

SOUTH WALES E. COLI O157 OUTBREAK –
SEPTEMBER 2005

A REVIEW COMMISSIONED BY
THE CHIEF MEDICAL OFFICER

Office of the Chief Medical Officer,
Welsh Assembly Government,
Cathays Park,
Cardiff.
December 2005.

CHIEF MEDICAL OFFICER'S REVIEW OF THE OUTBREAK OF
E. COLI O157 IN SOUTH WALES
FROM SEPTEMBER 2005

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Chairman's Introduction

- 1.1. "We appear to have an outbreak of *E. coli* O157, we'll let you have the details later." With those words, on a Friday afternoon in September, the second largest outbreak of *E. coli* O157 in the UK unfolded across Wales. By the Sunday evening, the outbreak control team believed they had identified the food source, the likely epicentre of the outbreak and established control measures to protect the school children at risk. History and a Public Inquiry will ultimately determine the strength of that statement. However, as we present this Review of current legislation and public health systems in Wales, we would ask you to bear in mind that most commentators have commended the outbreak control team on the way this outbreak was handled. The outbreak ultimately affected 158 individuals, mostly children, one of whom sadly died..
- 1.2. The circumstances that led to resolution of this outbreak may be the result of coincidence or of careful planning. We would hope the latter is true of this outbreak. Assuming this is the case, inevitably there will be lessons that will further influence and strengthen the planning process. Our recommendations are set against this background. While the legislative background to this Review was relatively straightforward, getting underneath this outbreak was difficult. This primarily stemmed from the ongoing police investigation and, as a result, the freedom of participants to speak openly to us without compromising that investigation. Where there are such constraints, we have used such information as we can clearly identify as being in the public domain. However, we would encourage the parties to the outbreak control team, when they are able, to reflect and share their lessons learned to further strengthen public health control of such outbreaks.
- 1.3. An inevitable question will concern the ability of the Public Inquiry to undertake its work while the police investigation continues. Our Review was conducted within a limited time frame and was established to ensure there were no immediate further public health measures required. The Public Inquiry will have no such restriction. An important first step will be to establish how it may conduct its business in the light of the ongoing police investigation.
- 1.4. We present a series of recommendations for further action to the various parties involved, including the Welsh Assembly Government to whom we recommend establish a Steering Group to oversee progress in fulfilling the actions identified by this review. I would like to take this opportunity to thank the Review Group and the Support Team for their help in conducting the Review and producing this report.

Dr Mike Simmons
Acting Deputy Chief Medical Officer
21st December 2005

Considerations

- 2.1 It was established at the outset that the Review Group had no powers to require information from any of the parties involved in either food safety enforcement or the management of the outbreak itself. The Review Group was also aware that several of the parties involved were conducting separate investigations or retrospective evaluations. In particular the Review Group recognised an investigation being conducted by the South Wales Police, who were contacted at the start by the Review Group and advised of its remit.
- 2.2 In conducting their investigations the police had obtained signed “confidentiality clauses” from many of the individuals from the statutory bodies involved in the outbreak. The police were anxious that the Review would not prejudice their investigations and the Review Group acknowledged their concerns.
- 2.3 Concerns expressed by the statutory agencies involved in the outbreak resulted in the Review Group having to cancel a series of planned interviews that had been scheduled to obtain more detailed information. The organisations were of the opinion that they could not answer detailed questions without breaking the terms of their confidentiality agreements with the police.
- 2.4 At this stage the Review Group reported the position to the Minister for Health and Social Services and it was agreed not to press the organisations further. This report is therefore written recognising the restrictions imposed by the police investigation and the limitations these create. The Review Group is however aware that the National Assembly for Wales has published the terms of reference for a Public Inquiry and has submitted to its chairman some lines of investigation that the Inquiry may wish to pursue.

3. List of Recommendations

Here follows the list of recommendations without their rationale. The numbering for the recommendations follows that of the next section.

Recommendations for the Food Standards Agency (FSA)

- 4.1.1 The FSA ensures that all local authorities in Wales have a clear understanding regarding –
- The timetable for the implementation of the new EU food hygiene regulations,
 - The material changes to be implemented by the regulations and
 - The transitional arrangements for their introduction.
- 4.1.2 The FSA should examine in detail, and provide a report for the Minister for Health and Social Services, as to whether-
- In relation to the premises of John Tudor and Son, the appropriate Food Hygiene Legislation was correctly applied by the Local Authority to those premises.
 - The existing Food Safety Legislation was adequate to enable the local authority effectively to control the operations at those premises.
 - Whether designation as a meat products plant would have provided alternative controls.
- 4.1.3 The FSA provides an assurance to the Minister for Health and Social Services that guidance and practice in respect of butchers' premises, both now and in the future, reflect the importance of a fully implemented HACCP¹ system *as an integral part of* a good food safety management system and not as an end in itself (see 4.2.2, below).
- 4.1.4 The FSA provides an assurance to the Minister for Health and Social Services that the repeal of licensing provisions for butchers' premises will not diminish the legislative controls available to Local Authorities.
- 4.1.5 The FSA should consider whether additional guidance on appropriate food safety measures should be provided to food businesses handling both raw and cooked meats.
- 4.1.6 The FSA should reappraise their advice to Local Authorities in respect of inspection frequencies (see 4.2.1, below).

¹ HACCP – Hazard Analysis Critical Control Point – A system of quality assurance that relies on the identification and control of hazard and risk; specifically at those points in the system at which they can be eliminated or reduced to acceptable levels.

- 4.1.7 The FSA reviews the operation of their current auditing regime of Local Authorities in Wales.
- 4.1.8 The FSA should clarify to the Minister for Health and Social Services, what it considers its own role in food poisoning and foodborne infections outbreak control to be and the basis upon which this has been established. Any anomalies or variance with existing plans or guidance should be resolved and agreed with their partners.

