UK production, if supply issues arise, was emphasized. Any indicators of concern to be monitored need to be agreed between government departments; and discussions must be held on how to handle these collaboratively. Surveillance to identify emerging pathogens needs to be carried out and insight must be gained from other country’s experience and approach to climate change mitigations with particular reference to food safety.

A range of risk factors Identified by this information gathering process can be mitigated by proper education to consumers and manufactures. These might include consumer awareness of safe food practices in a warmer climate or rising cold chain management awareness to industry.

Many of the actions discussed in this report, would benefit from cross government collaboration. This is particularly relevant where there could be agreement on key factors to monitor as surveillance priorities for specific aspects of climate change impact, and the data to capture for them, so that research and other work can then be easily collated or combined to increase the power of detection.

The Subgroup's Committee's Work in 2023

Antimicrobial Resistance Working Group

Role: To assess the risks to humans from foodborne transmission of antimicrobial-resistant microorganisms and provide advice to the FSA.

Summary of the 23rd meeting held on 18th April 2023:

Effect of climate change on AMR

Dr Kristina Osbjer, a Veterinary Advisor at the International Centre for Antimicrobial Resistance Solutions (ICARS) based in Copenhagen, gave the Group a presentation on the effects of climate change on AMR. It was noted that climate change and AMR are inter-linked issues. In areas that are experiencing higher temperatures, an increased levels of bacterial (including AMR) rates are seen. Extreme weather, such as flooding, can cause food and water borne bacteria to spread more easily causes overflow of sewage lines or agricultural runoff can release AMR bacteria into soil and water sources.

FSA's AMR Research & Evidence Programme Review

Kathryn Callaghan (FSA) provided the group with a presentation of the key outputs arising from the FSA's AMR Programme Review conference which was held on 21st and 22nd March 2023. The purpose of the event to identify and prioritise new and emerging challenges in food-related AMR and inform development of the new NAP 2025-2029.

FSA Project FS430957: A critical review of AMR risks arising as a consequence of using biocides and heavy metals in food animal production.

The group were presented with the findings of the above study which was commissioned by the FSA to help increase our understanding of whether, and to what extent the use of biocides and heavy metals in animal production leads to the development and spread of AMR within the food chain and whether this could

potentially lead to greater consumer exposure to AMR bacteria from food. The group commented on the findings.

FSA Project FS307035: Antimicrobial resistance in biofilms formed during secondary food processing of meat and meat products.

The group received a presentation for the above study which commissioned to analyse the contribution of bacteria in biofilms in secondary meat processing facilities to the antimicrobial resistance (AMR) burden of foodstuffs. The group commented on the findings.

Summary of the 24th meeting held on the 12th of September 2023.

European Committee on Antimicrobial Susceptibility Testing (EUCAST) presentation on international standards in antimicrobial susceptibility testing: breakpoints, methods and guidance.

Professor Gunnar Kahlmeter, Chairperson and Technical Data Co-ordinator of the European Committee on Antimicrobial Susceptibility Testing (EUCAST) gave a presentation to the Group covering standards of antimicrobial testing and susceptibility which included breakpoints, methods, guidance and terminology. The ACMSF AMR Working Group members appreciated the presentation as it was useful in terms of informing their own paper on defining AMR terminology used in FSA's research and surveillance reports (see below).

Use of AMR terminology used in FSA reports.

The issue around the use of AMR terminology in FSA reports has been raised previously. These concerns centred around terms such as "resistance" and "resistant" used to describe bacteria when epidemiological cut-off (ECOFF) values are used to determine susceptibility. It was felt by experts that "resistant" should only be applied when susceptibility is defined using clinical breakpoints especially for foodborne pathogens. It was recognised that many of the FSA's research and survey reports concerning "antimicrobial resistance" as well as the wider literature cite and or use different methods and interpretative criteria, for example, clinical breakpoints and more recently detection of antimicrobial resistance genes through sequencing or a mixture of phenotypic and genotypic methods. The FSA wants to ensure that they and their research contractors are using appropriate terms/definitions. At the 22nd (April 2023) meeting, a small group of AMR members were tasked with defining AMR-related terms including their applicability in different situations and to draft a statement at the start of

FSA's AMR-related surveys and research reports which acknowledges some of the issues around the interpretation of terms. At the 24th ACMSF AMR Working Group meeting, John Threlfall presented to the members the first draft of a discussion paper on AMR terminology used in FSA reports. The AMR Working Group members provided their comments and opinions on the paper. It was agreed that this paper would need to be revised to reflect the comments made by the members and Gunnar Kahlmeter's presentation and will be reconsidered by the Group at the next meeting in January 2024.

