MINUTES OF THE EIGHTY-NINTH MEETING OF THE ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY OF FOOD HELD ON 20 OCTOBER 2016 AT 1.00 PM IN AVIATION HOUSE, 125 KINGSWAY, LONDON WC2B 6NH

Present

Chair: Professor Sarah O'Brien

Members: Dr Bob Adak
Dr Gary Barker
Dr Roy Betts
Prof John Coia
Prof Rick Holliman
Prof Miren Iturriza-Gómara
Mr Alec Kyriakides
Prof Peter McClure
Prof David McDowell
Dr Sally Millership
Mrs Jenny Morris
Mr David Nuttall
Dr Dan Tucker

Departmental representative: Mr Steve Wyllie (Defra)

Secretariat: Dr Paul Cook (Scientific Secretary)
Dr Manisha Upadhyay
Mr Adekunle Adeoye
Ms Sarah Butler

Presenter: Mr Richard Elson

Members of the public: see Annex 1.

1. Chair's introduction

1.1 The Chair welcomed members of the committee and members of the public to the 89th meeting of the ACMSF. She also welcomed Mr Richard Elson from Public Health England who would be presenting agenda item 6 (VTEC associated with the food chain). She informed those present that ACM/1234 had been provided for members' use only at this stage pending the publication by EFSA of the report of a joint EFSA/FSA workshop. Publication was expected imminently, and the papers would be posted on the website as soon as this happened.

2. Apologies for absence

2.1 Apologies for absence had been received from Mrs Joy Dobbs.

3. Declaration of interests

3.1 Prof Coia declared that he undertook consultancy work for Tesco and Mr Kyriakides declared that his Company sells a number of products that were likely to be discussed.

4. Minutes of the 88th meeting

4.1 Members were asked to approve the draft minutes of the last meeting held on 30 June 2016. It was suggested that the words "(or equivalent)" be inserted after the words "this recommendation did not apply when non-Lion Code . . ." in the second sentence of paragraph 6.63. With this amendment, Members agreed the minutes as a correct record and they would be posted on the website.

Action: Secretariat

5. Matters arising

5.1 Paper ACM/1231 summarised the action taken on points arising from previous meetings. Most of these had been completed. Dr Paul Cook informed members that it was hoped to organise a teleconference in November 2016 to review the draft risk assessment on Zika virus (ACM/MIN/88, para 7.16). Restructuring the risk assessment on *M. bovis* was still to be done (ACM/MIN/81 para 8.3).

6. Shiga toxin producing *Escherichia coli* associated with food in England; surveillance, trends in outbreaks, recent developments and use of WGS

6.1 Mr Richard Elson (Head of Risk Assessment and Response, Gastrointestinal Infections, National Infection Service, Public Health England) was invited to brief the Committee on the issue Shiga toxin producing *Escherichia* coli (STEC) associated with food in England; surveillance, trends in outbreaks, recent developments and use of whole genome sequencing (WGS). He reported that since 1983 there has been routine laboratory based surveillance on STEC and this was succeeded by the National Enhanced STEC Surveillance System introduced by PHE in 2009. This system collects standardised microbiological, demographic, clinical and exposure data that are then collated with reference microbiology results. These data are used to improve outbreak detection and explain the epidemiology of STEC in England. Members were informed that as a complement to traditional phenotypic typing methods, multi locus variable number tandem repeat analysis and WGS have been used for routine surveillance and cluster detection since 2012 and 2015 respectively.

6.2 Mr Elson outlined the history of STEC O157 cases in England and Wales between 1989 and 2012 and mentioned the decline of PT2 and PT49 over that time period. These two phage types account for most of the infections between 1989 and 2012. He highlighted the increase in the cases of PT 21, PT 28 and PT 8. He pointed out that currently information on non-O157 cases was not as complete as for O157 cases but this should change as more diagnostic laboratories are now using PCR assays. It was explained that with the introduction of WGS in 2015 it is possible to see the trends particularly the recent emergence of predominant UK lineages. Members noted that the common ancestor of the current circulating diversity of STEC O157 was estimated to be about 175 years ago.

