SHERIFFDOM OF NORTH STRATHCLYDE

INQUIRY HELD UNDER FATAL ACCIDENTS AND SUDDEN DEATHS INQUIRY (SCOTLAND) ACT 1976

DETERMINATION by BRUCE ALEXANDER KERR, Queen's Counsel, Sheriff Principal of the Sheriffdom of North Strathclyde following an Inquiry held at Paisley into the death of MARGARET ROWAN, aged 66 years, who normally resided at 50 Colinslee Drive, Paisley.

.

B1045/08

PAISLEY, 26 August 2009

The Sheriff Principal under and in terms of Section 6(1) of the Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976 makes the following determination:-

(a) The death of Margaret Rowan occurred within the Royal Alexandra Hospital, Paisley on 13 August 2007 at or about 9.40 am.

(b) The cause of Margaret Rowan's death was complications of severe enterohaemorrhagic colitis due to e-coli 0157 infection.

(c) There were no reasonable precautions not taken which, if taken, might have avoided the death.

(d) There were no defects in any system of working which contributed to the death.

(e) There are no other facts relevant to the circumstances of the death on which the Sheriff Principal thinks it appropriate to make a finding beyond those discussed in the note appended hereto.

BA Kerr

NOTE:/

NOTE:

A. The source of the e-coli infection

The question for determination is whether on the evidence available to the inquiry it can be held established to the satisfaction of the court on a balance of probabilities that the source of the e-coli 0157 infection which afflicted several citizens of Paisley in August 2007 was cooked meats sold at the delicatessen counter in Morrisons' supermarket store at Falside in Paisley. (By "source" in this context I mean the immediate source viewed from the perspective of the afflicted citizens, not the ultimate source from which any infection may or may not have found its way into Morrisons' store.)

This question as to the probable source of the infection was answered in the affirmative on the information gathered by the Outbreak Control Team (OCT) in their report dated February 2008 (production number 4 at the inquiry) which was largely compiled by Doctors Ahmed and Cowden, two epidemiologists of long experience who had dealt with many such outbreaks and had been involved in the much-publicised inquiry into the Wishaw outbreak in 1996. The findings of their report were based on ten cases, eight regarded as primary and two as secondary, of infection afflicting persons resident in the postal district designated "PA2", one of whom (Margaret Rowan) died in the Royal Alexandra Hospital on 13 August 2007. There was an eleventh case in Glasgow, at about the same time but slightly earlier in the onset of symptoms, involving the same strain of infection but no link was established between it and the Paisley cases nor with the Morrisons' store at Falside. The factual basis contained in the eleven cases on which the report of Doctors Ahmed and Cowden proceeded was as follows.

Case 1: Donna McGinty (the daughter of cases 3 and 4 below) developed symptoms of infection on 5 August 2007. She had eaten at her mother's house on a number of occasions food bought by her mother during the previous week including sliced cooked meats (beef and turkey) purchased from Morrisons' supermarket(s) in Paisley. Her mother initially recalled having made these purchases from the delicatessen counter at Morrisons' store at Lonend but later (on 21 August 2007) stated that she may have made them at Morrisons' store at Falside.

Donna McGinty also ate sausages and beef purchased from Tulloch the butcher and mince bought from Morrisons (these being raw meats requiring to be cooked).

Case 2: Stephen Rowan senior (the husband of case 5 below who later died) developed symptoms of infection on 5 and 6 August 2007. He was the chief carer for his disabled wife and did the shopping for their household. His family informed the environmental health officers that he usually bought and ate food from Morrisons' store at Falside, including beef (variously described by them as "beef from the bone" or "beef on/off the bone") and ham. He had purchased such foodstuffs on 3 August 2007 but it later transpired that the ham had been pre-packed and the only meat implicated by the family as coming from the Falside delicatessen counter of Morrisons came to be "beef on/off/from the bone". He had been admitted to hospital on 7 August 2007 and was there too ill to be interviewed. The interview conducted by the environmental health officers on 9 August 2007 was therefore with members of his family including his wife. When on recovery he was later interviewed directly in October 2007 he had no clear recollection of events. His family also indicated that his wife tended to eat different foodstuffs, usually corned beef.

Case 3: Bonnie McGinty (the mother of case 1 above and wife of case 4 below) developed symptoms of infection on 5 August 2007. She had bought the food eaten during the previous week by her daughter and husband, including cooked topside of beef from the delicatessen counter of Morrisons which she said at first interview on 14 August 2007 had been at their Lonend store. She had also bought mince from Morrisons and beef sausages from Tullochs. She had eaten this cooked meat with her husband and daughter on 1 August 2007. Later on 14 August 2007 she recalled shopping at Morrisons' Falside store on 3 August 2007 but had bought no delicatessen products. On 16 August 2007, in answer to "prompt" or leading questions, she said she might have shopped at Falside on 25 July 2007 buying cooked meats (topside of beef and turkey) at the delicatessen counter and eaten them the same day. On 21 August 2007 after a police interview she was unsure at which of Morrisons' stores she had shopped, although she did recall obtaining money from a cashline machine at Falside on 31 July 2007 in order to pay her road tax and had gone that day to Tullochs and then to one of Morrisons' stores.

