

Scottish Food Co-ordinating Committee

Assessment of Microbiological Cross-Contamination from Raw Meat to Cooked Meat Products sold from Butchery Premises

Report Prepared by:

Garry Ahrens
Microbiologist / Food Examiner
Dundee City Council
Scientific Services
24 Mains Loan
DUNDEE DD4 7AA

Tel: (01382) 455909
FAX: (01382) 461381

August 2004

1. Summary

- 1.1 A total of 71 premises were visited during the survey and a total of 142 samples were submitted.
- 1.2 Of the 142 samples of cooked meat examined, five samples (4%) from four premises (6%) were found to contain E.coli.
- 1.3 No cooked meat samples examined were found to contain Clostridium perfringens, Salmonella or E.coli 0157.

2. Background

- 2.1 The Food Safety (General Food Hygiene) (Butchers Shops) Amendment (Scotland) Regulations 2000 came into force in May 2000. They require the annual licensing by food authorities of retail butchers shops in Scotland handling unwrapped raw meat and ready to eat foods from the same premises.
- 2.2 The licensing requires that certain procedures are adopted to ensure hygienic conditions in the premises and that a certain level of training has been received by the staff handling the meat.
- 2.3 It is generally accepted that the retail sale of both raw and cooked meat from the same premise presents potential for the cross-contamination of cooked ready to eat products with pathogenic bacteria derived from the raw meat or from surfaces contaminated from the raw meat.
- 2.4 The Pennington Group identified cross-contamination from raw meat to ready-to eat food through poor hygiene and handling practices in a butchers shop as the main cause of the Central Scotland E.coli 0157 outbreak in 1996.
- 2.5 The purpose of this survey was to assess the handling and hygiene practices of the sale of both raw and cooked meats from the same butchery premise and to investigate the extent of any cross-contamination from raw to cooked meat following the implementation of the above regulations.

3. Sample Collection and Examination

- 3.1 The protocol for the collection of samples and the microbiological examination was prepared and is attached as Appendix I of this report.
- 3.2 The results of the survey are presented in Appendix II of this report. The results from each premises have been banded together by “greying”.

4. Results and Discussions

4.1 Microbiological Results

- 4.1.1** The total number of cooked meat samples submitted for microbiological examination over the survey period was 142, from a total of 71 premises.
- 4.1.2** Five (4%) of the cooked meat samples from 4 (6%) of premises were found to contain E.coli indicating faecal contamination possibly due to poor hygiene practices and signified possible contraventions of the butchers licensing legislation.
- 4.1.3** Of the 142 cooked meat samples submitted, no samples were found to contain Salmonella spp. The Salmonella organism may be present in raw foods, including meat, and its predominant mode of transmission is from foodstuffs following contamination of cooked foods by raw food or by undercooking of the cooked meats.
- 4.1.4** No samples examined were found to contain E.coli 0157. The rationale for inclusion of this organism in the examination suite is that raw mince has been shown to be one of the main sources of this organism. Bad hygiene practices during manufacture or retail of cooked meat presents a potential for this organism to be cross-transferred from the raw meat to the cooked meat and cause illness when the cooked meat is consumed.
- 4.1.5** No samples examined were found to contain Clostridium perfringens. Examination of cooked meat for Clostridium perfringens was included in the survey as this organism may be present in the raw mince and hence may be cross-transferred to the cooked meat sample.

5. Results of Observational Aspects

- 5.1** The Food Safety (General Food Hygiene) (Butchers Shops) Amendment (Scotland) Regulations 2000 requires that proprietors of food businesses and their employees take appropriate measures to prevent contamination of food.

The survey not only involved the sampling of meats for microbiological examination but also collected data on the precautions taken during the handling of the raw and cooked meat samples. The objective in adopting this observational technique was to assess the practices adopted within the various food premises and to evaluate the compliance of the observed practices with the above food safety legislation. A number of techniques were noted as being used by the butchers to prevent the contamination of cooked meats. The techniques included hand washing, scoop, tongs, inverted bags, etc. In some premises more than one technique was used.

- 5.2** In one retail outlet it was found by the sampling officer that the butcher serving the foods had open cuts to his hands, which had no waterproof dressing. Additionally the butcher failed to wash his hands between serving the raw and cooked meats.

- 5.3** A further analysis of the observational material clearly indicated that, when approximately two thirds of the samples were taken, hand washing was the main action taken by food handlers to prevent contamination by their hands when handling the meats. Insufficient details on the method of handwashing used was recorded. It is recognised that in any future survey more detail would be required on the exact methods of hand washing used by the food handler to prevent contamination of the cooked meats handled.
- 5.4** The observational data indicated that a range of other preventative actions were utilised by the handlers covering techniques such as inverted bag, scoop, gloves, use of antibacterial spray and separation.
- 5.5** From the observational data collected 12 (17%) of butchery premises took no precautions between serving the cooked and raw meats. These premises therefore did not comply with The Food Safety (General Food Hygiene) (Butchers Shops) Amendment (Scotland) Regulations 2000.

6. Conclusions

- 6.1** The presence of E.coli in approximately 4% of cooked meat samples would seem to indicate that the practices and procedures in 4 (6%) of premises would require review and/or investigation.
- 6.2** E.coli is used as an indicator of faecal contamination. If E.coli is present there is a greater likelihood that other pathogenic bacteria may be present in the sample. It should be noted that in the small number of samples found to contain E.coli, no samples were found to be contaminated with Salmonella, E.coli 0157 or Clostridium perfringens.
- 6.3** Due to the lack of detailed information in the original survey protocol concerning information on the observational aspects of the survey, it was extremely difficult to draw any meaningful conclusions concerning the number of premises that conclusively complied with The Food Safety (General Food Hygiene) (Butchers Shops) Amendment (Scotland) Regulations 2000.

