

ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY OF FOOD
DISCUSSION PAPER

Findings of the Public Inquiry into the *E.coli* O157 outbreak in South Wales

At the March 2009 ACMSF meeting the Committee agreed to consider the findings of the Public Inquiry into the *E.coli* O157 outbreak in South Wales in 2005 and the FSA's response.

The attached paper outlines the findings of the Public Inquiry into the *E.coli* O157 outbreak in South Wales in 2005 and the FSA's response to these findings.

Members are invited to comment on the findings of the Public Inquiry Report and the FSA's response to date to inform future action.

Secretariat
September 2009

ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY OF FOOD

Findings of the Public Inquiry into the *E.coli* O157 outbreak in South Wales

The Issue

1. To brief the Committee on the findings of the Public Inquiry into the *E.coli* O157 outbreak in South Wales in 2005 and the FSA's response.
2. To ask the Committee to consider what role it could play in advising the Agency on its response to the Report, in particular its recommendation regarding "supershedders".

Background

3. The 2005 outbreak, the largest outbreak of *E. coli* O157 in Wales, affected more than 150 people, most of whom were children in 44 schools across four local authority areas. Thirty-one people were admitted to hospital and a five-year-old boy died. The butcher at the centre of the outbreak was sentenced to a 12 month custodial sentence and prohibited from managing a food business. The First Minister for Wales commissioned a public inquiry into the outbreak and Professor Hugh Pennington delivered his report on 19 March 2009¹.
4. The Inquiry concluded that the outbreak was caused by cooked meats that had been contaminated with *E.coli* O157, which, on the balance of probability, entered the premises of John Tudor and Son, a catering butcher business, on meat from the abattoir of J.E. Tudor & Sons Ltd. The risk of contaminated raw meat leaving the abattoir was higher than it should have been as the control systems in place should have minimised the risks. The outbreak occurred because of food hygiene failures at the catering butcher premises. The only systems that worked well were outbreak control and clinical care. There were system failures everywhere else. Issues around HACCP were the most important. Wherever it should have been applied, there was insufficient appreciation of its power to deliver safe food.

Public Inquiry Report

5. The report provides information on *E.coli* O157, the context for the outbreak and a description of the outbreak itself (Chapters 3, 4 and 5, respectively). It describes the working practices of the business that was at the centre of the outbreak and supplied raw and cooked meats for school meals (Ch.6). It examines the roles of the local authority, FSA and Meat Hygiene Service (Ch.7,8,9) and food procurement arrangements (Ch.10). It covers management of the outbreak and communications (Ch.11,12) examines provision of sanitary facilities in schools (Ch.13). It considers treatment and care of those who were

¹ The full *E.coli* Report is available at <http://wales.gov.uk/ecolidocs/3008707/reporten.pdf>

infected (Ch.14,15) and the CMOs' review (Ch.16). Findings and conclusions are in Chapter 17. The recommendations are listed at **Annex 1** to this paper.

6. Microbiological testing and typing revealed that the strains of *E.coli* O157 in people who were infected were indistinguishable from those found on cooked meats recovered from schools, in a sample of raw meat recovered from the premises of John Tudor & Son and in samples of cattle faeces taken from a farm. Cattle from the farm were slaughtered at the abattoir, which supplied meat to John Tudor & Son.
7. Tudors sold raw meats such as chicken, turkey, beef, lamb, pork and gammon. It also sold cooked meats including ham, turkey, beef, chicken, lamb and pork. Faggots and burgers were also produced at the premises. Some meats arrived at the premises already cooked, either having been sliced and sealed in vacuum packets by the supplier and sold on to customers, or those processes occurred at Tudors. Meats were also cooked there and might be sliced and packed or simply sold as whole joints.
8. The outbreak occurred because of serious and repeated breaches of Food Safety Regulations at the premises of John Tudor and Son. William Tudor, the proprietor, obtained the Advanced Diploma in Food Hygiene qualification in November 2002. Deficiencies at the premises had existed for some time. The inspections undertaken by Environmental Health Officers were made less effective by William Tudor's dishonesty. The Proprietor had a significant disregard for food safety and thus for the health of people who consumed meats produced and distributed by his business.
9. The report stated² that *E.coli* O157 is a threat that requires continual attention to hygiene procedures and that effective defences in depth are essential if the foodborne spread is to be prevented. Ingesting a very small number of organisms can initiate a fatal infection. Their presence in cattle is a given. The presence of millions of *E.coli* O157 on a piece of meat can escape detection by visual inspection. The risk of contamination can be reduced by sound practice, but the nature of work in slaughterhouses means that the delivery of meat uncontaminated by *E.coli* O157 cannot be guaranteed. Thus all raw meat must be regarded as potentially contaminated.
10. The report quotes the recommendations made in 1995 by the Advisory Committee for the Microbiological Safety of Food, which included:
 - (i) Action to minimise the contamination of carcasses of animals at slaughter.
 - (ii) The adoption by the food industry of a Hazard Analysis Critical Control Point ("HACCP") approach to prevent contamination.
 - (iii) The prevention of cross-contamination from raw to cooked food.
 - (v) Advice on the cooking of beefburgers to kill *E.coli* O157 thus reducing risks of infection through undercooked food.
 - (vi) Control measures at all levels in the food chain given that the eradication of *E.coli* O157 in cattle is unlikely.