Case 4: Steven McGinty (the father of case 1 above and husband of case 3 above) developed initial symptoms on 1 August 2007, which he sought to suppress by the use of Imodium, but then developed stronger symptoms of infection on 4 and 5 August 2007. He had eaten the same foodstuffs as his daughter and wife (purchased by her) on the same days.

Case 5: Margaret Rowan (wife of case 2 above) had been asymptomatic at the time of the interview of family members on 9 August 2007 but developed symptoms of infection on 10 August 2007 and was admitted to hospital later that day. Unfortunately her condition deteriorated there over the weekend and she died on 13 August 2007. It is not clear whether she ate sliced cooked meats herself which had been purchased by her husband (which would have made her a primary case), but her family informed the environmental health officers that she ate different foodstuffs from her husband and she was therefore classified as probably a secondary case.

Case 6: Margaret McColl developed symptoms of infection on 10 August 2007 and was admitted to hospital that day but discharged the following day and was symptom-free thereafter. She was an occasional consumer of cooked meats (beef and ham) bought from the delicatessen counter of Morrisons' store at Falside where she was a weekly shopper. She had bought cooked meats from there on 2 August 2007 and eaten them on 4 August 2007. She had not recently purchased anything from Tulloch the butcher.

Case 7: Ellen Slimmons (the mother of case 33 below) developed symptoms of infection on 6 August 2007 and was admitted to hospital on 10 August 2007 until 17 August 2007 when she was discharged. She was housebound and her daughter brought in food for her including frequently cooked meats bought at the delicatessen counter of Morrisons' store at Falside. Her daughter was in the habit of buying silverside, beef topside and lamb but the exact dates of purchase and consumption were not clear. Her daughter also brought in boiled ham from Asda at Linwood and mince from Tullochs. On 16 August 2007 when cleaning her mother's house the daughter found some silverside and topside from the delicatessen at Morrisons in her mother's refrigerator which was retained for testing. An interview conducted on 14 August 2007 seems to have been with both mother and daughter but most of the information recorded came from the daughter.

Case 9: Margaret Boyd developed symptoms of infection from 11 August 2007. She had on 31 July and again on 7 August 2007 bought cooked meats from the delicatessen counter of Morrisons at Falside such as beef topside, lamb, roast pork and pork tongue. These she had consumed within forty-eight hours of purchase. She also bought mince and chicken from time to time.

Case 10: Johanna MacCuish developed initial symptoms on 6 August 2007 at Paisley and fuller symptoms of infection on 7 August 2007 at Edinburgh, whence she flew to Ireland where she was admitted to hospital at Cork on 8 August 2007. She and her husband were in the frequent habit of purchasing cooked meats from the delicatessen counter at Morrisons at Falside, particularly gammon or ham (but not beef topside). This they did on 28, 30 and 31 July and on 1 August 2007 which they consumed within forty-eight hours of purchase. She bought pork chops from Summerfield and mince from Marks & Spencer but patronised no butchers' shops. She spent a week in hospital at Cork.

Case 33: Rosemary Gemmell (the daughter of case 7 above) had developed symptoms of infection on 19 and 20 August 2007 and was clearly a secondary case. She had not consumed the foodstuffs she had brought in for her mother and had shopped at Morrisons' store at Falside only until 8 August 2007, shopping thereafter at Asda in Linwood. She had bought no delicatessen meats for her own consumption. She had however cleaned out her mother's house (including some of the effects of her mother's symptoms) on a number of occasions during the period from 13 to 19 August 2007 inclusive.

Case A: Marion Bern, who lived not in Paisley but in the west end of Glasgow, developed symptoms of infection on 25 July 2007 and was admitted to hospital on 28 July 2007. She had the same indistinguishable strain of the infection as the other cases summarised above but no link was established with Paisley or with Morrisons' store at Falside. An interview conducted with her on 30 July 2007 concluded that her case was sporadic and another conducted after her recovery and after the cessation of the outbreak yielded no useful information. Her case therefore remained unexplained.

On the basis of this factual *substratum* the OCT's report concluded that the outbreak was most likely to have resulted from contamination of a single joint of cooked meat or a single

breakdown in hygiene procedures in the delicatessen of Morrisons' store at Falside. This conclusion was said to be largely based on the available descriptive epidemiology outlined earlier in the report (see paragraph 6.5 of the report at page 31). That descriptive epidemiology showed (first) an "outbreak curve" showing the onset of symptoms in eight primary cases to have occurred on dates from 1 to 11 August 2007 inclusive, chiefly on 5 and 6 August 2007; (second) that the eight primary cases all had a connection with Morrisons' store at Falside and seven had a connection with cooked beef from Morrisons' delicatessen counter; and (third) that five out of the eight primary cases had bought or consumed cooked topside of beef, representing 62½% of sales of cooked meats to primary cases while sales overall of cooked topside of beef at Morrisons' delicatessen counter in their store at Falside were 4% of their whole delicatessen sales between 31 July and 2 August 2007 inclusive. The OCT had been chaired by Dr Syed Ahmed and its report compiled under his direction with contributions from other members of the OCT, notably from Dr John Cowden. Both these gentlemen gave evidence at the inquiry and each asserted robustly that the conclusion of the report was fully justified by the evidence which had been gathered by the OCT relying on the efforts of *inter alios* the environmental health department of Renfrewshire Council and the staff of NHS Greater Glasgow & Clyde.

