Northern Ireland Assembly

Committee for Health, Social Services and Public Safety

OFFICIAL REPORT (Hansard)

Pseudomonas Outbreak

4 April 2012

NORTHERN IRELAND ASSEMBLY

Committee for Health, Social Services and Public Safety

Pseudomonas Outbreak

04 April 2012

Members present for all or part of the proceedings:
Ms Sue Ramsey (Chairperson)
Mr Jim Wells (Deputy Chairperson)
Mr Mickey Brady
Ms Pam Brown
Mr Gordon Dunne
Mr Mark Durkan
Mr Samuel Gardiner

Witnesses:

Mr Edwin Poots	The Minister of Health, Social Services and Public Safety
Dr Andrew McCormick	Department of Health, Social Services and Public Safety
Dr Michael Kelsey	Independent Review Team
Dr David Stewart	Independent Review Team
Professor Pat Troop	Independent Review Team

The Chairperson: I welcome Professor Troop, chair of the independent review team. Earlier, we received a copy of the embargoed report, and members have had a chance to read it. I will hand over to you, Professor, to make a presentation and to introduce your team. We will then open the floor for questions and answers.

Professor Pat Troop (Independent Review Team): Thank you very much for inviting us to present to you. This is Dr Kelsey who is a microbiologist and member of our team; and this is Dr Stewart who is from the Regulation and Quality Improvement Authority (RQIA). Three members of the team are present, but, of course, the total number of our team is larger.

If you are happy, I will present the key issues in the report. First, I want to start by expressing the sympathy of our entire team to the families involved. We have met eight families, and we are very grateful to them for their openness and courage. We were very moved by their stories. We picked up from them that the most important thing for them is that we find an answer that will prevent something like this happening to other parents. They were very generous in their comments. We extend the invitation to any other families who wish to come and share their experiences with us. We keep on offering that opportunity.

You will see that we have concentrated on two areas and terms of reference in the interim report. One area is to investigate circumstances and the second is to review the effectiveness of the trusts' response. We wanted to start with what happened, why it happened, and what the situation is now. We will come back to some of the other terms of reference at a later stage in our full report.

We collected a huge amount of information from all of the organisations. We visited all the units. We have met many clinical staff, microbiologists, estates people, those in infection control and, as I said, families. We had a presentation from the Belfast Health and Social Care Trust on its root-cause analysis. We had a presentation from the Public Health Agency, which is looking at epidemiology. Therefore, we have amassed a large amount of information. As you can imagine, there are, therefore, still quite a lot of details that we need to clarify and revisit, even in our interim report. We will finish within the next two months.

You will see from the report that we found a very complex picture. That is partly because this is a network. Babies move from one unit to another. Sometimes, if a baby was infected in one unit, he or she might be moved to another unit. Therefore, we had to do quite a lot of untangling to get the full picture. In summary, we found that there was an outbreak in Altnagelvin Hospital between 26 November 2011 and 10 December 2011. Three babies were infected, one of whom very sadly died. Two of the babies had the same strain and the third had a different strain. When we did further testing later, we found that two further babies had been colonised. For the two babies that had the same strain, we found that strain in the tap between the cots where they were being nursed.

In Belfast, we found five cases of infection and 10 of colonisation. That strain was later referred to as the "Belfast strain". Sadly, three of the babies died. However, for one baby, pseudomonas was not recorded as the cause of death. A further baby died in Belfast, but that later turned out to be from a strain associated with Craigavon and not Belfast. The Belfast strain was found in four of the six taps in the neonatal intensive care unit and in one of the taps in the special care baby unit. In looking back at the cases in Belfast, it was found that the first sample that could be linked to this outbreak was on 15 November 2011 and that there were no further colonisations or infections after 25 January 2012.

As I said, one baby was transferred from Craigavon to Belfast. Sadly, that baby died with pseudomonas. That strain was linked back to Craigavon, and they found three more babies there who were colonised. After the outbreak, everybody looked at colonisation, and one case that was found in Antrim came from a completely different strain. That was the overview of the picture that we found.

We are going to complete our work on the families in our final report. We have just looked at the headlines at the moment, partly because we hope that more families will come forward. We also want to take what we are writing about the families back to them before we publish it. On the whole, they were very complimentary about the clinical care they received from staff. They were sometimes concerned about communication, particularly about pseudomonas, and they were concerned that the media heard things before they did. We will come back to that in more detail when we have been able to look at it in depth.

As I described in the overview, each unit had different strains. This was not one big outbreak; there were three separate outbreaks. It is very clear from the science that this was not one outbreak, but three. In Altnagelvin and Belfast, it was also clear that the outbreaks were linked to contaminated water from the taps. Both units had had sensor taps installed in recent times, and we know that sensor taps are more likely to become contaminated with pseudomonas. There is more work being done on taps; some of them have been sent to the Health Protection Agency laboratory at Porton Down for testing. We have not had the results yet. We know that they have confirmed pseudomonas, but we have no more detail at this stage.

We looked at how pseudomonas might have spread within the units. As in most other units across the UK, the units were using tap water for cleaning after nappy changing. This was fairly common practice, and we think that this was the most likely cause of the spread. However, we also found that tap water was used to defrost frozen breast milk in Belfast, which is not common practice. There were some contributing factors, of course. The babies were all vulnerable and all had invasive procedures; they might have had lines in their veins or through the umbilicus, but they would all have had some form of invasive procedure, and so the use of water to clean them is the most likely cause of pseudomonas

getting into the bloodstream. Premature babies also have very fragile skin that is easily broken; another way that it could get into the bloodstream.

All units were strict about hand hygiene. They carried out regular audits, and when we asked the parents about their observations of hand hygiene, they said that they were all told how to clean their hands, take off their coats, roll up their sleeves and take off their watches, from the day they went in. Their observations were that the nurses were fastidious about cleaning their hands. We also found that when a baby with a particular strain was moved from one unit to the other, the strain did not spread in that unit. All of this suggested to us that hand hygiene was not of poor quality; rather, it was of good quality. We, therefore, do not think that hand hygiene was the cause of the spread from baby to baby. We think that it was spread from tap to baby.

All taps and sinks were cleaned in accordance with the British Institute of Cleaning Science's guidance and involves cleaning the taps last. We think that that could have been a contributing factor in the spread of the infection in the taps. It is now recognised that this is not the safest way of cleaning. The Chief Medical Officer has, therefore, recommended a change, which was set out in a new letter that went out in February.

We looked at the units themselves. We were particularly concerned about the fabric of the Belfast neonatal intensive care unit. There are 12 cots in one room. We think that there is insufficient space between the cots and sinks down the middle. It is an old building. There is no dedicated space for cleaning incubators. Although the nurses did their very best with hand hygiene and so on, the unit is not very good for managing infection control. At the time, there was also a high occupancy in intensive care across the whole system. The units work as a network, but it is an informal network, which is, therefore, not managed in order to balance occupancy across the whole system, which can add to the intensity in some units.

We looked at how well the trusts responded to the outbreaks, and we raised number of issues about that in the report. For example, there is no standard process for collecting and sharing information on pseudomonas across all units. However, I have to say that that is the case in other countries as well. The fact that there is no standardised way of routinely collecting information on pseudomonas is an issue that has been raised across the UK.

When it came to calling an outbreak, it is normal for one case not to trigger an outbreak: that is standard practice. However, given the two particular outbreaks in Altnagelvin and Belfast that linked back to the taps, we recommend that, from now on, one case should trigger a series of actions. That has not been standard practice before, but we have now made it a recommendation. In Altnagelvin, an outbreak was called after there were three confirmed cases in 14 days. In Belfast, the first two cases were found not to be linked. When there was a third case, some action was initiated, but an outbreak was not called, and the hospital sent for further typing instead. So, we think that there should be a much more standardised approach and, as I say, action should be triggered after one case.

We talked about typing and strains. Typing is vital when investigating an outbreak. At the moment, samples have to go to north London, which slows the whole process down. We recommend that the process should be done in Belfast in the understanding that there are the facilities here to do that.

We have made 15 recommendations, some of which I have covered, and many of which have already been put in place. There is new guidance from the Department of Health on managing water and pseudomonas, and we will make sure that you have a copy of that. Dr Kelsey was very involved in that guidance. We recommend that the guidance be picked up in Northern Ireland and put into practice. A lot of it is about testing water and making sure that water is safe. We think that there should be a review across Northern Ireland to make sure that there are much more standard arrangements for cleaning, auditing hand hygiene, monitoring and surveillance and so on. I think that we would then get a much more rounded picture of what is going on with pseudomonas infection control. We think that the Belfast Trust should look at its neonatal unit. The trust told us that it is going to try to bring forward the new unit, but we think that it should look immediately at how it can increase the space and make it much easier for the nurses to work there. We also think that the neonatal network should become a much more formally managed network, which is what you will find in most of the UK.

That is where we are thus far. Our next steps are to go through the other terms of reference and clarify some of the details on the two that we have already looked at. In the second part, we will also continue our work and put a major focus on the experience of the families. I reiterate again to families that we would welcome more of them coming forward to talk to us.

The Chairperson: Thank you, Professor Troop, and thank you for your interim report. I have a number of questions, and I am sure that members have questions as well. We will try to go through some of them, because this is a very important issue. As you said, it is important to learn the lessons, because families are at the heart of all this and they deserve to know what happened. I take on board the point that families are keen to ensure that this does not happen again. That is why it is important to learn the initial lessons sooner rather than later.