Recommendations to Local Authorities

- 4.2.1 Local Authorities should, with the FSA, review their interpretation of guidance for the frequencies for food safety inspections (see 4.1.6, above).
- 4.2.2 Local Authorities should work closely with the FSA in the introduction of the new EU Food Hygiene Regulations as they relate to butchers' premises. In particular Local Authorities should assess the need to ensure their attendance at training sessions and contribute appropriately to the development of enforcement guidance (see 4.1.3, above).
- 4.2.3 Local Authorities should have proper regard to the standards and procedures established by Value Wales in securing contracts for the provision of food items for people in their care or for whom they have responsibility.
- 4.2.4 Local Authorities should invite school governing bodies to review their regimes for cleaning school premises and in particular for the provision and operation of sanitary facilities for pupils, any such review should consider access by pupils to toilet paper and soap and hot water.
- 4.2.5 Local Authorities should review the resources available to them in respect of major outbreaks of food poison or foodborne infections to ensure that they are capable of an adequate response to such emergency situations.
- 4.2.6 Local Authorities should be encouraged to ensure that their outbreak control plans are up to date and incorporate the latest advice from appropriate working groups (see 4.3.1, below).
- 4.2.7 Local Authorities should be encouraged to review their systems for ensuring officers have contracts of employment to guarantee that necessary out-of-hours working can be introduced immediately.

To Outbreak Control Team/NPHS-

- 4.3.1 To review the operation of the Outbreak Control Team and to make specific recommendations, especially in relation to –
- General standards of hygiene and cleaning in schools.

- Standards of sanitary provision and the availability of sanitary facilities in schools.
- Extant outbreak control plans (see 4.2.6, above).
- The advice available to parents/family contacts, children, schools and the general public and the means of disseminating such advice².

4.3.2 To review the content and mechanisms for disseminating timely public health information and advice in respect of outbreaks.

4.3.3 That for large (or otherwise significant) outbreaks a full, written report should be completed and published as soon as possible after the event. Copies of written reports should go to the Wales Centre for Health in addition to those listed in the model outbreak plan templates.

To Wales Centre for Health

4.4.1 The statutory role of the Wales Centre for Health in relation to providing information to the public should be explored with the bodies involved in outbreak management

To the Welsh Assembly Government

4.5.1 A Steering Group be established to ensure that the recommendations from the Review are taken forwards and are satisfactorily resolved.

4.5.2 The Welsh Assembly Government should press all the organisations involved actively in outbreak control in Wales to participate in their sponsored Lead Officer for Communicable Disease training scheme.

4.5.3 The Welsh Assembly Government should seek to resolve for the future the difficulties associated with trying to run an Assembly review or investigation alongside a police investigation.

² This recommendation is in line with "The Task Force on *E.coli* 0157- Final Report, June 2001", Chapter 4 (Public Health Management)

Recommendations with Rationale

To aid understanding these recommendations have been grouped together as observations for individual organisations involved in enforcing food safety legislation and guidance or in managing an outbreak. In some instances a recommendation for one organisation has relevance to another and this is referenced in the text. A short explanation (i.e. the “rationale”) follows each recommendation. The order in which the recommendations or the organisations involved appear does not imply relative priority.

Recommendations for the Food Standards Agency (FSA)

4.1.1 The FSA ensures that all Local Authorities in Wales have a clear understanding regarding –

- The timetable for the implementation of the new EU food hygiene regulations,
- The material changes to be implemented by the regulations and
- The transitional arrangements for their introduction.

Rationale Anecdotal evidence suggests that there is some confusion amongst enforcement officers in these areas.

4.1.2 The FSA should examine in detail, and provide a report for the Minister for Health and Social Services, as to whether –

- In relation to the premises of John Tudor and Son, the appropriate food hygiene legislation was correctly applied by the local authority to those premises.
- The existing food safety legislation was adequate to enable the local authority effectively to control the operations at those premises.
- Whether designation as a meat products plant would have provided alternative controls.

Rationale The Pennington Group in its 1997 Report described the complex legal requirements placed on premises producing raw meat and meat products as being confusing to enforcement agencies and the trade. The Group recommended “that the Government should review the application of the Meat Products (Hygiene) Regulations 1994, and the guidance issued subsequently, to clarify the position regarding which premises are intended to be covered by the regulations”. A review of the current position would be timely.

- 4.1.3 The FSA provides an assurance to the Minister for Health and Social Services that guidance and practice in respect of butchers premises, both now and in the future, reflect the importance of a fully implemented HACCP system as an integral part of a good food safety management system and not as an end in itself (see 4.2.2, below).

Rationale Anecdotal evidence suggests that some enforcement officers may be relying too heavily on HACCP as a means of securing consumer safety at the expense of enforcing legislative provisions in relation to good manufacturing practice.

- 4.1.4 The FSA provides an assurance to the Minister for Health and Social Services that the repeal of licensing provisions for butchers' premises will not diminish the legislative controls available to Local Authorities.

Rationale Anecdotal evidence from enforcement officers indicates that there is concern in this respect.

- 4.1.5 The FSA should consider whether additional guidance on appropriate food safety measures should be provided to food businesses handling raw and cooked meats.

Rationale In view of the continuing incidents of *E coli* O157 in premises handling raw and cooked meats it must be asked whether existing guidance to the food industry is sufficient, and whether it could be improved.

- 4.1.6 The FSA should reappraise their advice to Local Authorities in respect of inspection frequencies (see 4.2.1, below).

Rationale An appraisal of audit reports of local authority enforcement activities published by the FSA suggests that the minimum inspection frequencies specified in FSA guidance are viewed as targets for "normal" or "satisfactory" levels of enforcement. Authorities are sometimes reported as achieving "X% of target" – with "X" being less than 100%. If the frequencies are specified as a minimum then logically anything less than 100% is a non-compliance. In addition, reports suggested that some authorities tend to view the minimum inspection frequency as a maximum unless there is "strong" justification to inspect more often. The rationale for this being that the authority's decision could be taken to judicial review if the minimum frequency was exceeded. The FSA and Local Authorities should involve LACORS³ in their discussions in relation to this recommendation.