6.3 On burden of morbidity it was revealed that incidence is highest in children aged 1-4 years and incidence is higher amongst females than males. The risk profile in England revealed that rates of infection are higher in people living in rural areas than in urban areas. Rural cases report higher levels of exposure to private water supplies, open fresh water, livestock or their faeces. Urban cases are more likely to report visiting a farm. Rural cases are more likely to report living on or working at a farm or having access via family members. Non-O157 STEC strains were associated with higher hospitalization/HUS rates than O157 STEC strains (but are under ascertained). In addition, higher incidence of STEC infections is associated with higher cattle density, higher ratios of cattle to people and higher minimum temperature (i.e. in line with the pattern of incidence observed in the United States, Canada and some EU Member States). Spatial distribution of cases show higher incidence in the South West and North of England.

6.4 There were 335 reported outbreaks between 1983 and 2012. Notable foodborne outbreaks in the last five years include the large STEC O157 outbreak in England and Wales, associated with exposure to raw vegetables (12), two outbreaks associated with the consumption of watercress (11), the first outbreak associated with raw drinking milk in over a decade (2) and a large national outbreak of STEC O157 PT 34 associated with mixed salad leaves distributed through the wholesale catering market.

6.5 Members attention was drawn to the exposure exceedance alerts system which PHE has developed with the FSA. This will use enhanced surveillance data to identify unusual increases in reported exposures, particularly in relation to foods which may provide early indication of the presence of a contaminated food or ingredient within the human food chain. Potential cases that could be picked up include exposure to rare burgers and unpasteurized milk.

6.6 The following comments and questions were raised by members in the ensuing discussions:

6.7 A member was unclear why PHE had given the presentation and questioned why it was provided. Mr Elson explained that the update highlighted the decline in foodborne outbreaks in relation to STEC and demonstrated the effect of the interventions directed towards the food chain. The ACMSF Chair also pointed out that as fresh produce can be contaminated by STEC and other foodborne pathogens an update on this topic was relevant to the work of the Committee.

6.8 PHE was questioned why its focus was on O157 while the emphasis of other developed countries is on “STEC - The Big Six”. PHE shared why their attention had been solely on O157 over the years. It was explained that as the use WGS has been adopted together with PCR testing they were in the process of revising their surveillance guidelines in relation STEC which will cover non-O157 and O157.

6.9 PHE was asked if it was confident that their surveillance regime would be able to keep pace with the increase in significance of the Big Six, bearing in mind the attention this wider group of STECs was receiving in other countries. PHE confirmed that regional laboratories (particularly those in the South East of England) that have introduced PCR testing now have a good handle on non-O157. Wider coverage will improve as this detection method is embraced by other frontline laboratories, along

with an improved typing data library to support risk assessment and better understanding of the disease burden.

6.10 Members discussed diagnostics and testing in detail, along with the effect of the introduction of new diagnostic methods (such as WGS) and how in the short term this could reduce uncertainty in risk assessment, particularly in the interpretation of results to inform immediate public health actions.

6.11 A member questioned if there has been a significant increase in the number of STEC cases over the years and if these increases are associated with specific food groups. PHE commented that the majority of STEC cases have been due to outbreaks and there have been no significant change in the number of laboratory confirmed cases. It was clarified that the number of cases in 2015 was low compared to previous years.

6.12 Regarding a question of whether petting farms had an increased frequency of outbreaks, PHE commented that although the number of these attractions has increased over the years (to around 200 petting farms in England alone), the very clear guidelines on the need for good hand hygiene when visiting farms have increased the awareness of STEC infections. It was also noted that, following the Godstone incident, Government and Industry had taken extensive steps to make these attractions safer in terms of STEC exposure, which has more than compensated for the overall increase in numbers of petting farms. PHE acknowledged that they have not specifically investigated potential links between increased exposure (i.e. more petting farms), and number of cases of STEC infection.

6.13 The Defra representative highlighted that in the event of any unusual outbreak, APHA archives are available for Public Health Agencies to check if there is a history of particular strains in the UK livestock population. It was added that APHA, like PHE, is seeking to expand the range of STEC they can detect during routine surveillance.

6.14 Members discussed the issue of intervention measures concerning outbreaks (attributed to STEC and other organisms) linked to fresh produce (leafy greens and potato and leeks).

6.15 As the Committee recently revisited the issue of raw drinking milk (RDM) members noted with interest how a small outbreak linked to RDM was detected using WGS. In terms of this emerging/re-emerging risk in the food chain it was agreed that there should be a watching brief on RDM. Members recognized the value of WGS in the rapid identification and characterization of organisms, and its use in the investigation of outbreaks.