7. Recommendations

- 7.1** Sampling of cooked meats from butcher premises should continue to form an important part of local authorities Food Surveillance Programmes, given the potential for cross-contamination of bacteria from raw to cooked food. It is also a useful tool to evaluate the effective application of legally required risk management practices within the butchery trade.
- 7.2** In the observational part of the present study, only the precautions taken during the serving of raw and cooked meats were noted.

It would have been useful to have had additional information on other aspects of the procedures in place in the butchers premises and more detail on precautions taken by handlers such as methods of hand-washing.

It is therefore recommended that in any future surveys of this type a questionnaire is designed to gather information on how the precautions taken to prevent cross contamination are implemented and in the opinion of the sampling officer if they were sufficient to prevent contamination of the meat.

Appendix I Protocol

Scottish Food Co-ordinating Committee

Assessment of Microbiological Cross-Contamination from Raw Meat to Cooked Meat Products Sold from Butchery Premises

Protocol Prepared by:
Garry Ahrens
Microbiologist/Food Examiner
Dundee City Council
Scientific Services
24 Mains Loan
DUNDEE DD4 7AA

Tel: (01382) 455909
FAX: (01382) 461381

August 2001

1. Purpose

- 1.1 The retail sale of both raw and cooked meats from the same butchery premise presents potential for the cross contamination of the cooked product with pathogenic bacteria derived from the raw meat. The implementation of The Food Safety (General Food Hygiene) (Butchers Shop) Amendment (Scotland) Regulations 2000 was specifically designed to prevent poor hygiene practices in the butchery trade.
- 1.2 Since the cooked meat will be eaten without further cooking the presence of pathogenic organisms would pose a significant risk to human health.
- 1.3 Cross-contamination can occur both during the preparation of the cooked product and at the retail stage from poor handling and bad hygiene practices. The survey will consider only the hazard posed by poor handling practices at the point of retail sale.
- 1.4 In order to assess the extent to which cross-contamination may be occurring and hence the risk posed to human health the survey will investigate the hygiene precautions taken by staff between serving a sample of cooked meat immediately followed by one of raw mince and then by a further sample of the same cooked meat. Each sample will, therefore, consist of two samples of cooked meat and one sample of raw mince.
- 1.5 As the purpose of the survey is to look at cross contamination of the cooked product, initially only those samples will be subjected to microbiological examination and the raw mince will be retained for subsequent investigation, if required.
- 1.6 If the second cooked meat sample is found to contain bacteria at the unsatisfactory or unacceptable / potentially hazardous levels then the raw sample will also be subjected to a full microbiological examination.

2. Survey Period

- 2.1 The survey will take place during October, November and December 2001.
- 2.2 The results of the survey should be returned to the survey co-ordinator by the 31st of January 2001.

3. Participation

- 3.1 All liaison groups are invited to participate in the survey.

3.2 The total number of samples required to be taken by each liaison group is:

Liaison Group	Raw	Cooked
West of Scotland	40	80
Central	20	40
Lothian & Scottish Borders	20	40
North of Scotland	20	40
Tayside & Fife	20	40

3.3 Each liaison group should decide on the distribution of sample collection within its group.

3.4 Each participating food authority must their laboratory normally used for food examination regarding sample submission arrangements.

4. Resource Implications

4.1 It is anticipated that the cost of this survey can be accommodated within the normal sampling and analysis arrangements.

5. Sampling

5.1 The survey is only to include meats sold from butcher shops and butchery departments within supermarkets.

5.2 It is vital to the success of the survey that samples should be collected anonymously.

5.3 It is recognised that sampling officers are likely to be known by butchers and their staff in the areas in which they normally operate. In order to avoid this consideration must be given to using staff not normally involved in food sampling, students and staff that normally work in another part of the food authority.

5.4 The sampling officer should request a sample of cooked meat followed by a sample of raw mince and then for a second cooked meat sample.

5.5 The second cooked meat sample **MUST** be the same product as the first cooked meat sample (ie if the first cooked meat sample was sliced chicken breast then the second cooked meat sample **MUST** also be of sliced chicken breast).

5.6 All samples must be taken from the same premises and at the same time.

5.7 Samples **MUST** consist of meat sold loose and **MUST** not consist of pre-packed meat.

- 5.8 Each sample must consist of at least 100 grams of meat.
- 5.9 Samples must be kept in the original packaging and each part of the sample must be placed in a separate food-grade plastic bag with and secured by a seal or similar fastener.
- 5.10 The sealed samples must then be placed in a cool-box and transported to the laboratory in accordance with the procedure detailed in Appendix A.
- 5.11 The following information must be recorded on the submission form in Appendix B:
- a) Type of cooked meat
 - b) Type of raw meat
 - c) Type of retail premises (supermarket, local shop)
 - d) Name and address of retail premise
 - e) Date collected
 - f) Time collected
 - g) Name of sampling officer
 - h) Temperature of cool-box on arrival at laboratory
 - i) Details of any hand washing or other precautions taken to prevent cross contamination.

6. Examination Procedures

- 6.1 Initially **ONLY** the cooked meat samples should be microbiologically examined. The raw meat sample should be stored in a refrigerator until the examination of the cooked meat samples is complete.
- 6.2 If either of the cooked meat samples contain bacteria at a level which are deemed unsatisfactory or unacceptable / potentially hazardous under the Public Health Laboratory Service Guidelines for Ready-to-Eat Foods (September 2000) the corresponding raw mince sample must be subjected to a full microbiological examination.
- 6.3 Samples are to be examined according to the procedures detailed in Appendix C
- 6.4 Samples are to be examined for the presence of the following hygiene indicators and pathogenic organisms:
- a) *Escherichia coli* (hygiene indicator)
 - b) *Clostridium perfringens* (pathogen / hygiene indicator)
 - c) *Escherichia coli* 0157 (pathogen)
 - d) *Salmonella spp* (pathogen)
- 6.5 Results of the survey should be returned to the Survey Co-ordinator by 31st January 2002.

