REPORT TO THE MINISTER OF JUSTICE and ATTORNEY GENERAL
IN THE MATTER OF A PUBLIC INQUIRY
INTO THE DEATH OF MAREN BURKHART
PURSUANT TO THE *FATALITY INQUIRIES ACT*, R.S.A. 1980, c. F-6
CANADA
PROVINCE OF ALBERTA

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A public inquiry into the death of **MAREN ELIZABETH BURKHART**, 11 years of age, [D.O.B. December 13, 1986], of the City of Calgary, was held at the Provincial Court of Alberta, 323 - 6th Avenue South East in the City of Calgary, in the Province of Alberta, before the Honourable Assistant Chief Judge Brian C. Stevenson, a Provincial Court Judge. A jury was not summoned.

The inquiry was held July 20 - 23, 1998; by adjournment on August 4 - 6, 1998; by further adjournment on August 19 and 20, 1998; by adjournment on December 7 to 11, 1998; by adjournment on January 7 and 8, 1999 and by further adjournment (by video conference) on March 27, 2000.

The following findings were made.

1. **DATE AND TIME OF DEATH:** ***December 4, 1997 at 1660h.***

2. **PLACE:** ***Alberta Children's Hospital***

3. **MEDICAL CAUSE OF DEATH:** ***Septic Shock due to or as a consequence of Ruptured Appendix Abscess***

['Cause of Death' means the medical cause of death according to the International Statistical Classification of Diseases, Injuries and causes of death last revised by the International Conference assembled for that purpose and published by the World Health Organization - The Fatal Inquiries Act, Section 1(d)]

4. **MANNER OF DEATH:** ***Does not fit any of the listed catagories***

['Manner of Death' means the mode or method of death, whether natural, homicidal, suicidal, accidental or undeterminable - The Fatal Inquiries Act, Section 1(d)]

FACTS

[1] Maren Elizabeth Burkhart was born on December 13, 1986 to Deborah Burkhart and Michael Broadhurst. They described her as a "normal" and active child and as "particularly healthy". Not much evidence was heard about Maren's history prior to attending at the Alberta Children's Hospital (ACH) in December of 1997. However, a review of the medical history that we do know is relevant.

Medical History

[2] There was no evidence before me to indicate that Maren had any significant health problem or concern prior to November of 1997. In fact, Maren's hospital records, as revealed in Exhibit 1 in these proceedings, show that she had the usual injuries expected of an active child such as a fractured forearm or a trauma of a roller-skating fall. I therefore find that Maren had no contributing illness or injury prior to November of 1997 which affected her course of treatment in December 1997 at the ACH.

[3] I note also that Maren did not have much in the way of medical records produced prior to her ultimate treatment at ACH. This was explained to some extent by her parents who were not believers in attending regularly at doctors with Maren for minor or expected ailments such as colds, flues, etc. This was confirmed by Dr. Stinton, Maren's family doctor in his brief testimony. This is borne out as well by the fact that Maren had not been inoculated or immunized for diseases in early childhood, a fact which was a concern later to a Triage Nurse initially assessing Maren. Further, Nurse Patti Infusino testified that immediately after Maren's death she spoke with both of Maren's parents and Maren's mother, Deborah Burkhart indicated to her that she "did not believe" in hospital care.

[4] I find that there was therefore a reluctance on the part of both of Maren's biological parents to use the medical system for matters considered routine or minor to them. Further, up to November of 1997, it appears that they had no reason to do otherwise. We now turn to late November 1997.

The Initial Illness - November 28, 1997

[5] Against the backdrop discussed above, we find Maren at home with her father Michael Broadhurst and her stepmother Patti Broadhurst on Friday, November 28, 1997. It was Mr. Broadhurst's appointed time with Maren and the evening unfolded with much promise for an enjoyable weekend. Mr. and Mrs. Broadhurst testified that Maren had been "tired" from a week's activities but that they played cards and talked and that all seemed well.

[6] Maren retired after a shower at around 9:00 p.m. without health complaints. However, in the early morning hours of November 29, 1997, she became violently ill and had vomited a large amount of fluid into her bed unexpectedly. Maren was cleaned up, given some Gravol and water and put back to bed to get some sleep. Her temperature was taken and at that point she had an elevated temperature of 101° Fahrenheit. Maren was complaining at this point of "generalized" pain in her trunk without localized problems.

