

Please note that these draft minutes are subject to approval by the Advisory Committee on the Microbiological Safety of Food at its next meeting, which will be held on 18 March 2004

ACM/MIN/50

DRAFT MINUTES OF THE FIFTIETH MEETING OF THE ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY OF FOOD HELD ON 4 DECEMBER 2003 AT TRINITY HOUSE, TRINITY SQUARE, TOWER HILL, LONDON EC3 AT 10.30 AM

Present

Chairman : Professor D L Georgala

Members : Dr G R Andrews
Dr D W G Brown
Ms S Davies
Professor M J Gasson
Dr K M Hadley
Professor P R Hunter
Professor A M Johnston
Mr A Kyriakides
Ms E Lewis
Mr P Mepham
Dr S J O'Brien
Mr B J Peirce
Mr D J T Piccaver
Dr Q D Sandifer
Dr T D Wyatt

Assessors : Mr P J R Gayford (Defra)
Dr S Neill (NIDARD)

Secretariat : Mr C R Mylchreest (Administrative Secretary)
Dr P E Cook (Scientific Secretary)
Mrs E A Stretton
Mr G Low
Mr S Rahman

Others : Miss O Doyle (FSA) : agenda item 10
Members of the public – see Annex I

1. Chairman's introduction

1.1 The Chairman welcomed ACMSF Members, and members of the public and others present, to the Committee's 50th meeting.

- 1.2 He explained the format of the meeting and also dealt with a number of 'housekeeping' matters.

2. Apologies for absence

- 2.1 Apologies for absence were received from Professor Humphrey.
- 2.2 Apologies were also received from a number of Departmental Assessors : Dr Doherty (NIDHSSPS), Dr Hilton (FSA), Dr McIlroy (NIDARD) – Dr Neill deputising – and Dr Pryde (FSA/S).

3. Declarations of interest

- 3.1 The Chairman reminded Members of the need to declare any financial or similar interests in respect of items on the day's agenda. None were declared.
- 3.2 The Chairman also drew Members' attention to the Register of Interests which appeared as Annex II of the draft Annual Report for 2003 (ACM/664). He reminded Members that they should notify the Secretariat as soon as possible of any changes needed to their entries in the Register.

4. Minutes of the 49th meeting

- 4.1 Members approved the draft minutes of the previous meeting (ACM/MIN/49 (REV. 1) with one amendment – the deletion from the penultimate line of paragraph 12.2 of the words "microbiological criteria" and "microbiological risk assessment".
- 4.2 There was some discussion of whether the final sentence of paragraph 8.2 of ACM/MIN/49 (REV. 1) served to dilute the Committee's position but, following discussion, Members agreed that this sentence was strictly factual and helped provide a proper balance. In addition, the creation of an *Ad Hoc* Group to investigate the matter demonstrated the Committee's determination to address the issue thoroughly.
- 4.3 The Secretariat was asked to arrange for the approved minutes to be posted on the Committee's website. **Action : Secretariat**

5. Matters arising (ACM/662)

- 5.1 Members noted Secretariat information paper ACM/662 detailing matters arising from previous meetings.

6. Avian Influenza (ACM/663)

- 6.1 The Chairman recalled that, following an outbreak of Avian Influenza (AI) in poultry in the Netherlands, the Food Standards Agency (FSA) had

asked the ACMSF in March for advice on the potential human health risk through food chain exposure pathways. At that time, the Committee had supported the FSA's own view (which took account of preliminary advice from Dr Brown) that the risk was probably very low. However, Dr Brown had been asked to consult external experts and to prepare a risk assessment for consideration by the Committee at a later date. This had now been completed, and the Chairman invited Dr Brown to present it.

6.2 In introducing ACM/663, Dr Brown acknowledged the assistance he had received from colleagues from the National Institute for Biological Standards and Control, and the Central Veterinary Laboratory. He had not undertaken a formal risk assessment but had reviewed the current understanding of AI and its potential risk through the food chain. He had concluded that there was an extremely low risk of human foodborne infection, based on the pattern of the past decade. Birds were the main reservoir of influenza, and most infections were subclinical and were confined to the intestine of the birds. For many years, the belief had been that there was an absolute species barrier, but recent outbreaks had demonstrated that limited infection could occur in humans. The principal risk factor associated with acquisition of AI by humans had been direct contact with infected birds, and not with consumption of their meat or eggs. Limited studies of infection in occupationally-exposed groups and the general community had not identified significant unrecognised human AI infection. The virus was destroyed by proper cooking of infected meat or eggs, and was only moderately acid-stable. The risk of acquiring AI through the food chain was therefore considered to be low. However, further studies of factors affecting human infection, and of occupationally-exposed groups, should be encouraged.

