

MINUTES OF THE NINETY-SIXTH MEETING OF THE ADVISORY COMMITTEE
ON THE MICROBIOLOGICAL SAFETY OF FOOD (ACMSF) HELD ON 30
JANUARY 2020 AT THE FSA LONDON OFFICE, CLIVE HOUSE, 70 PETTY
FRANCE LONDON SW1H 9EX

Present

Chair: Prof Bill Keevil

Members:

Prof David McDowell
Dr Gary Barker
Dr Roy Betts
Dr Gauri Godbole
Prof Peter McClure
Mr Alec Kyriakides
Dr Dan Tucker
Mr David Nuttall
Prof Miren Iturriza-Gómara
Dr Gwen Lowe
Miss Heather Lawson
Mrs Emma Hill
Dr Jane Gibbens
Dr Wayne Anderson
Dr Edward Fox

Departmental
representative: Dr Steve Wyllie (Defra)

Secretariat: Dr Paul Cook
Dr Manisha Upadhyay
Mr Adekunle Adeoye
Ms Azuka Aghadiuno

Presenters: Dr Anthony Wilson
Lucy King
Richard Bridge
Elena Fesenko

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 96th meeting of the ACMSF. He also welcomed Dr Anthony Wilson, Food Standards Agency(FSA), Microbiological Risk Assessment Branch, Science Evidence and Research Division (SERD) who would be presenting agenda items 8 (Tickborne Encephalitis virus risks to public health) and 17 that was considered

as reserved business (Update on estimates of norovirus burden), Lucy King and Richard Bridge, FSA: Social Science Team, SERD who would be presenting agenda item 9 (Food and You Survey: Wave 5 Findings) and Elena Fesenko FSA, Science Strategy, Capability and Research, SERD who would be presenting agenda item 10 (Areas of Research Interest).

1.2 Before the meeting started Dr Amie Adkin (Head of FSA Risk Assessment Unit) was invited to say a few words of thanks to two members (David McDowell: Deputy Chair) and David Nuttall who will be retiring from ACMSF at the end of March 2020. She indicated that these members have diligently served the Committee for 10 years respectively. David McDowell in his 10 years has served on almost every subgroup of ACMSF resulting in at least 5 authoritative reports being produced. He also served as Interim Chair for over 2 years.

2. Apologies for absence

2.1 Apologies for absence were received from Dr Bob Adak, Prof Francis Butler, Mrs Ann Williams and Dr Rohini Manuel.

3. Declaration of interests

3.1 The Chair asked Members if they wished to declare any potential conflicts of interest associated with the agenda items to be discussed. Drs Betts and Barker declared that they have carried out work on vacuum and modified atmosphere packed chilled foods funded by a variety of industry groups and Mr Kyriakides declared that his employer, Sainsburys, sold a number of products that could be discussed during the meeting.

4. Minutes of the 95th meeting

4.1 Members approved the minutes of the 95th meeting as an accurate record and agreed that they should be posted on the ACMSF website.

Action: Secretariat

5. Matters arising

5.1 Paper ACM/1320 provided a summary of actions on matters arising from previous meetings. Dr Paul Cook reported that:

- Literature review on botulism in cattle, sheep and goats: 2006 to 2019 to be revised to reflect comments made by members (work in progress).
- ACMSF Ad Hoc Group on *Campylobacter*: high priority recommendations identified by the group from their report has been circulated to the full Committee.
- Weblink to the FSA Board's discussion on the FSA's *Campylobacter* reduction Programme has been circulated to members.

- Public Health England/Animal and Plant Health Agency officials to provide formal response to address query on how updates on the activities of the Epidemiology of Foodborne Infections Group (EFIG) are presented to the Committee.
- Members request for PHE to consider adding raw pet food in the scope of its enhanced surveillance of listeriosis cases has been accepted. PHE's surveillance and gastrointestinal bacterial reference unit has now included raw pet food as an exposure on the national standardised questionnaire for *Listeria*.

6. ACMSF Terms of Reference

6.1 ACMSF is an independent non-statutory body setup in 1990 on the recommendation of the Richmond Committee (Committee on the Microbiological Safety of Food, chaired by Sir Mark Richmond) to provide Government with independent advice on microbiological safety of food. Adekunle Adeoye (ACMSF secretariat) was invited to introduce paper ACM/1321 seeking member views on the committee's original terms of reference. The paper also covered the committee's ways of working and work programme development process. The terms of reference is:

“To assess the risk to humans of microorganisms which are used, or occur, in or on food, and to advise the Food Standards Agency on any matters relating to the microbiological safety of food.”

6.2 Members made the following comments on the terms of reference (ToR).

- ToR appears to be vague on how issues should come to plenary meetings. There should be a clause in it to highlight there is a systematic approach in place used to decide when issues should be referred to the committee, and to state where that approach is documented. Dr Paul Cook explained how the committee's work programme presently operates. He added that as part of the FSA's newly developed risk analysis framework all Scientific Advisory Committees have a role in terms of how the process should work in practice. He underlined that this framework provides the basis for the FSA bringing issues to the committee for consideration. It was noted that although not all issues come to ACMSF for consideration as some are dealt with in collaboration with other government departments, the framework makes provision for the committee to sense check risk assessments relating to microbiological food safety.
- Although the ToR has served the Committee well over the years, a member questioned whether “microbial toxins” should be added to it.
- Page 2 (top sentence). There was no objection to the suggestion that Defra should be added to one of the Departments ACMSF has close links with on issues relating to foodborne disease.
- Is commenting on risk assessments prepared by the FSA covered in the ToR? It may be prudent to explicitly highlight this function.

