The Public Inquiry into the September 2005 Outbreak of *E.coli* O157 in South Wales

Summary

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March 2009

Produced by Cartographics, Welsh Assembly Government

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ISBN Number: 978 0 7504 4958 8

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SUMMARY

The Public Inquiry into the September 2005 Outbreak of *E.coli* O157 in South Wales

This document summarises my findings and lists my recommendations. My full report is available on the Inquiry's web site **www.ecoliinquirywales.org**

Professor Hugh Pennington
Chairman

The Outbreak

1. The Outbreak of *E.coli* O157 in South Wales in September 2005 was the largest outbreak caused by this organism in Wales and the second largest to date in the UK.

2. A total of 157 cases were identified, of which 118 were confirmed microbiologically as *E.coli* O157. Of those, 109 were of a strain unique to the Outbreak.

3. Most cases were children in 44 schools across four local authority areas. Thirty-one people were admitted to hospital. Tragically, Mason Jones aged five, died.

The Inquiry

4. The Inquiry's terms of reference were: "To enquire into the circumstances that led to the Outbreak of *E.coli* O157 infection in South Wales in September 2005 and into the handling of the Outbreak; and to consider the implications for the future and make recommendations accordingly".

5. Progress was affected by a criminal investigation and subsequent proceedings but the Inquiry was able to work in parallel with both.

6. The Inquiry considered a substantial volume of written and oral evidence. All relevant evidence and transcripts of proceedings can be accessed on the Inquiry's web site www.ecoliinquirywales.org

E.coli O157

7. Many types of bacteria live harmlessly in the digestive systems of people and animals. *E.coli* is one of them. But some types of it, such as *E.coli* O157, produce toxins that can cause serious illness.

8. *E.coli* O157 is a particularly nasty organism. It is highly infectious; only a few organisms can cause a potentially fatal infection.

9. The effect on some people can be mild but on others can be very serious and sometimes fatal. Some people are left with permanent kidney or brain damage.

10. Children under 5 and elderly people over 75 are particularly vulnerable. They are more likely to develop complications, which in themselves are not preventable and for which there are no specific treatments, only good supportive care.

Preventing Infection

11. The main source of *E.coli* O157 is the intestines of cattle and sheep. Infected animals show no symptoms but shed bacteria, most of which are found on the surface of their faeces.

12. Abattoirs must take steps to prevent an animal's flesh becoming contaminated with *E.coli* O157 in the first place. The organism is killed by cooking so action to prevent the cross-contamination of ready-to-eat foods is an essential food safety measure. In both abattoirs and butchers, food safety is delivered by Hazard Analysis Critical Control Point (HACCP), a system developed many years ago for the US Space Programme but now used worldwide.

13. Because *E.coli* O157 can also be transmitted between people, good personal hygiene practices are vital to prevent its spread. This is particularly important for elderly people in residential care homes, for children and young people in schools, and for people in hospital.

14. Food safety measures are underpinned by legislation, operated by businesses, and enforced by inspectorates. The regulatory systems in force at the time of the Outbreak had been reformed throughout the UK in the years before it. So the measures that were in place in 2005 were modern.

15. One of the measures, Butchers' Licensing, had even been introduced as a result of the 1996 outbreak of *E.coli* O157 in Scotland. All this makes the Outbreak particularly shocking.

Source of the Outbreak

16. The Outbreak was caused by food, cooked meats in this case, that had been contaminated with *E.coli* O157.

17. Extensive 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, a catering butcher business, and in samples of cattle faeces taken from a farm.

18. Cattle from the farm were slaughtered at the abattoir of J.E. Tudor & Sons Ltd, which supplied meat to John Tudor & Son

19. The Outbreak occurred because of food hygiene failures at the premises of John Tudor and Son. The responsibility for it falls squarely on the shoulders of William Tudor, the Proprietor.

20. William Tudor pleaded guilty to seven food hygiene offences. He was sentenced to twelve months imprisonment and banned from participation in managing any food business.

21. There were serious, and repeated, breaches of Food Safety Regulations. He failed to ensure that critical procedures, such as cleaning and the separation of raw and cooked meats, were carried out effectively. He also falsified certain records that were an important part of food safety practice.

22. The business's Hazard Analysis Critical Control Point (HACCP) plan was not valid. In some respects it was positively inaccurate and misleading.

23. William Tudor misled, and lied to, Environmental Health Officers on some issues, such as the use of the vac packing machine and a machine being away for repair.

24. There is no evidence that there was a sudden decline in food safety practice just before the Outbreak. Deficiencies had been there for a long time before.

25. William Tudor had a significant disregard for food safety and thus, for the health of people who consumed meats produced and distributed by his business.

The Inspections of John Tudor & Son

26. Bridgend County Borough Council was responsible for the inspection of John Tudor & Son.

27. The inspections undertaken by Environmental Health Officers were made less effective by William Tudor's dishonesty. Even so, the inspections did not assess or monitor the business's management of food safety as well as they could, or should, have done.

28. Clues were missed. Those that were spotted were lost in the system because there was no way of alerting other Environmental Health Officers to issues or concerns for subsequent inspections.

29. Failures around the Hazard Analysis Critical Control Point (HACCP) approach were the most important. The fundamental flaws in John Tudor & Son's HACCP plan could, and should, have been picked up.