6.3 The following points emerged from the Committee's discussion of Dr Brown's paper :-

- in public health terms, a concern about influenza was its ability to mutate and give rise to pandemics. However, the food chain was a relatively minor infection pathway, the main one being person-to-person transmission;
- AI infection was dependent on close exposure to a high dose of virus. There was also a rapid loss of infectivity, depending upon storage conditions. It was thus considered unlikely that virus would survive effectively in stored poultry carcasses. The cooking of eggs would also provide a safeguard, the heat stability of AI being somewhat less than a number of bacteria of concern in relation to infectious intestinal disease;
- although there was no absolute species barrier, there had been few human AI cases despite the potential exposure of huge numbers of people. Whilst there was a theoretical food chain risk, there had been a small number of defined outbreaks identified over the past 10 years, and the risks for those had been a high direct exposure to infected chickens;

- whilst receptor binding specificity was thought to be important, it was likely that this was not an absolute rule in the human upper respiratory tract.

6.4 The Chairman thanked Dr Brown for his work. Members agreed with Dr Brown's conclusions, particularly that the risk of acquiring AI through food chain exposure pathways was low, and that there was no direct evidence to support this route of infection.

7. Annual Report 2003 (ACM/664)

7.1 The Chairman introduced the first draft of the ACMSF's 2003 Annual Report the purpose of which was to provide a factual record of the Committee's work in the calendar year. He invited Members to let the Secretariat have any comments and also reminded them of the need to check personal details in Annex I and personal and other interests in Annex II, and notify any changes as soon as possible to the Secretariat. He also invited Members to submit any ideas for future work, for inclusion in the Forward Look section of the draft.

7.2 The Chairman explained that the next step would be for the Secretariat to produce a further draft, reflecting any contributions from Members and the outcome of the fiftieth meeting. This draft would be cleared with Members in correspondence, with the aim of formally submitting a final version to the Chairman of the Food Standards Agency in January. The target was to have the report published as close as possible to the end of the period to which it related (ie. calendar year 2003). It was hoped that this 'fast track' procedure would enable the report to be published by March 2004.

7.3 The Secretariat was asked to reflect Members' comments and the outcome of the 50th meeting, and provide Members with an updated draft as soon as possible.

Action : Secretariat

8. Horizon scanning reports

8.1 The Chairman recalled that, as a result of the Committee's horizon scanning activities, 3 *Ad Hoc* Groups had been set up to scope the need for further ACMSF activity in relation to imports, changing social habits, and newly-emerging pathogens. He invited the chairs of these groups to report on progress.

Imports (ACM/665)

8.2 Ms Davies introduced ACM/665, the report and recommendations of the Imports Group. She said that the Group had met on 3 occasions and had had some interesting discussions. Appendix I of ACM/665 gave the membership and terms of reference of the Group. Appendix II contained details of those who had provided evidence. Five main areas had been identified as important - legally imported foods of animal and non-animal

origin; illegally imported foods; third country surveillance of foodborne disease; traceability; and controls on imported foods.

- 8.3 It had appeared to the Group that imported foods of non-animal origin, like fruits and vegetables, received much less attention than imported foods of animal origin. The Group had felt that, given the attention others were paying to illegal imports, this topic did not currently require further investigation by the ACMSF. There seemed to be a paucity of information about surveillance of foodborne hazards in third countries. The sharing of information through informal contacts and networks had been noted but the Group had seen merit in a more formalised arrangement. The Group had recognised the importance of being able to trace the origins of produce in the context of establishing the cause of food poisoning cases. It had been noted that the EU was proposing to make 'one up-one down' traceability mandatory. The Group had also noted that the Cabinet Office had recommended that a single agency should be responsible for coordinating imported food controls.
- 8.4 The Group's recommendation was that the ACMSF should give further consideration to three of the five areas identified as important – ie. managing the microbiological safety of foods of non-animal origin; surveying and capturing information on foodborne diseases in third countries; and the role of traceability systems. The Group also recommended keeping a watching brief on developments in relation to action on illegal imports, and the coordination of imported food controls.
- 8.5 Noting that work carried out to date was very much in the nature of a scoping exercise, Members agreed that the *Ad Hoc* Group on Imports should now follow up its initial work with a more detailed examination of the 3 topics identified for further ACMSF attention. Further expertise should be co-opted on to the Group, as required. The Chairman suggested that, as a first step, the Secretariat should discuss with Ms Davies how best to take matters forward. **Action : Ms Davies/Secretariat**