- An increasingly significant point for the committee which is not explicit in the ToR or the committee's role is the subject of when the hazard crosses the boundary from microbiological food safety into another area such as chemical food safety. It was pointed out that as ACMSF's focus is on microbiological food safety when there is a shared issue between microbiological and chemical food safety there is nothing to indicate when to make way for the chemical angle or how to combine or have a joint risk assessment for these two areas. The possibility of capturing this in the ToR in terms of food safety generally was flagged.
- As the current ToR has not hampered the committee's operations over the years and the members have not struggled to carry out functions to advise the FSA, the Chair and Deputy Chair felt no amendment was needed. It was underlined that the phrase "*any matters relating to the microbiological safety of food*" in the ToR (see above) was sufficient to capture any microbiological issue that may not appear to be covered in the ToR.

6.3 The Chair thanked members for comments made on the ToR. The secretariat noted that there was no objection from members to the above comments from the Chair and Deputy Chair that the ToR has been serving the committee well in the carrying out of its functions (bullet point 5). Therefore, no further action or changes would be made to the Terms of Reference at this time.

7. Ad Hoc Group on non-proteolytic *Clostridium botulinum* and vacuum and modified atmosphere packaged foods (ACM/1322)

7.1 The subgroup on non-proteolytic *C. botulinum* and vacuum and modified atmosphere packaged (VP/MAP) food was setup in June 2019 to review the evidence on key aspects relating to the risk of non-proteolytic *Clostridium botulinum* and VP/MAP foods. Members received an update on the group's work at the October 2019 plenary meeting. Prof David McDowell (Chair of the group) was invited to introduce the group's report (paper ACM/1334). He thanked members of the group who had drafted the report, the secretariat for their support and industry (British Meat Processors Association and the Chilled Food Association) who presented evidence that the group considered. Prof McDowell presented the report by systematically going through the terms of reference, the executive summary, conclusions, recommendations and a section that covered other aspects on the issue of non-proteolytic *C. botulinum* and VP/MAP foods. The group's terms of reference was to:

- Review the FSA guidelines for the shelf-life of vacuum and modified atmosphere packaged foods and the risk posed by non-proteolytic *C. botulinum*, and other pathogens where appropriate, from these foods. This group will consider the 1992 ACMSF *Report on Vacuum Packaging and Associated Processes*, but it is outside the scope of this group to review that document.

- Specifically review the industry funded risk assessment of botulism from chilled, VP/MAP (Vacuum Packed/Modified Atmosphere Packed) fresh meat held at 3°C to 8°C (Peck, 2019).
- Where appropriate consider other risk-related evidence relevant to this topic made available to the FSA and the ACMSF during the lifetime of the group.

7.2 The report's conclusions highlighted that the subgroup reviewed three areas underpinning the current FSA guidance; thermal inactivation parameters, challenge testing and spore loading, as well as a report of an industry funded study concerning fresh meat.

7.3 Drawing on a review of thermal inactivation parameters by Wachnicka *et al.*, 2016 the subgroup found evidence to recommend a change in the z-values within the range of 6.7-7.7C° for calculation of equivalent thermal processes below 90°C. If adopted, this would increase processing time at temperatures below 90°C, required to achieve an equivalent process of 90C for 10 mins.

7.4 Concerning challenge testing, the subgroup agreed that absence of toxin is a minimum requirement for safety and that measuring growth does provide useful additional evidence, but expert advice should be sought as growth studies need careful interpretation. Mathematical modelling for *C. botulinum* usually concentrates on spore germination and on population growth and there are only a few examples that consider the production of toxin. Therefore, the subgroup advises that the inclusion of modelling into safety decision making should be conducted in collaboration with expert advice.

7.5 The group agreed that new evidence shows that, in principle, spore loading could contribute to risk assessment. However, it was agreed that this is a complex step, which requires a structured approach, and is not currently included in the guidelines.

7.6 The subgroup reviewed the report funded by the British Meat Processors Association and Meat Livestock Australia concerning three types of fresh meat; beef, lamb and pork. Whilst the subgroup did not feel enough evidence was available to consider shelf lives around those demonstrated in the challenge tests, it was agreed that an increase of the shelf life of these fresh meats from ten to thirteen days could be recommended, based on the safety record of current industrial practice.

7.7 The Committee noted that the conclusions were echoed in the recommendations that covered the following areas: ten-day rule in relation to fresh meat, z-values, challenge testing, upper shelf-life limit for foods with controlling factors in place and controlling factors. Other aspects of the review that the group discussed but felt there was insufficient evidence to inform any recommendations, or that were outside of the current scope of the guidance included: nitrites, hyper-oxygenated foods, other bacteria possessing botulinum neurotoxin (BoNT) genes, impact of resident microflora on *C. botulinum*, the original 1992 ACMSF report (the group discussed the report although it was outside of the scope of its remit to review it. A full review of the report was recommended) and detection of *C botulinum* growth.

7.8 The group pointed out that it was extraordinary that relatively little work has been carried out on this organism and its toxin when considering its potential impact. It was added that the FSA may want to consider this observation in relation any food safety review or when the 1992 report is reviewed.

7.9 Before inviting members to comment on the report the Committee Chair thanked the group for producing it within a short space of time.