Dr Cowden declared himself to be a consultant epidemiologist (although to have that title he did not require to be a member of a relevant professional body). He had a background in public health medicine and was for that purpose a member of a recognised professional body. Dr Ahmed was a consultant in public health medicine and, although he did not style himself a "consultant epidemiologist", he had clearly devoted a considerable part of his professional life to the study of disease in populations (ie epidemiology) and for that reason I refer to Drs Ahmed and Cowden for convenience hereafter as "the epidemiologists".

There was no material difference between the positions in evidence of Drs Ahmed and Cowden. They accepted that this was a situation in which there had been no exercise in analytical epidemiology carried out (see paragraph 2.21 of the OCT report). They accepted that the unexplained case A of Marion Bern weakened their hypothesis to an extent but maintained that it did not undermine it. They were reluctant to be drawn into what they considered to be speculation on the ultimate source or cause of the outbreak of e-coli infection but they were confident in their opinion that the information gathered from the ten case studies

and presented to them (cases 1 to 7, 9, 10 and 33 summarised above) was sufficient to justify the conclusion that the vehicle (or "vector") whereby the infection had been transmitted was sliced cooked meat purchased from the delicatessen counter in Morrisons' store at Falside. Dr Cowden declared that in his view this available evidence was sufficient to establish the hypothesis to a level beyond a mere balance of probabilities or, as he put it, to a position "somewhere between a balance of probabilities and beyond reasonable doubt". They accepted that there was no direct evidence of a breakdown in hygiene procedures at Morrisons' Falside store and for that reason the second alternative in the OCT report's conclusion at paragraph 6.5 had to remain only a possibility. So far however as the first alternative was concerned, Dr Cowden expressed the view that once an infected joint of meat had arrived in a delicatessen establishment even a perfectly run deli would have no defence against it and the infection could pass from one cooked meat to another in such an establishment even if perfectly operated.

I was urged in submissions made to me at the close of the inquiry by the lawyers appearing for the Crown, for the Rowan family of the deceased, for Renfrewshire Council and for the two epidemiologists to accept the correctness of the OCT report and the validity of its conclusion. It was said *inter alia* that it was a boon to have the expert opinion available of two such experienced consultants as Drs Cowden and Ahmed, who had each been involved in such matters for many years, had each published many learned articles on such subjects and investigated many such outbreaks and to whose evidence and opinion considerable weight should therefore be attached. The procurator fiscal suggested that under section 6(1)(e) I should make a finding in the following terms: "The e-coli infection suffered by Margaret Rowan resulted from the purchase by Stephen Rowan senior of e-coli 0157 infected cooked meats from the premises occupied by William Morrisons Supermarkets plc at Falside Road, Paisley.". In this suggestion he was supported by his legal colleagues mentioned above. Mr Robertson, representing the Rowan family, went further and sought a finding that the outbreak and in particular the infection passed to Margaret Rowan had been caused by a single breakdown of hygiene procedures at the Falside store, which he said was to be preferred to the conclusion that it resulted from contamination of a single joint of cooked meat. In this however he was not supported by the other lawyers and in my opinion there is no direct or positive evidence available to the inquiry to support such a finding.

I have no real hesitation in accepting the proposition that the OCT report, as spoken to in evidence by the epidemiologists, is to be regarded as a comprehensive and professionally competent document tracing the course of the outbreak and reaching a proper and sustainable conclusion as to its immediate source on the basis of the factual *substratum* placed before its authors on which it proceeds. It has to be remembered however what was its purpose, what was the factual *substratum* underlying it and how the information comprising that factual *substratum* was obtained and compiled in its context. I think the question for the sheriff principal after hearing a fatal accident inquiry is not quite the same (see the first paragraph of this note above) and involves consideration of the whole evidence available to the inquiry and whether its quality is such as to establish to the satisfaction of the court the same factual *substratum* on a balance of probabilities. In other words the question is not simply whether I am persuaded by the opinion evidence of the epidemiologists that their conclusion must be a correct one (which I do not seriously doubt to be so on the basis of fact on which it proceeded) but also whether I am satisfied that the facts which were presented to them were a correct basis. The evidence placed before the epidemiologists relating to the ten outbreak cases was gathered by a process of interview and sometimes re-interview, not necessarily always of the infected person him/herself or of the person(s) who purchased the foodstuffs consumed, and involved from time to time (on a controlled basis) the use of "prompt questions" — which a lawyer would probably call "leading questions". This process of gathering information was no doubt entirely proper for the purposes of the investigation being conducted by the OCT, whose chief object was the public safety and to establish as rapidly as possible the apparent source of the outbreak in order to bring it quickly to an end. The evidence available to the inquiry by contrast included evidence from several of the same people, albeit eighteen months after the event, given in the witness box under oath and subject to cross-examination. It is quite possible that evidence given under these different conditions may place a different complexion on the events which happened.