³ LACORS – Local Authorities Co-ordinators of Regulatory Services

- 4.1.7 The FSA reviews the operation of the current auditing regime of Local Authorities in Wales.

Rationale It appears from the FSA website that Local Authorities in Wales have only been audited once since the FSA was established in April 2000. The FSA may wish to consider if this is adequate to achieve the audit's objectives. Publication of many of the audits appears to have occurred several months after they were conducted and this may reduce both their relevance and usefulness. It is suggested that the published audit reports might also be improved if they contained information as to whether the authority concerned agreed with the findings (together with any stated remedial action) and if a timescale for compliance, acceptable to both parties, was specified and agreed.

- 4.1.8 The FSA should clarify to the Minister for Health and Social Services, what it considers its own role in food poisoning and foodborne infections outbreak control to be and the basis upon which this has been established. Any anomalies or variance with existing plans or guidance should be resolved and agreed with their partners.

Rationale In conversations with members of the Outbreak Control Team during the Review variations were reported regarding the understanding of various parties in respect of the precise role of the FSA in outbreak management. All of the parties in an outbreak management situation need to be clear about the roles and responsibilities both of themselves and of their partner organisations to prevent confusion or "turf wars" occurring during an ongoing investigation.

Recommendations to Local Authorities

- 4.2.1 Local Authorities should, with the FSA, review their interpretation of guidance for the frequencies for food safety inspections (see 4.1.6, above).

Rationale The Review Group was concerned that some enforcement authorities appeared to consider recommended minimum inspection frequencies as a "norm", or even as a "maximum". It was reported that authorities had concerns regarding the possibility of judicial review if they were perceived as being over-zealous in this area. The Local Authorities and the FSA should involve LACORS in their discussions in relation to this recommendation.

- 4.2.2 Local Authorities should work closely with the FSA in the introduction of the new EU food hygiene regulations as they relate to butchers' premises. In particular Local Authorities should assess the need to ensure their attendance at training sessions and contribute

appropriately to the development of enforcement guidance (see 4.1.3, above).

Rationale There was anecdotal evidence to suggest that the way in which enforcement officers interpreted extant guidance in respect of the licensing of butchers premises was variable. The removal of the legislative provisions for licensing and the introduction of new legislation create an opportunity for uneven enforcement and the potential for confusion, both for enforcement officers and for businesses. Proactive measures should be taken to ensure the smooth and complete introduction of the legislation.

As part of their work the Review Group identified a paper⁴ presented to the FSA Board on 10 March 2005 suggesting that only 30% of food premises in Wales would be capable of meeting their responsibilities under the new regulations. The Review Group is not sure what implications this statement may have for food safety but wished to be reassured on the point.

- 4.2.3 Local Authorities should have proper regard to the standards and procedures established by Value Wales in securing contracts for the provision of food items for people in their care or for whom they have responsibility.

Rationale Value Wales (VW) has established a quality assured system of procurement in Wales and provides training to Procurement Officers. Procurement Officers should be mindful of the best practice guidance offered through the VW and of the need to demonstrate that their procedures for food procurement incorporate best practice for public health protection. Local Authorities may wish to consider whether their own food safety enforcement officers could play a role in this process.

- 4.2.4 Local Authorities should invite school governing bodies to review their regimes for cleaning school premises and in particular for the provision and operation of sanitary facilities for pupils, any such review should consider access by pupils to toilet paper and soap and hot water.

Rationale Anecdotal evidence suggests that the standards of hygiene and sanitary provision in some schools were being criticised during the outbreak. Enhanced cleaning regimes were introduced in affected schools during the outbreak at the instigation of local authorities, suggesting that some of the criticisms may have had some basis in truth. The Review Group is also aware that the Children's Commissioner published a report⁵ in 2004 criticising the standards in school toilets. The Review Group considers that now would be an appropriate time for school governing bodies with the support of their Local Authorities to take stock in these areas to ensure –

⁴ Board Meeting 10 March 2005; Agenda Item 2; Ref. FSA 05/302.

⁵ "Lifting the Lid on the nation's school toilets", Children's Commissioner for Wales, 2004.

- General standards of cleanliness in schools are satisfactory,
- Sanitary facilities for pupils are adequate and fit for purpose and
- Cleaning staff are adequately trained and supervised.

Assessment of cleaning and sanitary facilities should include evaluation of materials, methods and equipment together with the appropriate Health and Safety precautions. Where cleaning is undertaken by private contractors or by means of a service level agreement with the Local Authority, governing bodies should ensure that contracts or service level agreements provide the necessary controls.

- 4.2.5 Local Authorities should review the resources available to them in respect of major outbreaks of food poisoning or foodborne infections to ensure that they are capable of an adequate response to such emergency situations.

Rationale The Wales Centre for Health is being funded by the Welsh Assembly Government to produce a rolling training programme for the Lead Officer Scheme for Communicable Disease. The scheme is intended to allow identified and trained officers to be seconded to support other authorities in the event of major outbreaks. There is anecdotal evidence that the scheme did help in this outbreak, but the Review Group feels that more could have been made of such a potential resource. Local Authorities should be encouraged to support this scheme and to ensure that a cohort of trained professionals continues to be available in the event of an outbreak.

- 4.2.6 Local Authorities should be encouraged to ensure that their outbreak control plans are up to date and incorporate the latest advice from appropriate working groups (see 4.3.1, below).

Rationale All Local Authorities have adopted Outbreak Control Plans as part of their response mechanisms. Over the last 2 years working groups have been established to review the templates for the plans and organised simulation exercises have been held. It is important that each local authority has an up to date outbreak control plan that has been formally adopted by the Council and that arrangements are in place to manage outbreaks satisfactorily, especially in relation to cross-boundary work. Ideally the plans should follow a common all-Wales format and must clearly identify the roles of other bodies in outbreak management – including the NPHS, the Health Protection Agency (HPA) and the FSA. Guidance has been issued on the production of plans⁶.