7.10 The following comments were made by members.

- Very good/clear report with evidence clearly presented particularly on the z-values recommendation. Group should be congratulated for a job well executed.
- Welcomed the group's recommendation on the support of a change in the FSA's guidelines on the ten-day rule in relation to fresh meat (lamb, beef and pork) based on the available evidence (BMPA study and the FSS survey) although recognising that having a longer shelf-life would have been beneficial to the meat industry.
- A member commenting on the upper shelf-life limit for foods with controlling factors (on the recommendation that the maximum shelf-life of foods given a heat process of 90°C for ten minutes (or equivalent) should be limited to 42 days, unless it can be shown that lysozyme is absent from the food), questioned whether the group discussed other evidence a producer might have in the event of meat containing lysozyme following heat process but the producer being able to deliver a 6 log reduction in spores of *C.botulinum*. A member of the subgroup explained that the recommendation did not say that meat processors could not go beyond 42 days. He clarified that expert advice should be sought if a shelf-life in excess of 42 days is desired. It was underlined that meat processors (small as well as large business) who wish to go beyond 42 days should have robust evidence to demonstrate why they can do this. It was added that the group agreed with this cautious approach as there were lots of unknowns in this area.
- As there was a query on the group's prescriptive recommendation on challenge testing (mouse bioassay remains the gold standard for BoNT detection and other detection methods should demonstrate at least equivalent specificity and sensitivity), the group members clarified that they were not solely advocating the use of the mouse bioassay but were saying any alternative method should be as good as the mouse bioassay. It was added that the emphasis for this recommendation was concerning toxin detection for the organism and the need to be precise in the statements being made in the report.
- A member of the subgroup drew attention to line 622 in the report (detection of *C.botulinum* growth): he indicated that "statistical" should be inserted before "power".

7.11 In conclusion, following the discussion of the evidence and the recommendations, the Committee unanimously approved the report and agreed to all

the recommendations. The Chair thanked the group for producing the report within a relatively short time.

8. Tick-borne encephalitis virus – draft risk assessment in relation to food

8.1 Dr Anthony Wilson gave a presentation on Tick-borne encephalitis virus - draft risk assessment in relation to food. He reported that following the first ever detection of TBEV in the UK in 2019, an opinion was requested from the FSA by the Department of Health and Social Care (DHSC) and the Chief Medical Officer (CMO) on the risk to the public of infection with TBEV via the consumption of unpasteurised dairy products or of rare or undercooked meat from potentially infected animals in those areas where the virus had been detected in ticks. He highlighted that the risk assessment estimated that the overall risk from consuming rare or undercooked meat or drinking raw drinking milk (RDM) produced in the two affected areas (Thetford Forest and New Forest) was very low to low with a medium level of uncertainty, and noted that the overall risk of TBEV via all foodborne pathways in the two affected areas was likely to be significantly lower than the risk from a tick bite.

8.2 Members noted that this was the first risk assessment to go through ACMSF using the newly adopted 2-dimensional risk assessment framework.

8.3 The committee was invited to comment on the risk assessment via specific questions. Members made the following comments:

- Exposure Assessment. Assessment 1 (frequency of occurrence): Very low (very rare but cannot be excluded): a member remarked that this should be “low” because of the level of uncertainty in the material/data used for the assessment. Dr Wilson and another member noted that this was reflected in the assessment of uncertainty, as recommended under the newly adopted risk assessment framework.
- The member also queried the hazard identification narrative in paragraph 3 of the risk assessment, highlighting the non-inclusion of the number of counties that blood samples were collected and the lack of information to confirm if comparisons were carried out in all the counties sampled. Dr Wilson referred to paragraph 1 of ACM/1334 and elsewhere in the summary and exposure assessment where it is stated that the risk question requested an assessment of the risk limited to the two aforementioned areas. He explained that the risk assessment was looking at the risk to consumers of rare or undercooked meat and consumers of RDM produced in the two areas.
- Exposure assessment (paragraph 10) was also queried as it was felt the information provided relating to the Food Business Operators who produce RDM in the regions of interest was inadequate. Dr Wilson clarified that this was based on information available when the rapid risk assessment was requested but agreed that additional information would have been helpful.
- As Dr Wilson clarified that the risk question (and resulting risk assessment) on this occasion was specifically for the Thetford Forest and New Forest not for

the whole of the UK, a member suggested mentioning more prominently that the assessment was for 2 areas which are only part of potential population at risk in the UK.

- With regards to foraging of pigs that take place in the New Forest area, a member raised the question of whether there were risks in consuming pork from that area. Dr Wilson confirmed that there was no indication in literature of pigs being infected by this virus. He cited information in the risk assessment that covered the prevalence and incidence of TBEV in farmed livestock.
- A point of clarification was raised on page 1 (paragraph 2) that indicated that the current ACMSF classification of overall microbiological risk from RDM is low. This will be corrected to “medium” not “low” in any future versions of the RA.
- A member acknowledging the difficulty of carrying out risk assessments when there is limited quantitative and qualitative data suggested a relook at how uncertainty has been expressed in the risk assessment (uncertainty was expressed for occurrence and detriment). He indicated that given that uncertainty has been expressed in severity of detriment and uncertainty expressed in ingestion as a route of infection uncertainty should be expressed for risk characterisation which should be high because of the high level of exposure. Dr Wilson noted that is currently reflected in the remark addressing the level of confidence, doubt and caution around the science underlying the assessment of risk, as recommended under the new structure.
- Clarification was requested on exposure to the population in relation to whether clinical surveillance of livestock could be used to identify infected animals and their products getting into the food chain. Members were referred to paragraph 13 of the risk assessment that stated that infection of TBEV in cattle, sheep and goats is often subclinical meaning animal inspections are not an effective method of detecting infection.
- Paragraph 11 statement that high-temperature short-time pasteurisation should be highly effective at inactivating TBEV was queried. It was suggested that other pasteurisation protocols may also fulfil the requirement for reducing infection. It was underlined that clarity on the effectiveness of other methods of pasteurisation would be helpful to big and small producers of RDM to mitigate against infection.
- The issue of potential impact of climate change on the transmission risk of TBEV was raised in the context of whether this may change tick population development processes and TBEV transmission dynamics. Dr Wilson agreed but noted that the risk assessment under consideration was formulated in response to a very specific risk question about the immediate risk from two specific areas and this is why this was not discussed.
- Given that this is an emerging/evolving situation with limited data to produce a robust risk assessment probably it would be sensible to mark this subject for