Changing social habits

- 8.6 Dr Andrews gave an oral report on the work of the Changing Social Habits Group. He hoped to have completed a first draft of the Group's report by Christmas 2003. The conclusions drawn in this would reflect a wealth of data provided by FSA statisticians. Areas of concern identified had been imported foods (which were being tackled by Ms Davies' Group), out-of-home eating and the potential problems associated with an ever changing, culturally, educationally, linguistically and ethnically diverse work force; the loss of domestic culinary and hygiene skills; travel abroad; the increase in numbers of elderly people living in nursing homes and similar care establishments; and the position of those who were immuno-compromised.

- 8.7 Members noted Dr Andrews expectation that the Group would be in a position to report to the full Committee in March 2004. **Action : Dr Andrews**

Newly-emerging pathogens (ACM/666)

8.8 The Chairman of the Newly-Emerging Pathogens Group, Professor Hunter, reported on the one meeting of this Group, and introduced the Group's report (ACM/666). Professor Hunter said that new diseases were seen every year – there had been a whole raft of these over the past 20 years, including SARS, HIV, AI, *Campylobacter* and *E. coli* O157 – all presenting new challenges and opportunities. A major challenge was to identify these new infectious diseases at an early stage. Some organisms posed a significant food chain threat, while others did not. It was often difficult to distinguish between the two at an early enough stage to enable early protective action to be taken when needed. Some were new. Some were not new but had only comparatively recently been recognised, isolated and identified. Some were able to cross species barriers. Some arose from technological changes (eg. *Legionella* from wet cooling towers). Some reflected changes in human behaviour (eg. increased foreign travel, infection in immuno-compromised groups, etc). As it was impossible to predict many of these newly-emerging pathogens, there was a need instead to identify them as early as possible, so that effective counter-measures could be introduced.

8.9 Professor Hunter said that the Group had recognised that many other bodies were looking at this subject. Members had been keen to avoid duplicating the work of such bodies. However, Members felt that these other groups were often not best equipped to respond quickly to fast-moving events. There was thus a useful opportunity for the ACMSF to set up a rapid reaction Group which could conduct its business electronically, could exchange information rapidly, carry out very quick risk assessments, and alert the full Committee to any need for action to protect consumers. ACM/666 set out how this might be done, essentially by transforming the *Ad Hoc* Group into a standing Newly-Emerging Pathogens Working Group. Having discussed the proposal, Members agreed that such a Group should be set up, should begin to operate as soon as possible, and should report regularly to the full ACMSF. **Action : Professor Hunter/Secretariat**

9. *Listeria* (ACM/667)

9.1 The Chairman reminded Members that the ACMSF had a long history of involvement in *Listeria* issues, including giving advice on the pathogenicity of *Listeria monocytogenes* (Lm), on Lm levels in food, and on Lm control measures. Indeed, Government concern about the increasing incidence of microbiological illness of foodborne origin from, amongst other things, *Listeria* had led to the creation of the ACMSF in 1990. He invited Dr Cook to introduce a report on recent trends in listeriosis in the UK (ACM/667).