² E.coli Report Paragraphs 4.21-23 and 17.6

FSA Response

11. The Agency's response to the report was considered by the FSA Board initially in April³ and in July 2009⁴. While the Report covered the outbreak in Wales, the Agency is addressing the recommendations and matters raised from a UK perspective. It has set up a Food Hygiene Delivery (FHD) Programme Board, chaired by the Chief Scientist and Head of Food Safety Group, to act on a UK basis. Although the Report focused on *E.coli* O157, it was agreed that the programme should consider all foodborne pathogens and all food groups and delivery through local authorities, the Meat Hygiene Service and the Department of Agriculture and Rural Development in Northern Ireland. The Programme will run until 2014 to reflect Recommendation 21 of the Inquiry Report, that there should be a substantial review of hygiene enforcement after approximately five years.
12. Although only three of the recommendations are directed at the Agency, the FSA Board agreed that the FSA should take the lead in addressing all the Report's findings and recommendations that lie within the Agency's remit. While noting all the activity that had taken place since 2005, and that risks can not be entirely eliminated, the FSA Board considered that more had to be done in partnership with local authorities and other key players, to achieve greater food safety compliance and accompanying reductions in food poisoning.
13. The overall purpose for the FHD Programme is to minimise the level of foodborne disease through:
 - Improved awareness and control of food safety hazards by food businesses, food law enforcers and consumers; and
 - Reliable assurance that compliance with legal standards is maintained, using timely, effective and proportionate enforcement where necessary.

FHD Programme Projects

14. Fourteen projects have been identified to take forward the FHD Programme work plan, summarised at **Annex 2**. The following projects will be of particular interest to the Committee:

Project 1 **Explore ways of reducing contamination of food animals by *E.coli* O157 on farm** (in particular issues raised by Recommendation 24: The feasibility of identifying "supershedder" cattle on farms should be explored as a potential means of reducing the likelihood of spreading *E.coli* O157 to other cattle.)

Project 2 **Provide science-based information to improve awareness and control of food safety hazards by food businesses** (in particular issues raised by Recommendation 1: All food businesses must ensure that their systems and procedures are capable of preventing the contamination or cross-contamination of food with *E.coli* O157.)

³ <http://www.food.gov.uk/multimedia/pdfs/board/fsa090404.pdf>

⁴ <http://www.food.gov.uk/multimedia/pdfs/board/fsa090707.pdf>

- Project 3 **Provide science-based information to improve awareness and control of food safety hazards by consumers.**
- Project 4 **Provide science-based information to food business operators to improve control of contamination through effective use of appropriate cleaning products** (in particular issues raised by Recommendation 6: The FSA should remove the confusion that exists among food business operators about what solution(s) should be used to prevent cross-contamination from surfaces and equipment.)
- Project 5 **Review issues relating to cross-contamination in food businesses** (in particular issues raised by Recommendation 4 - The principles underpinning the Butchers' Licensing Scheme, which was introduced in response to the 1996 *E.coli* O157 outbreak, should guide food hygiene measures in businesses processing raw meat and unwrapped ready-to-eat foods.)
- Project 7 **Achieve a business culture that prioritises food safety and an enforcement culture that engenders a proactive, inquisitorial approach to inspection and audit, and the confidence to enforce compliance when necessary.**