revisiting in future when more data is available, potentially covering a broader geographical area and a longer time period.

- Noting the very limited availability of UK data to inform a robust UK-wide risk assessment, a member enquired whether it would be possible to extrapolate more specifically from quantitative data obtained from European countries (bearing in mind population size) where TBEV is more established to produce an assessment in relation to RDM? It was confirmed that it is not possible to extrapolate data from other countries on tick population and TBEV infection rates because both are known to vary substantially over very short distances and are affected by complex interactions with many aspects of the local microenvironment.
- Defra Departmental representative shared that HAIRS risk support group recently discussed TBEV and may have published a risk assessment. He volunteered to share any published material with the committee via the secretariat. **Action**
- The Chair of the subgroup that produced the committee's newly adopted framework on risk representation commended the author on how the document was drafted.

8.4 In conclusion the committee chair thanked members for their comments on the draft risk assessment.

9. Food and You Survey: Wave 5 Findings

9.1 ACMSF is usually presented with findings from the FSA's Food and You surveys (the Agency's flagship consumer survey measuring self-reported attitudes, behaviour and knowledge regarding food safety and other food-related issues). Lucy King and Richard Bridge (FSA) gave a presentation (via paper ACM/1324) on Wave 5 Food and You fieldwork. The survey was conducted by NatCen between June and December 2018. The total achieved sample size was 3,069 (2,066 in England, 536 in Wales and 467 in Northern Ireland) with a response rate of 48%. Combined results for England, Wales and Northern Ireland based on the core sample were published in April 2019. Subsequent reports presenting country comparisons, and country-specific data for Wales, and Northern Ireland (including a module on healthy eating) based on the boosted and reserve samples were published between May and July 2019. The presentation covered the following:

- Cooking and shopping patterns
- Eating patterns, Measuring food safety knowledge and behaviour: the index of recommended practice (IRP)
- IRP scores
- Cleanliness
- Cooking and reheating food
- Chilling and defrosting food
- Avoiding cross-contamination
- Use-by dates

- Food poisoning
- Information on food safety
- Eating out and the Food Hygiene Rating Scheme
- Food allergies and intolerances
- Measuring food security
- Food security
- Trust in food and in the FSA

9.2 Other areas covered include:

- **How are the findings are used within the FSA:** Monitor progress towards the FSA's strategic outcomes, data feeds into the FSA's annual report and accounts, identify vulnerable groups to help in message targeting, inform content of public awareness campaigns and identify key or emerging issues where further action/research may be required.
- **How are the findings are used outside the FSA:** The findings are also used by Defra (extracting data collected on food security), Public Health Wales (for its Obesity in Wales report), National Food Strategy (some of the metrics are used in food security and trust in food) and the Office for National Statistics (in the development of its Sustainable Development Goals).
- **Food and You 2:** It was noted that the FSA will be launching a new Food and You survey (*'Food and You 2'*) which will move away from traditional face-to-face interviewing towards a 'push-to-web' methodology (online survey with a paper follow-up). This new methodology will be more cost-effective allowing the FSA to increase sample sizes in Northern Ireland and Wales to 1,000 households (500 in Wave 5) and the overall sample size to 4,000 households (3,000 in Wave 5). Unlike in previous waves, up to two adults in each household will be invited to participate and it is anticipated that the overall sample size will be c5,600 adults.

9.3 Members made the following comments on the presentation:

- How do you carry out comparisons in the findings from traditional face to face surveys and the online survey? It was confirmed that this won't be necessary as Food and You is completely moving from face to face surveys to the push-to-web methodology. In the discussion on the merits of online surveys one of its key advantages was that respondents when completing questionnaires were less likely to respond in a 'socially desirable' manner resulting in more accurate data being collected.
- It was acknowledged that the findings in the survey regarding hand washing was similar to what was found in male and female clinical staff in hospitals. Women were found to be more rigorous than males in adhering to hand washing.