Appendix A

Sample Collection Procedure

A1 Sample Collection

A1.1 Pre-select the premises from which the samples are to be taken.

A1.2 Ensure the following equipment is available:

Cool-box with icepacks and a bottle of water

Plastic food bags

Plastic gloves

Labels

Calibrated thermometer

A1.3 The cool-box must be capable of operating at a temperature of 1-5°C. Prepare the cool-box by placing it in a refrigerator for at least 1 hour (preferably overnight). Place a sufficient number of icepacks and a small, screw-capped bottle of water in the cool-box.

A1.4 Request a sample of cooked meat, followed a sample of raw mince followed by a second sample of the same cooked meat. Complete the sample submission form for all samples.

A1.5 Label the sample with all the necessary information and place in the cool-box.

A1.6 Samples must be delivered to the laboratory as soon as possible after being collected. Wherever possible, this should be no more than 6 hours after collection.

A1.7 On receipt at the laboratory the internal temperature of the cool-box must be determined by placing the thermometer in the bottle of water and measuring the temperature.

Appendix B Sample Submission Form

Name of Authority		
Liaison Group		
Client's Reference Number		
Laboratory Reference Number		
Sample Description	Raw Meat	
	Cooked Meat	
Type of Premises	Local Butchers	
	Supermarket	
Details of any hand-washing / other precautions taken to prevent cross-contamination		
Date Collected		
Time Collected		
Cool-box Temperature on arrival at Laboratory		
Sampling Officer		

Results	ND	Det	<10	10-<10 ²	10 ² -10 ³	10 ³ -10 ⁴	10 ⁴ -10 ⁵	≥10 ⁵
<i>E. coli</i>								
<i>Clostridium perfringens</i>								
<i>E.coli</i> 0157								
<i>Salmonella Spp</i>								

Record the results of enumeration tests as actual NUMBERS in the appropriate box in the table. Record the results of Presence/Absence test by placing a tick in the Not Detected (ND) box or the Detected (Det) box as appropriate.

Please return completed submission forms to:-

Garry Ahrens
Microbiologist / Food Examiner
Dundee City Council
Scientific Services
24 Mains Loan
DUNDEE DD4 7AA

Tel: (01382) 455909
FAX: (01382) 461381

e-mail: garry.ahrens@dundeecity.gov.uk

Appendix C

Laboratory Protocol

C1 Escherichia coli

C1.1 Samples are to be examined according to the methods described in BS5763 13 : 1998 – Enumeration of E.coli using membranes or a suitable UKAS accredited method. Whichever method is used it is important to use a procedure which will allow counts to be made in the range $10^1 - 10^4$ /gm

C2 Escherichia coli 0157

C2.1 Samples for E.coli 0157 testing may be stored in a refrigerator ($5 \pm 3^\circ\text{C}$) overnight to allow testing to begin the day after sample submission.

C2.2 Aseptically weigh 25g into a stomacher bag with mesh insert. Add by weight sufficient MTSB to create a 1:10 suspension. The 1:10 suspension should then be stomached for 1 minute.

C2.3 Transfer the food suspension to a sterile container and incubate at 42°C for 24 hours.

C2.4 After 6 hours and again after 24 hours perform an Immunomagnetic separation technique in accordance with the manufacturer's instructions.

C2.5 Subculture the re-suspended beads to cefixime tellurite sorbitol MacConkey agar (CT-SMAC).

C2.6 Incubate the CT SMAC plates at 37°C for 24 hours.

C2.7 Examine the plates for non-sorbitol fermenting colonies and if present confirm by latex and biochemical testing.

C2.8 All isolates of E.coli 0157 must be sent to an appropriate reference laboratory for typing.

Appendix C

Laboratory Protocol

C3 Clostridium Perfringens

C3.1 Samples should be examined using the method described in BS EN 13401:1999 or a suitable UKAS accredited method. Whichever method is used it is important to use a procedure which will allow counts to be made in the range 10 – 10⁵/gm.

C4 Salmonella spp

C4.1 Samples should be examined using the method described in BS EN 12824 : 1998, or a suitable UKAS accredited method. All isolates of Salmonella must be sent to an appropriate reference laboratory for typing.