Stephen Rowan senior was apparently the purchaser of the foodstuffs consumed in the household consisting of himself and his wife Margaret Rowan. He was not himself interviewed successfully at the time of the OCT's investigation and he did not give evidence at the fatal accident inquiry. Instead information was gleaned at an interview in August 2007 (at a time when he was already in hospital) from members of his family including his wife but also two sons and a daughter-in-law with whom he did not reside. When later interviewed

himself he had no clear recollection of events. At the inquiry the only member of the family to give evidence was his son, also called Stephen Rowan, and he was cross-examined thereon. Stephen Rowan junior was a stepson of the deceased Margaret Rowan. Stephen Rowan junior testified to the effect that his father's usual or "primary" shopping place was Morrisons at Falside; he said he knew his father's eating and shopping habits from conversations with him. He said however in examination-in-chief that his father had bought corned beef and cold ham (of which Margaret Rowan ate only the corned beef) some seven days or so before his admission to hospital on 7 August 2007; he repeated this in cross-examination (purchase of corned beef and cold ham) but said that he did not know when these purchases had been made. This was at odds with the information given by family members (including Stephen Rowan junior) to the environmental health officers on 9 August 2007 when they had spoken of "beef from the bone" and indicated that "beef on/off/from the bone" had been eaten by Stephen Rowan senior on 3 August 2007. In cross-examination at the inquiry he accepted that information about "beef on the bone" might possibly have been given to the environmental health officers. He testified that his father shopped at the delicatessen counter in Morrisons but did not buy pre-packed meats nor tinned corned beef; but from the enteric form (Crown production no. 6) compiled by Karen McIndoe at the last page the indication is that the cooked ham was pre-packed and not from the deli counter, so that the only deli meat implicated by the family members in August 2007 was "beef on/off/from the bone". There exist therefore discrepancies of detail on important matters, between the evidence of Stephen Rowan junior given at the inquiry before me and the information given by the family, including Stephen Rowan junior, to Karen McIndoe at interview in August 2007. In addition there was evidence from Dr Ackerley a food safety expert led in evidence at the inquiry on behalf of Morrisons, to the effect that the only meat on the bone purveyed by them was ham; this she had gleaned from a study of Morrisons' supply sheets, which were produced (production no. 3 for Morrisons). It is apparent from the foregoing that the only evidence placed before the inquiry to connect the Rowan household with cold meats purchased from Morrisons' store at Falside was essentially hearsay and that the purveyor of that evidence (Stephen Rowan junior) could not have known with any accuracy or certainty what cold meats were brought into the household during the week preceding the hospitalisation of Stephen Rowan senior and later of Margaret Rowan or where and when they were purchased. While I accept that hearsay evidence can be competently taken into account by the court in a twenty-first-century fatal accident inquiry, it is for the court to assess the value of such evidence and decide what weight

if any can be attached to it. In the absence of direct testimony from Stephen Rowan senior himself I have to say that I find the evidence of his son, Stephen Rowan junior, containing as it does a fair number of substantial discrepancies from the information given out by the family to the environmental health officers in August 2007, to be an insufficiently reliable basis for holding that the infection which rendered Stephen Rowan senior ill and led to the death of Margaret Rowan came out of the delicatessen in the Morrisons' store at Falside.

It appears that Bonnie McGinty was the purchaser of the foodstuffs consumed by herself, her husband and her daughter. At first when questioned in August 2007 she made no mention of the Falside store as the source of her purchases at or around the material time. Only later did she implicate the Falside store as having been visited by her and then not for the purchase of delicatessen products. Even later, in answer to "prompt" questions, she thought she might have bought cooked meats there but after being interviewed by the police she became unsure although she remembered using a cashline machine there. When giving evidence at the inquiry she stated in examination-in-chief that she shopped both at Falside and at Lonend and that Monday was her shopping day. She then said that she bought cold meat at the Falside delicatessen counter on both Monday 23 July 2007 and Monday 30 July 2007, the latter date being the date on which she had used the cashline machine there to obtain money required to pay her road tax. She made reference to "bank statements" (which were not produced) and in cross-examination by the solicitor for Renfrewshire Council reasserted that it was on Monday 30 July 2007 that she had taken money out of the cashline at Falside and that she had remembered going there one week previously also. In re-examination she said that the Falside cashline machine was on her route from Dykebar (her place of employment) to the post office in Skye Crescent in Glenburn next to Tullochs the butcher where she obtained her road tax disc. Under cross-examination by the solicitor for Morrisons however it emerged that the information about her using the cashline machine at Falside had been obtained by her husband telephoning the bank and being so informed. There was however no evidence produced from the bank to confirm this and no documentary production to vouch it either. When shown the enteric form (Crown production no. 7), which had been filled in initially on 14 August 2007 in respect of her case, she saw the date 31 July had there been ascribed (at page 4) to her shopping visit to purchase *inter alia* cooked meats from Morrisons' delicatessen at Lonend, where there is also a cashline machine, and she had to accept that the information on the enteric form was likely to be more accurate than her memory eighteen months later so that she