We need to know what went wrong, and we need an open and transparent view of what went wrong and how quickly it will be changed. When I looked at the overall report, I was struck by the fact that the Department sent out a number of circulars on a number of issues and then sent some specifically around some of those infectious diseases, followed by some dealing specifically with taps. Do you believe that those were just routine circulars and that they were acted on and implemented? Did the review team find that had the circulars been acted on, we would not be in this position?

Professor Troop: A lot of that will come in our second report, because we have had a lot of information about the response to those circulars, but we do not feel that we have got to the bottom of that story yet. Therefore, we are going back and will be looking in much more detail as to which trust carried out which action after each of those circulars, and we will then get a fuller answer to that question. The circulars were routine in the sense that they were going out on a regular basis as new information came to light, and they all stated what the trusts should do. However, as I said, we have had some information on what they did, but not as much as we would like. Therefore, we would like to go back and look at that in more detail. I cannot really say how much difference it would have made until we get all those details. I appreciate that it is crucial that we do that.

The Chairperson: Yes, because the issue of circulars is mentioned throughout the report.

How do you rate the Western Trust's response to the case at Altnagelvin?

Professor Troop: As I said, it is not normal practice to act after one incident. There was a gap before it had the second one, and the third one happened shortly after that. As soon as it had the third case, it acted very quickly and contacted the Public Health Agency and, through it, the Health Protection Agency. The trust put in place use of the sterile water and took out of action the tap that it found to be contaminated. Once the Western Trust had called the outbreak, it acted very promptly and very fully. There were only a couple of days between the two cases at the end when it called the outbreak.

The Chairperson: I know that you have talked to families, so you are well aware of the timelines. One family informed me that they were told that there was the possibility that their child had an infection on 6 December 2011, and Altnagelvin Hospital knew on 12 December 2011 that it was pseudomonas. The child died on 10 December, was buried on 12 December, and the family was not informed until 14 December that it was due to pseudomonas. How does that —

Professor Troop: I will look at the details in front of me. There is a difference between a baby becoming infected and knowing that it is pseudomonas. Sometimes, information about pseudomonas comes a couple of days afterwards. It is not an instant test in a laboratory, so some of the timelines about what happened to babies and what happened to testing meant that, sometimes, it was later. The timeline in the report is taken from all of the paperwork that we had from Altnagelvin, and is as accurate as we can find it.

The Chairperson: You say that on 12 December 2011 the Western Trust declared an outbreak; but that specific family was not told until 14 December that it was pseudomonas. We need to look at how families fit into all of that.

Professor Troop: Sorry, can I just pick that up again? Are you saying that the family was not told?

The Chairperson: They were not told that it was pseudomonas until 14 December 2011.

Professor Troop: OK.

The Chairperson: And the baby was buried on 12 December. So, the trust declared an outbreak on the 12 December. There is a two-day timeline of where families fit into that.

Dr David Stewart (Independent Review Team): We are going to focus on the communication with families in the next report. The particular situation you are describing related to when the outbreak was declared and when the actions commenced in relation to the management of the outbreak. We do not necessarily have any information at this point as to when a family was informed. That is the information that we are getting through our conversations with families.

The Chairperson: I appreciate that, but sometimes there is an issue in that we forget that we are dealing with human beings.

Professor Troop: I can assure you that they have been at the centre. That is why, although it was in the second phase of our investigation, we wrote to the families at the very beginning and invited them to come. We have collected the information in great detail, and we have picked up some issues around communication, but we want to pull that all together in a thorough way to do the families justice.

The Chairperson: I appreciate that that is what you are doing, but I just think it is important.

Professor Troop: If you received information such as that, we will certainly look further into it.

The Chairperson: If the Western Trust declared an outbreak on 12 December 2011, who did it declare that outbreak to, and were other trusts informed at that stage?

Professor Troop: It would report to the Public Health Agency.

The Chairperson: Do you know whether the Public Health Agency told other trusts?

Professor Troop: We know that over the next few days that did happen. There was a lot of information going backwards and forwards, partly because a baby from Altnagelvin was transferred to Belfast and, as soon as they knew that that baby had pseudomonas, they contacted the Belfast Trust to say that the baby had pseudomonas. We have been given a series of communications in which the information went from Altnagelvin to the Belfast Trust about what was happening there. Again, we are still unravelling some of the details about who said what to whom and when, but we are aware that there were quite a number of communications.

The Chairperson: How do you rate the Belfast Trust's response to the outbreak at the Royal?

Professor Troop: When the baby arrived from Altnagelvin, and then there was an infection within the Belfast Trust area, the trust was not sure whether the second baby had caught it from the first, so it was advised to keep the two babies next to each other and separate from the other babies in the unit. They were sent for typing, and it was found that they were separate strains. There was then a third baby quite some time afterwards. At that time, the trust was not sure whether it was another individual case or was linked to the others. It did step up its infection control, but it then sent the samples for typing before deciding to call an outbreak. In retrospect, the trust recognised that it should have called an outbreak earlier.

Our view is that the first thing to do is call an outbreak, and the second is around the kind of actions you take, in case of an outbreak, while you look into it. They did some things, but we think that there were some things they did not do. In particular, they did not go back to look for the source. It could

have been a common source, but they did not test the water or do environmental swabs. We think that that is where they could perhaps have done more.

The Chairperson: You have given us a timeline of the different outbreaks. Look at the outbreak at the Royal Jubilee Maternity Service. It goes through a number of dates, from 16 December 2011, but then there is nothing until the 22 December 2011. There is a week missing.

Professor Troop: No particular action was reported during that time. This is the timeline that we were given by the trust. We asked it to set things out point by point, but, where there was no action, they did not included anything.

The Chairperson: And will you be looking at that in more detail?

Professor Troop: As I said, they did the testing on the first two babies — one from Altnagelvin and one from Belfast — and found that they were not linked. It was some time before the next baby became infected. Once they realised that the two babies were not linked, they did not think that they had an outbreak, which was a reasonable thing to decide. The babies had two completely separate strains. So, although they did look at infection control, there was no more action to carry out at the time. It was only when another baby became infected, in January 2012, that they wondered whether they had an outbreak. They thought that they could possibly have an outbreak. They were not sure, but they thought that they might have. However, it was some time before the two babies were subsequently found to be linked.

The Chairperson: A number of members have questions, but I want to talk about the 15 recommendations in the report. Have all of them been accepted by the Department?

Professor Troop: We have just submitted the report to the Minister. Obviously, we have not —

The Chairperson: The Minister will be here after you.

Professor Troop: I presented this to the Minister last week, and we have not had any comments back to say that people think that any of our recommendations are unreasonable.

The Chairperson: I want to declare an interest in the new regional neonatal intensive care unit. As a constituency MLA, I have been calling for years for a new children and women's hospital. When you say that it should be expedited as soon as possible, what do you mean?

Professor Troop: I think that the new unit was planned for 2016. We think that that is a long way away. When we saw the chief executive of the Belfast Trust, he said that the trust was trying to see whether it could be brought about earlier. Between now and then, we think that some effort should be made by the trust to try to give the unit more circulation space.

The Chairperson: Considering that this is a regional facility, are you concerned about the way it is currently? We have a duty of care to send out a message to people attending the Royal Jubilee Maternity Service that it is safe.

Professor Troop: All reports we have had about the clinical treatment and management of the babies have been very positive. Strong efforts are being made in infection control. However, it is being done in circumstances that do not make it easy for staff. We have had very positive feedback about staff. When we met them, we saw that they are clearly highly dedicated people. However, the unit in which they are working leaves a lot to be desired. That is why we have suggested that people look at how to improve the situation sooner rather than later.

The Chairperson: Thank you, Professor Troop.

Mr Gardiner: Professor Troop, I want to take this opportunity to say thank you and to congratulate you on your presentation. It was most professional, very clear and distinct. You are one of the excellent ones to come before the Committee.

Let me take you back to the taps you referred to. Was it the material in the taps that was causing the problem? If it was the water, then the same water will have gone through all the hospital. Is there anything special about the taps?

Professor Troop: I will ask Mike to answer that question; that is his area of expertise.

Dr Michael Kelsey (Independent Review Team): We did not have all the details from the outbreaks in Northern Ireland, but, generally, from the United Kingdom and from a lot of worldwide medical literature, we know that it tends to be found in the last two metres of the water distribution system. That is not absolute; there are hospitals in the United Kingdom in which it is widely distributed. However, in most cases, and particularly in cases of outbreaks, it has been in the last two metres. That is down to a number of factors, one of which is the switch to infrared-operated, solenoid taps, which were brought in widely using thermostatic mixer valves to avoid scalding. As an unintended consequence, it seems that those taps will now support the growth of pseudomonas aeruginosa, whereas the old-fashioned, lever-type, simpler taps that had fewer plastics and polymers and fewer residual volumes with bits of stagnant water left in and may have been operated at higher temperatures were less likely to support pseudomonas. It has been an international problem and has been widely reported in the rest of the United Kingdom. It may be related to the types of taps that are now in use widely in healthcare premises.

Mr Gardiner: Are all those taps now changed?

Dr Kelsey: I know that some of the taps have been changed. I am afraid that I do not have the details of all of them.

Professor Troop: We went around the units, and they have all changed or were in the process of changing the taps. Not all of them have moved onto levered taps because enough of those taps were not available for all units, but they have all made sure that their taps are safe.

Mr Gardiner: We should put pressure on the Department to make sure that the taps are available and safe. It goes back to where they get them from.