APPENDIX II

RESULTS OF EXAMINATION

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
03/12/01	Glasgow	Turkey Saddle	Local Butcher	Hands washed before handling	<10	<10	Not Detected	Not Detected
03/12/01	Glasgow	Raw mince	Local Butcher	Handled using inverted bag	-	-	-	-
03/12/01	Glasgow	Turkey Saddle	Local Butcher	Hands washed before handling	<10	<10	Not Detected	Not Detected
03/12/01	Glasgow	Cooked Ham	Local Butcher	Hands washed with sanitiser	<10	<10	Not Detected	Not Detected
03/12/01	Glasgow	Raw Mince	Local Butcher	Scoop and inverted bag	-	-	-	-
03/12/01	Glasgow	Cooked Ham	Local Butcher	Hands washed again with sanitiser	<10	<10	Not Detected	Not Detected
03/12/01	Glasgow	Cooked Ham	Local Butcher	Hands washed with sanitiser	<10	<10	Not Detected	Not Detected
03/12/01	Glasgow	Raw Mince	Local Butcher	Use of scoop	-	-	-	-
03/12/01	Glasgow	Cooked Ham	Local Butcher	Hands washed again with sanitiser	<10	<10	Not Detected	Not Detected
03/12/01	Glasgow	Roast Beef	Local Butcher	Hands washed with sanitiser	30	<10	Not Detected	Not Detected
03/12/01	Glasgow	Raw Mince	Local Butcher	Hands washed & use of scoop	2.8 x 10 ²	<10	Not Detected	Not Detected
03/12/01	Glasgow	Roast Beef	Local Butcher	Hands washed again with sanitiser	<10	<10	Not Detected	Not Detected
28/11/01	Glasgow	Roast Beef	Local Butcher	None	<10	<10	Not Detected	Not Detected
28/11/01	Glasgow	Raw Mince	Local Butcher	None	-	-	-	-
28/11/01	Glasgow	Roast Beef	Local Butcher	None	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
28/11/01	Glasgow	Turkey Breast	Supermarket	Disposable glove on hand used to lift meat-not single use	<10	<10	Not Detected	Not Detected
28/11/01	Glasgow	Raw mince	Supermarket	Use of scoop	-	-	-	-
28/11/01	Glasgow	Turkey Breast	Supermarket	Disposable glove on hand used to lift meat-not single use	<10	<10	Not Detected	Not Detected
28/11/01	Glasgow	Roast Pork	Local Butcher	Hands washed with sanitiser	<10	<10	Not Detected	Not Detected
28/11/01	Glasgow	Raw Mince	Local Butcher	Inverted bag used to lift raw mince, hands washed with sanitiser	-	-	-	-
28/11/01	Glasgow	Roast Pork	Local Butcher	Hands washed with sanitiser before serving	<10	<10	Not Detected	Not Detected
28/11/01	Glasgow	Roast Beef	Local Butcher	Washed hands before serving, used tongs to serve meat	<10	<10	Not Detected	Not Detected
28/11/01	Glasgow	Raw Mince	Local Butcher	Used inverted bag to lift mince, then washed hands	-	-	-	-
28/11/01	Glasgow	Roast Beef	Local Butcher	Hands washed before serving – used Tongs	<10	<10	Not Detected	Not Detected
28/11/01	Glasgow	Roast Beef	Local Butcher	Hands washed using nailbrush and sanitiser	<10	<10	Not Detected	Not Detected
28/11/01	Glasgow	Raw mince	Local Butcher	Inverted bag used to lift mince, then hands washed with sanitiser	-	-	-	-
28/11/01	Glasgow	Roast Beef	Local Butcher	Hands washed before serving	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella sp	E.coli 0157
19/11/01	Falkirk	Roast Beef	Local Butcher	Washed hands with soap	<10	<10	Not Detected	Not Detected
19/11/01	Falkirk	Raw Mince	Local Butcher	Washed hands with soap	-	-	-	-
19/11/01	Falkirk	Roast Beef	Local Butcher	Washed hands with soap	<10	<10	Not Detected	Not Detected
19/11/01	Falkirk	Roast Beef	Local Butcher	Washed hands with soap	<10	<10	Not Detected	Not Detected
19/11/01	Falkirk	Mince	Local Butcher	Washed hands with soap	-	-	-	-
19/11/01	Falkirk	Roast Beef	Local Butcher	Washed hands with soap	<10	<10	Not Detected	Not Detected
15/11/01	Stirling	Gammon	Local Butcher	Washed hands before serving	<10	<10	Not Detected	Not Detected
15/11/01	Stirling	Mince	Local Butcher	-	-	-	-	-
15/11/01	Stirling	Gammon	Local Butcher	Washed hands after handling raw meat	<10	<10	Not Detected	Not Detected
15/11/01	Stirling	Gammon	Local Butcher	None	<10	<10	Not Detected	Not Detected
15/11/01	Stirling	Mince	Local Butcher	None	-	-	-	-
15/11/01	Stirling	Gammon	Local Butcher	None. Person serving had direct hand contact with raw meat, did not wash hands before contact with cooked meat	<10	<10	Not Detected	Not Detected
15/11/01	Stirling	Turkey Roll	Local Butcher	Washed Hands	1.4 x 10 ²	<10	Not Detected	Not Detected
15/11/01	Stirling	Mince	Local Butcher	None	<10	<10	Not Detected	Not Detected
15/11/01	Stirling	Turkey Roll	Local Butcher	Washed Hands	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
15/11/01	Stirling	Corned Beef	Local Butcher	Washed Hands	<10	<10	Not Detected	Not Detected
15/11/01	Stirling	Steak Mince	Local Butcher	None	-	-		
15/11/01	Stirling	Corned Beef	Local Butcher	Washed Hands	<10	<10	Not Detected	Not Detected