must have gone shopping on a Tuesday instead of a Monday. The third box on page 4 indicated that she had bought beef sausages from Tullochs on 31 July so that must have been the day when she obtained her road tax disc. She was shown the last (typescript) page of the enteric form containing information that she had shopped at Falside on 3 August 2007 and previously on 25 July 2007. She accepted that she must have said what was recorded on the form at the time but she could not now remember doing so. In short she could not now remember everything that had been said to interviewers in August 2007 and the last part of page 4 indicated that she was ultimately of the view that she may have shopped at Lonend on 3 August 2007 (not at Falside) and that she was unsure which of Morrisons' stores she had gone to after paying for her roadtax on 31 July 2007. In evidence to the inquiry she said that she had also taken money out of the cashline at Falside on 25 July 2007. There were by the end of her evidence to the inquiry a range of dates on which she might have shopped at one or other of the Morrisons' stores and she was unsure which one she had patronised on which date. Nor did there seem to be any necessary connection between her using the cashline machine at Falside on any given date and her shopping inside that particular store on that day. I regard Mrs McGinty in light of all the foregoing as an honest witness who was doing her best to recall where she had shopped at the material time in answer to a barrage of questions both in August 2007 and again in January 2009 but whose recollection of these matters was really not reliable. In particular I do not regard her testimony as a reliable basis for holding that cold meats consumed by herself, her husband and her daughter came from the Falside store.

Once it is concluded, as I find it necessary to conclude, that there is not a reliable basis in the evidence available to the inquiry for holding that the foodstuffs consumed by the Rowan and McGinty families came probably from the delicatessen in the Morrisons' store at Falside the number of cases of infection having an established connection with the Falside store drops immediately from ten such cases to five (four primary and one secondary). The epidemiologists proceeded on a factual *substratum* comprehending ten cases of infection, which they regarded as sufficient in number to support their conclusion. The opinion of an epidemiologist, however eminent and experienced, can only be as good as the factual basis which is presented to him and when that factual *substratum* turns out to be suspect as to one-half of its content it may be necessary for that opinion to be revised. The epidemiologists involved in the present investigation and inquiry were not asked whether there was some minimum number of infected cases which had to be connected to the Falside store in order to

justify the conclusion reached by them in paragraph 6.5 of the OCT report nor what that minimum might be. Nor were they asked what would be their opinion if the number of cases in the *substratum* of fact presented to them were reduced from ten to five. As already stated this was a situation in which, for the reasons given in paragraph 2.21 of the OCT report, no exercise in analytical epidemiology was undertaken. Those reasons are presumably perfectly good reasons and no one is to be blamed or criticised for the absence of such an exercise. Nevertheless that exercise did not take place and the conclusion of the report depends almost entirely on the available descriptive epidemiology set out in the report. When that descriptive epidemiology consists of only four primary and one secondary infected cases I have to say that I find myself unconvinced of the proposition that the infection was carried to the afflicted persons by cold meats purchased from the delicatessen counter of the store at Falside. That must remain a possibility but I do not consider, on the basis of the evidence placed before this inquiry, that it can be held to be a probability. I therefore think it not appropriate to make the finding under section 6(1)(e) of the 1976 Act suggested to the effect that the infection suffered by Margaret Rowan resulted from the purchase by Stephen Rowan senior of infected cooked meats from the Morrisons' store at Falside.

Having come to the view that the evidence laid before me at the inquiry does not establish to my satisfaction on a balance of probabilities that the source of the e-coli 0157 infection which afflicted the citizens of Paisley in August 2007 was the delicatessen in Morrisons' store at Falside, I should make it clear that I do not mean by that conclusion to say that the OCT and its informants among the employees of the environmental health department of Renfrewshire Council and NHS Greater Glasgow & Clyde fell in my opinion below any proper standard of performance in carrying out the task or tasks on which they were engaged. As already stated I do not seriously doubt the correctness of the opinion formed by the epidemiologists from the facts gathered and laid before them. I do not on the evidence placed before me think the basis of fact presented to them was entirely reliable and correct, by which I mean that about one half of it rested on a foundation which in the view of this court was less than satisfactory. Those who gathered the information forming that foundation proceeded nevertheless in a perfectly proper manner for the purposes of the exercise they were required to carry out. The tasks assigned to them had to be performed relatively rapidly and they could not afford to wait on every occasion until the best evidence became available but were obliged instead to proceed on such evidence, some of it hearsay at second or third hand, as they could obtain in the