- From the findings of the survey the issue of whether young males in University being targeted as at-risk group was raised. It was confirmed that although Food and You has risk groups such as elders, people who are not food secure etc. the FSA has ongoing work on consumer segmentation mining the Food and You database breaking consumers down to specific groups looking at where they get information from on food safety. The aim is to identify which groups are most at risk and devising the appropriate means to target them with food safety/food hygiene advice.
- On cooking and reheating of food it was highlighted that the percentage highlighted for pork shows this is an area that needs attention because under cooked pork is the most common cause of Hepatitis E.
- Is there scope for Food and You 2 to have a question on whether consumers eat risky foods such as unpasteurised milk (raw drinking milk) and rare burger?
- Why does the online survey allow up to two adults in each household participate in the survey It was explained that the successful contractor proposed this approach as it was cost effective, uncomplicated and provides inter house comparability. It was noted that the questionnaire to the individuals will be given to them separately and they will have unique log in codes.
- In the hand washing questions do you differentiate between rinse hands under water and wash hands with soap. This point was noted for the questions that will go into Food and You 2 questionnaire.
- Are you going to spend more time with the at-risk groups who may struggle with the questionnaire? Point was noted (looking at carrying out specific research on at-risk and vulnerable groups). In the process of designing questionnaire with Defra.
- If vulnerable people are in the food security category, they won't have computers. Web based survey should go the extra mile to get responses from this group.
- How far are you aiming to go with the data from this survey as some of the generated data are very revealing for some of the consumer groups. Social Science Team are in the process of employing a research fellow to analyse the data particularly to tease out some of the drivers behind the behaviours.
- On the question of the integrity of the demography of the survey (so as to ensure a good representative mix of the population), it was confirmed that Food and You 2 will employ a stratified sampling approach which will use indices of multiple deprivation.
- Noted the confidence consumers have on the Food Hygiene Rating Scheme. Recognition was higher in Wales and Northern Ireland (94%) than

in England (86%). It was mentioned that consumers in England would welcome the scheme to be mandatory in England.

9.4 As it was highlighted that the questions for the questionnaire were presently being drafted, members were assured that the finalised questions will be shared with the committee before they go live.

10. Areas of Research Interest

10.1 Paper ACM/1325 concerning the FSA's proposed Areas of Research Interest (ARI) had been circulated to members. The FSA Scientific Advisory Committees have been asked to consider and feedback on FSA areas of research interest research questions formulated by the Chief Scientific Advisor team. Members were asked to review and comment on whether the questions fully reflect R&D needs in the area of microbiological safety of food. Elena Fesenko (FSA) provided a brief overview of her paper, asked members to review the FSA's ARI draft document (ACM/1325 annex A) drawing members attention to the following questions for comments.

- Has the CSA team captured all questions the FSA needs to answer – is there anything missing?
- Has the CSA team included questions that the FSA is not really interested in – are there any redundant questions?
- Are any of the questions worded in a way that misrepresents the issue – has the CSA team phrased anything wrongly?

10.2 In addition, members were asked if there were any changes that should be made to reflect the work of ACMSF.

10.3 The Chair asked members to send written comments by 21 February 2020. **Action.** The FSA are aiming to publish their finalised document by 31 March 2020.

11. Epidemiology of Foodborne Infections Group

11.1 The Chair invited Dr Paul Cook to present paper ACM/1326 which summarised the main items from the Epidemiology of Foodborne Infections Group meeting held on 6 December 2019. This included trends in animal and human infection data for quarters 1-3 of 2019, update on the number of *Salmonella* incidents in feed and *Salmonella* National Control Programme (NCP) results 2018 and 2019 (January – September 2019).

11.2 Dr Cook reported that between January and September 2019, there were 872 reports of *Salmonella* from livestock, excluding chickens and turkeys, which is 13% higher than during January – September 2018 (769 reports) but slightly lower than during the equivalent period of 2017 (884 reports). There were 14 reports of *S. Enteritidis* during January – September 2019 compared with 7 reports during January – September 2018 (4 were in horses, one was in quail and 9 were non statutory species).

11.3 Reports of *S. Typhimurium* in species other than chickens and turkeys increased by 11% compared with January – September 2018 (80 vs. 72 reports) but decreased slightly compared with the equivalent period of 2017 (85 reports). The most common phage types were DT104 (14 reports; 18% of total *S. Typhimurium* reports), DT193 (12 reports; 15% of total *S. Typhimurium* reports) and U288 (12 reports; 15% of total *S. Typhimurium* reports).

11.4 Reports of *Salmonella* 4,5,12:i:- in species other than chickens and turkeys increased by 36% (30 vs.22 incidents) compared with January – September 2017 but fell by 21% compared with the equivalent period of 2017 (38 reports). There was an increase of 75% in the number of reports of *Salmonella* 4,12:i: (42 vs. 24 incidents) in species other than chickens or turkeys compared with January – September 2018 and a 20% increase compared with the equivalent period of 2017 (35 incidents). Sixty of the monophasic incidents (83%) reported during January – September 2019 were phage type DT193.

11.5 An overview of the *Salmonella* NCP results for 2018 and 2019 (January – September 2019) showed the number of flocks infected with *S. Enteritidis* has increased. These have occurred in two clusters each of which involved a separate common packing centre. In 2019, 14 chicken layer flocks were identified to be infected with *S. Enteritidis* in GB (provisional data). This compared to 7 in 2018 and 6 in 2017. The flocks identified in 2019 were in two clusters (each with 7 flocks). Each cluster involved a separate common packing centre. PHE has linked the *S. Enteritidis* isolates from the layer flocks to human isolates from two separate WGS clusters of human disease cases. It was noted that APHA, PHE and the FSA are able to quickly identify cases likely to be linked to these incidents because of the use of whole genome sequencing.

11.6 The number of cases of *S. Enteritidis* in broilers has reduced to date in 2019 and the number of cases of *S. Typhimurium* has increased. The reason for this is not clear but this may be due to increased difficulty of rodent control due to more restrictive regulations on use of rodenticides and the ban on use for formaldehyde in feed.