6.16 Members agreed that the presentation provided an up to date picture of trends in the human population and noted that an ongoing study jointly funded by FSA and Food Standards Scotland is looking at animal reservoir in relation VTEC/STEC. It was mentioned that the Epidemiology of Foodborne Infections Group is scheduled to be briefed on this study at its June 2017 meeting.

6.17 Members welcomed the opportunity they had had to discuss the trends in STEC surveillance over the years. The Committee concluded their discussion by stating

that they rely heavily on PHE's surveillance data in carrying out its risk assessment responsibilities and would not want the changes in the national infection service to jeopardize this support in any way.

7. *Mycobacterium avium* subspecies *paratuberculosis* (MAP) – DRAFT risk assessment in relation to food

7.1 The Chair invited Dr Manisha Upadhyay to present paper ACM/1233: *Mycobacterium avium* subspecies *paratuberculosis* (MAP) – draft risk assessment in relation to food. Members were reminded that the issue of MAP and the food chain has been considered by the Committee on a number of occasions, and that, based on the available evidence, had agreed that a causative link between MAP and Crohn's disease had not yet been established.

7.2 Dr Upadhyay highlighted that the FSA felt it was timely to revisit the issue of MAP with a particular focus on trying to establish the level of risk via food. She explained that the draft risk assessment concluded that based on current evidence it had not been possible to establish a level of risk for MAP infection via food and that there was a high degree of uncertainty associated with the assessment. It was reported that paper ACM/1233 had followed the standard risk assessment format which includes: Hazard Identification (identifying the risk associated from food sources and picking out the most obvious "contenders"), Exposure Assessment (looking at transmission in animals, transmission to humans via food and transmission via drinking water), Hazard Characterisation (considering all the risk associated with human diseases and infectious dose) and Risk Characterisation.

7.3 Members were informed that transmission via milk and milk products (transmission via food) formed a significant part of the risk assessment. This section highlighted some milk surveys such as Botsaris *et al.,* (2015) that demonstrated that viable MAP could be detected in powdered infant formula (PIF). The paper described the results of a small survey which showed that a phage-PCR assay detected viable MAP in 13% (4/32) of PIF samples. Culture based methods detected viable MAP in 9% (3/32) of PIF samples, all of which were also phage-PCR positive. Direct PCR detected MAP DNA in 22% (7/32) of PIF samples. The presence of such viable MAP in PIF indicates that MAP has either survived PIF production processes, or that PIF has been (re)contaminated post-production.

7.4 The risk characterisation section discussed the factors that were considered in evaluating the risk of MAP infection via the food chain.

7.5 Dr Upadhyay concluded that, in view of the lack of certainty around whether MAP is a causative agent of Crohn's disease and other diseases in humans, and the apparent lack of information relating to possible infectious dose, it was currently not possible to assign a risk level for MAP infection via food.

7.6 The Committee was asked to:

- Comment on the risk assessment and

- Advise whether it is in agreement with the Agency's conclusion that an accurate level of risk to human health via food cannot be assigned at present and that there is a high degree of uncertainty associated with the assessment.

7.7 Members welcomed the draft risk assessment as a good review of the situation relating to MAP and the food chain.

7.8 A member drew attention to how heat resistance was addressed in the risk assessment, highlighting that it would be useful to include data on heat resistance in relation to MAP and pasteurised milk. The assessment provided information relating to MAP survival characteristics during pasteurisation and prevalence in UK retail milk. The reference provided on viable MAP detected in powdered infant formula was noted.

7.9 It was mentioned that studies have reported spore production in MAP, and that such relevant studies should be included these in the risk assessment.

7.10 Members discussed the levels of "Uncertainty" assigned to the risk assessment pointing out that it is expedient to be specific (in terms of having a quantitative measure of the degree of uncertainty) when assigning uncertainty. It was suggested that there were various classifications that could be used to describe uncertainty.

7.11 Members discussed the association of MAP and Crohn's disease, pointing out that almost every gastro-intestinal pathogen has been linked to this disease. It was suggested it was possible that Crohn's was not a microbiological food issue but a clinical genetic condition.

7.12 A member referring to the last time the Committee considered this subject, noting that the current risk assessment did not contain any new evidence to inform a change of opinion.