⁶ Welsh Health Circulars WHC(90)64 and WHC(91)52.

- 4.2.7 Local Authorities should be encouraged to review their systems for ensuring officers have contracts of employment to guarantee that necessary out-of-hours working can be introduced immediately.

Rationale The response to this outbreak by health professionals has necessitated considerable and protracted work outside of normal working hours. The Review Group understands that officials from the NPHS already have contracts of employment that cover this eventuality, but have been unable to ascertain whether similar arrangements are in place for all Local Authorities in Wales. There is specific guidance in this respect⁷. To build a system entirely based upon the goodwill of individuals is both unrealistic and unsustainable.

To Outbreak Control Team/NPHS-

- 4.3.1 To review the operation of the Outbreak Control Team and to make specific recommendations, especially in relation to –

- General standards of hygiene and cleaning in schools.
- Standards of sanitary provision and the availability of sanitary facilities in schools.
- Extant outbreak control plans (see 4.2.6, above).
- The advice available to parents/family contacts, children, schools and the general public and the means of disseminating such advice⁸.

Rationale Anecdotal evidence suggests that the Outbreak Control Team (OCT) was concerned about the standards of hygiene, cleaning and sanitary provision in some schools. When taken with previous criticism in a similar vein by the Children's Commissioner for Wales (see 4.2.4, above) the concerns are sufficiently serious to warrant recommending an appraisal. The OCT should make its recommendations known to relevant Local Authorities once they are able to release information.

- 4.3.2 To review the content and mechanisms for disseminating timely public health information and advice in respect of outbreaks.

Rationale The Review Group acknowledges that the provision of information to the media in respect of this outbreak appears to have been of a high standard. That said, Outbreak Control Teams should not rely on Press Releases to the media as the sole, or even major, means

⁷ Welsh Health Circular; WHC (94)27; paragraph 4(f).

⁸ This recommendation is in line with "The Task Force on *E.coli* 0157- Final Report, June 2001", Chapter 4 (Public Health Management)

of disseminating information. The media has its own role to play and the extent to which it is able to act as a public information service is limited. The NPHS website did not meet this wider public information need either in content or timeliness. The public will have many concerns when confronted with an outbreak and a single source of independent authoritative advice should be readily available. Dealing with people's concerns about perceived threats should be seen as being as important as providing purely scientifically accurate information.

- 4.3.3 That for large (or otherwise significant) outbreaks a full, written report should be completed and published as soon as possible after the event. Copies of written reports should go to the Wales Centre for Health in addition to those listed in the model outbreak plan templates.

Rationale It is important that all organisations participating in outbreak control should have access to the expertise and experience of others who have been involved in large or significant outbreaks. Publication of reports contributes significantly to the available pool of knowledge. At the time of writing no official report from the Outbreak Control Team has been published, the reasons for this are not entirely clear but the implications of the ongoing police investigation may be impacting in this area.

The recommendation for the publication of timely reports into outbreaks is based on a Pennington Group recommendation

To Wales Centre for Health

- 4.4.1 The statutory role of the Wales Centre for Health in relation to providing information to the public should be explored with the bodies involved in outbreak management

Rationale The Wales Centre for Health has been created with a statutory remit to provide information to the public. A joint initiative with members of organisations represented on Outbreak Control Teams to improve communication with the public during outbreak situations might prove to be beneficial in this respect. The Task Force on *E.coli* O157 in Scotland made specific recommendations in this respect⁹. In addition consideration might usefully be given to delivering the Task Force's recommendations in respect of the provision of information regarding hygiene for families or groups affected by *E. coli* O157¹⁰ and to education and communication generally¹¹.

⁹ "The Task Force on *E.coli* O157- Final Report, June 2001", Chapter 2 & Chapter 3.

¹⁰ "The Task Force on *E.coli* O157- Final Report, June 2001", Chapter 4 (Public Health Management).

¹¹ "The Task Force on *E.coli* O157- Final Report, June 2001", Chapter 10 (Education and Communication).

To the Welsh Assembly Government

- 4.5.1 A Steering Group be established to ensure that the recommendations from the Review are taken forwards and are satisfactorily resolved.

Rationale A number of recommendations from the Review relate to general activities or actions by statutory bodies or agencies within Wales. Provided the recommendations are accepted it is logical for the people who made the recommendations to advise the Minister whether or not they are satisfied with any action taken to implement them. Those recommendations that relate to further investigative action should be referred to the Assembly's Inquiry.

- 4.5.2 The Welsh Assembly Government should press all the organisations involved actively in outbreak control in Wales to participate in their sponsored Lead Officer for Communicable Disease training scheme.

Rationale The Welsh Assembly Government has commissioned the Wales Centre for Health to run a rolling training programme for Lead Officers in Communicable Disease Control. The training programme should be re-appraised in light of the *E coli* O157 outbreak and all parties should be encouraged to participate. The Lead Officer role has been reported to the Review Group as helpful, but the Group suggests that the system could operate much more effectively if the concept were to be seen by all parties as an integral component of communicable disease control activities in Wales.

- 4.5.3 The Welsh Assembly Government should seek to resolve for the future the difficulties associated with trying to run an Assembly review or investigation alongside a police investigation.

Rationale As a consequence of the (at the time of writing, ongoing) police investigation many of the individuals engaged in enforcing food safety legislation or in controlling the outbreak had been asked by the South Wales Police to sign "confidentiality clauses". This had the effect of constraining the Review since many of the individuals concerned felt unable to answer questions about the outbreak or to share relevant information with the Review Group. The Review Group is aware of a protocol¹² for liaison developed jointly by the police, the Health & Safety Executive, the Crown Prosecution Service and the Local Government Association; it is possible that the protocol might be used as a template to aid discussions in this area.

¹² "Work Related Deaths"; Second Version, MISC491, February 2003. HSE Books, Sudbury, Suffolk, UK.