30. There was insufficient focus on identifying and assessing working practices and procedures to ensure that the HACCP plan was being applied in practice.

31. The inspections failed systematically to assess the accuracy and effectiveness of the underlying HACCP documentation. Even when there is some indication that the underlying records were checked, inconsistencies and problems were not picked up.

The Food Standards Agency's Audit

32. Bridgend County Borough Council was audited by the Food Standards Agency in February 2004, some 18 months prior to the Outbreak.

33. Although feedback was provided at the end of the Audit in February 2004, the draft report was not sent to Bridgend until 17 June 2005, well over a year later.

34. The audit found little systemically wrong with Bridgend's team and methods of working.

35. The audit was systems-based. It was not designed to examine the techniques of an effective inspection.

School Meals

36. Schools were supplied with meats by John Tudor & Son under a contract with Rhondda Cynon Taf, Bridgend, Caerphilly and Merthyr Tydfil County Borough Councils.

37. The process by which the contracts were awarded in 1998 and 2002 was seriously flawed in relation to food safety.

38. The arrangements for the joint contract were inadequate, with a particular lack of clear and agreed roles and responsibilities between the organisations and key individuals.

39. The system for contract monitoring was not operated properly and the system for recording complaints was seriously flawed.

40. Better arrangements might have thrown more light on weaknesses in John Tudor & Son's approach to food hygiene and raised questions about his practices.

41. If anything was likely to have encouraged William Tudor to get his act together on food hygiene, it would have been the direct threat of failing to secure, or losing, what was a very significant contract.

The Abattoir

42. On the balance of probability, the *E.coli* O157 that caused the Outbreak entered the premises of John Tudor & Son on meat from the J.E. Tudor and Sons Ltd abattoir.

43. The likelihood of meat becoming contaminated with *E.coli* O157 at the Abattoir would have been significantly reduced if the Meat Hygiene Regulations that were in force in 2005 had been followed and enforced. There were big shortcomings in relation to both.

44. Over a prolonged period, the Meat Hygiene Service failed to perform effectively its overall enforcement function in relation to the Abattoir. Despite knowledge of longstanding, repetitive, failures, the Abattoir was allowed to continue functioning in breach of legislative requirements.

45. The limited enforcement action taken was demonstrably ineffective to achieve compliance with legislative requirements. For J.E. Tudor & Sons Ltd, the "light touch" enforcement was wrong.

46. Hygiene problems at the Abattoir had not been missed. The signals that the premises and its practices were unsafe were strong. They passed up lines of management in the Meat Hygiene Service. But it was allowed to continue in business without significant improvement.

47. There would have been a substantial increase in the risk of *E.coli* O157 on meat coming out of the Abattoir. As a result, the risks of unsafe food being produced and supplied into the food chain were considerably higher than they should have been.

Outbreak Control

48. The Outbreak was handled well. Importantly, the Outbreak Control Team identified a common link between cases at a very early stage. They reacted quickly, which led to the early removal of cooked meats from the food chain.

49. The Outbreak Control Team and many others who were also involved in action to control the Outbreak put in considerable time and effort to tackle the Outbreak, including extra hours and out-of-hours working.

50. But for the quality of the analysis and control measures, the Outbreak would have been considerably more severe and prolonged.

Schools and Hygiene

51. In 2004, the Children's Commissioner for Wales highlighted a problem with school toilets. He recommended that the Welsh Assembly Government should assist schools and governing bodies to undertake audits.

52. Few of the local authorities appear to have been aware of the Commissioner's report. The Assembly Government was aware of the report but did not bring it to the attention of local authorities.

53. As a result, and notwithstanding ongoing programmes of school improvements, the sort of action envisaged by the Children's Commissioner was triggered by the Outbreak itself.

54. Fortunately, the problems with toilet and hand washing facilities do not appear to have caused or contributed to the spread of the Outbreak. However, the provision of adequate facilities in schools is a basic requirement and it takes on a particular importance in terms of preventing the spread of an infection.

Treatment and Care

55. In-patient hospital care was as effective as it could be in the face of an infection that produces severe complications.

56. Some communications difficulties were experienced in the very early stages of the Outbreak. There was not a robust system for contacting Local Health Boards out-of-hours. The system for communications by Local Health Boards to front-line care professionals had weaknesses.

57. The communications difficulties did not have any adverse effects as far as outbreak control is concerned.

58. The Outbreak was a very real test of communications on a serious public health issue. It exposed some weaknesses and potential weaknesses in systems, which are likely to be relevant in most health incidents and/or outbreaks of a communicable disease, not just *E.coli* O157.

Learning Lessons

59. 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.

60. I had hoped that the lessons from the shocking events in 1996 would stay in people's minds. But comparison of the failures that led to this Outbreak in South Wales with those in the outbreak in Scotland shows that this has not been the case.

61. We owe it to the memory of Mason Jones to learn the lessons from this Outbreak and to remember them.

Recommendations

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

Food Safety Practice

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.

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.

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.

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.

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

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.

Food Hygiene Inspections

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

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

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.

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.

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

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

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.

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

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 the assessment of HACCP and HACCP-based plans.

Procurement

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 and Care Services

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.

School and Hygiene

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

Learning Lessons

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

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

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

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

Learning More

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

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.