Approach to assessing detriment of AMR genes in food risk assessments.

In October 2019, the ACMSF recommended that FSA should move towards using a two-dimensional framework for microbiological risk assessment, which considers the probability of the adverse effect occurring alongside the detriment (harm or damage) associated with the severity of the microbiological hazard(s) being considered. Currently, there is no framework for assessing the severity of detriment resulting from the exposure to microorganisms carrying AMR genes. The FSA has been considering options available in assessing detriment of AMR in food. Wioleta Trzaska and Paul Cook (both FSA) jointly presented a discussion paper which proposes a framework/approach to assessing AMR detriment that adopts World Health Organization (WHO) Critically Important Antimicrobials (CIAs) for Human Medicine List, as a reference when assessing severity of detriment. The members provided their views and comments on the framework; overall they felt that the framework/approach was good but required further refinement. The revised AMR detriment framework paper is due to be presented to the members in January 2024.

Update on the development of the next (2024-2029) AMR National Action Plan (NAP), food commitments and deliverables.

Kathryn Callaghan gave a presentation on the development of the next (2024-2029) AMR NAP to the working group with a specific focus on the proposed food safety commitments and deliverables. The Group thanked Kathryn for keeping them informed on progress with the new AMR NAP.

Ad Hoc Group on toxin producing Clostridia in food

In 2021, the ACMSF requested that a new subgroup should update and build on the 1992 report "Vacuum Packaging and Associated Processes with regard to the microbiological safety of chilled foods".

The subgroup comprised 5 ACMSF Members, 3 Co-opted Members, 2 Observers and 3 members of the secretariat. There were 7 full Teams meetings with many other interactions online. Additional experts were consulted during the production of the report.

The Terms of Reference of the subgroup report as defined in April 2021 were:

- To review the risk posed by botulinum neurotoxin-producing clostridia in foods stored at ≤ 8°C that support growth or toxin production.
- A preliminary assessment of the risk posed by botulinum neurotoxin-producing clostridia in food designed to be stored at ambient temperatures that support growth or toxin production.
- Where appropriate, consider other risk-related evidence relevant to neurotoxin-producing clostridia during the lifetime of the group.

The scope of the subgroup was updated in 2022 and defined as: Conditions that support growth and/or neurotoxin formation by *C. botulinum* and other clostridia. Where practical this includes the identification of a limiting condition that allows growth and/or neurotoxin formation by *C. botulinum* as well as identification of a limiting condition that provides control. It was also determined that *Listeria monocytogenes*, *Bacillus cereus* and other pathogens not specified in the scope, or the terms of reference need to be considered separately. Regarding non-clostridia bacteria with homologous botulinum neurotoxin genes were also beyond the current consideration but that it is prudent to maintain a close watch on scientific reports that identify botulinum neurotoxin type gene sequences in non-clostridia.

Key Findings and recommendations from the report included:

- The frequency of occurrence of foodborne botulism remains **very low** (very rare but cannot be excluded) with **high** severity (severe illness: causing life threatening or substantial sequelae or long-term illness).
- In comparison with proteolytic *C. botulinum* and non-proteolytic *C. botulinum* , other clostridia such as neurotoxigenic *C. butyricum*, *C. baratii*, and *C. sporogenes* have only very rarely been associated with foodborne botulism. Data suggest that their growth and survival characteristics (including thermal and acid resistance) are comparable to proteolytic *C. botulinum.*
- Since the 1992 ACMSF report, there have been very few reports of incidents in which UK consumers were exposed to botulinum neurotoxin in food, with only 10 reported incidents involving 13 cases. These incidents include chilled

foods and foods meant to be stored at ambient temperatures. Eight of the ten most recent outbreaks involved foods produced or acquired abroad.