[7] At this point it appeared to the Broadhursts that she was suffering from a flu or virus or had reacted to something she had eaten earlier and hopefully things would improve the next day after a good night's sleep.

November 29, 1997

[8] Maren awoke early on November 29, 1997 still unwell and with a temperature of 101 to 102° Fahrenheit. The Broadhursts resolved that if she got worse she would be taken to hospital but Maren remained stable, staying in bed all that Saturday. Mr. Broadhurst attended at a pharmacy and described Maren's symptoms to the pharmacist. Children's Tylenol was recommended and was purchased by Mr. Broadhurst. Maren was given the Tylenol and again, appeared to be stable but ill. Intake of fluids was encouraged but Maren was not drinking much. Maren was "up and down" in the night attempting to vomit but not bringing up any fluids at all.

November 30, 1997

[9] Sunday, November 30, 1997 dawned on a "slightly better" but quiet Maren who appeared to have "flu symptoms" to the Broadhursts. She was given more Tylenol, this time in a liquid form. Maren was still unwell with a fever and remained in bed. She vomited two or three times in this period. Mrs. Broadhurst attempted, without success to reach someone at ACH for a telephone discussion about what to do about Maren's condition. Mrs. Broadhurst called the "Help Line" number in the phone book but was unable to get through to anyone. A subsequent telephone discussion with Mr. Broadhurst's mother in England only served to reinforce the Broadhurst's view that Maren had the flu. Maren remained ill but stable all day Sunday. A visit from her mother Deborah Burkhart found Maren in bed and fairly subdued.

December 1, 1997

[10] On Monday, December 1st, 1997, Mrs. Broadhurst called Dr. Stinton who was Maren's family doctor. Mrs. Broadhurst testified that Dr. Stinton confirmed the flu diagnosis to her. Dr. Stinton did not recommend attending at his office and did not mention a trip to an emergency room or clinic to Mrs. Broadhurst.

[11] Mrs. Broadhurst was unaware of the exact time on Monday, December 1st, 1997 but at some point Maren began to have diarrhea. Maren soiled her bed and was given an adult diaper for "comfort". Maren also became a bit more uncooperative that Monday, actually throwing the thermometer in her mouth away at one point. The Broadhursts interpreted this as an actual improvement since Maren had been too lethargic on the previous two days to muster even a bout of bad temper. In fact, when Mr. Broadhurst arrived home from work, Maren indicated she was "getting better" and was able to dress herself for transport back to her mother Deborah Burkhart. Maren was walking and conscious but continued to complain about pain, indicating that she "really hurt all over". Again, up to this point, the Broadhursts indicated that there was no specific complaint of localized pain. The Broadhursts then took Maren to her mother's house and left her to recuperate there. It is

interesting to note that there was evidence of Maren "guarding her abdomen" but it was fairly innocuous and it was not likely to be something that was noticeable to Maren's parents. Unbeknownst to the Broadhursts, it would be the last time that they would see Maren alive.

[12] I pause at this point to comment on certain aspects of the Broadhursts' testimony.

[13] I particularly comment on Mr. Broadhurst who was, in my view, unnecessarily defensive about his care of Maren. I emphasize "unnecessarily" as a reassurance to Mr. and Mrs. Broadhurst that they should not be overly critical of their reactions during the initial period of Maren's illness that weekend. In that regard, I refer also to the testimony of Dr. Kathy Tobler, a part-time pediatric intensive care clinical assistant at ACH and also the only practicing "office" pediatrician who testified. Dr. Tobler, in her testimony, said about appendicitis that it was, with respect to children, known as the "great mimicker". By that, she explained, that appendicitis may appear to be many other illnesses and vice versa.