7.13 A DEFRA representative queried the data presented in paragraph 59 (ACM/1233), asked if the comment on high prevalence of MAP in dairy cattle in the UK related to herd prevalence, or to animal prevalence. Dr Upadhyay indicated that the comment referred to herd prevalence, and agreed to include clarification on this point.

7.14 In concluding their deliberation members did not see the need to carry out further work on the risk assessment. The Committee agreed that as the link between MAP and Crohn's disease has not been proven during these discussions, their assessment on this subject remains unchanged.

8. Foodborne Viral Infections

8.1 Dr Paul Cook introduced paper ACM/1234 which was an update on the response to the ACMSF's report on foodborne viruses and the food chain. The Committee had received an initial response at the June 2015 meeting and the current paper provided a further update, mainly on filling some of the research gaps identified by the committee. However, Dr Cook stressed that the report had covered a wide range of areas, some of which touched on risk management, and several related to other Government Departments, so it was still "work in progress". Members had

received an embargoed copy of the report of a joint FSA/EFSA workshop on viruses held in February 2016 which, Dr Cook was able to report, had now been published.

8.2 He highlighted the following areas of work detailed in the paper.

- A large project led by the University of Liverpool was focusing on Norovirus attribution which includes trying to measure infectivity through a capsid integrity assay and detection of infectious virus in oysters and fresh produce, including raspberries and leafy salads at retail.
- A critical review of approaches to assessing the infectivity of Hepatitis E virus had been published recently. This review considered options for cell culture techniques that could be explored further to see if a method could be found that could be applied to foods such as pork and shellfish.
- On detection methods, the FSA was contributing to a research programme with NERC on environmental microbiology and human health which was relevant to several of the ACMSF report's recommendations.
- An EU baseline survey to quantify Norovirus titres in live oysters is planned to run from November 2016 to December 2018. This surveillance would not include Hepatitis E virus although it might be possible to test samples retrospectively if a suitable method could be found.
- A study had been carried out to evaluate the effectiveness of standard UK shellfish depuration practices in reducing Norovirus in oysters and to explore the potential for novel approaches to significantly improve the effectiveness of depuration processes. There were also a number of ongoing projects in relation to the effectiveness of sewage treatment.
- The Social Science Research Council had considered public perceptions of viruses and food and there was a suggestion that a working group be set up to take this further.
- The report of the FSA/EFSA workshop was available on the EFSA website. A summary was provided in ACM/1234. The workshop, attended by some ACMSF members, was held in February and had brought together a wide range of experts to discuss the 3 foodborne viruses of concern: Norovirus, Hepatitis A and Hepatitis E. Participants took part in an expert elicitation exercise and ranking of priorities. These included the need for means of measuring infectivity, especially in foodstuffs, and an improved understanding of how detection relates to public health risk, e.g. with respect to Norovirus. Establishing the burden of Hepatitis E virus in the human population in Europe was also seen as important.

8.3 Dr Cook concluded by saying that the FSA was continuing to work with other Government Departments to consider the recommendations of the ACMSF report.

8.4 Members commented that it was very useful to have this update on positive action in some areas, but that it would also be useful to know of any recommendations on which the FSA were not intending to take action, and the reasons for this. Dr Cook acknowledged that there would be some recommend-ations in terms of risk management which were not within FSA's remit, or were not being taken forward at present. The Chair said that it would be useful to have an update on action from other Government Departments.

8.5 David Alexander, from the FSA's Food Policy Division, came to the table and commented that the current financial climate would have a bearing on how many of the recommendations the FSA would be able to take forward and there will need to be careful prioritisation taking into account such things as the EFSA risk ranking in terms of research. There were still some unanswered key questions that were holding back risk management actions, e.g. accurate discrimination between infectious/non-infectious virus particles in food matrices. Future work would need to be aligned to appropriate over-arching FSA work programmes, including the new Foodborne Disease Strategy (still under development) and wider FSA's overall strategy. Mr Alexander assured members that the FSA would continue to work with other bodies, notably Defra, on issues affecting shellfish and shellfish waters. However, he warned that, realistically, the Agency would not be able to devote resources to every area, but would try to influence developments through others.

8.6 The Chair thanked Mr Alexander for injecting a note of realism into the discussion, but reflected that whilst recognising the constraints, food safety was likely to be the area most likely to cause the Agency problems.