5. The Review Process - Background

5.1.1 The initial Outbreak Control Meeting was held on Friday 16th September 2005 following information from hospital clinicians of a number of cases of *E. coli* O157. By 18th September suspicions regarding the source of the outbreak were recorded. The business of John Tudor and Son, Bridgend, was identified as the meat supplier to the schools attended by affected children. It is understood that a range of cooked meats including ham, lamb and turkey was available from the supplier and each type was classed as a potential risk. The business supplied cooked and raw meats to catering customers comprising mainly, but not exclusively, schools and local authority institutions such as care homes, day centres, nurseries, leisure centres and staff canteens.

5.1.2 An inspection of John Tudor and Son on 19th September 2005 by officers from Bridgend County Borough Council led them to serve an Emergency Prohibition Notice under the provisions of section 12 of the Food Safety Act 1990. This Notice stated that the "vac packing process" posed an imminent risk of injury to health because:

1. *Of the serious risk of cross contamination from the use of it being used for both raw and cooked foods;*
2. *its situation underneath the electronic fly killer*
3. *its unclean condition*

5.1.3 On the 20th September 2005 officers from Bridgend CBC made a further visit to the premises. A second Emergency Prohibition Notice was served. This notice stated that an imminent risk of injury to health existed because there was an "*Unsanitary condition of premises due to inadequate disinfection procedures*". This second Notice had the effect of closing the whole premises. On this date, the proprietor agreed voluntarily to withdraw all cooked meats products. Bridgend CBC sought the advice of the FSA regarding the need to instigate a formal alert.

5.1.4 On 21 September the FSA issued a Food Alert for Action (FAFA) to all Local Authorities in Wales to ensure that all cooked meat products from the company were removed from use. On 23 September, the FSA

updated the FAFA advising that additional premises, not on the original list, had been identified.

- 5.1.5 In October 2005, the Minister for Health and Social Services asked the Chief Medical Officer to set up a Review Group following the *E.coli* O157 outbreak in South Wales that commenced in September 2005. The Terms of Reference for the Review were as follows -:

"To review the arrangements in place for the protection of public health and food safety immediately before and during the outbreak of E.coli infection in South Wales commencing September 2005 and to advise the Welsh Assembly Government immediately, as the review progresses, on any changes it recommends.

The areas to be considered will include:

- *Measures and statutory requirements in place to protect food in the supply chain;*
- *Monitoring, inspection and enforcement regimes;*
- *Plans, guidance and mechanisms for outbreak control, including mechanisms to trigger action;*
- *The manner in which the responsible organisations discharged their statutory obligations;*
- *Collaborative working, including communication by and between responsible organisations;*
- *Information provided in respect of public health.*

The Review will take full account of the report of the Expert Group chaired by Professor Hugh Pennington into the 1996 outbreak in Central Scotland of infection with E.coli. The Review Team will be chaired by the Deputy Chief Medical Officer. It is anticipated that the review will be completed before Christmas 2005."

- 5.1.6 The Review Group was established on 24 October 2005 (for membership see Annex A). Support for the Review was secured through the Wales Centre for Health and by the engagement of the former Chief Food and Dairies Officer for the Scottish Office.
- 5.1.7 Legal advice was sought at the earliest stage to confirm the powers available to the National Assembly for Wales to conduct such a Review and to confirm that the Review had no special powers available to it.
- 5.1.8 Formal requests for information were made in writing on 31st October 2005, in which relevant parties, separately (and collectively as the Outbreak Control Team) were asked to provide a "timeline" detailing, on a day-by-day basis, their involvement in the outbreak. Timelines were received from all organisations from which they were requested.

- 5.1.9 This information, together with the epidemic curve, gave the Review Group a picture of how the outbreak developed and the control measures that were put into place.
- 5.1.10 Copies of the Emergency Prohibition Notices, served in September 2005 by Bridgend County Borough Council under the provisions of the Food Safety Act 1990 demonstrated the authority's opinion of the source of contaminated food. The notices were served on John Tudor and Son of Bridgend indicating that the premises were deemed to present an imminent risk of injury to health. One of the legal notices specifically stated that there was a risk of cross-contamination between raw and cooked food at the premises.
- 5.1.11 The Review Group viewed the possibility of the risk of cross-contamination as a central issue. *E. coli* O157 has a low infectious dose, indicating that the bacteria does not necessarily need time to multiply on food to present a risk of infection. This low infective dose also explains the ease by which infection can be spread from person-to-person, as has been reported in this outbreak¹³.
- 5.1.12 An examination of the legislative framework was undertaken and is discussed in more detail later in this report. In support of this work, views were sought from an experienced Environmental Health Practitioner with responsibility for the management of a food safety team within a local authority not involved in this outbreak.
- 5.1.13 A meeting was held with a representative from the Welsh Local Government Association in respect of the current system of procurement for Local Authorities. This meeting provided information regarding the recommended procurement procedures, including the quality assurance aspects and the support and training available to local procurement officers.
- 5.1.14 The Review Group met formally on 3 occasions, and communicated electronically between these meetings.

¹³ "*E. coli* – Environmental health Issues of VTEC O157"; Parry and Palmer; Clay's Library of Health and the Environment; Spon Press, London, 2002.