- 9.2 Dr Cook recalled that Dr Hilton had agreed at the Committee's previous meeting to provide Members with an information paper on the recent outbreak of listeriosis linked to butter. It had subsequently been decided that the paper should, in addition, cover the rising trend in human listeriosis in the UK, of which the butter outbreak was a component. The paper identified a number of areas where the Agency would find it helpful to have ACMSF advice.
- 9.3 Dr Cook said that listeriosis was rare in the UK. During the 1990s, there had been 90-128 reported cases a year in England and Wales (many fewer in Scotland (6-17 p.a.) and Northern Ireland (1-6 p.a.)). In the first 10 months of 2003 (up until 14 November), the England and Wales figure had jumped to 204 cases. Most of these were non-pregnancy-related (although the butter outbreak -see below - largely consisted of pregnancy-related cases). Most of the increase had been seen in Yorkshire/Humberside and the North East. Traditionally, serotyping and phage typing had been the main tools for identifying strains of Lm. The advent of molecular typing (AFLP : amplified fragment length polymorphism and PFGE : pulsed field gel electrophoresis) had provided additional information, thereby allowing a greater degree of resolution in pinpointing clusters of cases in the community. For example, using serotyping, phage typing and AFLP techniques in combination, the Health Protection Agency (HPA) had been able to identify 11 possible clusters of 5-17 cases, comprising 53% (102/192) of cases with typing data in England and Wales. In the butter outbreak, and a sandwich outbreak in Wales (see below), typing had proved particularly valuable in linking contaminated food, the cases, and the factory environment.
- 9.4 Dr Cook gave further details of the butter-associated *Listeria* outbreak, including how information on the probable food vehicle had come to light as a result of routine local authority sampling and testing arrangements at a local dairy, quite independently of the outbreak investigation. Testing had confirmed the presence of Lm at a count of 180 cfu/g in one batch of butter, although it had only been detectable, or present at low levels (<20 cfu/g) in certain other batches. A positive release system had been introduced at the dairy. No Lm had been detected in subsequent butter production, although it had been recovered from a drain at the dairy. 2kg packs of the butter had been recalled and a Food Hazard Warning had been issued. Despite wide distribution of the product, the outbreak had been largely confined to Yorkshire/Humberside. Among possible reasons were that the most heavily contaminated product had been distributed locally, or that low level contaminated product had been distributed, and that subsequent mishandling had caused problems. Although the literature contained instances of butter-associated outbreaks, butter was not regarded as a major vehicle for listeriosis.
- 9.5 Dr Cook said that an outbreak of listeriosis had also occurred in Wales involving 2 outpatients who were reported to have consumed pre-packed ham salad and tuna salad sandwiches at a hospital. Investigations at the

factory revealed evidence of low level *Listeria* contamination. Isolates from the 2 cases, contaminated sandwiches, and the factory environment were indistinguishable by AFLP, serogroup and phage type. The outbreak was not related to the one involving butter which was linked to a different serotype, phage type, AFLP profile.

9.6 Dr Cook said that the FSA would welcome ACMSF advice on what further action could be taken to identify the source of the rising trend in cases of listeriosis; and whether, in the light of recent trends, existing advice to various vulnerable groups needed to be re-emphasised, updated and evaluated. Advice was also sought on whether if, in future Lm was found in a ready-to-eat (RTE) product and there were associated cases of illness, product should be withdrawn and recalled; and whether, in the absence of illness, RTE products like butter, where Lm was not normally expected, should be withdrawn and recalled if the organism was detected, notwithstanding the existing consensus that products containing Lm at levels <100 cfu/g were safe to eat. This consensus currently formed the basis for the proposed microbiological criteria in Europe.

9.7 In the ensuing discussion, a number of points were made, including that:-

- the decline in the incidence of listeriosis among pregnant women might reflect the fact that, following the paté-associated outbreaks in the late 1980s, this group was now routinely avoiding high risk foods;
- given the above, it seemed reasonable to conclude that foods which pregnant women had been advised to avoid were still the main suspects in foodborne listeriosis cases;
- there might be a number of possible reasons for the multiple types of Lm seen, including multiple sources of contamination, multiple infections from the same plant, or unsuitable typing schemes;
- most butter was manufactured from pasteurised cream, in a fully enclosed process. The presence of *Listeria* would indicate unsatisfactory hygiene standards. Required standards of hygiene were likely to prove more difficult to maintain in batch processing, which was now extremely rare but was thought to have been in use at the dairy;
- although salt was added during manufacture, given 'the right conditions', it would not necessarily inhibit the growth of *Listeria*;
- the key high risk foods in relation to Lm continued to be paté, soft cheeses, and cooked/chilled meals. Concern tended to be focussed on long shelf-life products where there was the potential for growth. Proposed EU microbiological criteria were based on the principle that ready-to-eat foods should not contain Lm at levels above 100 cfu/g. The ACMSF had supported that principle. Consumer advice should be targeted at those foods best supporting growth of Lm;

- *Listeria* had been off the public agenda for a number of years and it might now be timely to re-emphasise the advice to vulnerable groups;
- it would be more difficult to frame meaningful consumer advice covering short shelf-life products. It was also likely to prove difficult to link illness to the consumption of short shelf-life foods because of the difficulty in gathering proper evidence;
- it was recognised that the long incubation period for listeriosis made the local authority enforcement task more difficult;
- a challenge for the FSA would be in deciding the frequency with which to reiterate its *Listeria* advice and how best to target such advice to achieve maximum effect.