Professor Troop: They have all changed. One of the most important things that they have all done is to make a change to using sterile water for washing the babies. We recommend that they keep with that.

Mr Gardiner: That is a step forward.

Professor Troop: Across the UK, other units have followed suit. In fact, all units have now swapped to sterile water. No matter what else is going on, that will keep the babies safe.

Dr Kelsey: The obvious answer is to seek an engineering solution and to find taps that will not support the growth of pseudomonas. That is a problem. Over the past couple of years, the Department of Health in England, together with the devolved Governments in Northern Ireland, Scotland and Wales, has met industry and manufacturers to seek a solution. The recent guidance, which Professor Troop mentioned, is not the final guidance, because an engineering solution still needs to be found.

Mr Gardiner: We have the right people in the right place to investigate the issue. Thank you very much for your reply.

Mr Brady: Thanks very much for the presentation. It is a difficult report because of the complexities involved.

You mentioned the two different strains, and the interim report states that an outbreak will be declared only if two babies are identified with a similar strain. That takes time because there is no facility for

typing here, and samples have to go to Porton Down. That improvement could be made because, presumably, the more quickly that the type of strain is identified, the more quickly that precautions will be taken. Is one of the two strains more virulent than the other? If the same preventative measures were taken, would they prevent both strains having an effect? Presumably, the pseudomonas evolves and develops to suit its situation. That is fairly apparent from your informative report. I did not know anything at all about that.

Professor Troop: All the measures will be equally effective against all the strains. We are saying that, in future, just one case should trigger action and that people should not wait for typing before action is taken. It can sometimes be found that one strain is more virulent than the other, but I am not sure that we have such evidence on these particular strains. We had three different strains, as a result of which, sadly, babies died. So it would not necessarily be indicated that one strain was more virulent than the other. I know that that is being looked at across the UK; we are looking at different strains to determine whether some are emerging that are more virulent than others, but that work is incomplete.

Mr Brady: The report mentions that if one case of meningitis is discovered, an outbreak is declared. Obviously, people are much more familiar with that condition.

You mentioned the logistics of cleaning taps and incubators. There seems to be a lack of uniformity, in that some of the cleaning is done by private contractors and some by nurses. In one case that you mention in the Southern Trust area, the facility was the only one that had a room that is specifically used for cleaning incubators. In another facility, cleaning, in some cases, was done by nurses, but in one case, it was done in a utility room, which would seem, by its description, not to be particularly hygienic. Sensible precautions can be taken that would go some way towards ameliorating the problem.

You mentioned sensor taps. I presume that the reason for using those taps is that people did not have to touch them. However, that seems to have been counterproductive, because, as the report states, pseudomonas has developed in taps in which the flow of water is not as it should be. Are you happy that preventative measures are being taken, and further measures will be taken, particularly in the way in which incubators are cleaned and prepared for babies?

Professor Troop: People are looking at hygiene issues in particular. If they have identified issues that they think could be improved, they have said so. One of the report's recommendations is that there should be a standard approach to cleaning across all five neonatal units. Certain parts are cleaned by technicians, and others are cleaned by nurses. We recommend that there should be a separate place for cleaning. It can be a clean utility room; some places have a dirty through to clean room, which is ideal, but if that cannot be had, there should be a separate place, and cleaning should not be done in a corridor. We recommend that all units look at best practice and adopt it, and many have already started to do that.

Mr Brady: The cleaning of taps seems to have been the source of much concern. How often does that need to be done? Are there any guidelines? Does it need to be done daily or weekly? That would be a simple way to deal with part of the problem.

Professor Troop: Taps are usually cleaned several times a day. I do not have the specific details in front of me; that was looked at by our hygiene team. However, when I looked at units, I found that the cleaners usually have a routine in which they go round several times a day. There are guidelines about how many cloths they should use, and so forth. We want to make sure that they all follow best practice. That needs to be taken up with the British Institute of Cleaning Science, because its guidance now conflicts with what is being recommended.

Mr Brady: Of course; you referred to a methodology whereby taps are cleaned first rather than last.

Professor Troop: Yes, taps should be cleaned first.

Mr Brady: It is common sense.

Professor Troop: It is common sense, but if people did not expect anything to be in a tap, or for pseudomonas to grow on taps, they might not have thought of that.

Mr Brady: Following your report, perhaps you should expect that. Presumably, that is one of the issues that will come out of the report.

Professor Troop: It is one of the things that was recommended by the Chief Medical Officer (CMO) in his letter at the end of January 2012. Certainly, following the interim report, the issue will go back to the British Institute of Cleaning Science.

Dr Kelsey: May I expand on that a little? The methodology of cleaning is, to some extent, to prevent the contamination of taps. We know that the sump — the S-bend — will always become contaminated with pseudomonas, and current British cleaning standards run the risk of taking pseudomonas from the sink drain and putting it on a tap where it would form. However, with regard to the continuing colonisation of those taps, it would seem that certain components such as aerators and flow straighteners — the elements that make the water run straight down without splashing everywhere and give that nice, bubbly feeling, so to speak — are slightly at fault. Preliminary and published evidence has shown that those are perhaps the most heavily colonised parts. The report states that such components become heavily colonised with biofilm, so changing them should become part of the routine for estates departments, facilities branches and estates management. Therefore, it is a facilities action, not a cleaning action.

The Chairperson: I will follow on from that point. A circular was sent out in 2010 that highlighted to the trusts the possibility of taps being a source of infection. Are you aware of any of the units testing their taps since that 2010 circular?

Professor Troop: As I say, we have had a lot of information. We do not have enough detail of precisely who did what and when to be able to pin that down. We want to get into that area in rather more depth, and it will form a substantial part of our second report. At the moment, we have only partial information, so I would not like to jump to conclusions.

The Chairperson: Are you also including in the second report the fact that taps were actually changed in two units?

Professor Troop: A fairly short time before the outbreak, the taps in Belfast were changed. The others were changed a couple of years or more before the outbreak. So a variety of changes has been made over the past few years, but all the units had changed to sensor taps. In the second report, we hope to include a full section on what happened and what has happened since.

The Chairperson: I appreciate the fact that you are going to look at the issue in more detail.

Dr Stewart: On that point, perhaps I could return to Mr Brady's question. Sensor taps were put in because it seemed to be a very good idea that a tap would not be touched and, therefore, from a hand-hygiene perspective, one is not touching the surface and spreading an organism through that method. As Dr Kelsey said, it has led to a different set of issues. Those taps were put in on a widespread basis for what seemed an obvious reason — to reduce the risk of spreading infection through touching taps. In each of the three units in which there has been an outbreak or cluster, those taps were put in within the past three years. Before that, we understand that the taps would have been the more traditional lever type.

Mr Brady: The problem with sensor taps has now been identified and can be addressed.

Dr Stewart: Yes.

The Chairperson: That is why I asked about circulars earlier. I know that we will come back to the issue in more detail.

Mr Wells: Professor Troop, during all this, the Department of Health was developing guidelines to advise all four Health Departments in the United Kingdom on pseudomonas. I understand that those guidelines have just been published on 30 March. I wonder whether there is any coincidence here. Maybe not. It seems a bit strange that the guidelines are published, and now you are appearing before the Committee. I am sure that there is no link.

Professor Troop: Dr Kelsey has been involved in those for quite a long time.

Dr Kelsey: Yes. The —

Professor Troop: May I just say, Mike, that what we have found has been fed into the guidance, and some things in the guidance reflect what we have found. Hopefully, we are all joining up.

Dr Kelsey: I do not know, Mr Wells, whether you would really like to hear a brief history of what has been going on over the past couple of years.

Mr Wells: I am more interested to know whether, had those guidelines been in place, perhaps a year ago, things would have developed rather differently in hospitals in Northern Ireland as far as pseudomonas infections are concerned.

Dr Kelsey: The Department of Health in England first became widely aware of the situation about two years ago. As you heard, the problem is one of unintended consequences and related to the widespread use of infrared-type solenoid taps and thermostatic mixer valves. It has taken a long time to gather enough evidence to understand what the problem was. As I said, the devolved Governments' Departments of Health have been fully involved with a number of meetings with industry and experts. In all honesty, it has taken quite a while to get guidelines out that we feel are reasonably robust. They are about testing as well as prevention.

The guidelines that have come out in the past few days are not the final guidelines. They are an interim set of guidelines, and, as I said earlier, an engineering solution needs to be sought in the long term. The document from England, which, as I understand it, has more or less been acted on in Northern Ireland, is health technical memorandum (HTM) 04-01 and describes water distribution and supply systems in healthcare premises. It is clear that that and the Health and Safety Executive (HSE) guidance L8 is mostly linked towards the prevention of legionnaires' disease and the prevention of scalding, particularly of elderly people. Therefore, the guidelines were not written to address the current problem. The guidance will be rewritten in the next year, or at least an addendum to HTM 04-01 will be written by the Department of Health in England to address the problem of pseudomonas. Therefore, what you have in front of you will be distributed, hopefully. The English Department of Health's guidance is interim.

Mr Wells: Throughout the report, reference is made to samples being sent over to England for testing. Is there any evidence that, if we had our own testing facilities in Northern Ireland, the turnaround would be quicker and that, therefore, there would not have been the same level of delay and confusion?