Annex A**Members of the Review Group and Support****1. Members of the Review Group**

Chair	Dr Mike Simmons, Welsh Assembly Government Peter Farley Prof. Stephen Palmer David Seal
Project Manager	David Worthington

2. Support Team

Su Mably	(seconded from the Welsh Local Government Association)
Stephen Rooke	(formerly Chief Food and Dairies Officer, Scottish Office)
Carole Collins	(seconded from the Wales Centre for Health)

Annex B**Agencies from whom views were sought**Requests for Written Information

Bridgend County Borough Council
Caerphilly County Borough Council
Food Standards Agency
Merthyr Tydfil County Bough Council
National Public Health Service
Outbreak Control Team
Rhondda Cynon Taf County Borough Council

Interviews

Cardiff County Council - Regulatory Services
Welsh Local Government Association- Head of Efficiency and Procurement

Annex C**The Review Outcomes**

The Review Group has endeavoured to satisfy its Terms of Reference within the limitations described in “Considerations” above. In the absence of definitive evidence or information the Review Group has been constrained to consider the possibility of cross-contamination between raw and cooked foods as the likely cause of the outbreak. Using this as a working hypothesis the Review Group has commented on the items from the Terms of Reference as follows -

Measures and statutory requirements in place to protect food in the supply chain

The current legislative framework, if properly implemented, appears to be fundamentally satisfactory to protect public health. The person running the food business holds the primary responsibility to produce safe food – in technical parlance the proprietor has to demonstrate “due diligence”. It is acknowledged that enforcement agencies cannot be held responsible for proprietors who fail to implement this responsibility.

The Review Group cannot determine the circumstances surrounding the creation of the reported risk of cross contamination, but it is hoped that the proposed Public Inquiry will be able to examine this area in detail.

The terms of the Emergency Prohibition Notices indicate a risk of cross-contamination at the butcher’s premises linked to the outbreak. The food business should have operated a sound food safety management system, as a condition of licensing.

The Review Group has some concerns regarding the content, timeliness and interpretation of FSA guidance and has made recommendations in this respect. The introduction of new EU food hygiene regulations should be taken as an opportunity to clarify these issues in guidance, to train enforcement officers and to maximise the advantages of streamlining regulations.

Monitoring, inspection and enforcement regimes;

As far as can be ascertained within the limits of the Review, the guidance in respect of monitoring, inspection and enforcement appears overall to be sound and continues to develop in light of experience. Examination of the audits of Local Authorities has raised some issues about the frequencies of inspections and these are reflected in the recommendations.

The Review Group was able to gather anecdotal evidence that suggests the interpretation of some the existing enforcement legislation and guidance is variable. It is not clear whether this has an actual impact on food safety, but the introduction of new legislation appears to present an opportunity for the FSA to ensure that Local Authorities are entirely clear in these respects.

Plans, guidance and mechanisms for outbreak control, including mechanisms to trigger action

Welsh Health Circulars WHC (90)64 and WHC (91)52 set down arrangements for establishing outbreak control teams. In addition and on an all-Wales basis, Directors of Public Protection, the National Public Health Service (NPHS), the Welsh Assembly Government and the FSA have agreed a template for Outbreak Control Plan for Food Poisoning. This template has been reviewed within the last 2 years.

The Review Group has been unable to ascertain whether the latest template has been adopted by all Local Authorities in Wales, but has made recommendations in this regard. From the timelines supplied by the organisations involved the response to the outbreak appears to have been good. There are some anomalies in relation to when some of the organisations first became involved and these will be brought to the attention of the appointed chair of the proposed Public Inquiry.

Although the response from the organisations involved appears to be in accordance with the guidance, it is not clear whether Local Authorities have universally adopted formal mechanisms for securing out-of-hours working. A system that is based upon the goodwill of individuals is both unrealistic and unsustainable. A recommendation has been made in this respect.

The manner in which the responsible organisations discharged their statutory obligations

It has been recognised that there are specific features of outbreaks of *E. coli* O157, that distinguish them from other food poisoning outbreaks¹⁴: These features include -

- The potential for hospitalisation, serious disease, permanent disability and death is higher; therefore, the outbreak will attract more media and public interest. Effective risk communication is important, as is the presentation of accurate public health information.
- Secondary spread from outbreak cases to their contacts is a real possibility and satellite outbreaks in other settings could occur.
- Tracing cases is more important because they may be in an occupation where they could further spread the disease, e.g. food handlers.
- Cases of Haemolytic Uraemic Syndrome (HUS), a serious complication of *E. coli* O157, may not occur until several weeks after infection.

¹⁴ "*E. coli* – Environmental health Issues of VTEC O157"; Parry and Palmer; Clay's Library of Health and the Environment; Spon Press, London, 2002.

This particular outbreak did indeed generate a great deal of media and public interest perhaps heightened because the majority of cases were children. A number of children were hospitalised as a result of being infected and tragically there was one fatality, a young boy.

The timelines submitted to the Review support the view that relevant agencies reacted promptly to the first notifications of illness, declaring outbreak status and calling the OCT together promptly. A likely source of infection was quickly identified and inspection and enforcement action followed. The Review Group was unable to get information regarding the past inspection reports for the premises linked to the outbreak or the conditions therein and have based their opinions on the content of the Emergency Prohibition Notices, which are in the public domain. The Review Group wishes to record that members of the OCT and their respective support teams in their organisations, worked long hours, often outside of their normal contractual arrangements, to manage this outbreak in a timely fashion.

Collaborative working, including communication by and between responsible organisations

The timelines suggest that effective joint working took place in the management of this outbreak, across the range of disciplines and organisations. Officers of the affected Local Authorities worked closely together and colleagues from other authorities assisted in the management of their caseloads outside the outbreak. The support from the NPHS, in terms of public health expertise, microbiological investigation and communications was an important component of the management of the outbreak.

Information provided in respect of public health

This outbreak generated significant media interest and the OCT prepared daily media briefing throughout. However there is a need in all outbreaks for the provision of authoritative, comprehensive and independent information to those affected and to others more generally. The Review Team does not consider that media briefings alone adequately satisfy the wider information needs and that more could be done in future using a range of techniques. A recommendation has been made in this respect.

The Review Group has seen press releases and copies of some letters and guidance to parents and schools. The Review Group has not had access to all the information targeted to the public, play groups, parents, children, schools or the public so cannot comment on this area directly. The Team acknowledges that communications in respect of this outbreak have been widely praised for avoiding mixed messages and providing consistent public health information, but media reporting has highlighted that some parents in particular were concerned that more could have been done. Realistically it should perhaps be accepted that more could almost always be done and it will be very difficult to satisfy everyone. Recommendations in respect of communications have been made elsewhere in this document.