- Temperature abuse has been highlighted as the cause of the majority of incidents relating to botulism in chilled foods. It is recommended that the FSA highlight the importance of temperature control in consumer food hygiene campaigns, together with adherence to recommended Use By dates, to reinforce these critical consumer food safety controls.
- Whilst existing controls act to maintain safety with respect to botulism in chilled and ambient manufactured foods it is recommended that FSA guidelines should be slightly modified to include in the control actions "a combination of controlling factors which can be shown consistently to prevent toxin production by non-proteolytic *C. botulinum*". This is to provide flexibility to support innovation by food business operators that can lead to reduced energy usage, waste reduction and safe shelf-life extensions.
- It is emphasised that nitrites exert an important anti-*C. botulinum* effect and other preservation factors should be adjusted if nitrite concentration is to be reduced in, or removed from, foods traditionally containing it.
- An appropriate level of preparedness in the detection and investigation of foodborne botulism incidents is essential.
- The evidence in this report did not facilitate revision of the current reference process, heating at 90°C for 10 minutes or an equivalent, but this may provide a lethality that exceeds 6 order of magnitude reduction in population size, and thus could be subject to further investigation.
- centigrade degrees. and z = 10 centigrade degrees to be used to evaluate equivalent thermal processes for operating temperatures below and above the reference temperature respectively.
- It is important to note that detection methodologies that maintain sensitivity and can reduce the burden on the use of experimental animals are available.

The final report was sent out for public consultation on the 9th of June 2023, with comments requested back by 31st of August 2023. Details of the public consultation can be found here Consultation Details - Report on Report on Botulinum Neurotoxin-Producing Clostridia | Advisory Committee on the Microbiological Safety of food.

The final report was published on the ACSMF website on the 5th of December 2023. Report on Botulinum Neurotoxin-Producing Clostridia | Advisory Committee on the Microbiological Safety of food.

Surveillance working group

Terms of reference - To facilitate the provision of ACMSF advice to government in connection with its microbiological food surveillance programme and other surveillance relevant to foodborne disease, particularly in relation to the design, methodology, sampling and statistical aspects; and to report back regularly to the ACMSF.

Subgroup on microbiological risk assessments in relation to food incidents

Role: Reviews the FSA's risk assessments in relation to incidents

Members of the incident's subgroup reviewed and provided quality assurance on the following risk assessments:

- An assessment of the risk of companion animals acquiring Salmonella spp., beta-glucuronidase-positive Escherichia coli (E. coli), Shiga toxin-producing Escherichia coli (STEC), Campylobacter spp. and methicillin-resistant Staphylococcus aureus (MRSA) from contaminated raw pet food, and associated risks to pet owners from the use of these products in the home.
- What is the risk of listeriosis for all UK consumers from enoki mushrooms contaminated with *Listeria monocytogenes*, taking into consideration cross-contamination and the contamination levels indicated during recent surveys?

- Risk assessment to support development of advice and guidance to manage outbreaks of norovirus in oysters.

Subgroup on newly emerging pathogen

Terms of reference: To gather intelligence on a continuous basis in order to facilitate the rapid identification of potential threats to UK consumers from exposure to newly emerging or re-emerging pathogens through food chain exposure pathways.

Members of the newly emerging pathogens subgroup reviewed and and provided quality assurance on the following risk assessment:

- A Qualitative Assessment of the Risk of Acquiring Avian Influenza from Poultry and Game Bird Meat and Poultry Products - review of strategic risk assessment on avian influenza.

Annual Costs

The operation of the ACMSF is funded by the FSA. The total cost for members expenses and fees in 2023 was £36,243.11. Information on fee rates and expenses guidance are included in the ACMSF's Code of Practice.

Annex I Membership

Professor Bill Keevil, Chair

Professor of Environmental Healthcare, Head of the Microbiology Group, at the University of Southampton. Chair of the subgroups on Antimicrobial Resistance (AMR) and regulated products. Member of the incidents subgroup.

Professor Dan Tucker (Deputy Chair)

Professor in Veterinary Public Health at the Department of Veterinary Medicine, University of Cambridge. He is fellow and Director of Studies in Medicine and Veterinary Sciences, Pembroke College, Cambridge. Chair of the New Emerging Pathogens subgroup. Member of the AMR and regulated products subgroups

Dr Gauri Godbole

Consultant Medical Microbiologist and Parasitologist at the National Infection Service, UK Health Security Agency. Member of the AMR, Newly Emerging Pathogens and Incidents subgroups.

Mr Alec Kyriakides

Independent Food Safety Consultant. Former Head of Product Quality, Safety & Supplier Performance at Sainsbury's. Chair of the Surveillance subgroup. Member of the incidents, Newly Emerging Pathogens, quaternary ammonium compounds and biocides used in food processing and botulinum toxin-producing Clostridia in food subgroups.