9. Horizon Scanning

9.1 Mr Adeoye introduced paper ACM/1235 which provided a reminder of the horizon scanning workshop held in Manchester in January 2015. The outcome of the discussions was a list of microbiological themes and topics which were then ranked in terms of strategic priority and urgency. These were: genomics; changes in the food system; societal changes; climate change; and antimicrobial resistance in the food chain. Other topics that had been considered as important included *Campylobacter,* understanding the impact of the Committee's work, and the use of their advice in risk management. The Committee had also recognised that demographic change in terms of the challenges of an increasingly elderly population was another area likely to become important in the future. Members had also suggested that the Newly Emerging Pathogens Working Group could have a wider role to play in horizon scanning.

9.2 Although genomics had been ranked first for the Committee's attention it was 10 years since the ACMSF's report on *Campylobacter* had been published and tackling *Campylobacter* in chicken was a strategic priority for the FSA. It had therefore been agreed that in the first instance a subgroup should be set up to revisit this issue. Subsequently the *Ad Hoc* Group on *Campylobacter* had been formed in November 2015 and had been busy since then, reviewing the FSA's *Campylobacter* research programme, and holding its first 3 meetings to work on an update of the 2005 report.

9.3 Mr Adeoye invited Members to address 4 questions: to comment on the outcomes of the workshop, to indicate whether they wished to add any further topics to those already identified, to comment on the ranking of topics, and whether they wished to involve other relevant Scientific Advisory Committees in future horizon scanning workshops to help identify cross-cutting issues.

9.4 The following comments were made:

- The topic of genomics was extremely wide, but the relevance to ACMSF was on the challenges to the microbial risk assessment process, for example, using

whole genome sequencing prior to an outbreak, and in defining the mode of action from a foodborne pathogen to a disease.

- Instead of focussing on genomics and WGS, the first topic could be widened to include omics technologies in order to understand what they can tell us.
- On the topic of "Changes in the food system" post-Brexit, there were likely to be changes in food imports and exports, and the impact of such changes may need to be borne in mind. There could also be an impact on our surveillance systems, many of which are integrated within wider European Union activities. In addition control and intervention measures which are currently based on EU approaches would need to be maintained in some other form. There was agreement that as both the timing and nature of Brexit is as yet unclear the Committee should wait for advice from the FSA before starting any work in this area.
- Food waste and recycling of food waste was raised as another upcoming issue. If there was misuse of food in its transportation there could be concerns about how much flexibility there is with the durability labelling of food and what "use by" really means.
- Changes in the food system need not necessarily involve new products, but may involve deliberate changes, or loss of controls, in existing food preparation practices e.g. (under) cooking of burgers, and the cessation of access to/use of QAC sanitizers. There might be some overlap here with the cross-SAC working group on risky foods.
- The Committee had raised industry concerns about the use of biocides with the removal of some currently effective agents. It was noted that on the workplan the proposed establishment of a group to review this issue had been put on hold. Dr Cook informed members that the secretariat were waiting for a steer from FSA colleagues on what progress had been made in Brussels before taking this forward.

9.5 There was support for the workshop approach to horizon scanning that had been employed in Manchester, perhaps every 2-3 years. In the intervening years the outputs could be reviewed and action taken on the topics that had been prioritised.

9.6 In conclusion, the Chair asked for volunteers to take forward the top two topics that still appeared to be most relevant. Gary Barker agreed to lead a group to look at challenges to microbial risk assessment, with Alec Kyriakides, Peter McClure and Bob Adak. Changing controls/risks would be led by Roy Betts, with David Nuttall, Miren Iturriza Gomara and Dan Tucker.

10. Committee sub-groups

Antimicrobial Resistance (AMR) Working Group

10.1 Prof David McDowell updated members on the activities of the above group. Members were informed that the Working Group last met on 15 July 2016 and had a teleconference on 18 October 2016. The issues considered in July include: the FSA Board paper on AMR from board discussion 13 July 2016, EU activities in relation to colistin, update on the work of the EU Working Group on the Reduction of the need to use antimicrobials in animal husbandry, Update on the activities of DARC, FSA systematic literature review to increase the understanding of the role of food production, processing and consumption in the development and spread of AMR

(report is expected to be published before the end of 2016) and Work plan discussion on future meetings. Summary of the July 2016 meeting is on the ACMSF website.