9.8 In response to the 4 questions directed at the ACMSF, Members advised that they :-

- supported the use of all available means of identifying the cause of the rising trend in human listeriosis cases.;
- favoured the establishment of a small ACMSF/FSA contact group to review the Agency's current *Listeria* advice and the need to re-emphasise, update, or expand it; **Action : Secretariat**
- regarded public health as the key reference point for decisions on product withdrawal/recall. It was essential that decisions reflected sound epidemiological information, based on a case-by-case approach. Available evidence needed to be placed in a proper context, given the potentially long incubation period involved for listeriosis;
- continued to support the principle that HACCP should be used to control Lm in the production process, to achieve a level of <100 cfu/g at point of consumption. Products containing Lm at levels <100 cfu/g could be regarded as safe for consumption, although vulnerable groups needed to heed specific advice concerning certain foods.

10. *Salmonella* (ACM/668)

10.1 Miss Doyle (FSA) introduced ACM/668 - which summarised *Salmonella* Enteritidis outbreaks in England and Wales since June 2003. As in 2002, *Salmonella* Enteritidis PT14b again featured prominently in outbreaks. However, unlike in 2002, it had so far proved impossible to identify the source of the problem. A number of outbreaks had involved Chinese restaurants. None of the shell eggs tested during recent investigations had been positive for PT14b. Nor had other food or environmental sampling identified a source. A case-control study was being carried out by the Health Protection Agency.

- 10.2 Miss Doyle said that there had also been a large outbreak of *S. Enteritidis* PT56 in Bradford. More than 300 cases had been identified. Possible links with a restaurant were being investigated.
- 10.3 Microbiological evidence pinpointing the source of the various *S. Enteritidis* outbreaks had been difficult to establish. However, investigation of premises associated with outbreaks had shown that advice to food businesses on the safe handling and use of raw shell eggs was not always being followed, particularly in bakeries.
- 10.4 Miss Doyle also reported on a large outbreak of *Salmonella* Bareilly involving 186 identified cases (160 in England and Wales, 26 in Scotland). Hypothesis-generating interviews and a matched case-control study to determine the vehicle(s) of transmission pointed to pre-packed egg and cress and egg and mayonnaise sandwiches bought from a particular chain of shops. However, although the descriptive epidemiology and case-control study had identified these variables as important risk factors, microbiological investigation had failed to confirm a food source, and neither environmental nor microbiological investigations had pinpointed a potential source of contamination.
- 10.5 Miss Doyle said that an FSA-funded study of management risk factors in the catering sector was currently under way, and ways of communicating good hygiene practice and food safety measures to specific catering groups was under consideration.
- 10.6 Members noted that FSA advice to caterers on the safe handling and use of raw shell eggs had been reiterated following last year's *S. Enteritidis* outbreaks, although it was recognised that language barriers and the high turnover of staff may have contributed to the advice not having been followed in some instances. It was noted that, as part of the on-going study of management risk factors, Chinese restaurants implicated in outbreaks would be visited, and simultaneous interpretation would be available to assist the investigations. Traceability was seen as a continuing problem, although it was suggested that new EU labelling regulations, which would require the producer to be identified, might facilitate outbreak investigation. The Chairman thanked Miss Doyle for her presentation.

11. Dates of future meetings

- 11.1 Members noted ACM/669 giving the dates for future ACMSF meetings, all of which were open to members of the public.

12. Any other business

- 12.1 Dr Cook reported that the FSA was currently reviewing its microbiological safety research programmes. Individual programme reviews were planned which would provide interested parties with the opportunity to discuss the work funded by the Agency and help identify priority areas for

future work. As part of this process, reviews were planned of the poultry component of the Eggs and Poultry programme (on 13 January 2004), and the Shellfish Hygiene programme (on 27-28 January 2004). Dr Cook asked that any ACMSF Members who were interested in attending either review should notify the Secretariat.