timescale imposed upon them by the inherent urgency of the situation. The nature of that situation meant that some important witnesses were disabled from being interviewed and that others had to attempt to recall minor matters of detail relating to aspects of their daily lives which were unremarkable to them at the time of their occurrence. Some of the witnesses had to be "prompted" into apparently recollecting such minor matters of detail as other information from other sources came to hand. I do not criticise any of this or any of the methods employed by the information-gatherers, which were necessarily imposed upon them by the exigencies of a situation in which the objective had to be to reach as rapidly as possible conclusions which would enable the outbreak to be curtailed and the public health protected from its continuance or spread. In that context the employees of the environmental health department of Renfrewshire Council and of NHS Greater Glasgow & Clyde performed the tasks required of them as well as could be expected and it is no criticism of them that some of their information and sources are found eighteen months later and at leisure to be wanting for the very different purpose of establishing facts on a balance of probabilities in a court of law.

I should add in light of the evidence heard by me a brief comment on procedures at Morrisons' Falside store. A number of witnesses were led in evidence at the inquiry from the Morrisons organisation and I had the impression that they all knew full well what they ought to be saying. I did not however think that any of them were telling untruths or attempting to cover up for any laxity in proper procedures. They did not of course admit that there had been any such laxity and Dr Ackerley's evidence certainly gave their food safety procedures a clean bill of health. Overall I was satisfied that Morrisons' food safety procedures at Falside had been of a proper standard at all material times and I did not see any proper basis for serious criticism of them.

Morrisons conducted a "deep-clean" operation at both their Falside and Lonend stores on 13/14 August 2007 and thereafter there were no further primary cases of infection. I was asked in closing submissions for Margaret Rowan's family to regard these facts as supportive of the view that the source of the infection probably was Morrisons and that their procedures had not been perfect prior to that time but I have to say that I was unimpressed by this submission which appeared to me to proceed on the basis of the maxim *post hoc ergo propter hoc*, a proposition whose reliability requires always to be questioned. All the primary cases of infection in or from Paisley had developed symptoms several days (and some many days) prior

to 13/14 August 2007 and their purchases of cooked meats from Morrisons preceding the onset of such symptoms had all taken place at least a week prior to 14 August 2007. I considered it too simplistic to suggest therefore that there was a causal connection between the "deep-clean", undertaken obviously and quite rightly in response to the suspicion that Morrisons' stores might be the source, and the cessation of the outbreak.

B. The medical treatment of Margaret Rowan

Margaret Rowan, although asymptomatic on 9 August 2007, had developed symptoms of infection by the morning of Friday 10 August 2007. She was admitted to the Royal Alexandra Hospital later that day and diagnosed as suffering from haemorrhagic colitis. Her condition unfortunately deteriorated suddenly there over the course of the weekend, latterly rapidly, and she died there on Monday 13 August 2007 at or about 0940 hours. She was 66 years of age, registered as blind and significantly disabled, being cared for chiefly by her husband (Stephen Rowan). Her family described her as frail by this time in her life. Her GP doctor was Dr Colin Reid of the Charleston Surgery, 5 South Campbell Street, Paisley. The cause(s) of her death were found after *post mortem* examination to be:

1a: Complications of severe enterohaemorrhagic colitis; due to

1b: E-coli 0157 infection.

Evidence concerning Margaret Rowan's condition prior to her admission to hospital on 10 August 2007 was given by her stepson (Stephen Rowan junior) and by Dr Colin Reid. Reference was made to the medical records of the Charleston Surgery stored electronically on the GP practice's computer, which were produced. The evidence of Stephen Rowan junior and of Dr Reid showed them to have divergent recollections of the detail of events during the days preceding and including 10 August 2007 but both were doing their honest best to recall those events as accurately as possible. From their accounts and the entries in the said medical records I took the sequence of significant events to be as follows.

On 7 August 2007 Dr Reid went on a home visit in the middle of the day to Stephen Rowan senior at the suggestion of his district nurse (Jacqueline Peacock). He found him to be suffering from sickness and diarrhoea but his wife (Margaret Rowan) showed at that time no