[14] On page 2 - 3 of Dr. Joubert's report to the Court he states:

> "Appendicitis is a very difficult diagnosis to make in young children. One-third of all children diagnosed with appendicitis have perforation at the time of diagnosis. Often the history is very similar to Maren's in that it is very vague and generalized. The hallmark features for which physicians look in the history of a child who may have appendicitis include a history of fever, discomfort most often in the periumbilical region and moving to the right lower quadrant, anorexia often associated with vomiting and occasionally diarrhea. These children are not happy, they are most frequently irritable. Early in the disease process, their vital signs are usually in the normal range, with the exception that they may be febrile. They often have a particular style of movement or gait called the "appendix walk". This means that they are often hunched over and unwilling to stand erect because of the discomfort generated by standing in the erect position by the inflamed appendix rubbing against the side wall of the abdomen. Often, in examining the abdomen, the child may have voluntary guarding (tightening of the abdominal muscles to prevent deeper touching). They often have some degree of localized pain, usually (but not always) in the lower quadrant and most frequently in the right

> lower quadrant. They may also demonstrate, depending on the duration of their illness, a finding that we call rebound. This is when one presses on the abdomen and releases it, the pain is more intense than the initial pain caused by depressing the abdomen.
>
> This constellation of symptoms combined with the physical findings described above raises the suspicion of appendicitis. Even in such situations, appendicitis may not be the final diagnosis.
>
> In some cases in which some of the findings are missing and the child appears unwell, such children may be admitted to hospital for further observation. More frequently, they are sent home with specific instructions as to when to return."

[15] So, for the Broadhursts in the initial two days of Maren's illness, to suspect only a flu or virus was in my view not unreasonable. Dr. Stinton, who testified briefly at the Inquiry, could not recollect his discussion with Mrs. Broadhurst but had written in correspondence after the fact that he had told Mrs. Broadhurst that he had felt Maren "probably [had] a stomach flu situation".

[16] This is not to say, however, that a trip to an emergency room or a doctor's office is always unwarranted for children with symptoms like Maren's. In particular, I refer as well to the evidence of Nurse Patti Infusino, who indicated in her conversation with Patti Broadhurst, after Maren's death that Mrs. Broadhurst had indicated that Maren had been in so much pain that she had to be carried to and from the bathroom. Further, Nurse Infusino indicated that Mrs. Broadhurst told her that she tried to put Maren in an ice bath of some sort to deal with Maren's temperature.

[17] In this regard, I am also reminded of Dr. Tobler's testimony about the great risks associated with appendicitis, particularly with young girls. Dr. Tobler testified that she would not hesitate to refer a child to the ACH Emergency Room for further examination and as a possible surgical assessment if she was uncertain in the least about an appendicitis diagnosis.

[18] Maren's time in her mother's care commenced on the evening of December 1st, 1997 at around 6:00 p.m. and effectively ended with Maren's admission to the ACH on December 3rd, 1997 at 3:05 p.m.

[19] From the outset of her time with her mother, Maren was described as "subdued" and quiet. She was in discomfort and slept fitfully with her mother beside her on the first night.

December 2, 1997

[20] By Tuesday, December 2nd, 1997, Maren was not improving. She reacted badly to even the sight of food on television and was agitated and uncomfortable. She spent the day in bed and was clearly not doing well. This persisted all day and into the night. Maren was unable to sleep comfortably and by midnight, Deborah Burkhart was concerned enough to call the Emergency Room at ACH. She described Maren's symptoms and was told it would be a good idea to bring Maren in for an assessment. Deborah Burkhart called Mr. Broadhurst, who had by then traveled to Quebec City, and got Maren's Alberta Healthcare Number. She took Maren to ACH directly.

[21] At this point I find that Maren was in grave difficulty. She had not eaten or drank much for four whole days. Maren was diapered and Triage Nurse Faulkner indicated that Maren had told her that her mother had put it on because "I couldn't walk". Maren was pale and her eyes were sunken. She was irritable and unable to stand even the sight of food. Records show that she had diarrhea twice on December 2nd and vomited once. She had a fever of up to 104° Fahrenheit and could not keep anything down. Over the course of her care with her mother she had only been able to take in about eight ounces of fluid by way of her favorite juice. She had also suffered a nose bleed. It was in this condition that Maren was taken to the ACH for the first time.

The First ER Visit - December 3rd, 1997

[22] The hospital record of Maren's first E.R. visit is found at Exhibit 1, pages 9 to 11. Deborah Burkhart confirms that when she arrived at the Emergency Room at ACH it was fairly empty. Maren was immediately put into a wheelchair and Deborah Burkhart commenced providing a history. She described Maren's symptoms and asked for assistance.