11.7 Trends in human infection data for quarters 1-3, 2019 revealed:

- There were 7053 reports of non-typhoidal *Salmonella* in quarters 1-3 2019 in the UK, a decrease from the 7825 cases reported in quarters 1-3 of 2018. The decrease in reporting rate comes after a gradual increase in reporting rate from 12.6 cases reported per 100,000 population in 2013 to 14.7 cases reported per 100,000 population in 2018. The decrease in reporting rate was seen in all nations except Wales, where reporting rate increased.
- Reports of *S. Enteritidis* decreased in the UK in quarters 1-3 of 2019 compared to 2018, with decreases in case numbers and reporting rates in all nations other than Scotland, where an increase was reported. The reporting rate for *S. Typhimurium* decreased in 2019 in quarters 1-3 compared to 2018, with case numbers decreasing from 1717 in quarters 1-3 of 2018 to 1340 in the same period in 2019. This decrease is partially, but not wholly, due to a decline in case reporting in a large multi-year outbreak of *S. Typhimurium*, which contributed to 166 cases in quarters 1-3 in 2018.

- The reporting rate for *Campylobacter* decreased in the UK from 103.0 per 100,000 population in quarters 1-3 of 2018 to 97.8 per 100,000 in quarters 1-3 of 2019. This decrease comes after the increase in reporting seen in 2018 compared to 2015-2017, although the reporting rate is still higher than in those three years. The reporting rate decreased in all nations except for Wales, which saw an increase in reporting rate to the highest rate seen in any nation from quarters 1-3 of 2010-2009 (132.2 cases per 100,000 population).
- As it was observed that reporting rate decreased in all countries except for Wales, it was noted that PHW was investigating the reasons why numbers were going up in Wales. It was mentioned that EFIG are to request regional breakdown of *Campylobacter* cases (over a 10-year period) in the four UK countries as it was felt this may shed some clues on what may be influencing the fluctuation in the number of cases.
- STEC O157 incidence in the UK decreased in quarters 1-3 2019 after an increase in quarters 1-3 of 2018. Decreases in cases were reported by all countries other than Scotland, where one additional case was reported compared to last year. Members noted the number of cases reported with the most commonly detected STEC serogroups across the constituent countries in the UK in quarters 1-3 of 2019.
- *Cryptosporidium* species incidence in the UK decreased in quarters 1-3 of 2019 compared to the same period in 2018, representing a downward trend in reporting rate since 2017. This is the lowest rate of cases reported for quarters 1-3 since data were available for all four nations in 2015. Reporting rate decreased in all four nations.
- In quarters 1-3 of 2019, 40 foodborne outbreaks were reported to eFOSS in England and Wales and to Health Protection Scotland and Public Health Agency Northern Ireland. The pathogen implicated in the largest number of outbreaks was Norovirus (14/40 outbreaks, 35%), followed by *Salmonella* (7/40 outbreaks, 18%).

11.8 Other items EFIG considered include: a presentation from the FSA incidents team on the challenges of food outbreak management, update and general discussion on food surveillance, UK Government/FSA antimicrobial activities in relation to the food chain and feedback from International Scientific meetings.

11.9 Members made the following comments:

- Referring to *Campylobacter* infections in Wales, a member linked to Public Health Wales (PHW) informed members that PHW was looking into the reasons for the rise in the number of cases. She explained that the move of the majority of PHW laboratories to PCR testing could be the reason for some of the increases but this cannot be the definitive answer on this trend. She accepted to update the committee when ongoing investigations are completed. **Action**

- STEC infection data was queried as being underreported due to the predominance of UK testing only for the O157 serogroup rather than all STEC. The observation was based on the rationale that O157 is about ¼ of STEC cases in the Republic of Ireland where O26 is the dominant serotype.
- Page 3 (paper ACM/1326). Rate Calculation: the following statement was queried “As figures used are for the first three quarters of each year, to estimate annual rates the number of infections reported is multiplied by 1.25 prior to rate calculation”. Two members questioned the multiplication factor of 1.25 used for the data (quarters 1-3 2019) and suggested it should be 1.33.
- It was confirmed that the S Enteritidis outbreaks mentioned in paragraph 11.5 above have now concluded and all the affected flocks have been voluntarily culled. WGS confirmed that the clusters were related. The role of WGS in the rapid investigation and detection of sources of outbreaks was underlined. It was explained that while WGS can assist in foodborne disease investigations there were limits on what it can do in finding out the cause of infection or route of transmission (epidemiology studies are used to find out causation and transmission routes).
- A member referring to the point earlier made by Dr Cook that PHE/APHA (who are part of EFIG secretariat) will provide a formal response to the committee’s query on EFIG papers to ACMSF at a future meeting, volunteered to provide ideas to EFIG on how to make its update more accessible. She will do this after the formal response has been presented.

12. Proposed Horizon Scanning Workshop

12.1 Dr Manisha Upadhyay was invited to introduce paper ACM/1327 concerning a proposed horizon scanning workshop. Members were reminded that these workshops have been routine committee business for many years and have played a key role in helping the committee and FSA identify and respond to emerging microbiological food safety risks. Members were informed that the themes discussed and outputs from the previous workshop were detailed in Annex A of ACM/1272.