symptoms and was behaving normally. Later that day he was admitted to hospital and underwent an inconclusive bowel operation. The next morning he was transferred to the Victoria Infirmary and the family were told that he had an e-coli infection (not specified at that point to be e-coli 0157). On 10 August 2007 in the early morning Margaret Rowan was complaining of sickness and diarrhoea and the family telephoned Dr Reid's surgery to report her symptoms and ask that she too be admitted to hospital or at least receive a home visit to check her condition. Later in the morning or very early in the afternoon (sometime between 11.30 am and 1.15 pm) Dr Reid visited Margaret Rowan at home where he examined her. She appeared normal in her chair and walked normally to and from her bedroom for examination. On examination Dr Reid found her to have a tender abdomen and not to be too distressed. He prescribed anti-diarrhoea and anti-sickness tablets. He saw no sign of blood at this stage and was not informed of any blood having been seen. He was aware that Stephen Rowan senior was in hospital with a suspected e-coli infection (but not specified to be e-coli 0157). On his return to his surgery at about 1.30 pm he was telephoned by a public health doctor to inform him that Stephen Rowan senior had an e-coli infection and to request that he obtain stool samples from Margaret Rowan over the ensuing three days, which he instructed Jacqueline Peacock to do. It transpired that Stephen Rowan junior had telephoned the environmental health department and spoken to Karen McIndoe to request help. A few minutes later a public health doctor telephoned Stephen Rowan junior back and requested that he take a stool sample from Margaret Rowan which they would send someone to collect. This Stephen Rowan junior refused to do, saying he wanted medical attention for Margaret Rowan. At about 3.30 pm Dr Reid received a further phone call from a member of the Rowan family saying that Margaret Rowan was suffering further from diarrhoea accompanied by lethargy and her relatives were not able to manage the situation. At this point Dr Reid said he would arrange for Margaret Rowan's admission to hospital by ambulance to arrive within two hours (but not, as he told Stephen Rowan junior on telephoning back, a "blue light" ambulance). From 4 pm approximately onward Stephen Rowan junior observed blood in the stool of Margaret Rowan whose condition was worsening. At 5.30 pm Dr Reid, having earlier telephoned the Royal Alexandra Hospital to arrange Margaret Rowan's admission, sent by fax an introductory letter to the accident & emergency department of the hospital giving his narrative of her history so far (including reference to her social situation in the absence of her husband and chief carer). At a time approaching 10 pm an ambulance arrived and took Margaret Rowan to the Royal Alexandra Hospital.

On Margaret Rowan's arrival at the Royal Alexandra Hospital Dr Ian Sutherland attended at the accident & emergency department to examine her during the period 10 – 10.30 pm. On the basis of his evidence and that of Dr Katherine Krupa together with the hospital records relative to Margaret Rowan's case (production number 14) I formed the view that the treatment of Margaret Rowan in hospital proceeded as follows. Neither doctor was much cross-examined and there was no contradictor of their narratives, which succeeded one another and did not overlap. Dr Sutherland knew that Margaret Rowan's husband was in the intensive care unit of the Victoria Infirmary with an e-coli infection at the time of his examination of her. Margaret Rowan was complaining of sickness and diarrhoea with abdominal pain and was anaemic. His impression was that these symptoms had probably an infective cause such as e-coli. He took various samples including blood and stool which he sent for analysis. At 11.15 pm he conducted an examination *per rectum* and found soft faeces with bright red blood present. He took her bile-stained vomit to be indicative of an internal obstruction and he observed a report of low haemoglobin, consistent with her anaemia. He considered these symptoms to be indicative of a surgical problem and so requested a surgical review and Margaret Rowan's admission to ward 24 (a surgical, not a medical, ward). The administration to her of antibiotics was to be discussed with the microbiology department. On 11 August 2007 Dr Krupa on her morning ward round saw Margaret Rowan who was still suffering from diarrhoea and was dehydrated. She too was aware that Margaret Rowan's husband was in the Victoria Infirmary with an e-coli infection. Margaret Rowan was hypotensive with a raised pulse rate. Dr Krupa concluded that Margaret Rowan was suffering from an infective colitis, possibly e-coli, and that early consultation with the microbiology department should take place. She laid down a plan to include rehydration by administration of fluids, monitoring of urea and electrolytes, a chase-up of stool cultures and discussion of antibiotics with the microbiologists. At 7.45 pm she discussed the case with a doctor in the infectious diseases department and decided to refrain from ordering administration of antibiotics unless a clinical deterioration occurred. On 12 August 2007 Dr Krupa again saw Margaret Rowan on her morning ward round: she had shown no improvement and some, but not a dramatic, deterioration overnight. At 11.50 am she was still dehydrated and hypotensive with a raised pulse rate, her output of urine was low and her renal function was worsening. Some of her electrolytes were abnormal with high inflammatory indicators and white blood cell count. These symptoms were all indicative of a deterioration setting in and her treatment

plan was therefore altered to incorporate fast intravenous administration of fluids and intravenous administration of antibiotics for her bowel infections. The results of analysis of her stool samples were still awaited. By 12.30 pm Margaret Rowan was so unwell as to require her removal to the high dependency unit where the administration of antibiotics was increased and her case closely managed but by 5 pm her arterial blood gas readings showed acidosis and sepsis with impaired function of the kidneys. At 7 pm further deterioration in her well-being necessitated her transfer to the intensive treatment unit. It appeared that HUS (haemolytic uraemic syndrome) had now set in and overnight there was a sudden and rapid deterioration to a position of irreversible organ failure with the consequence that she died at about 9.40 am the next morning (13 August 2007).