15/11/01	Stirling	Cooked Gammon	Local Butcher	Washed Hands	<10	<10	Not Detected	Not Detected
15/11/01	Stirling	Mince	Local Butcher	None	-	-	-	-
15/11/01	Stirling	Cooked Gammon	Local Butcher	Washed Hands	<10	<10	Not Detected	Not Detected
15/11/01	Stirling	Cooked Gammon	Local Butcher	Washed Hands before service. Sliced meat directly on to plastic wrapping	<10	<10	Not Detected	Not Detected
15/11/01	Stirling	Mince	Local Butcher	Washed hands	-	-	-	-
15/11/01	Stirling	Cooked Gammon	Local Butcher	Washed Hands before service/ sliced meat directly on to hand	<10	<10	Not Detected	Not Detected
7/11/01	East Ayrshire	Gammon	Local Butcher	Hands Washed. Slicer was being cleaned, but still used to slice..	2.8×10^2	<10	Not Detected	Not Detected
7/11/01	East Ayrshire	Mince	Local Butcher		<10	<10	Not Detected	Not Detected
7/11/01	East Ayrshire	Gammon	Local Butcher	Hands roughly washed. Slicer had been wiped down again	2.1×10^2	<10	Not Detected	Not Detected
7/11/01	East Ayrshire	Gammon	Local Butcher	Hands washed before handling	<10	<10	Not Detected	Not Detected
7/11/01	East Ayrshire	Mince	Local Butcher		-	-	-	-
7/11/01	East Ayrshire	Gammon	Local Butcher		<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
12/11/01	Clackmannanshire	Ham	Local Butcher	Hands washed prior to handling	<10	<10	Not Detected	Not Detected
12/11/01	Clackmannanshire	Mince	Local Butcher	None	-	-	-	-
12/11/01	Clackmannanshire	Ham	Local Butcher	Hands washed prior to handling	<10	<10	Not Detected	Not Detected
12/11/01	Clackmannanshire	Roast Beef	Local Butcher	Hands washed prior to handling	<10	<10	Not Detected	Not Detected
12/11/01	Clackmannanshire	Mince	Local Butcher	None	-	-	-	-
12/11/01	Clackmannanshire	Roast Beef	Local Butcher	Hands washed prior to handling	<10	<10	Not Detected	Not Detected
12/11/01	Falkirk	Turkey	Local Butcher	Hands washed with soap	<10	<10	Not Detected	Not Detected
12/11/01	Falkirk	Mince	Local Butcher	Hands washed with soap	-	-	-	-
12/11/01	Falkirk	Turkey	Local Butcher	Hands washed with soap	<10	<10	Not Detected	Not Detected
12/11/01	Falkirk	Special Gammon	Local Butcher	Hands washed with soap	<10	<10	Not Detected	Not Detected
12/11/01	Falkirk	Mince	Local Butcher	Hands washed with soap	-	-	-	-
12/11/01	Falkirk	Special Gammon	Local Butcher	Hands washed with soap	<10	<10	Not Detected	Not Detected
12/11/01	Falkirk	Cooked Ham	Local Butcher	Hands washed with soap	<10	<10	Not Detected	Not Detected
12/11/01	Falkirk	Mince	Local Butcher	Hands washed with soap	-	-	-	-
12/11/01	Falkirk	Cooked Ham	Local Butcher	Hands washed with soap	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
7/11/01	East Refrewshire	Meat Loaf	Local Butcher	Washed hands before slicing. Separate cooked meat slicer Disposable gloves worn.	<10	<10	Not Detected	Not Detected
7/11/01	East Refrewshire	Raw Mince	Local Butcher		-	-	-	-
7/11/01	East Refrewshire	Meat Loaf	Local Butcher	Washed hands before slicing. Separate Slicer Disposable gloves	<10	<10	Not Detected	Not Detected
7/11/01	East Refrewshire	Corned Beef	Local Butcher	Washed hands before serving	<10	<10	Not Detected	Not Detected
7/11/01	East Refrewshire	Steak Mince	Local Butcher	Washed hands before serving	-	-	-	-
7/11/01	East Refrewshire	Corned Beef	Local Butcher	Washed hands before serving	<10	<10	Not Detected	Not Detected
22/10/01	Clackmannanshire	Boiled Ham	Local Butcher	None	<10	<10	Not Detected	Not Detected
22/10/01	Clackmannanshire	Mince	Local Butcher	None	-	-	-	-
22/10/01	Clackmannanshire	Boiled Ham	Local Butcher	None	<10	<10	Not Detected	Not Detected
10/12/01	South Lanarkshire	Gammon	Local Butcher	Separate counters, Separate staff. Hands washed before serving	<10	<10	Not Detected	Not Detected.
10/12/01	South Lanarkshire	Beef Mince	Local Butcher	Separate counters, Separate staff. Hands washed before serving	-	-	-	-
10/12/01	South Lanarkshire	Gammon	Local Butcher	Separate counters, Separate staff. Hands washed before serving	<10	<10	Not Detected	Not Detected.
10/12/01	South Lanarkshire	Gammon	Local Butcher	Hands washed between raw & cooked & prior to service. Full height divider, separate scales & slicer for serving	<10	<10	Not Detected	Not Detected.
10/12/01	South Lanarkshire	Beef Mince	Local Butcher	Hands washed between raw & cooked & prior to service. Full height divider, separate scales & slicer	-	-	-	-
10/12/01	South Lanarkshire	Gammon	Local Butcher	Hands washed between raw & cooked & prior to service. Full height divider, separate scales & slicer	<10	<10	Not Detected	Not Detected.