12.2 Following Dr Upadhyay’s presentation and in response to her question (on whether members were content with the general format of previous workshops) members confirmed that they were happy to follow the format that has been used in the past. A member commented that tangible outcomes have emerged from previous workshops. In response to how the questions for the workshop are generated, Dr Upadhyay explained that they come from themes/questions considered important by the FSA/ACMSF secretariat for the committee to comment on them prior to the workshop and a full discussion is held on the day of the event where priorities are decided.

12.3 On how horizon scanning is defined in terms of time, it was highlighted that members may want to define this on this occasion. It was noted that presently 5 to 10 years appears to be the rule used for horizon scanning purposes.

12.4 Secretariat to trawl members for availability dates. **Action**

13. Committee update

Ad Hoc Group on Quarternary ammonium compounds (QACs) and Biocides used in food processing

13.1 Dr Gary Barker (Chair of the above group) updated members that the subgroup last met in January 2019. He stated that he has been keeping in touch with the expert Committee on Pesticides Residue in Food on relevant updates on maximum residue levels in relation to QACs and Biocides. He reported that the UK did not attend the European Commission's Standing Committee on Plants, Animals, Food and Feed meeting that took place in November 2019. Members noted that SCOPAFF will be voting on MRLs for Chlorates in February 2020 (ACMSF QACs and Biocides subgroup contributed to the EU consultation on Chlorates MRLs). SCOPAFF has been gathering data on QACs used as disinfectant with a view to make a decision on possible changes to the current rules. Outcome of consultation to be published later in 2020 when the UK would have exited the European Union (UK will still be bound by EU until end of 2020).

13.2 Dr Barker indicated that as the UK is leaving the EU, ACMSF would no longer be able contribute to any EU debates on QACs and Biocides in relation to microbiological food safety. He also mentioned that as UK food industry are unable to provide case studies on how changes made to plant protection products MRLs (QAC and Biocides) are impacting their operations, it was difficult to see how the subgroup can continue to function. Dr Barker emphasised the significance of QACs and Biocides to industry and the complexity in being able to combine the assessment of chemical and microbiological risks.

13.3 Following discussion, members agreed that this situation of not being able to carry out risk assessment on this specific issue of the impact of plant protection products MRL rules on microbiological food safety should be drawn to the attention of the FSA's Senior leadership Team. The Committee's follow-up questions were: what can ACMSF do if the committee's role/operations are hampered by external forces? How can ACMSF engage with EU bodies in the future due to Brexit? **Action**

13.4 Another issue highlighted not related to QACs and Biocides was the banning of formaldehyde in poultry feed which has led to the rise in cases of *Salmonella* in feed

14. Dates of future meetings

14.1 Members were reminded of future meeting dates in 2020 (25 June and 22 October) and 2021 (28 January, 24 June and 21 October 2021).

15. Any Other Business

15.1 A member raised the issue of Coronavirus in relation to the movement of food. He felt it would be appropriate for the FSA/ACMSF to be considering the potential risk of this virus to the food chain. The Chair indicated that he was aware of published work that has confirmed that this virus survives on common surfaces (plastics, ceramics etc) for between 3 to 4 days. He was unaware of any work that has done on the virus in relation to food. Dr Cook remarked that there was an established mechanism to consider emerging issues such as referring it to the Committee's subgroup on Newly Emerging Pathogens. He referred to the current advice on the WHO and the NHS website. He mentioned that there was ongoing discussion in government on this virus and will update the Committee if there is any development that needs members attention/action although this may be via the Newly Emerging Pathogens Working Group.

16. Public Questions and Answers

16.1 Before the Chair opened this section of the meeting to members of the public for questions or comments on the committee's deliberations, he informed the observers that for future meetings anyone who wishes to attend ACMSF plenary meetings should give the secretariat a week's notice as this was needed for practicality purposes.

16.2 Kaarin Goodburn (Chilled Foods Association) commented on Gary Barker's update on the **activities of the subgroup on quaternary ammonium compounds (QACs) and biocides used food processing**. She explained that new EU chlorate MRLs for commodities (except fish) are expected to be voted on at the relevant Standing Committee on Plants, Animals, Food and Feed (SCoPAFF) meeting on 17-18 February 2020. Review of QACs will follow. She informed the Committee that as the UK is about to exit the European Union, UK trade associations routes of representation in the EU food reviews would be through European Trade Associations that they are members of. It was highlighted that UK exit would mean the impending chlorate MRL rules will not be brought onto the UK statutes automatically. Kaarin mentioned that it is not known how the Health and Safety Executive will interpret these rules. It was noted that industry (Food and Biocides Industry Group and Global Food safety Initiative) have developed biocides usage guidance including how to minimise traces being carried over into food from hygiene uses. Members noted that the European Commission is aware of this work that has contributed to gaining special rules for processed (multicomponent) foods, where Food Business Operators, if found to have exceedances of chlorate MRLs are to be given the opportunity to provide evidence that they arose from hygiene uses, not as Plant Protection Products. She added that FBIG members have also been advised to obtain chlorate results from their water suppliers as that is the primary source of chlorate, monitor pesticides residues in food data and identify other sources of potential chlorate in the course of food processing.