Evidence was given by Dr WTA Todd who had prepared a report on the medical treatment of Margaret Rowan (production number 3). Dr Todd is a consultant physician in infectious diseases at Monklands Hospital where he has been a member of the infectious diseases unit since 1985. He had been involved in previous outbreaks of e-coli 0157 infection in Scotland, including that at Wishaw in 1996. He explained that e-coli generally is a common organism in the human body and has many types. That labelled "e-coli 0157" however is special and dangerous and can produce a toxin which gives rise to inflammation of the bowel and haemorrhagic colitis and, if passed into the bloodstream, may affect other organs (especially the kidneys) and create HUS which once developed has no proven treatment to guarantee survival. The response to e-coli 0157 infection is, he said, always very individual and the reason why some survive while others succumb is on present knowledge beyond explanation. Dr Todd considered that Dr Reid had acted appropriately on the information available to him. Dr Reid knew that Stephen Rowan senior was in hospital with "an e-coli infection" but that would not necessarily mean an e-coli 0157 infection requiring hospitalization of the patient. When however he became aware that the public health department were interested that implied that the e-coli was of the 0157 type and when Dr Reid was again contacted by the family he changed his view and arranged Margaret Rowan's admission to hospital. In Dr Todd's view the requisition by Dr Reid of a "two-hour" rather than a "blue light" ambulance was in the circumstances a reasonable way of proceeding and he thought it unlikely that her earlier admission to hospital by a few hours would have made a significant difference to the manner in which her case developed and so unlikely to have averted her death from the infection and its complications. He thought she would probably still have developed rapid and

sudden HUS with the medical practitioners in charge of her case unable to recover the situation. While it might have been appropriate to give her a plasma exchange he could not say that that would have been likely to have saved her. Dr Todd considered that Dr Sutherland who first examined Margaret Rowan in accident & emergency at the Royal Alexandra Hospital on 10 August 2007 had to consider surgical treatment as a first course in such a situation and he could not therefore fault Dr Sutherland for sending Margaret Rowan for admission to the surgical ward 24. Once the surgeons had decided not to proceed surgically the next step would and should have been to contact the physicians, which as one such he would have wished to see happen, but by that time Margaret Rowan's case was in rapid deterioration necessitating her removal to the high dependency unit and thence to the intensive care unit so that time did not permit the involvement of the physicians. Whether her latter symptoms were those of HUS or of sepsis (a matter unclear even at the end), Margaret Rowan's condition had deteriorated too rapidly for the doctors in charge of her case to reverse them and save her. In evidence to the inquiry Dr Todd adhered to the conclusion reached in the final paragraph of his report (production number 3) that earlier or different management of Margaret Rowan's case would have been very unlikely to have produced an altered outcome.

Dr Todd was not cross-examined at any great length and he was not brought therein to depart from any of the conclusions reached by him in examination-in-chief and narrated in the preceding paragraph above. I see myself no reason to regard his conclusions as unwarranted or suspect on the evidence led before me at the inquiry and I find myself in agreement with them. In particular I see no basis on which the actings in Margaret Rowan's case of Drs Reid, Sutherland or Krupa can seriously be criticised. The GP practice records produced to the inquiry contained a number of inaccuracies, which I thought disappointing, but none of them seemed to me to have had any important bearing on the manner of Margaret Rowan's treatment. Perhaps the most glaring mistake was the addressing of Dr Reid's letter to the Royal Alexandra Hospital of 10 August 2007 to the department of "geriatric medicine" instead of "general medicine" but it was faxed to the accident and emergency department at 5.30 pm on that date and Margaret Rowan's treatment at the hospital seems to have proceeded from there in the same manner as it would have done if that error of nomenclature had not occurred. A suggestion was made in closing submissions on behalf of the Rowan family that I should record under section 6(1)(e) a circumstance bearing upon the death of Margaret Rowan, namely that Dr Sutherland after his examination of Margaret Rowan in accident and

emergency on 10 August 2007 should have thought of contacting a physician such as Dr Todd but did not. This was described as "a slight criticism" of Dr Sutherland but I do not think a valid criticism exists here in light of Dr Todd's opinion that the first course to be thought of and pursued by a doctor in his position was that of surgical treatment. I was informed at the end of that closing submission that the family of Margaret Rowan, who at the outset of the inquiry were inclined to blame Dr Reid for her death by reason of a failure to act soon enough, now accepted that his actings could not properly be criticised in all the circumstances.

C. Summary

I regard it as not established from the evidence available to this inquiry that Morrisons' store at Falside, and in particular the delicatessen there, was on a balance of probabilities the source of the e-coli 0157 infection which afflicted the citizens of Paisley in August 2007. The source of the outbreak therefore remains to my mind not convincingly explained.

I do not see in the evidence available to this inquiry a proper basis for criticism of the medical treatment afforded to the deceased, Margaret Rowan, by the doctors (Doctors Reid, Sutherland and Krupa) or other medical staff involved in her case.

I therefore think it not appropriate at the end of this inquiry to make findings or recommendations under paragraphs (c), (d) or (e) of section 6(1) of the Fatal Accidents & Sudden Deaths Inquiry (Scotland) Act 1976.

BAK