Science based Information (Projects 1-4)

15. The Agency's Foodborne Disease Strategy targets five pathogens, including *E.coli* O157, and work will continue under the Agency's 2010-2015 Strategic Plan, and will ensure that our guidance on hazards and pathogen reduction measures is underpinned by science.
16. In particular, the Inquiry Report suggests that control measures targeted at cattle "supershedders" could be very effective in reducing prevalence of *E.coli* O157 and cites three references in the bibliography (26⁵, 27⁶, 28⁷). A review of VTEC research to date will inform future work and our intervention and education strategies.

Food Safety Culture (Project 7)

17. A key challenge is to tackle businesses that share Tudor's attitude *and* to engender a proactive, inquisitorial approach by those who inspect and audit those operators' procedures, with the confidence to enforce compliance where necessary. It is hoped that this will provide evidence in food safety and other fields that will develop guidance, training and interventions that are more effective in achieving compliance. The FSA's Social Science Research Unit is

⁵ 'VTEC: Lessons learned from British outbreaks' <http://www.ncbi.nlm.nih.gov/pubmed/10880183>

⁶ 'Concentration and prevalence of *E.coli* O157 in cattle faeces at slaughter' <http://aem.asm.org/cgi/content/full/69/5/2444>

⁷ Heterogeneous shedding of *E.coli* O157 in cattle and its implications for control <http://www.ncbi.nlm.nih.gov/pubmed/16407143>

commissioning a review of UK and international literature, and we will discuss other potential benefits to be derived from social science approaches with the Social Science Research Committee⁸.

ACMSF Action

18. The Committee is invited to comment on any of the findings of the *E.coli* O157 Public Inquiry Report and the FSA's response to date to inform future action.
19. To ask the Committee to consider what role it could play in advising the Agency on its response to the Report, in particular its recommendation regarding "supershedders".

**Hygiene & Microbiology Division
September 2009**

⁸ <http://www.food.gov.uk/science/socsci/>

RECOMMENDATIONS OF THE PUBLIC INQUIRY INTO THE OUTBREAK OF *E. COLI* O157 IN SOUTH WALES IN SEPTEMBER 2005

The requirements for food hygiene that were in place at the time of the Outbreak should have been sufficient to prevent it. The recommendations therefore reflect what needs to be improved, tightened up or reinforced.

Food Safety Practice

Recommendation 1: All food businesses must ensure that their systems and procedures are capable of preventing the contamination or cross-contamination of food with *E.coli* O157.

Recommendation 2: Food businesses must get to grips with food safety management based very clearly on the seven key HACCP principles, ensuring it is a core part of the way they run their business.

Recommendation 3: Additional resources should be made available to ensure that all food businesses in Wales understand and use the HACCP approach and have in place an effective, documented, food safety management system which is embedded in working culture and practice.

Recommendation 4: The principles underpinning the Butchers' Licensing Scheme, which was introduced in response to the 1996 *E.coli* O157 outbreak, should guide food hygiene measures in businesses processing raw meat and unwrapped ready-to-eat foods.

Recommendation 5: The Food Standards Agency should review its current guidance and should be proactive in generating new guidance where needs are identified.

Recommendation 6: The Food Standards Agency should remove the confusion that exists among food business operators about what solution(s) should be used to prevent cross-contamination from surfaces and equipment.

Recommendation 7: Regulatory and enforcement bodies should keep the choice of "light touch" enforcement for individual food businesses under constant review.

Food Hygiene Inspections

Recommendation 8: The inspection of HACCP plans must be audit-based.

Recommendation 9: Training provision should be developed to ensure that all officers in Wales who check HACCP and HACCP-based plans, including those responsible for overseeing the work of those officers, have the necessary knowledge and skills.

Recommendation 10: Environmental Health Officers should obtain a copy of a business's HACCP/food safety management plan at each inspection, which should be held on the business's inspection file.