10.2 Concerning the 18 October teleconference the Committee was informed that the group was asked to consider the FSA's draft priorities for antimicrobial resistance (AMR) surveillance in the food chain. The paper was to aid the FSA in defining their surveillance strategy on AMR. Prof McDowell stated his view that it would have been helpful for the group to have had more time to consider the paper and for the FSA to have allocated sufficient time for the group to properly discuss the proposed surveillance strategy. Although the group was able to provide some comments on the proposed strategy Prof McDowell expressed his concerns that a rushed process of delivering advice was inappropriate, and posed risks to the quality of the work of ACMSF and the quality of the advice provided to FSA. He strongly advised that the process of seeking advice from subgroups should be improved. Two members of the subgroup present at the 18 October teleconference supported Prof McDowell's remarks. It was added that in addition to improvement needed on the timing and the way issues are brought to the Committee and its subgroups for ACMSF to be able to provide informed coherent advice the secretariat should ensure that precise questions should accompany issues the Committee is asked to consider. It was stressed that the FSA should be mindful of the independent status of its Scientific Advisory Committees (SACs). ACMSF Chair thanked Prof McDowell and members of the subgroup for their comments and indicated that she would raise all the current issues of concern with the FSA Chief Scientific Adviser.

Surveillance Working Group

10.3 Prof John Coia updated the Committee on the group's involvement with the FSA survey of *Campylobacter* on fresh chicken bought at retail outlets. He was reported that the group commented on the revised methodology for the above survey. The group was specifically asked to consider the issue of sampling from chicken neck skin at lower weights (5-10g rather than 25g). The samples will not be topped up with breast skin, therefore reducing the variability of sample composition between retailers whilst maintaining the comparability to previous surveys where neck skins have been analysed. The laboratory protocol for testing for the previous surveys had involved measuring the amount of *Campylobacter* on 25g of chicken neck skin. Prof Coia outlined the key comments provided on the FSA's revised methodology. The group endorsed the FSA's key proposal as they did not think a reduction in the amount of neck skin flap removed to around 10g would have much impact on the relative sensitivity of the survey analysis.

Ad Hoc* Group on *Campylobacter

10.4 Prof Sarah O'Brien informed the Committee that the above group (that its membership include: Professors David McDowell, Peter McClure, Tom Humphrey, Martin Maiden and Noel McCarthy; Messrs Alec Kyriakides and David Nuttall, Dr Dan Tucker, Mrs Joy Dobbs and Ms Ann Williams) had its third meeting on 29 September 2016. Members were informed that a major activity of the group was participating in the FSA's *Campylobacter* research programme review that was held in Spring 2016.

10.5 It was noted that the group has started drafting chapters of its proposed report. Some of the key areas of the report include: *Campylobacter* biology and tools for detection, *Campylobacter* genetics and genomics, Human epidemiology and transmission routes, Risk in the food chain: primary production, Attitude to risk: consumers and farmers and Motivations and barriers to change. It was mentioned that the group is working towards completing the report in Spring 2017.

11. Any Other Business

11. 1 The Chair expressed grateful thanks on behalf of the Committee to Prof Rick Holliman, Dr Sally Millership and Ms Jenny Morris who would be leaving the committee at the end November, for the valued contributions they had made to the Committee over the last 10 years.

11.2 She asked members to stay at the end of the meeting in the light of the discussion on AMR.

12. Public Questions and Answers

12.1 Mr Tom Miller, retired catering technologist, had two comments on the horizon scanning discussion. Firstly he expressed the hope that the Committee would keep the challenges of an increasing elderly population high on their radar. Secondly he fully supported the comments on the food waste issue and urged that these be linked not only to "use by" date marking but also "once open use within" labelling which, even with his knowledge and recognising the use of protective atmospheres, he sometimes found baffling.

12.2 As the Chair's term ends in March 2017 Mr Miller also took the opportunity to thank her for the way she had always patiently and courteously coped with and handled comments from members of the public at ACMSF meetings.

12.3 The Chair thanked Mr Miller for his remarks and as there were no further questions the meeting was brought to a close.

Annex 1

Members of the public attending as observers

Natalie Adams	Public Health England
Alison Aitchison	Morrisons
Elizabeth Andoh-Kesson	British Retail Consortium
Fiona Brookes	2 Sisters
Catherine Cockcroft	Eurofins
Gary McMahon	Moy Park
Tom Miller	
Barry Mirhabib	Brakes
Karen Sims	Waitrose
Nicola Wilson	Westward Labs