Annex D

The Legislative Framework

Local Authorities are responsible for the enforcement of food safety legislation, in accordance with guidance published by the FSA under s40 of Food Safety Act 1990. This guidance is predominantly in the form of a Code of Practice, issued in 2005, incorporating previous codes into one document. The FSA (established in April 2000) is additionally responsible for auditing Local Authorities to determine whether their enforcement activities meet the requirements set down in the Code of Practice.

The premises linked to the outbreak were classified as a Licensed Butcher's Premises, in accordance with current guidance. Butcher's premises licensing was introduced in Wales in December 2000 pending the introduction of a HACCP (Hazard Analysis Critical Control Points) requirement for all food businesses through EU legislation.

Butchers Licensing

Butchers premises licensing was introduced following the recommendation of the Pennington Group that investigated an outbreak of *E. coli* O157 in Lanarkshire, Scotland in 1996. Licensing was recommended as a temporary measure pending the introduction of general EU legislation in respect of HACCP.

The licensing regulations apply to retail butchers, handling unwrapped raw meat and selling raw meat together with ready-to-eat foods to the final consumer (which includes sale to caterers, take-away premises, retailers selling direct to consumer). Butchers that only handle raw meat are not presently licensed.

The license is issued on an annual basis and can be revoked if licensing criteria are no longer met. Revocation of a license would only be expected in exceptional circumstances. It is likely that the use of more general Food Safety Act powers would usually be more appropriate for routine contraventions of the legislation.

Changes to Food Hygiene Regulations

Changes have been made to the Food Hygiene legislation from January 2006. From 1 January 2006, the Food Hygiene (Wales) Regulations 2005 will revoke and replace most of the existing food hygiene national legislation and will consolidate 17 existing European Union (EU) measures into just two. Most of the actual requirements are not expected to change.

In addition, the Microbiological Criteria for Foodstuffs Regulation was also expected to come into force from 1 January 2006 and complements the EU food hygiene legislation. Microbiological criteria in current EC legislation have been revised as part of a risk-based approach to food safety. The legislation

is structured so it can be applied flexibly in all food businesses, regardless of their type or size.

The new legislation maintains, and sets out more clearly, the duty of food business operators to produce food safely. This is a requirement that is contained in previous legislation and is underpinned in general food law. It is contended that the legislation will introduce a 'farm to fork' approach to food safety, by including a majority of primary production (i.e. farming) in food hygiene legislation for the first time.

The new Regulations relate to 3 sets of Community regulations:

- Regulation (EC) no. 852/2004 that lays down specific requirements for all food business operators to comply with.
- Regulation (EC) no. 853/2004 that lays down requirements additional to those contained in 852/2004, for businesses handling foods of animal origin
- Regulation (EC) no. 854/2004 that replaces current legislation relating to the organisation of official controls on products of animal origin intended for human consumption.

Regulation 852/2004 requires food businesses to be “registered” whilst Regulation 853/2004 requires relevant businesses to be “approved”.

There is an exemption from the requirement for approval under 853/2004, for butchers' premises that are supplying the final consumer, although such premises would need to be registered.

Under the legislation the premises linked to the South Wales *E. coli* O157 outbreak and named in the outbreak would not appear to be classed as selling to the final consumer but could still be required to be registered (as opposed to “approved”) if this element of their business is “marginal, localised and restricted” – see below.

“Marginal”- described as “only a small part of the establishment’s business” and FSA have determined that is interpreted at 25% or less of the turnover in terms of food.

“Localised” – FSA interpret as within the same county plus the greater of either the neighbouring county or counties or 30 miles/ 50 Km from the boundary of the home county.

“Restricted” – FSA propose that “restricted” be interpreted as specified product categories (e.g. dairy products, minced meat) and establishments (e.g. a butcher’s shop, distribution centre).

Discussions with local authority Environmental Health Practitioners suggested that there is some confusion regarding the existing legislative framework and

guidance and that this may be compounded by the transition to new legislation.

The FSA Board received a paper in March 2005 indicating that in Wales only around 30% of food premises are expected to comply with the new regulations. The Review Group wrote separately to the Chief Medical Officer on this issue asking that the Minister be made aware of their concerns.

Annex E***E. coli* O157¹⁵**

Vero-cytotoxin-producing *Escherichia coli* (VTEC) O157 has emerged in recent years as a group of pathogens of worldwide importance. Their public health significance first came to light in the early 1980s in the United States and Canada. At about the same time American and Canadian scientists found evidence of a link between VTEC infection and the development of HUS (Haemolytic Uraemic Syndrome) in children.

Most of the *E. coli* bacteria that are found in the human intestine are harmless but VTEC produces potent toxins and can cause disease in man. The toxins, termed vero-cytotoxins (VTs) were originally recognised for their ability to kill Vero cells, a tissue culture line of monkey kidney cells. VTEC are responsible for a range of illnesses that may be severe and sometimes fatal, particularly in infants, young children and the elderly. Although VTEC strains are present in a wide range of O serogroups, the most important one associated with human disease is serogroup O157.

Vero-cytotoxin-producing *Escherichia coli* serogroup O157 (VTEC O157) was first recognised as a human pathogen in 1982. The disease spectrum associated with VTEC O157 infection ranges from mild diarrhoea through haemorrhagic colitis (HC) (presenting as abdominal pain, diarrhoea, and blood in the stool) to haemolytic uraemic syndrome (HUS), characterised by microangiopathic haemolytic anaemia, renal failure, (which develops in 2% to 7% of cases), thrombocytopenia (TTP) and death. TTP is a syndrome that incorporates the main clinical features of HUS but with additional neurological involvement. HUS tends to be more common in children and TTP in adults, particularly the elderly. HUS, defined as renal impairment, including oligouria and plasma creatinine elevated for age, microangiopathic haemolytic anaemia and thrombocytopenia, is diagnosed clinically. Disease is most severe in infants and the elderly.