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
10/12/01	South Lanarkshire	Gammon	Local Butcher	On asking for cooked meat assistant asked if any raw meat now needed first. Washed hands between /before service. Separate counters + scales + slicer.	<10	<10	Not Detected	Not Detected.
10/12/01	South Lanarkshire	Mince Beef	Local Butcher		-	-	-	-
10/12/01	South Lanarkshire	Cooked Gammon	Local Butcher	Hand Washing between serving raw and cooked. Separate counter, scales, slicer	<10	<10	Not Detected	Not Detected.
10/12/01	South Lanarkshire	Mince Beef	Local Butcher		-	-	-	-
10/12/01	South Lanarkshire	Cooked Gammon	Local Butcher	Hand Washing between serving raw and cooked. Separate counter, scales, slicer	<10	<10	Not Detected	Not Detected.
10/12/01	South Lanarkshire	Gammon	Local Butcher	Hand Washing between handling raw & cooked. Separate scales Separate counters.	<10	<10	Not Detected	Not Detected.
10/12/01	South Lanarkshire	Mince Beef	Local Butcher	Hand Washing between handling raw & cooked. Separate scales Separate counters.	-	-	-	-
10/12/01	South Lanarkshire	Gammon	Local Butcher	Hand Washing between handling raw & cooked. Separate scales Separate counters.	<10	<10	Not Detected	Not Detected
10/12/01	North Ayrshire Council	Roast Pork	Local Butcher	Washed hand. Used bag as glove	<10	<10	Not Detected	Not Detected
10/12/01	North Ayrshire Council	Mince	Local Butcher	Used bag as glove to pick up mince	-	-	-	-
10/12/01	North Ayrshire Council	Roast Pork	Local Butcher	Used bag as glove to pick up mince	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
10/12/01	North Ayrshire Council	Roast Turkey Breast	Local Butcher	None	<10	<10	Not Detected	Not Detected
10/12/01	North Ayrshire Council	Mince	Local Butcher	Used Bag Mince to pick mince up	-	-	-	-
10/12/01	North Ayrshire Council	Roast Turkey Breast	Local Butcher	No Hand Washing	<10	<10	Not Detected	Not Detected
4/12/01	West Dunbartonshire	Roast Beef	Local Butcher	Hand washed at appropriate stages.	<10	<10	Not Detected	Not Detected
4/12/01	West Dunbartonshire	Mince	Local Butcher		60	<10		
4/12/01	West Dunbartonshire	Roast Beef	Local Butcher	Hand washed at appropriated stages.	20	<10	Not Detected	Not Detected
26/11/01	Falkirk Council	Chopped Pork	Local Butcher	Wash basin, Soap Paper Towels	<10	<10	Not Detected	Not Detected
26/11/01	Falkirk Council	Mince	Local Butcher	Wash basin, Soap Paper Towels	-	-	-	-
26/11/01	Falkirk Council	Chopped Pork	Local Butcher	Wash basin, Soap Paper Towels	<10	<10	Not Detected	Not Detected
26/11/01	Falkirk Council	Ayrshire Ham	Local Butcher	Wash basin, Soap Paper Towels	<10	<10	Not Detected	Not Detected
26/11/01	Falkirk Council	Mince	Local Butcher	Wash basin, Soap Paper Towels	-	-	-	-
26/11/01	Falkirk Council	Ayrshire Ham	Local Butcher	Wash basin, Soap Paper Towels	<10	<10	Not Detected	Not Detected
26/11/01	Falkirk Council	Roast Pork	Local Butcher	Wash basin, Soap Paper Towels	<10	<10	Not Detected	Not Detected
26/11/01	Falkirk Council	Mince	Local Butcher	Wash basin, Soap Paper Towels	-	-	-	-
26/11/01	Falkirk Council	Roast Pork	Local Butcher	Wash basin, Soap Paper Towels	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
22/11/01	Falkirk Council	Roast Pork	Local Butcher	Washed hands before serving	<10	<10	Not Detected	Not Detected
22/11/01	Falkirk Council	Mince	Local Butcher		-	-	-	-
22/11/01	Falkirk Council	Roast Pork	Local Butcher	Washed hands before serving	<10	<10	Not Detected	Not Detected
04/12/01	West Dunbartonshire Council	Roast Pork	Local Butcher	Hands washed. Liquid soap dispenser, disposable towels	<10	<10	Not Detected	Not Detected
04/12/01	West Dunbartonshire Council	Mince	Local Butcher	Hands washed. Liquid soap dispenser, disposable towels	-	-	-	-
04/12/01	West Dunbartonshire Council	Roast Pork	Local Butcher	Hands washed. Liquid soap dispenser, disposable towels	<10	<10	Not Detected	Not Detected
03/12/01	Glasgow	Roast Beef	Local Butcher	Hands washed before handling meat	<10	<10	Not Detected	Not Detected
03/12/01	Glasgow	Mince	Local Butcher	Hands washed after handling raw meat	-	-	-	-
03/12/01	Glasgow	Roast Beef	Local Butcher	Hands washed before handling meat	<10	<10	Not Detected	Not Detected
03/12/01	Glasgow	Brisket	Local Butcher	Hands washed before serving	<10	<10	Not Detected	Not Detected
03/12/01	Glasgow	Mince	Local Butcher	None	-	-	-	-
03/12/01	Glasgow	Brisket	Local Butcher	None	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
11/12/01	Angus	Roast Beef	Local Butcher	Hands thoroughly washed & dried before handling	<10	<10	Not Detected	Not Detected
11/12/01	Angus	Steak Mince	Local Butcher	Hands thoroughly washed & dried before handling	-	-	-	-
11/12/01	Angus	Roast Beef	Local Butcher	Hands thoroughly washed & dried before handling	<10	<10	Not Detected	Not Detected
18/12/01	Angus	Roast ham	Local Butcher	Hands washed & dried, new disposable glove prior to handling cooked meat.	<10	<10	Not Detected	Not Detected
18/12/01	Angus	Beef Mince	Local Butcher	Hands washed & dried, new disposable glove prior to handling cooked meat.	-	-	-	-
18/12/01	Angus	Roast Ham	Local Butcher	Hands washed & dried, new disposable glove prior to handling cooked meat.	<10	<10	Not Detected	Not Detected
04/12/01	Perth & Kinross	Roast lamb	Local Butcher	Hands washed before handling	<10	<10	Not Detected	Not Detected