Action : Members

12.2 The Chairman reported on his appointment as an *ex officio* member of the Chief Medical Officer's National Expert Panel on New and Emerging Pathogens. He said that membership included the chairs of the Advisory Committee on Dangerous Pathogens, the Spongiform Encephalopathy Advisory Committee, the Joint Committee on Vaccination and Immunisation, and the Advisory Group on Hepatitis. The Panel was designed to operate as a high level policy group. Food safety was one of a wide range of issues it would address. It was intended that the Panel should meet twice a year but that work would also continue between meetings. The Chairman understood that the Panel's minutes would be published.

12.3 The Chairman said that, at the Panel's recent meeting, he had provided members with a short oral introduction to the work of the ACMSF. He intended to follow this up with a written briefing note which he would prepare with assistance from the Secretariat. Members would see this in draft before it went forward to the Panel and, more generally, would be kept informed of the Panel's deliberations over time.

13. Public Questions and Answers

13.1 The Chairman invited members of the public present to ask any questions they might have on the work of the ACMSF, or to make any statements.

13.2 Mr Shaun Walker (Falmouth and Truro Port Health Authority) raised the question of health inequalities and asked whether the Committee felt that current policies on the microbiological safety of food would serve to widen or close these.

13.3 Professor Hunter said that there was some evidence from the Study of Infectious Intestinal Disease (IID) in England that the risk of IID in adults was more pronounced in those from social class V, compared with those from the higher social classes I and II; but that those from social class V were less likely to consult their general practitioners. Professor Hunter thought that food safety advice was more likely to be adhered to by those from social classes I and II than from V. It might thus be argued that current policies were tending to widen the gap

13.4 The Chairman said that the ACMSF's focus had always been on measures to remove pathogens from the food chain because this would reduce the risks to consumers as a whole, irrespective of their socio-economic backgrounds. There had been some success, for example in tackling *Salmonella* in eggs and poultry meat, and it was hoped that

progress would also be seen in the near future in relation to *Campylobacter* in poultry.

13.5 Dr Norman Simmons recalled that FSA officials had, some 2½ years previously, presented a paper to the FSA Board on diseases associated with imported food. At that time, no direct correlation had been demonstrated between the consumption of imported food and foodborne disease. He wondered whether the ACMSF knew of any peer reviewed scientific evidence showing that imported foods were more likely to cause IID than foods produced in the UK.

13.6 The Chairman said that the ACMSF had certainly never claimed or implied that imported foods presented a greater risk of IID than those produced in the UK. Sue Davies said that the *Ad Hoc* Group on Imports had certainly not started from the assumption that UK food was good and imported food bad. The Group had conducted a scoping exercise and had not got down to the level of detail necessary to enable a comparison to be made between the risk from imported versus that from UK-produced food. The Group had simply recognised that trade in food was now conducted in a global market place.

13.7 Professor Verner Wheelock (Verner Wheelock Associates Ltd) wondered whether the ACMSF had ever assessed the effectiveness of the FSA food hygiene campaign which he regarded as rather generalised. It had been aimed at the whole catering sector and would benefit from more precise targeting. He said that the House of Lords report on infectious diseases had reported on the decline in numbers of Environmental Health Officers (EHOs). As it was likely that 20% of food businesses were responsible for 80% of food safety problems, there was a strong case for making advice more relevant and targeting it better. There might be some relevant information in the report on the evaluation of butchers' premises in Scotland. The parallel report on premises in England had been completed but, as far as he was aware, had not yet been published.

13.8 The Chairman said that the ACMSF had made no scientific evaluation of the effectiveness of the FSA's campaign. However, Dr Cook said that assessment of effectiveness was regarded as an important element of the campaign and would be addressed by the Agency. He added that, although the initial phase of the campaign had been directed towards caterers, it was intended to focus on consumers in 2004, in particular on *Campylobacter* and poultry in the home. Mr Mephram said that, whilst it was true that EHO numbers had declined in recent years, the Chartered Institute of Environmental Health had given this close attention in the past year and there were signs that recruitment had improved dramatically. In addition, the FSA's review of Food Safety Act enforcement codes of practice helped focus on the need for better targeting of available resources.