Professor Troop: That is certainly the case, because of the sheer geography. The sample has to go over to the Health Protection Agency laboratory in north London for testing and typing, and there is an effect of getting it there. Typing still takes time. It is not an instant test. After the material is received, some work has to be done on it before genetic testing is carried out. It is not a 24-hour turnaround. There is a bit of time involved. Testing facilities here would certainly take out some of the delay, at least 24 hours, purely because of the transport. Currently, it is being done in only one place in England, so there is a recommendation on that. I have talked to the Health Protection Agency, and it intends to see how it might spread that reporting elsewhere.

Mr Wells: It is one of your recommendations that we have such a facility.

Professor Troop: Absolutely. It is one of our recommendations, and we think that the Belfast laboratory is already getting geared up for that.

Mr Wells: I have a question that is, perhaps, difficult but which has to be asked. Would some of these babies have survived had the Royal Jubilee Maternity Service acted differently?

Professor Troop: It is possible.

Mr Wells: I have to be very careful about how I phrase this. There is a school of thought that some people — including adults, because pseudomonas affects cystic fibrosis (CF) sufferers as well — die with pseudomonas rather than because of it. For instance, quite a few of the folk who died with swine flu probably died with it rather than of it, but because it was swine flu, that was notifiable as a cause of death. Do we know what the situation is regarding these babies in the Royal? They had terribly complex conditions, a whole myriad of problems, and then there was pseudomonas. Was pseudomonas, sadly, the event that caused death, or was the situation so complex and difficult that death could have happened anyhow?

Professor Troop: It is very difficult for us to answer that question, because we do not how well those babies would have continued had they not had pseudomonas. To go back to the action of the hospital in Belfast: it is always easier to see what should have been done when you look at a situation afterwards. Decision-making at the time is based on what you have at the time. The information is all in the public domain now, and it was not at the time. When I judge people's actions, I am always careful to think about what they knew then rather than what I know now.

Our clinicians have looked at the clinical notes. I think that we are pretty sure that some of those babies died of pseudomonas; they became ill with it very quickly. The clinicians did not doubt that pseudomonas was the cause of death. We do not know how well those babies might have done otherwise. I did not look at all the clinical notes.

Mr Wells: I think that my colleague will to deal with the whole water issue. I was a bit surprised to read in the report that there had been an outbreak in Turkey, of all places. A report was issued on the subject. It should have been well known to people in the Royal that this was an issue. I remember the whole issue developing on 22 December. We had a long wait, and it was then revealed that pseudomonas was in the taps. From what we now know, it was patently obvious from the word go that it was in the taps. Why was there a delay before that was —

Professor Troop: That is why I expressed at the beginning that I always try to judge people on what they knew at the time and not on what I know now. There was a stage in Belfast at which there was sufficient knowledge about pseudomonas and taps. The CMO's letter called for action to have been taken at that stage to test the taps, but that was not done. That is where I have concerns. It is a judgement issue whether it is called an outbreak when the third case happens quite some time after another case that was not linked to the first one. Certainly, at that stage, more action could have been taken. I do not think that we have suggested otherwise in the report.

Dr Stewart: If my memory is correct, the outbreak in Turkey was reported only around 26 November in an online journal. I do not think that the clinicians at any of the hospitals would have been aware of that. It was a very recently published article that made a link to sensor taps.

Mr Wells: We have known of the existence of pseudomonas for 50 years. In almost every published document, tap water is mentioned somewhere as a possible source of infection. Therefore, it should have been well known to the clinicians in the Royal that that was the likely source. I cannot understand why there was a long gap between the outbreak and the dreadful fatalities and clinicians' coming up with the answer. It is quite obvious that anyone would have known that the answer was in the taps. Is that an unreasonable comment?

Professor Troop: As I said, after it was found with the first two babies with pseudomonas were not linked and then a third baby had pseudomonas, we felt that there was enough information in the system for more action to have been taken, particularly the testing of taps.

Mr Wells: Was that a major mistake?

Professor Troop: I think that, in retrospect, they should have done that. I think that we have made that clear in the report.

Mr Dunne: I welcome the report this afternoon and the panel's attendance. The session has been very informative.

I am still keen to explore the source of the problem. On 22 December 2011, the Chief Medical Officer issued a letter, which has been mentioned. Paragraph 8 states:

> *"a team approach should be used for reviews of schemes for controlling the risk of exposure from legionella and pseudomonas with Infection Control Teams working closely with Estates Management Teams".*

Similar reference is made in a letter dated 1 July 2010. It referred to the background of a number of reported cases of high levels of pseudomonas and legionella bacteria that were taken from water supply systems in healthcare facilities. Reference is made to how we could implement control measures for installed systems. The letter states:

> *"It may therefore be necessary to apply additional systems of control to water systems for the control of legionella."*

Being of an engineering background, I like to step back to the source of the problem. The source, to me, was that bacteria were allowed to develop in the water system. Is there a risk that systems to manage the risk of legionella and pseudomonas were not properly in place in the trust? Is there any evidence to suggest that those systems have not been in place? We are all aware of the risks of legionella and what I understand to be the water systems in place in public buildings to deal with it. Therefore, the trust's system should be well documented. Is there any evidence that that was in place, or is it possible that it was not as effective as it should have been?

Professor Troop: As I explained to the Chair, we have received a lot of information about that, but we do not think that it is complete. So we did not want to draw conclusions about that question at the moment.

Mr Dunne: Yes.

Professor Troop: However, we will look at that issue in detail with each of the trusts and go back and ask questions when we are not sure. That is because we think that it is very important that, in our final report, we describe the actions that were taken following those circulars and the testing of the water. However, I cannot give you an answer at the moment, because we do not feel that we have sufficient information to draw full conclusions. My answer at present would be incomplete and, perhaps, erroneous. It is not that we do not think that it is important; it is simply that we do not think that we have everything that we need to be able to answer that question properly.

Dr Kelsey: It is probably accepted that the precautions required to minimise the risk of legionella — we are talking about risk reduction because risk cannot be eliminated — are not the same as those required to minimise the risk from pseudomonas. Those bacteria dwell in different parts of the water distribution system.

Mr Dunne: They do? Is there evidence of that?

Dr Kelsey: There is evidence from the published literature.

Mr Dunne: There is? Are we going to look at the legionella management system?

Professor Troop: Not at the legionella system, no. Of the two issues that we will look at, one is water management as a background to the outbreak. Secondly, and particularly, we will look at responses to those circulars and what was done in relation to pseudomonas. We have quite a lot of information, but

not enough, on those issues. Our final report will have a full section on water management, but particularly in relation to the circulars and pseudomonas.

Mr Dunne: The interim report states:

> *"Installation of sensor taps in Altnagelvin, Royal Jubilee Maternity and Craigavon hospitals prior to the incidents may have contributed to creating an environment for pseudomonas to become established."*

Will you clarify that?

Professor Troop: I think that it goes back to the fact that sensor taps are more likely to grow pseudomonas and that the change to sensor taps was likely to have been the underlying problem.

Mr Dunne: Is there not a risk that we concentrate too much on the taps rather than the water source — stagnant water that lies right back to the supply from storage tanks?

Dr Kelsey: No. I said earlier that most people who looked at the water distribution system found that the pseudomonas stayed in the last two metres, which lies between the thermostatic mixer valve and the mixer tap. The arrangements of the final two metres of plumbing are infinitely variable. Some of it is done quite badly, and some of it is quite badly maintained in various places. Therefore, most places that have experienced pseudomonas as an issue have found it in that final two metres. On the whole, the circulating mains have been free of pseudomonas. That does not mean to say that pseudomonas does not enter healthcare premises through the water main; that remains a possibility. However, the fact is that it forms the biofilm and most of the colonies in the region of the thermostatic mixer valve and the tap.

Mr Dunne: So temperature is obviously an issue.

Dr Kelsey: Temperature is a major issue. Thermostatic mixer valves (TMVs) type 3 were designed by the Department of Health to prevent scalding, and their model engineering specification is, I think, 08, which the industry follows when it manufactures these devices. The water comes out of those at 41°C, so if the thermostatic mixer valve is behind the tap and further up the water distribution system, the water in the final tap is not of a pasteurising temperature.

Mr Dunne: Is it not?

Dr Kelsey: No.

Mr Dunne: So that is a risk area.

Dr Kelsey: That is a risk. The other factor, of course, is that the circulating hot water temperature in this country is kept somewhere between 60°C and 51°C, and the dwell time needed to pasteurise at that temperature is quite long. Other countries circulate hot water at 70°C degrees, at which temperature the pasteurising time is much shorter.

Mr Dunne: That should reduce risk.

Dr Kelsey: It would reduce the risk if you were to flush the tap with hot water only, or if you did not have thermostatic mixer valves in situ. I will not say that it is a hideously complex situation, but it is quite complex, which is why finding an engineering solution is quite difficult.

Mr Durkan: I am glad that Gordon is from an engineering background and might have understood all of that.

I welcome the panel and thank you for your interim report. In particular, I congratulate you for liaising with the families during its compilation. I know that your work is ongoing, and we await the final report.

Some issues that I had wished to raise seem to have been addressed, so I will go back to the Western Trust, which the report seems to exonerate. At one stage, it looked as if some blame was being attached to the Western Trust. I do not whether that was media-led or Belfast Trust-led. However, you are content that the Western Trust handled its situation and the transfer to Belfast properly.

Professor Troop: Absolutely. There were definitely two strains; there was no relationship between them. So when the baby was transferred to Belfast, there was then no spread within Belfast, which was a credit to their infection control, as I said. When staff at Altnagelvin learned that the baby had pseudomonas, they informed the Belfast Trust.

Mr Durkan: The attaching of blame caused some distress to staff in the Western Trust and even more to the family of the baby.