Recommendation 11: A system of logging issues, concerns or potential problems, whether by "red flagging" specific documents or by file notes, should be standard practice.

Recommendation 12: Decisions about confidence in a business's management of food safety should be evidence-based.

Recommendation 13: All inspections, primary and secondary, must be unannounced unless, exceptionally, there are specific and justifiable circumstances or reasons why a pre-arranged visit is necessary.

Recommendation 14: Discussion with employees must be a standard part of food hygiene inspection visits.

Recommendation 15: The Food Standards Agency should develop, as part of its Audit Scheme or as an adjunct to it, a means of assessing how food hygiene inspections are undertaken by local authorities, including assessment of HACCP and HACCP-based plans.

Procurement

Recommendation 16: Businesses contracting for the supply of high-risk foods, such as raw and cooked meats, to public sector organisations must be subject to independent food hygiene audits.

Health & Care Services

Recommendation 17: *All health and care organisations should have an effective means of contacting key personnel during and outside normal working hours and for disseminating important information.*⁹

School and hygiene

Recommendation 18: *Every local authority should have a programme of audits to ensure that all schools have adequate toilet and hand washing facilities*⁹.

Learning Lessons

Recommendation 19: All local authorities in Wales should review their policies, procedures and systems against issues raised by this report.

Recommendation 20: The National Assembly for Wales should consider my recommendations and monitor and report progress on implementation.

Recommendation 21: A substantial review of food hygiene enforcement in Wales should take place approximately five years after the publication of this report.

Recommendation 22: Good practice advice and guidance issued by public bodies should be subject to follow-up and/or more detailed evaluation.

Learning More

Recommendation 23: *Variable Number Tandem Repeat (VNTR) should be validated as a standard method for the typing of E.coli O157*⁹.

Recommendation 24: The feasibility of identifying “supershedder” cattle on farms should be explored as a potential means of reducing the likelihood of spreading *E.coli* O157 to other cattle.

⁹ These recommendations are considered most appropriate for response by (R.17) health & care organisations, (R.18) Local Authorities and (R19) formal bodies responsible for typing, e.g. Health Protection Agency

FOOD HYGIENE DELIVERY PROGRAMME – PROJECT SUMMARY

Projects 1-5

Hazards & Pathogen Reduction

- Explore ways of reducing contamination of food animals by *E.coli* O157 on farm, including the feasibility of identifying “supershedder” cattle before slaughter.
- Provide science-based information to improve awareness and control of food safety hazards by food businesses; and consumers.

Good Hygiene Practice

- Provide science-based information to food business operators to improve control of contamination through effective use of appropriate cleaning products.
- Initial review of all issues concerning cross contamination and the principles behind butcher’s licensing, though they may ultimately come under other project areas.

Projects 6-9

HACCP

- Increase effective uptake of food safety management systems based on HACCP principles, including specifically butcher’s shops and slaughterhouses.

Food Safety Culture

- Achieve a business culture that prioritises food safety and an enforcement culture that engenders a proactive, inquisitorial approach to inspection and audit, and the confidence to enforce compliance when necessary.

FBO Audit Process

- Provide any necessary additional training, guidance or instructions to Enforcement Authorities /Officers in LAs, MHS and DARD to provide reliable assurance that compliance with legal standards is maintained.

Training & Competence

- Ensure food law enforcement officers are competent in HACCP and audit skills.

Projects 10-12

FSA Audits

- Ensure FSA audits provide reliable assurance on the level of enforcement compliance is achieved through appropriate interventions and, where that is not the case, follow up on how poor practices have been corrected.

Effectiveness (KPIs)

- Measure the effectiveness of the FHD Programme (including LAEMS).

LA Engagement Strategy

- Push more effectively in all appropriate national forums for food safety to be given more prominence by local political bodies and their officials.

Project 13

Legal Powers and Penalties

- Consider whether available legal powers and penalties and related guidance are appropriate, adequate and used effectively and what, if any, changes to the legislation are required and take steps to introduce these.

Project 14

Food Safety Aspects of Food Procurement

- Provide food safety guidance for those responsible for the procurement of food.