Miss Heather Lawson

Senior Environmental Health Officer at the Royal Borough of Greenwich where her work involves food hygiene and food standards inspections involving microbiological food safety issues. Member the surveillance and quaternary ammonium compounds and biocides used in food processing subgroups.

Dr Rohini Manuel

Consultant Clinical Microbiologist at the Public Health Laboratory London, National Infection Service, UK Health Security Agency. Member of the AMR, Newly Emerging Pathogens and regulated products subgroups.

Professor Peter McClure

Microbiologist and former Microbiology Department Manager for Europe, at Mondelēz International R&D Ltd. Member of the surveillance, incidents and botulinum toxin-producing Clostridia in food subgroups.

Mrs Ann Williams

Commissioning and contracts manager at Liverpool City Council responsible for the local Healthwatch services. Member of the AMR subgroup.

Dr Wayne Anderson

Director of the Food Science and Standards Division at the Food Safety Authority of Ireland. Member of the incidents and botulinum toxin-producing Clostridia in food subgroups.

Dr Edward Fox

Senior Lecturer at Northumbria University and has previously held a Newman Fellowship at University College Dublin's Centre for Food Safety where his research examined food processing hygiene and food safety, and the role of microbial communities in influencing the colonisation of pathogenic bacteria in food processing environments. Member of the regulated products subgroup.

Dr Jane Gibbens

Consultant veterinary epidemiologist with extensive experience in providing advice to enable veterinary policy making and development, and in the design, implementation and analysis of disease surveillance and control protocols. She formerly worked for Defra and the Animal and Plant Health Agency, most recently as Head of the Bovine TB Epidemiology Assessment Centre, and Head of the Epidemiology and Risk Group. Her focus has been on bovine tuberculosis, statutory diseases exotic to the UK and scanning veterinary surveillance. Member of the surveillance subgroup.

Professor Francis Butler

Professor in the School of Biosystems and Food Engineering at University College Dublin and a Principal Investigator in the UCD Centre for Food Safety. His main

research area is in food safety with a particular focus on quantitative risk assessment /modelling of microbiological hazards in foods. Member of the Newly Emerging Pathogens subgroup.

Mr Martin Briggs

Currently works for GLW Feeds Ltd. His scientific background is in applied biology. Member of the regulated products subgroup.

Dr Nicol Janecko

She is a Career-Track Group Leader at the Quadram Institute Bioscience, Norwich, UK with a research emphasis in genomic and metagenomic approaches to understanding Campylobacter diversity and transmission. She is an epidemiologist and microbiologist with a long-standing career focus on foodborne zoonotic pathogens and antimicrobial resistance. Member of the surveillance subgroup.

Prof Linda Scobie

Presently teaches Biomedical Science and Microbiology programmes at Glasgow Caledonian University. She leads a research group interested in viral zoonoses in the context of novel technologies.

Prof Cath Rees

Professor Cath Rees is a Professor of Microbiology in the School of Biosciences, University of Nottingham.

Dr Dragan Antic

Dr Dragan Antic is a Senior Lecturer in Veterinary Public Health at the Institute of Infection, Veterinary and Ecological Sciences, University of Liverpool.

Dr Inaki Deza-Cruz

Dr Inaki Deza Cruz is a Senior Lecturer in Veterinary Public Health at the University of Edinburgh and a visiting lecturer at University of Surrey. With over 20 years of experience in the field, Dr Deza-Cruz has cultivated a rich and diverse background, having worked in academia, the private sector, and government organizations such as the FSA and the Animal and Plant Health Agency. His career has grown at the intersection of human and animal health, focusing on the two vital aspects of veterinary public health: epidemiology and food safety.

Dr Adri Bester

Dr Adri Bester is Senior Food Technologist in the School of Applied Science, London South Bank University, and a mentor and auditor for the Safe and Local Supplier Approval Accreditation.

Dr Roberto Vivancos

Dr Roberto Vivancos is a consultant in public health and medical epidemiologist working with the Field Services of the UK Health Security Agency (UKHSA). He has over 15 years of experience working in Public Health in the fields of health protection and epidemiology. He has contributed to the investigation of numerous outbreaks of gastrointestinal infections and food related illness, from local to international level, working closely with local and national authorities, and regulatory agencies. He has been involved in several collaborative research projects focusing on the burden, epidemiology, and control of gastrointestinal infections. He is currently co-director of the National Institute of Health Research (NIHR) Health Protection Research Unit in Gastrointestinal Infections and has published widely on epidemiology and communicable disease control in peer reviewed scientific journal.