Professor Troop: We were aware of that, and we were able to reassure them. We have met a lot of staff, and they have been very upset about this as well. They care a lot about their patients. The staff in the Western Trust were very upset to hear of that issue, and they were very pleased to hear that that was not the case. We have been very concerned about the families, but we have also been trying to show some concern for the nursing and medical staff who were very distressed when this happened, because they care for the babies.

Mr Durkan: Yes, particularly given that there was such a media glare at the time right across the North.

I will move on to the neonatal care estate. You and the Chair had an exchange about the report's findings on the fabric of the unit at the Royal. I am not referring to the staff — bearing in mind your previous comments, they do all that they can. The report raised concerns about the age and suitability of the building. You went further than that earlier, when you said that it:

"leaves a lot to be desired."

Is it possible that the unit, as it stands, is not fit for purpose, particularly at times of high occupancy?

Professor Troop: Two things could improve the situation very quickly. The first is for the units to work as a network. In the report, you see that occupancy figures vary across Northern Ireland. If the units worked as a network, some babies might be able to be transferred back earlier when fit for travel, which would take away some of the pressure. Secondly, as the Royal does not have any isolation facilities, it is very difficult to isolate babies within that unit. So we think that early identification of one of the spaces would also improve the situation. Any solution must be up to the trust. They did some moving around when they had the outbreak, but we think that they should look at their space to see whether there is some way to reduce the number of cots in that large room and to improve isolation. If they did that as well as starting to work as a network, they could take a lot of pressure off the system very quickly.

Mr Durkan: It is important that the options are explored while we await the new unit, even if that means a redistribution of cots across the network, or something similar.

Ms Brown: Professor Troop and colleagues, thank you for your attendance and for your very detailed interim report. I want to remind us all of the families affected, as the Chair mentioned. This is a very sad time for those grieving for their precious children. We have to keep that in mind. Hindsight is a wonderful thing, and it is to be hoped that lessons will be learned so that such events will not happen again.

Professor Troop, I also welcome your positive feedback on hospital staff — that is good to hear. We do not hear complaints about staff. They are good people who take due care, believe in what they do and work to the best of their ability. We also have to recognise the stress and upset suffered by the staff responsible for caring for these vulnerable babies.

Most of the questions have been asked, but has the Minister given you complete freedom in carrying out your investigations, particularly in the transparency and frankness of your report?

Professor Troop: Absolutely. Everywhere that we went, we were met with openness and, I think, honesty. We were given access to any information that we asked for. When we needed more, we were given it. When I met the Minister at the very beginning, he said that, if I felt that I was not receiving any information, I should let his office know, and it would make sure that I received it. In fact, we have not found that to be the case at all. We were probably sent more rather than less of the information that we requested, and working through it has been quite a challenge.

Wherever we went, and from conversations with everybody whom we met, the common theme was this: let us learn from this and make sure that it does not happen again, not just here but anywhere else. In fact, some of our recommendations have been taken up elsewhere. I do not know of a unit in the UK, for example, that does not use sterile water now.

There has been openness and honesty. I hope that, as we complete our report, people will feel that we have presented sufficient information as openly as we can. Obviously, preserving confidentiality will be a key issue for us, but people must also be confident that we have not hidden anything.

Ms Brown: That is very good to hear. Thank you very much.

The Chairperson: Professor Troop, I have several further questions specifically about the interim report. As Chair, I have some leeway. Page 30 states that, at the Royal, on 8 December:

> *"nurses noted that the roof of the unit was leaking … The IPC nurse was advised on 9 December … that the required repairs were being dealt with."*

Are you aware of the repairs having been carried out and, if so, when?

Professor Troop: I do not know whether the roof has been repaired, but we can certainly ask.

The Chairperson: That leads me on to the point that you made earlier to the Deputy Chairperson. You said that, if the Belfast Trust had acted differently, there is a possibility that some of the babies would have survived. You also said that staff acted professionally.

In 2012, we had a report of leaks in a maternity unit in Belfast. We are going back not months but a number of weeks. In this day and age, do you think it acceptable that there are leaks in the roof in some neonatal units and that water is coming in through the wall in maternity units? We are not talking about the 1960s here.

Professor Troop: We did not look at the maternity unit. We looked at the neonatal unit, and I think that you have gathered my concerns about that unit. That is why we would like to see action taken on that sooner rather than later.

The Chairperson: When you say that staff acted professionally during that time, are you indicating that this is a management fault?

Professor Troop: We are not apportioning blame. What we are trying to do is to identify what happened. It is always easier to say this with the benefit of hindsight, but there was a period in January when action could have been taken sooner. One thing that we are trying to clarify is who knew what, and when, and where decisions were being made. We have not got all that information. We need to know whether it was a system problem, because that is sometimes the situation. At the moment, we have not totally clarified whether it was.

We did not go into this looking for blame. We went into it openly and asked people to be very honest with us. It is much more helpful to say that we want to learn, and it is helpful if they want to learn. In doing that, you get to the bottom of things much more than if people thought that you were simply going to point the finger. I do not think that we would have had anywhere near as much openness if we had gone in with that approach. What happens after our report is published is for others to decide then.

The Chairperson: I have two final questions. On page 31 of the interim report, referring to 29 December 2011, it states:

> *"The Belfast Trust Director of Nursing received advice from the Trust IPC Doctor that HSS (MD) 31/2011 would be considered at the next meeting of the trust Water Safety Group on 24 January 2012."*

That does not mean anything to me, but in the midst of concerns about a pseudomonas outbreak, can you explain that and explain the delay?

Professor Troop: As I said earlier, we received that information, but we have not yet been able to act on it. It is not because people have not told us why — I do not want people to think that — but because we have not yet been able to go back and get an understanding of all the reasoning and decision-making involved. When we look at all the responses to the various circulars, why that decision was made will be addressed. However, at the moment, I cannot answer that question.

The Chairperson: Will we be able to go into more detail on that when you come before the Committee a second time?

Professor Troop: Yes.

The Chairperson: Finally, whose responsibility is it to create the formal network of neonatal units and then put in place the arrangements for information-sharing?

Professor Troop: It will be for the five units to decide. You know the system here better than I do, David.

Dr Stewart: It will be a clear responsibility for all the organisations involved on the commissioning side, which means that the Health and Social Care Board will have a responsibility. The Public Health Agency is also likely to have a role in providing information to support such a network. The five trusts will also be involved. In making that recommendation, we are not saying that the neonatal units are not working together, but they do not have a formal system that puts in place common protocols across the units. This is really about having a formal network. One of our team, who is, unfortunately, unable to join us today, is involved in such a network in Scotland. He has been advising us of the benefits of a formal network, in which babies with particular needs can be managed in units with a focus on those needs. Everyone across the organisations should be involved in establishing the network.

Professor Troop: In 2006, a position paper on the neonatal service in Northern Ireland made some recommendations on how units might work as a network. Some of those have been implemented, but not all. We think that the paper should be looked at again and put in place.

The Chairperson: Professor Troop, on behalf of the Committee, I thank you and your team for your interim report and for coming to brief us on that. We will see you again when the final report is available, and we will go into more detail on procedures then.

Committee suspended.
On resuming —

The Chairperson: Minister, you and Andrew are welcome. I explained to members earlier that you contacted me on Friday evening and were keen that the Committee should have sight of the interim report sooner rather than later. That is why we are here today. I appreciate your doing that. As you know, we have just had a presentation from Professor Troop, and members have had an opportunity to read the interim report. So I will hand over straightaway to you and Andrew to go through it, and then we will open the meeting up to questions and comments.

Mr Poots (The Minister of Health, Social Services and Public Safety): Thank you very much, Madam Chairman. First, I thank you for calling the meeting and facilitating us in this way, because the interim report has elements to it that I find quite explosive. As a consequence, I wanted it to come before the Committee and questions to be asked in this forum. The nature of the issue requires a measured approach, whilst identifying where there has been a falling down and how things can be put right. I greatly appreciate your calling the meeting and, indeed, the Committee members' attendance this afternoon.

This morning, I met, individually, the parents of each of the four babies who died. I have to say, Madam Chairman, that that is not an experience that I ever want to have again. It was not a pleasant experience for me, but I can go home to my family tonight. Those parents are not going home to their family as it should be, because they have lost their babies. I felt that one of the telling answers in the interim report related to whether any of these babies could have been saved, or might have lived if they had not had pseudomonas. I think that it is quite clear that that may well have been the case. Therefore, I feel that we have failed in our duty to those families. Potentially, their babies could have lived. I find that particularly difficult to deal with, and I welcome the fact that things have come out into a public forum in a very public way.

One reason for asking for the report was that, in the first instance, I wanted to identify what the problems were, where we fell down and what the weaknesses were. Secondly, I wanted to identify solutions. In the context of public inquiries, hyponatraemia is still being investigated some 18 years after the first child died from it. Therefore, I welcome the fact that, after just over two months, families are getting this kind of detail. I trust that it will assist them in bringing some closure.

I want to pay tribute to the staff who work in our neonatal units. The interim report makes it very clear that no blame is attributable to those working in our hospitals. There was no issue whatsoever with staff's hand cleansing, and so forth. The report's very clear focus was on the taps, which is where the problem existed. In fairness to everyone involved, some of the taps were put in only very recently. It appears that, in our system and beyond, no one had the knowledge or capacity to say that those taps had the potential to cause a risk or a danger. The installation of the taps was not out of order.

