ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY OF FOOD

Application of molecular epidemiology to investigation of foodborne disease outbreaks

1. In January 2012 the FSA held a workshop on the Application of Molecular Epidemiology to Investigations of Foodborne Disease Outbreaks: Current Status and Future Plans in conjunction with ACMSF, the Heath Protection Agency and the Biotechnology and Biological Sciences Research Council. A copy of the meeting report is provided as ACM/1092a. This is a rapidly developing area and the falling costs of sequencing coupled with the development of new technology, mean it is having an impact on many areas of microbiology. The meeting focused on outbreak investigation and a few of the key points highlighted are as follows:

2. Meeting participants recognised the potential for Next Generation Sequencing (NGS) in outbreak investigation. They encouraged the agencies involved to apply such approaches to future foodborne outbreaks, including the analysis of food and environmental isolates where these are available.

3. Whilst historical isolates were recognised as an important resource and reference point it was felt that sequencing of such collections does not need to occur before applying sequencing technologies to new isolates. When sequencing of historical isolates is being considered the focus should be on isolates where sequencing is likely to add value. Gaps in knowledge in animal populations also need to be considered.

4. Standardisation is needed particularly as the adoption of sequencing technologies becomes more widespread and identifying sources of variability and uncertainty between the different methodologies will be important. Standardisation is also important for other information collected (clinical, animal, food, environmental) and ideally such information should not be collected retrospectively.

5. Data sharing and interpretation will be key issues and the need for the development of interpretation software that is widely accepted and understandable was highlighted.

6. In the wider context of microbiological food safety, the FSA recognises the importance of identifying opportunities and potential applications of next generation sequencing. It is anticipated that this technology will increasingly be included in future research requirements where it is relevant and can add value to the work being undertaken.

7. The Committee is invited to

a) comment on the report and the relative importance of the different issues raised;

b) identify any gaps not highlighted which are relevant to the application of this technology to microbiological food safety.

Secretariat
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