04/12/01	Perth & Kinross	Mince	Local Butcher	-	-	-	-	-
04/12/01	Perth & Kinross	Roast lamb	Local Butcher	Hands washed before handling	<10	<10	Not Detected	Not Detected
27/11/01	Perth & Kinross	Cooked ham	Local Butcher	No hand wash. Cuts on hand with no plaster over them.	<10	<10	Not Detected	Not Detected
27/11/01	Perth & Kinross	Mince	Local Butcher	Cuts on hand, no bandage over cuts.	-	-	-	-
27/11/01	Perth & Kinross	Cooked ham	Local Butcher	Did not wash hands Before handling cooked meat.	<10	<10	Not Detected	Not Detected
27/11/01	Angus	Roast Ham	Local Butcher	Hands washed with soap and dried prior to cooked meat being served both times	<10	<10	Not Detected	Not Detected
27/11/01	Angus	Steak Mince	Local Butcher	Hands washed with soap and dried prior to cooked meat being served both times	-	-	-	-
27/11/01	Angus	Roast Ham	Local Butcher	Hands washed with soap and dried prior to cooked meat being served both times	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
20/11/01	Perth & Kinross	Cooked ham	Local Butcher	Washed hands before handling.	<10	<10	Not Detected	Not Detected
20/11/01	Perth & Kinross	Steak mince	Local Butcher		-	-	-	-
20/11/01	Perth & Kinross	Cooked Ham	Local Butcher	Washed hands before handling.	<10	<10	Not Detected	Not Detected
20/11/01	Angus	Cooked Ham	Local Butcher	Washed hands with soap prior to serving ham	<10	<10	Not Detected	Not Detected
20/11/01	Angus	Beef Mince	Local Butcher	Washed hands with soap & put glove on prior to serving	-	-	-	-
20/11/01	Angus	Cooked Ham	Local Butcher	Washed hands with soap prior to serving ham	<10	<10	Not Detected	Not Detected
13/11/01	Angus	Cooked Ham	Local Butcher	Washed hands prior to serving	-	-	-	-
13/11/01	Angus	Mince	Local Butcher	Washed hands prior to serving	-	-	-	-
13/11/01	Angus	Cooked Ham	Local Butcher	Washed hands prior to serving.	<10	<10	Not Detected	Not Detected
06/11/01	Angus	Cooked Ham	Local Butcher	Washed hands with antibac prior to new disposable gloves	<10	<10	Not Detected	Not Detected
06/11/01	Angus	Steak Mince	Local Butcher	Washed hands with antibac prior to new disposable gloves	-	-	-	-
6/11/01	Angus	Cooked Ham	Local Butcher	Hands sprayed with antibac prior to disposable gloves	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
22/11/01	East Dunbartonshire	Roast Beef	Local Butcher	Washed hands before serving	<10	<10	Not Detected	Not Detected
22/11/01	East Dunbartonshire	Mince	Local Butcher		-	-	-	-
22/11/01	East Dunbartonshire	Roast Beef	Local Butcher	Washed hands before serving	<10	<10	Not Detected	Not Detected
06/11/01	Perth & Kinross	Roast Silverside	local Butcher	Washed hands. No soap.	<10	<10	Not Detected	Not Detected
06/11/01	Perth & Kinross	Beef Mince	Local Butcher	Washed hands but no soap in dispenser .	-	-	-	-
06/11/01	Perth & Kinross	Roast Silverside	Local Butcher	Washed hands but no soap in dispenser .	<10	<10	Not Detected	Not Detected
13/11/01	Perth & Kinross	Honey Roast Ham	Local Butcher	Hands Washed	-	-	-	-
13/11/01	Perth & Kinross	Steak Mince	Local Butcher	Hands Washed	-	-	-	-
13/11/01	Perth & Kinross	Honey Roast Ham	Local Butcher	Hands washed.	<10	<10	Not Detected	Not Detected
13/12/01	Dumfries & Galloway	Roast Ham	Local Butcher	Washed Hands, soap & Water before serving	<10	<10	Not Detected	Not Detected
13/12/01	Dumfries & Galloway	Mince	Local Butcher	Washed Hands, soap & water before serving	-	-	-	-
13/12/01	Dumfries & Galloway	Roast Ham	Local Butcher	Washed Hands, sanitiser prior to serving	<10	<10	Not Detected	Not Detected
13/12/01	Dumfries & Galloway	Roast Ham	Local Butcher	Washed Hands, sanitiser prior to serving	<10	<10	Not Detected	Not Detected
13/12/01	Dumfries & Galloway	Mince	Local Butcher	-	-	-	-	-
13/12/01	Dumfries & Galloway	Roast Ham	Local Butcher	Washed Hands, sanitiser prior to serving	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
11/12/01	West Lothian	Cooked Ham	Local Butcher	Washed hands before cutting cooked ham but not in between, cooked ham and raw mince. Washed hands when I asked for more cooked ham.	<10	<10	Not Detected	Not Detected
11/12/01	West Lothian	Mince	Local Butcher	-	-	-	-	-
11/12/01	West Lothian	Cooked Ham	Local Butcher	Washed hands before cutting ham but not in between. Washed hands before cutting second ham.	<10	<10	Not Detected	Not Detected
11/12/01	West Lothian	Cooked Ham	Local Butcher	Hands washed first before cooked ham and after raw mince.	<10	<10	Not Detected	Not Detected
11/12/01	West Lothian	Mince	Local Butcher	-	-	-	-	-
11/12/01	West Lothian	Cooked Ham	Local Butcher	Hands washed first before cooked ham and after raw mince.	<10	<10	Not Detected	Not Detected
11/12/01	West Lothian	Cooked Ham	Local Butcher	Washed hands first before cooked ham and after raw mince.	<10	<10	Not Detected	Not Detected
11/12/01	West Lothian	Mince	Local Butcher	-	-	-	-	-
11/12/01	West Lothian	Cooked Ham	Local Butcher	Hands washed first before cooked ham and after raw mince.	<10	<10	Not Detected	Not Detected
11/12/01	West Lothian	Beef	Local Butcher	Washed hands before cutting beef. Used glove. served mince, Washed hands again before cutting second sample.	<10	<10	Not Detected	Not Detected
11/12/01	West Lothian	Mince	Local Butcher	-	-	-	-	-
11/12/01	West Lothian	Beef	Local Butcher	Washed hands before cutting beef. Used glove. Served mince. Washed hands again before cutting second sample.	<10	<10	Not Detected	Not Detected