What happened subsequently has had a huge impact. Outbreaks in Altnagelvin and the Royal Jubilee Maternity Service led to the deaths of four children. The 2010 report made very clear that, if pseudomonas was present, the faucets, or taps should be examined, because the potential problem would, most likely, lie there.

I have to confess that, a few months ago, I could hardly pronounce the word "pseudomonas". When I first saw it, I thought, "What is this?" However, among microbiologists and others, there has been a considerable knowledge base about it for a long time. I felt that the message to the trusts in the first notification was quite clear, particularly about the taps and faucets and the fact that people should be looking for problems there.

I have to say that I found some considerable difference between the responses of the two trusts. The Western Trust implemented the use of sterile water quite quickly, whereas the Belfast Trust did not introduce sterile water until quite a lot of babies were infected. I have a problem with that, and I intend to raise that with the chief executive and chair of the Belfast Trust tomorrow. I am far from satisfied that they responded quickly enough in introducing sterile water.

When I met Professor Troop last week, she indicated to me that the game changer in turning the situation around was the introduction of sterile water. We are all looking at this with the benefit of hindsight. However, my view of risk management is that, if you identify a problem, you have to ascertain factually why you have that problem, but if there are things you can do to mitigate further risk, you should do them. If it is a situation in which you are introducing a drug, the fact that it may have a side effect would be one matter to consider further, and its introduction may be a balanced decision. However, as this was a situation that purely involved the introduction of sterile water, which would have had no negative impact on patients, it did not involve a balanced decision; rather the decision that was available was a very clear one.

Professor Troop will carry out a second course of work. I greatly appreciate the course of work that has been done thus far. It facilitates us in dealing with the issue, in moving things forward, and in going out to the public and being very honest with them. I am not interested in cover-ups or shams. If we get it wrong, we need to have the honesty and integrity to say to the public that we got it wrong. I greatly appreciate the fact that we got this interim report in such a timely fashion and that it contains very strong recommendations to assist us to move forward.

It is my intention to implement the interim report's recommendations. Some have been implemented already; others will be implemented very quickly. Clearly, there will be issues with the new hospital — you cannot build a hospital overnight. However, we will certainly engage in the matter of how we can create suitable conditions at the Royal Jubilee Maternity Service until we get that hospital built. Indeed, we need to have a discussion about the programme for construction and whether it can be brought forward. That will take slightly longer to work out, but most of the interim report's recommendations will be implemented quite quickly.

As for the management of the outbreak, I do not want to prejudge the final report, which will deal with that. We need to be absolutely fair to the people being asked to produce it. I did not prejudge this. When I was asked in the Assembly whether I was satisfied, I said that I was not, because I did not know the facts but wanted to know them. I now know the facts, and, frankly, I am not satisfied with the Belfast Trust's response. However, I will again leave it to Professor Troop and her team to bring forward their report on the management of the outbreak.

As I said, we will seek to implement most of the 15 recommendations as quickly as possible. We will try to ascertain a way forward on some of the more difficult recommendations. Again, we will do that as quickly as possible.

Again, I offer my sympathies to the families, which I conveyed to them directly this morning. I recognise their great hurt. During my conversations with the families this morning, I was quite overwhelmed by their great dignity and their great desire that this should not happen to other families or other children. I thought that they were so magnanimous in how they were dealing with this. How they have responded was really very moving. They did not respond in anger. They responded in care for others. I pay the highest tribute to them. Thank you, Madam Chair.

The Chairperson: Thank you very much, Minister. I appreciate your allowing the Committee to get early notice of the report. I also appreciate your honesty, because it is quite an explosive report. We need to learn lessons for the families. We are dealing with their babies' deaths. You made the point that you are not satisfied with the Belfast Trust's response. We need to deal with that quickly.

I have a number of questions. You are right that, following the second stage of the report, we can go into more detail on the timeline and how people reacted to circulars. In response to a question from the Deputy Chair, Professor Troop said that she believes that, if the Belfast Trust had acted differently, there is a possibility that some babies could have survived. When parents hear that, it will probably add to their grief.

My concern is about circulars. The Department sends out circulars, through you, as the person who is accountable to the Assembly, or the permanent secretary. Is it only when there is a crisis or tragedy that we become aware that trusts or senior management are ignoring them? We have had similar cases on other issues that have been looked at by the Committee. As we are talking about learning lessons — I could be wrong on this — should the letter that was sent out by the Chief Medical Officer have mentioned that there had been a death from pseudomonas? I am actually surprised that he is not here considering that he was involved in sending circulars.

Mr Poots: It was not appropriate for him to be here because the report looks into his work as well. He is not here purely because it would have been inappropriate for him to respond at this stage.

The Chairperson: OK. You are right that we need to learn lessons from the recommendations. Again, I will declare an interest. As a constituency MLA, I have, for years, been involved in campaigns on the need for a new women and children's hospital. In her recommendations, Professor Troop states that that should happen sooner, rather than later.

You mentioned that you will meet the chief executive of the Belfast Trust. Considering that we are coming out of this crisis, how do we send out a clear message that, in general, people who arrive at hospitals get the best care they need? On the back of some of the report's findings, we need to send out a clear message that people who arrive at the Royal will still get the best care.

What is the timeline for taking forward the recommendations? Who is responsible for that? Is it you, your Department, the Health and Social Care Board (HSCB) or the Public Health Agency (PHA)? Who will take ownership of ensuring that they are implemented?

Mr Poots: OK. There are quite a lot of questions there, Chair. Certainly, the building itself clearly has its failings. That is why it has to be replaced. Unfortunately, as things stand, it will not be replaced for another four years. I do not believe that the leaking roof contributed to the pseudomonas outbreak. Nonetheless, an intensive care unit should not have a leaking roof. We need to look at and address such things.

We need to apply ourselves to a series of things. You posed a reasonable question about circulars. Circulars were sent out. How confident can we be that circulars are actually being implemented fully? Again, I think that it is a matter for the Chief Medical Officer to ensure that that is the case. It is something that we can stress upon his office; to ensure that when circulars go out, they are followed up.

As regards the recommendations, the Department itself will develop an action plan and look at a timetable to take them forward. Obviously, we will have to work with the Belfast Trust and others in doing that, but we will be taking the lead.

What is important, as identified by Professor Troop, is that we need to have a neonatal network that is a continuum across Northern Ireland, as opposed to its being something that is the responsibility of a series of trusts. We need to ensure that there is a single management system for the neonatal network, that it is seamless — albeit that it is on different sites — and that there is the connectivity to deliver more.

There is something very immediate that we need to be doing: reorganising cots and so forth in the Royal Jubilee Maternity Service to enable it to work well. The same applies to Antrim Area Hospital. The closer the cots are, the more likelihood there is for the spread of infection. There are things, very obvious to us, that we need to respond to and respond to very, very quickly. We certainly will be giving a lead on that.

Dr Andrew McCormick (Department of Health, Social Services and Public Safety): I will make some comments on circulars. We have had this discussion before, but I want to set a bit of context about the way in which we work with the Health and Social Care Board, the PHA and the trusts in dealing with departmental guidance and the whole issue of managing risk. Managing risk is what we are asking of the totality of the service, from chief executives to governing bodies — that is, the non-executive boards of directors — who all play a significant role in the oversight of clinical governance and wider risk management. To set that in context, the message that I give — I have made this point, meeting after meeting, with all the organisations — is that we recognise, from a departmental point of view, that there is a vast range of risks to be managed. It is a highly complex set of services, and the job of each organisation is to manage the risks that are assigned to it. They have the primary responsibility to do that and to take account of all the guidance that is issued.

We have a routine system in our regular meetings where my team will ask what the state of play is on compliance with the range of circulars that have been issued. We sometimes have specific discussions on specific items, if we have become aware, through the monitoring process, that something is not fully implemented. We also convey the message continually that each organisation — each chief executive — has the right and the responsibility to say, directly to me if need be, if something is proving difficult to manage. That is not to say that they can simply escalate a risk and pass that back up the system. It is simply so that there is an awareness and the possibility for action and intervention. That is our attempt to have a system that looks at the full range of risks and

provides a responsible and effective way of governing those. For the vast majority of cases, that works.

I have now dealt with quite a few very difficult cases, many of which we have discussed, in either this Committee or the previous mandate. I am not aware of one that involved something having gone wrong that had never been foreseen. Almost each and every case, including this one, related to known risks. What that says to me is that we have a system that is dealing and coping with a vast array of risk. That means that there has to be effective risk management. We have to continue to reinforce the messages. My commitment is that we will learn from what has happened in this case and try to secure an effective way to improve further, to reinforce the lessons and the messages and to see what else needs to be done. Further work will indeed come through from the second phase report.

I want to pick up on the point you made about the reference in the 22 December letter. I think that it is generally well known that no one who mattered — for example, those involved in the Royal — was not aware that there had been a death in Altnagelvin. I do not think that it is ever appropriate for circulars, which are intended to stand on the record for a long time, to dwell on individual cases. The circular referred to the fact that there had been issues relating to pseudomonas in Northern Ireland in recent times. It is quite clear that that was why the circular was issued on 22 December. However, no one was not aware that there had been a death. As the review team drew out in its evidence a short time ago, there had been a lot of communication between Altnagelvin and the Royal during that period. In that context, I do not think that it is that relevant a factor.