Investigating sources of E. coli O157 in Wales

Total population-based surveillance has been undertaken in Wales since February 1990, with all first-time acute-phase faecal specimens tested for VTEC O157. It is one of the most complete studies of its type, in the world. The objectives of this surveillance are to measure the incidence of VTEC O157, to identify outbreaks of infection, and describe the persons involved and the microbiological characteristics of the isolates. Surveillance data are not designed definitively to identify risk factors for infection, they do however give an indication of the types of exposures experienced by cases in the seven days prior to onset.

¹⁵ Adapted from NPHS website, October 2005.

Outbreaks

Information from outbreak surveillance in the UK demonstrates that VTEC O157 infection can be transmitted via consumption of contaminated food or water, person-to person spread, contact with livestock, and environmental exposure. A variety of foods have been implicated in outbreaks of infection.

Sources of VTEC O157

The main reservoir of VTEC O157 is thought to be ruminants, particularly cattle, sheep and goats. It has also been found in pigs, horses and wild birds. It is found in the intestinal tract of healthy animals and is not associated with disease in livestock. The organism is excreted in the faeces, and as such, is a potential risk to those working closely with farmed animals and their environment. It is also a risk to those attending 'open' farms where visitors may have opportunities for close contact with animals.

Press Release

Update by the Outbreak Control Team (Officers of the Rhondda Cynon Taf, Merthyr Tydfil, Caerphilly and Bridgend Local Authorities, the Rhondda Cynon Taf, Merthyr Tydfil, Bridgend and Caerphilly Local Health Boards, the Food Standards Agency and the National Public Health Service of Wales)

South Wales E coli outbreak over

The South Wales e coli outbreak is over.

The Outbreak Control Team made the decision after reviewing the risk of further spread.

The onset of illness in the last e coli case acquired in a school was on 27th September. The Outbreak Control Team has no reason to believe there are now any carriers of the infection in the community.

The South Wales e coli outbreak was the biggest Wales has ever seen with 158 cases across 42 schools. Of the total number of cases, about 65 per cent were primary – where the infection was caught from the original source.

The first cases were notified to the National Public Health Service for Wales on 16th September and the outbreak was declared that day. The source was identified and withdrawn over the next few days. There was then two weeks in which, because of the incubation period for the infection to take effect, cases continued to be reported. All the people who acquired the infection in a school were exposed to the source before control measures were implemented.

Dr Gwen Lowe, chair of the Outbreak Control Team, said, “This has been a difficult time for people living in the area. We want to thank people for their help and support during this time.

“Now that the outbreak is over and we know that there is neither source nor opportunity for spread of the infection we will be lifting the extra control measures from the beginning of next term.

“We have been delighted how the schools and parents have responded during this outbreak and we will be working with head teachers to continue to support them in maintaining high standards of hygiene within schools. We were also pleased that the importance of hand washing after using the toilet and before eating has been recognised.

“The different authorities which have made up the Outbreak Control Team have worked well together as a team. The action we took right at the beginning of the outbreak led to many people being saved from illness and possibly the saving of lives as well.

“Looking back, it is clear that no one fell ill in a school as a result of attending school after control measures were implemented.”

“We have welcomed the police investigation and the public inquiry and will be contributing fully to both.”

The Outbreak Control Team is preparing a report giving a factual account of how the outbreak was managed. The report will also make recommendations on the basis of the lessons learnt.

Abercynon School – a separate outbreak

Further investigation into the cases at Abercynon Infants School has shown that the cases there are unlikely to be connected to the main outbreak. The strain of e coli found is genetically different. There is no evidence of a link to other cases and the chronology in which they were reported does not fit with the main outbreak.

So, in the same way as the cases found in Brecon, the Abercynon cases are being managed separately to ensure that other people are not at risk.

There are 15 cases in the Abercynon outbreak.

The outbreak in numbers

Cases

Number of cases	158
Number of deaths	1
Number of children admitted to hospital	28
Number of adults admitted to hospital	5
Number of children transferred for tertiary care	9
Number of schools where exposure to the source resulted in infection	42

Rhondda Cynon Taf

Abertaf Primary School

Blaengwawr Primary School

Pengeulan Primary School

Cwmdare Primary School

Rhigos Primary School

Glenboi Primary School

Cwmbach Infants School

St John the Baptist Secondary School

Penygraig Infants School

Maesycoed Primary School

Cynon Infants School

Caradog Primary School
 Aberdare Town Church School
 Capcoch Primary School
 Comin Junior School
 YGG Lwyncelyn
 Cwmlai Primary School
 Penyreglyn Community Primary School
 Hirwaun Primary School
 Parc Lewis Primary School
 Treorchy Comprehensive School
 Glantaf Infants School
 Ynyswen Infants
 Hawthorn Primary School

1. Ysgol Yr Eos, Penygraig
2. YGG Abercynon

Mountain Ash Comprehensive School
 Ton Pentre Infants School

Merthyr Tyfil

Bedlinog Primary School
 Troed y Rhiw Infants School
 Pen y Dre Secondary School

Gellifaelog School

Caerphilly

Upper Rhymney Primary School
 Ysgol Yr Castell

Cwrt Rawlin Primary School

3. Rhydri Primary School
4. Hendre Infants and Junior Schools
5. Deri Primary School
6. Greenhill Primary School, Gelligaer
7. Ysgol Gymreag, Trelyn, Pengam

Bridgend

Archbishop McGrath Secondary School

8. Ynysawdre Comprehensive School

Investigations

Number of stool samples taken	2,100
Number of environmental samples	400
Number of interviews conducted	580

Communications

Number of calls received on the helpline	799
Number of letters sent to school parents	6
Number of press enquiries received	750
Number of broadcast media interviews given	150

Management

Number of staff working with the Outbreak Control Team	150
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ENDS

For further information please contact Chris Lines on 07866 634077

Annex G**Outbreak Curve**

See graph on next page.

E.coli O157 Outbreak in South Wales September/October/November 2005