16.3 On the report of the subgroup on non-proteolytic *C.botulinum* and vacuum and modified atmosphere packaged foods, Kaarin Goodburn welcomed the group's report particularly the recommendation for the ACMSF to consider conducting a full review of the ACMSF 1992 report on vacuum packaging and associated processes which she underlined was overdue. She underlined that it had taken more than 2 years to get to this point highlighting the difficulties the 1992 report and the FSA 2017 guidance have been causing industry. Specific questions Kaarin raised were:

- When will the FSA revise its 2017 guidance which she said was unsafe in certain respects, without scientific justification and detrimental to trade. She was informed that her query would be passed to FSA risk managers who would consider the assessment that has been carried out by ACMSF. It was explained that FSA risk managers have a systematic approach in considering ACMSF's assessment of issues.
- 'Entirely safe': Line 511 of the subgroup's report includes the clause '*it is not possible to provide a measurement and therefore critical limit that could be applied to assess whether fresh, chilled meat is entirely safe.*' Does the subgroup recognise that there is no such thing as total absence of risk, hence Food Safety Objective play a role? Terminology regarding risk has been agreed in paper ACM/1334 (ACMSF report on multidimensional representation of risks) so should be used. A level of protection for fresh meat with respect to non-proteolytic *Clostridium botulinum* in the UK has been determined to be $10^{10.8}$ (MLA/BMPA report) and earlier as $10^{9.8}$ in the 2006 FSA-commissioned report from IFR/Campden/Goodburn that was endorsed by ACMSF. At those levels of protection the correct terminology would be '**negligible**'.
- 42 days max shelf life for 90/10 foods unless lysozyme absent (or expert advice taken) is based on work using an initial inoculum of 10^6 spores/ml (Fernandez & Peck), which does not reflect levels found in reality. How has this been taken into account by the subgroup?
- 13 days proposed max shelf life for VP/MAP fresh meat what is the scientific basis for this given that two risk assessments covering hygiene and shelf-life practices, trade and consumption safety internationally substantiate the current shelf lives applied by UK industry? What additional data would be required to change this, noting that the UK is globally unique in issuing guidance stipulating shelf-life rules for these foods, so creating a technical barrier to trade.
- Will the UK be enforcing the 2017 guidance on imports or only on UK industry?

16.4 David Lindars (British Meat Processors Association) supported the comments made by Kaarin Goodburn. Drawing attention to the proposed shelf-life extension (ten to thirteen days) for lamb, beef and pork, he remarked that despite the evidence available to the group he was surprised with the recommendation which he felt was prescriptive and overcautious. He said industry's risk assessments and challenge testing have demonstrated that shelf-life can be extended to up to 28 days and that industry would struggle to work with this proposal. He mentioned that industry would

like a proposal that would favour trade as the meat industry was going through a tough time with consumption of meat going down. Other points he made were this proposal will hinder the exportation of retail packed meat bearing in mind transportation/shipping and it may contribute to food waste.

16.5 The Chair of the subgroup (Prof McDowell) remarked that as ACMSF is an evidence-based body the availability of evidence is what guides the Committee in the opinions or reports it produces. He stated that the group's recommendations were supported by the evidence they considered. He reminded industry representatives that when he was ACMSF Interim Chair he encouraged them to make available all the evidence they have on this subject as this was how any change of assessment could be made. A member of the group advised industry representatives to read the group's report carefully as the group did not say it was not possible to go beyond 13 days (page 14, line 520 refers: "Challenge test data does show that there is potential for the shelf-life to be extended further but this would need additional evidence to encompass the potential variation between and within the meat species studied by the BMPA"). He underlined that the group in its deliberations received no evidence to allow a recommendation of more than 13 days to be made. He clarified that the recommendation did not rule out a shelf-life of beyond 13 days provided that the food business operator has sufficient evidence to support it. David Lindars commented that the risk assessment presented to the subgroup had enough material/data which industry felt would convince the group. He underlined his disappointment on the group's shelf life extension decision.

16.6 On the question, of the FSA's timetable in responding to the report, Dr Cook confirmed that with the approval of the report it would now be for FSA risk managers to decide on the next steps. They will decide on possible changes as a result of the recommendations. Industry representatives were advised to direct any queries they may have to risk managers as they will have precise advice on timelines.

16.7 Kaarin Goodburn asked about the FSA funded **Norovirus Attribution Study (NoVAS) to estimate the contribution made by the food chain to the burden of norovirus infection in the UK**. She enquired on when was study report expected to be published and whether stakeholders will have sight of it prior to publication. She remarked that the CFA (and 3 other trade associations) were among the stakeholders involved in setting up the sampling approach in 2014 and provided market data for the project. She wondered why the CFA and other stakeholders who were contributors to the project have not been briefed on the study findings and on the imminent publication of the study report. The Chair indicated that her comments will be passed to the FSA.

17. Update on norovirus burden (Reserved business)

17.1 The Chair invited Dr Anthony Wilson to update the committee on the FSA-funded Norovirus Attribution Study (NoVAS) to estimate the contribution made by the food chain to the burden of norovirus infection in the UK. The study was commissioned to help to address some of the recommendations made by the Committee in its 2015 report on viruses in the food-chain.

17.2 This item was discussed as reserved business.

Annex 1

Observers to ACMSF meeting, 30 January 2020

Dominic LeMare – Food and Drink Federation
Kaarin Goodburn – Chilled Foods Association
David Lindars – British Meat Processors Association
Niki Mosely – Marks and Spencer
Prof Mike Peck – QIB Extra
Rick Pendrous – Technology Writers
Kevin White – The Grocer
Pamela Mullan - MoyPark
Jacob Hargreaves- FSS
Erin Lewis – FSA MRA
Jessica Cairo – FSA MRA
Aisling Jao – FSA SAC Sec Hub