The Chairperson: On the back of Professor Troop's presentation, I do not want to go into specifics because she indicated to us that the review team is looking at that. There are a number of questions about circulars — whether action was taken, whether the circular was implemented, and all that stuff. I am keen to let other members in. When Professor Troop comes back, we can question her about the management of some of that. I am concerned in general. We are looking at other cases where trusts — I am not saying that this happened this time — have chosen to ignore Department circulars and have not implemented what the Department wanted. I would hate for that to happen in cases such as this.

Dr McCormick: I would hesitate to describe it as "choosing to ignore". I would say that, at times, there is genuine difficulty in taking all the practical steps to implement circulars. I would be very concerned if trusts were choosing to ignore circulars, and I would need to take action if that were the case. I am aware that there is difficulty sometimes. What I am clear on is this: if organisations are not able to implement something, they have a responsibility to say that they not able to do so and to explain why that is the case.

The Chairperson: I appreciate that, Andrew. However, the end result is the same: it is not done. Your words and my words may be slightly different. Whether they choose to ignore it or they just do not get it, the result is the same: it is not happening. I do not want to go into this in a lot of detail because Professor Troop is coming back. I will open it up to other members.

Mr Gardiner: Thank you for your presentation, Minister. I think that we all share the disappointment and grief that you expressed.

Has your Department the right to put in a claim against the manufacturers of the taps, given that the report seems to be pointing to the fact that that is where this really stemmed from? Secondly, will your Department be responsible for compensating the parents of the children who died?

Mr Poots: On the first question, I suspect that we will not put in a claim, because most manufacturers operate to guidance. Had they produced something that did not meet the guidance, it would be a different matter. It would appear that the plastic inside the taps was the source of the problem. There was a lot of carbon in the plastic, and there is good growth for the bacterium that is pseudomonas in areas where carbon combines with water.

Mr Gardiner: But is that not a fault in the manufacturing?

Mr Poots: It is certainly something that we have now identified as a fault. I do not think that it was identified as a problem then.

Dr McCormick: As, I think, was said earlier, they were designed to a new specification. The manufacturers produced something to deal with different issues, such as allowing no contact and providing the right thermal mixing. Points were made earlier about temperature control. I think that the phrase "unintended consequences" was used. People were set the task of solving one problem and, in solving that problem, a different problem arose. I do not see any ground for seeking a claim against the manufacturers when they worked in good faith to produce that. We did not know then what we know now.

On the issue of compensation, individual cases will be handled by going through the normal process to assess whether there was negligence or whatever. There are standard, well-established procedures to be followed for that. Those cases will be a matter for each trust to handle.

Mr Dunne: Thanks very much, Minister. I think that we are all impressed with the report, which has been carried out in a very professional manner. We also commend you for inviting the families today. The way in which you carried out that business was extremely well done.

I have just a couple of points. We had an extensive debate earlier with the panel, so I think that a lot of the issues have been covered. Would it be fair to say that the risk area — going back to the water systems that I am maybe getting a bit hooked on — seems to be within the last two meters of the system? How you manage that and the processes that are going to be put in place will be critical. It has already been mentioned today that they are hoping to find an engineering solution to how they can manage the risk of having high temperature water there. Increasing the temperature would probably be one way. How you manage the risk area and reduce any possibility of recurrence is extremely important.

Mr Poots: Clearly, we have the report that came out, which coincided with the Troop report. I just got a look at it today; that was my first opportunity to see the report. I think that it will assist us in better management of pseudomonas. We had a degree of knowledge, but we did not have full knowledge. It is a tiny micro-organism. It was fairly clear that all the evidence indicates that, within the hospital system itself, the most likely sources are the taps and the water system. Microbiologists are fully aware of that, so microbiologists in the hospitals should be fully aware of it. That would have been the first focus of attention for anyone: to seek to identify the water system as the potential source of the problem and to take measures and steps in the intervening period to ensure that, if that was the greatest potential risk factor, that risk was reduced at the earliest possible point.

Mr Dunne: Sitting here thinking about the issue, I have one other point. Obviously, tap water is still used throughout the hospitals in various departments and trusts. Is there a risk that other patients, perhaps those in intensive care or other high-risk patients, could be contaminated?

Mr Poots: Pseudomonas can affect people in intensive care units and burns units. It affects people whose immune system has been compromised. However, babies' skin is so thin, particularly that of neonatal babies, that it is much easier for them to absorb pseudomonas into their system than it is for adults. So, clearly, the areas of highest risk for pseudomonas are the neonatal units. More recently, we had two incidents of pseudomonas in our haematology unit in Belfast City Hospital, but both patients have recovered from that. Adults are in a considerably better position than babies, particularly neonatal babies, when it comes to pseudomonas. The areas of greatest risk are the neonatal units. There is a risk from pseudomonas thereafter. Again, it is about how we judge that risk.

Mr Dunne: Do you think that it would be worthwhile to look at that? Obviously, it should be looked at in the process of risk assessment. Until we have bottomed out a system to mitigate the risk, hopefully entirely, perhaps with an engineering solution, I still feel that there is a risk to other people, because tap water is being used from systems that are not as efficient as they should be.

Mr Poots: We will look at the latest report from the Health Protection Agency in conjunction with Professor Troop's advice on the issue. We know that pseudomonas is a very common thing in our

environment. As many as 10% of us could be carrying pseudomonas on our skin. Therefore, it will be very difficult to eliminate it. In fact, it is impossible to eliminate it in that respect. However, as regards units containing individuals whose immune systems are suppressed and who are, therefore, much more likely to be negatively impacted as a result of pseudomonas, we need to take the appropriate steps, and we will give that our fullest attention over the next number of months.

Dr McCormick: You talked about concern across the hospital. The specific guidance that was issued last week covers all augmented care settings. Neonatal is the most vulnerable, but the issue relates to everywhere where there is an enhanced level of care. In the more standard context, the degree of vulnerability is less. So, there is a proportionate and risk-managed approach to the issue from this guidance.

Mr Dunne: OK. Thank you very much.

Mr Brady: Thank you, Minister, for your presentation. We all sympathise with the families. You are right to commend the staff in neonatal units, because they are dealing with a very difficult situation as they look after such vulnerable little individuals.

From reading the report and from what we have heard today, it seems to me that there is a lot of common sense involved in respect of finding solutions. It is fairly clear that you cannot eliminate pseudomonas. However, it is not just a matter of risk management; it is risk reduction, for example, the sterile water, and someone asked about the sensor taps. We can solve one problem but, unfortunately, create another. As Gordon says, and he has a wider knowledge of engineering than I have, an engineering solution may well be found eventually.

As regards the whole methodology of cleaning sinks and taps and incubators and all of that, if there is uniformity in the systems — I am very glad to hear you say that the recommendations will be implemented — that common sense will prevail. It seems that there is not a lot of cost involved. It is how it is done and done in a more focused and better way than it has been done to date, and that seems to be the solution. You cannot eliminate it. As you said, the bacteria exist and will always exist, presumably until some miracle solution is found.

You referred to the babies' skin, and they all had invasive procedures, which, obviously, heightens the risk. However, if proper procedures are in place, the risk is lessened, and that is important. It is encouraging to hear that you are going to implement the recommendations. You should be commended for that.

Mr Poots: Thank you.

Mr Wells: I think that I had put my hand up first, Madam Chair, but I will not hold it against you.

The Chairperson: I did not see you.

Mr Wells: Minister, you are absolutely right to set the context of the tragedy that this represents for the families concerned, and we need to be brought back to the dreadful situation that they have had to face. I had to go down a line of questioning earlier, which was quite painful and difficult. I had to ask Professor Troop whether it was the case that babies with terribly complex conditions who had pseudomonas had passed away because of those conditions or whether they died from pseudomonas. She said that she felt that several of those children died from pseudomonas. We have to face up to the fact that she also said that, had a series of other steps been taken, those children could be alive. That is the awful consequence of that line of questioning.

I know that Professor Troop said that she will deal with this in great detail. However, I have to go back to the circular of 22 December. The opening line states:

> *"The purpose of this letter is to remind you of the potential infection risks posed by water systems in healthcare facilities".*

That, and the overall tone of the e-mail of 22 December, does not portray to me the situation as we now know, as a result of Professor Troop's investigation, it to be. In my opinion, the situation was much more serious and much more of an emergency than, "I remind you of potential infections". The headline should have been that the matter was vital, that a baby had died in Altnagelvin, and that steps needed to be taken immediately. I do not get that sense from the circular. As a member of this Committee, I have seen an awful lot of circulars, and this one falls into the routine, "look at this when you can" type rather than one that highlights that a major emergency exists.

The circular was sent on 22 December. I can recall what I was doing on 22 December, as can many of us. Is there any evidence that, in fact, the circular was attended to at all before the Christmas period? I know that, given the time of year, the temptation must have been to put it in an in-tray to be dealt with after the Christmas holidays. The sad reality of what Professor Troop said earlier was that, if the import of what was going on at Altnagelvin had been reflected in the circular and action had been taken, we might not have had the problems and the tragedies that occurred in January. I do not think that the circular portrayed the message as seriously as we now know it to have been. Is that a realistic impression?

Mr Poots: I think that we have to be honest about these things. My understanding is that a specialist team in the Belfast Trust was to meet to consider the matter, but it did not intend to meet until 24 January. So, the response was not immediate. The letter may, in and of itself, not have caused alarm bells to ring, given its tone, but there was a very clear knowledge of the situation, because conversations had taken place between people in Altnagelvin and the Royal Jubilee Maternity Service about the issues in Altnagelvin, about the fact that one baby had died and, indeed, about how the Belfast Trust would handle the circumstances of the baby who came from Altnagelvin to the Royal Jubilee Maternity Service and had pseudomonas. There was a knowledge that a death had been caused in another facility when that letter was received. Therefore, I would like to have seen more immediate actions than deciding to hold a meeting about it towards the end of January.