12/12/01	Midlothian Council	Cooked Meat	Local Butcher	Put on plastic glove and sliced meat onto a fresh plastic sheet.	<10	<10	Not Detected	Not Detected
12/12/01	Midlothian Council	Mince	Local Butcher	Glove removed – mince weighed onto a piece of plastic film on the scales.	-	-	-	-
12/12/01	Midlothian Council	Cooked Meat	Local Butcher	Glove put on again and sliced onto plastic film	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
12/12/01	Midlothian Council	Cooked Meat	Local Butcher	No hand washing or gloves – sliced onto a plastic sheet.	<10	<10	Not Detected	Not Detected
12/12/01	Midlothian Council	Mince	Local Butcher	Gloves put on to serve mince.	-	-	-	-
12/12/01	Midlothian Council	Cooked Meat	Local Butcher	No gloves used.	<10	<10	Not Detected	Not Detected
12/12/01	Midlothian Council	Cooked Meat	Local Butcher	Hands washed and sliced onto blue and white paper.	<10	<10	Not Detected	Not Detected
12/12/01	Midlothian Council	Mince	Local Butcher	Hand placed into bag and mince grabbed into bag	-	-	-	-
12/12/01	Midlothian Council	Cooked Meat	Local Butcher	Hands washed and dried. Meat still on slicer.	<10	<10	Not Detected	Not Detected
12/12/01	Scottish Borders Council	Corned Beef	Local Butcher	Hands washed, water, no soap and dried. Meat sliced onto cellophane on left hand but moulded into hand by right hand on top surface.	<10	<10	Not Detected	Not Detected
12/12/01	Scottish Borders Council	Mince	Local Butcher	Mince picked from tray using wrapping as barrier then extra picked off by bare hands.	-	-	-	-
12/12/01	Scottish Borders Council	Corned Beef	Local Butcher	Hands washed after mince before uplifting corned beef. Again water but no soap used. Also wrapping paper handled on surface where cooked meat placed.	<10	<10	Not Detected	Not Detected
12/12/01	Scottish Borders Council	Corned Beef	Local Butcher	No hand washing and previous customer had raw meat. Meat handled by bare hands – I asked for thick slices and was shown to see if it was thick enough. Unable to see slicer to see handling there..	<10	<10	Not Detected	Not Detected
12/12/01	Scottish Borders Council	Mince	Local Butcher	No hand washing before handling. Mince uplifted with wrapping but weight adjusted with bare hands.	-	-	-	-
12/12/01	Scottish Borders Council	Corned Beef	Local Butcher	No hand washing. Piece of corned beef also uplifted by hand (bare) and placed on scales. Slicing not seen as behind a screen.	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
12/12/01	Shetland Island Council	Cooked Meat	Local Butcher	Hands washed	<10	<10	Not Detected	Not Detected
12/12/01	Shetland Island Council	Mince	Local Butcher	Hands washed	-	-	-	-
12/12/01	Shetland Island Council	Cooked Meat	Local Butcher	Hands washed	<10	<10	Not Detected	Not Detected
12/12/01	Shetland Island Council	Cooked Ham	Local Butcher	Hands washed	<10	<10	Not Detected	Not Detected
12/12/01	Shetland Island Council	Mince	Local Butcher	Hands washed before handling cooked meat	-	-	-	-
12/12/01	Shetland Island Council	Cooked Ham	Local Butcher	Hands washed before handling cooked meat	<10	<10	Not Detected	Not Detected
19/12/01	Edinburgh Council	Cooked Ham	Local Butcher	Plastic bags over hands. No washing.	<10	<10	Not Detected	Not Detected
19/12/01	Edinburgh Council	Mince	Local Butcher	Use of plastic bags over hands only. No washing of hands.	-	-	-	-
19/12/011	Edinburgh Council	Cooked Ham	Local Butcher	Plastic bags used over hands. No hand washing.	<10	<10	Not Detected	Not Detected
19/12/01	Edinburgh Council	Roast Beef	Local Butcher	- separate scales – hand washing done – separate slicer – separate storage.	<10	<10	Not Detected	Not Detected
19/12/01	Edinburgh Council	Mince	Local Butcher	- separate scales before last cooked meat sale – hands washed – separate storage.	-	-	-	-
19/12/011	Edinburgh Council	Roast Beef	Local Butcher	- separate slicer – hands washed before handling – separate scales – separate storage.	<10	<10	Not Detected	Not Detected
19/12/01	Edinburgh Council	Cooked Chicken	Local Butcher	Gloves worn for slicing and bagging of cooked meat.	<10	<10	Not Detected	Not Detected
19/12/01	Edinburgh Council	Mince	Local Butcher	Gloves worn for slicing and bagging of cooked meats.	-	-	-	-
19/12/011	Edinburgh Council	Cooked Chicken	Local Butcher	Gloves worn for slicing and bagging of cooked meats	<10	<10	Not Detected	Not Detected
20/12/01	Edinburgh Council	Cooked Ham	Local Butcher	Hands washed.	<10	<10	Not Detected	Not Detected
20/12/01	Edinburgh Council	Mince	Local Butcher	Hands washed	-	-	-	-
20/12/011	Edinburgh Council	Cooked Ham	Local Butcher	hands washed	<10	<10	Not Detected	Not Detected

Date Sampled	Sampling Authority	Sample Description	Premises Type	Details of precautions taken during handling raw and cooked samples	E.coli (cfu/g)	C.perfringens (cfu/g)	Salmonella spp.	E.coli O157
20/12/01	Edinburgh Council	Cooked Pork	Local Butcher	- separate counter – separate scale – separate slicer – hands washed.	<10	<10	Not Detected	Not Detected
20/12/01	Edinburgh Council	Mince	Local Butcher	separate counter – separate scale – separate slicer – hands washed.	-	-	-	-
20/12/01	Edinburgh Council	Cooked Pork	Local Butcher	separate counter – separate scale – separate slicer – hands washed.	<10	<10	Not Detected	Not Detected