13.9 Dr Bernard Rowe noted from the EFIG paper (ACM/671) that the number of *Salmonella* Dublin incidents in cattle had increased by over 80% in

2002. He wondered whether there was any explanation for this, and whether there had been any human health impact.

13.10 Paul Gayford said that the pattern over the past 30 years had been that *S. Dublin* increased as *Salmonella* Typhimurium declined, and *vice versa*. The past 5 years had been extremely wet. These conditions had been associated with an increase in fluke infections, and *S. Dublin* had appeared to follow a parallel trend. Dr O'Brien said that, thus far, no change in the incidence of human *S. Dublin* infections had been seen.

13.11 Dr Barbara Lund (Institute of Food Science and Technology) noted that quality assurance seemed to be better developed among the larger producers and retailers of food. Noting also the growing trend in smaller local food enterprises supplying hospitals and vulnerable groups of the population, she wondered whether the Food Standards Agency would bear the role of these smaller enterprises in mind in the context of *Listeria*.

13.12 The Chairman said that, as far as the ACMSF was concerned, he hoped that the ACMSF/FSA contact group mentioned earlier would be able to assist the Agency in reviewing *Listeria* advice. Dr Andrews thought the FSA could have a big influence in the public procurement policies of, eg, hospitals.

13.13 Mr Alan Proctor was concerned with the microbiological quality of cows' milk, particularly in the context of *Mycobacterium avium* subsp. *paratuberculosis* (MAP). He wondered what progress had been made with the FSA-commissioned research on teat cleaning. He thought that low producer prices (which he said were currently at 17p per litre) could militate against the maintenance of proper hygiene standards. There were price disincentives for poorer microbiological quality. Producers needed to increase output to achieve better quality and better producer prices, but, paradoxically, higher volumes served to depress both market and producer prices. Mr Proctor said that he would like to see the FSA repeat its 2000 national study on the microbiological quality of cows' milk. He understood that bovine mastitis could result in streptococci in milk. He asked what pathogens were present in pasteurised milk.

13.14 The Chairman said that it was important to differentiate between raw and pasteurised milk. Raw milk contained a wide range of microorganisms and the ACMSF had advised on the risks associated with its consumption. Pasteurisation was a very efficient means of destroying pathogens, although it was important to remember that pasteurisation was not sterilisation. A particular interest of the ACMSF in relation to pasteurised milk had been the survival of MAP, and the Committee had provided very detailed advice to the FSA on the action required to address the problem. The Agency had since developed a strategy for the control of MAP in cows' milk.

13.15 Dr Andrews said that, in his experience, the microbiological quality of cows' milk had improved dramatically during the 1980s, reflecting a number of factors including quality-based pricing, larger dairy herds, better herd management, and improved quality of on-farm equipment resulting in more hygienic milking and more rapid cooling of milk. He had seen no evidence that standards had fallen in the intervening period. As regards Mr Proctor's question about streptococci in milk, Dr Andrews said that producers were required to set aside milk from mastitis-affected cattle, not least because of the poorer keeping qualities of such milk. In relation to Mr Proctor's call for the FSA to repeat its national survey of milk, Dr Cook said that the Agency hoped to do so, although it was not possible at this stage to say when.

LIST OF MEMBERS OF THE PUBLIC ATTENDING THE ACMSF'S 50TH MEETING

Mr Phil Banks	Department for Environment, Food and Rural Affairs (Defra)
Mr Kieran Brown	Heinz Frozen and Chilled Foods
Mr David Clarke	Assured Food Standards
Dr Lucy Foster	Food Standards Agency (FSA)
Ms Kaarin Goodburn	Chilled Food Association
Dr Barbara Lund	Institute of Food Science and Technology
Ms Helen McDermott	Food and Drink Federation
Dr Bob Mitchell	Health Protection Agency
Ms Gemma Mulholland	Defra
Mr Alan Proctor	
Dr Bernard Rowe	
Dr Norman Simmons	
Ms Helen Sisson	Greencore Group
Dr Roger Skinner	
Mr Shaun Walker	Falmouth and Truro Port Health Authority
Professor Verner Wheelock	Verner Wheelock Associates Ltd
Mr Shaun Whelan	FSA
Mr Michael Wood	Norpath Laboratories Ltd