Dr McCormick: I do not think that it is appropriate for the language in circulars to be overly alarmist. I understand entirely the point that you make. In the context of the professional culture that exists, the clear expectation of the Department and all its chief professionals is that, when they write a letter, it is always taken seriously. That is the way that the system has to work. We do not ever issue circulars just for the sake of it. We always need to make sure that the system is taking risk seriously, managing risk and exercising effective judgement.

There is quite a serious potential adverse consequence from over-reaction, which is to create a culture of back-covering, defensiveness and box-ticking, where people say that they have ticked all the boxes, and, therefore, even if something goes wrong, they will be all right. We must not go in the direction of that culture. We need to have people in the system who are exercising judgement all the time on the degree of severity of the different risks that they face. If the accountability is too heavy and unfair, we will get defensiveness and back-covering, and we will end up with a worse outcome. Is the pendulum in the right place at present? That is for the Minister to judge and for us to help him with that situation. If there is a need to adjust the balance between over-reaction and under-reaction, then finding the right place is a non-trivial point. All we ever do is to say: "There should be a more heavy, more stringent reaction." If we go too far in that direction, the consequences will be very bad as well. So, I will always work to try to find the right balance. I am not saying that we have the balance right, or that the tone and nature of our correspondence cannot, sometimes, be toughened and made more strident, but it is not an easy judgement. It is something we have to think about very carefully.

Mr Wells: The guidance refers to the circular of September 2010 and it mentions neonatal clinical care being particularly at risk, and highlighted good practice in relation to hand-hygiene stations, taps and basins. Now, had the import of what had been going on at Altnagelvin been reflected in that, most reasonable people would have expected an immediate investigation of the taps and faucets in the Royal Jubilee Maternity Service. That did not happen. The first that we knew that the source of the infection was in the taps was following the four deaths. Several days later, an announcement was made through the Department that pseudomonas was discovered in the taps. The reality is that, had the circular been worded slightly differently, they would have gone straight to the taps, not alarmed, but checked them, found pseudomonas and taken the action to stop that infection occurring.

I know that this is something that Professor Troop will go into in great detail in the second report, but I think that it is fundamental that the circular did not reflect the urgency of the situation and did not prompt the action which — it is now so obvious — should have been taken. Also, it has been known for a very long period that pseudomonas occurs in the last two metres of plumbing. That is my view on it. I could be wrong. You tell me that there had been a lot of conversations going on by phone and e-mail, but they did not prompt action either. Nothing happened as regards testing taps until after the deaths, which seems to be a major omission in this entire issue.

As the Speaker of the Assembly would say: "Where is the question?" So, is it not the case that...?

Dr McCormick: There are clearly further questions to answer. That is why there is to be a further phase of analysis. Professor Troop said that she would comment on the response to circulars in that stage.

I would focus especially on the issue of switching to the use of sterile water, echoing the point that the Minister made a short time earlier, because that was identified at regional level on 21 January 2012, as is shown at page 37 of the report. This could even have been an idea that came from one of the trusts. The regional teleconference agreed that sterile water should be used for all washing of babies from that point onwards. That was the game-changer; that was the key point. It was undertaken quickly at Altnagelvin, as stated on page 28.

I would make one point about testing: the general view was that testing was not so much the issue because it was so likely to be found.

Mr Poots: Yes.

Dr McCormick: It was generally known to be there. The question was this: when we find it, what do we do? The fact is that, until very recently, there has not been UK-wide guidance on the response. This is emerging now: at what level do you take what level of action? Again, there is the risk of unintended consequences. For example, had the response been that we needed to move away from the environment, the consequences could have been the moving of very vulnerable babies to what might have been a less-safe environment. It is a non-trivial issue. There are lots of potentially risky actions that could have been taken. As the Minister said earlier, using sterile water is safe and straightforward. That is one reason why it was identified. I do not know whose idea it was in the teleconference but, at regional level, there was an agreed adoption of that process. Yes, I think it is apparent from the timeline — although we need to wait until the second phase of the report — that that might have happened earlier, but sterile water was the thing that made the difference.

Mr Poots: Starting from 2 December 2011, a baby known to have pseudomonas was transferred from Altnagelvin to the RJMS for treatment of another condition. On 4 December 2011, information was passed by phone from Altnagelvin to the RJMS informing them of the pseudomonas. On 13 December 2011, a consultant neonatologist and NICU manager at the RJMS were advised of an outbreak of pseudomonas at Altnagelvin Hospital through a phone call from a paediatrician there. On 14 December, an IPC nurse from Altnagelvin contacted the IPC team in Belfast to advise of the outbreak by e-mail, and the Altnagelvin IPC nurse advised that a sink was the possible source of infection. On 15 December, preliminary typing results from the HPA reference laboratory indicated that the strains of pseudomonas from the two babies in the RJMS were different, but the Belfast Trust had advised the PHA of the results at that stage. On 16 December 2011, again, PHA advised Belfast Trust directors at the Belfast Trust performance meeting about the outbreak of pseudomonas at Altnagelvin ICU. So, the fact that all that was happening — and six days later, a letter flagging up, "please take special precautions about pseudomonas" — concerns me.

Mr Wells: Given that paper trail and all those warnings, there does not seem to be any evidence of anything physically having happened until, unfortunately, babies started to die. That is what concerns me. It was at that point that action was taken. All these memos refer to taps, water and faucets; therefore, it was not a great surprise when they discovered the source of the infection. I wonder whether it was to do with the timing of this. At that time of the year, human beings may not have been entirely focused on their work. I am sure the health service is the same as everywhere else. Perhaps it was the unfortunate timing of this dreadful incident.

Dr McCormick: I am sure I can give an assurance on behalf of the service that people who are on duty over the Christmas holidays are very focused on their work.

Mr Wells: I do not see any evidence that people were able to grip the seriousness of the situation and take action. This will come out in the second report, but it just occurred to me that this was just an obvious solution.

The other issue is that new guidelines have been published on 30 March 2012, and you have indicated that you will be implementing them. What is the timescale for that: at what stage will we be able to say that the UK-wide guidelines will be in force in hospitals in Northern Ireland?

Mr Poots: It will happen as quickly as possible. If there are some things that pose greater difficulties, then we will establish a team to look at them. The things that can be implemented immediately will be implemented immediately, and if others take a little time to reorganise or provide the appropriate equipment for, that will be done very quickly, whatever it happens to be. Items of greater significance may take a little longer; but, in all of this, we will seek to have an as-immediate-as-possible response.

Mr Wells: Will extra resources be required to implement them? Is there a cost implication for what is being suggested, perhaps if something has not been budgeted for?

Mr Poots: In all of this, and this goes back to the health service in general, cost cannot trump quality. Our first priority is quality of care. If there is a cost involved, then that cost has to be met.

Ms Brown: Thank you Minister and Andrew for your attendance here today. I think, Minister, it was right and fitting that you met with the families first and foremost before coming to the Committee today. We all understand the grief that they are still going through at this time, and how difficult it is for them. I also welcome the fact that Professor Troop mentioned that there was no question regarding the performance of the staff who were making contact with the babies, and that there had been no question of any wrongdoing on their part. We recognise the good deal of stress that they have suffered through this as well. Jim stole my thunder. I was going to ask specifically about recommendation 8:

> *"The intensive care accommodation in the neonatal unit at Antrim Area Hospital should be expanded to allow more circulation space around cots."*

You also mentioned that. If you are going to implement these recommendations, how quickly do you think that that recommendation can be implemented?

Mr Poots: Antrim Area Hospital has restricted space. It was built cheaply. The decision to build it was taken during the Thatcher years, and its build cost was reduced. Consequently, we have been left with the problem of wards that are very tight, and you know that very well from being a regular visitor to that facility. It is a very space-constrained hospital. Andrew, do you want to give us some thoughts on how health estates may want to respond to recommendation 8?

Dr McCormick: As the Minister said, it is not an easy building to work with. We are asking the Department's health estates investment group to work with the Northern Trust to try to find options to respond to the recommendation. The point has been made that there is a clear issue to be addressed, and the thing to do is to come up with practical options; that will happen as quickly as possible.

Mr Poots: So we do not have a date for you, but we will respond.

Ms Brown: Thank you.

The Chairperson: It is important, Minister, that we have an update, perhaps in a month, on where these recommendations sit on the back of the second report, before it comes out. Many questions still need to be asked, and people still need a lot of answers on the specifics. In fairness to Professor Troop, her team is going to come back with those. I do not like getting into specifics now about the

2010 circular, which explained the pseudomonas issue. However, the question is whether there was a focused approach. Was there a planned approach across trusts to be proactive on some of the issues, when people got a circular explaining and highlighting the issues? The second report from Professor Troop and her team will answer many of those questions.

Mr Poots: Yes.

The Chairperson: Meantime, can we have an update on the action plan on where the specific 15 recommendations are sitting?

Mr Poots: We will provide that to you, probably fairly soon after recess.

The Chairperson: Thank you. On behalf of the Committee, and personally, I thank you for contacting me when you got the report and for facilitating this meeting. It was important that we dealt with the issue today and that we try to get families as many answers as they need, so that they can have closure and try to move on and to heal. The Committee thanks you and Andrew for coming here today.

Mr Poots: Thank you, Chair. At this point, I think that that is the least that the families deserve.