[23] The Emergency Room log for December 3rd, 1997 is shown at Exhibit 11 in these proceedings. That roster or register shows Maren arriving at 2:09 a.m. at the Emergency Room. Again, I must conclude that Maren was in extremis at this point if for only the simple fact that her mother felt compelled to take her to Emergency in the middle of the night when there had been ample opportunity to take her to her family doctor, clinic or Emergency Room during the day. Further, since Deborah Burkhart was not a great "user" of the medical system (she confirmed in her testimony that it was her first time in the emergency room herself) I must conclude that this late night decision to go to Emergency speaks volumes about how bad Maren's condition had gotten over the prior 48 hours at her mother's home.

[24] Deborah Burkhart testified that upon arrival at E.R. at approximately 2:00 o'clock a.m., Maren's case was proceeded with initially very quickly. Staff at that time was six nurses and one patient care aid who was a non-nurse doing paperwork. That had been the normal situation for at least five years. At that point, there were one and possible two Emergency Room doctors on duty. Maren was put into a wheelchair immediately and Deborah Burkhart was asked for information. The Triage Nurse saw her first. Jocelyn Whittier, the Triage Nurse, testified that Maren arrived at 2:09 a.m. She stated that there was no line-up and that Maren appeared with her mother and was observed as being able to walk but was holding her stomach area.

[25] All of the information that the Triage Nurse observed is at page 10 of Exhibit 1. Nurse Whittier testified that she would only put in abnormal observations and it could be assumed that all else was normal with Maren if it was not recorded. She did record the following:

- Diarrhea and vomiting;
- Ill for 4 days;
- Decreased fluid intake;
- Decreased voiding;
- Abdominal pain;
- 104° fever (although no fever at assessment)
- Vomited once in 24 hours;

- Diarrhea twice in 24 hours

[26] Nurse Whittier testified that Maren appeared alert and oriented. She assessed Maren for dehydration by checking her mucus membranes for saliva and indicated there was less saliva than normal and that Maren's tongue was "green and white". The mouth was slightly tacky. Maren was complaining of generalized pain and not localized pain in her abdomen.

[27] Nurse Whittier testified that she then had to categorize Maren and considered many factors. She emphasized, however, that this categorization or triage process was part "gut reaction" and was more of an art than a science. Nurse Whittier also pointed out that she was not a physician and it was not her job to diagnose Maren but rather only to categorize her in terms of where she stood in the triage line-up.

[28] On page 4 of Dr. Joubert's report he states:

> "The medical literature supports that the process of triage is a combination of both art and science. The science component consists of the objective measurements of temperature, blood pressure, heart rate, respiratory rate and, if applicable, O_2 saturation. The art comes from the determination of the generalized "gestaalt" of the patients' appearance. Nurser Whittier did have the opportunity to examine Maren and get an impression of her overall degree of illness. Medical literature demonstrates clearly that an experienced triage nurse has the ability to pick out the sick children from those less sick. In view of this, the decision to classify Maren as a semi-urgent patient at the time of her presentation at 0300h in the morning of December 3, 1997 seems appropriate."

[29] Maren was marked "Semi-urgent" by Nurse Whittier.

[30] The triage categories at ACH are found at Exhibit 10 in these proceedings. That document shows that "Semi-urgent" is applicable if there is any variation from normal vital signs of temperature, pulse or respiration. Further, if there is altered loss of consciousness, irritability or lethargy or pain

complaints, Semi-urgent is applicable. Finally, if there was a return to hospital for reassessment and parental anxiety that would be enough to be categorized as Semi-urgent.

[31] Nurse Whittier indicated that "Semi-urgent" means don't go home without an examination by a doctor. She also said that for her, Maren's history of a fever was enough to be categorized as Semi-urgent.

[32] I find at this point that Nurse Whittier appeared to use the correct triage categorization if one reviews upwards to urgent or downwards to non-urgent.

[33] Nurse Whittier then went on to explain the set-up of the actual Emergency Room. She testified that there was a whiteboard and triage categorization marked on that white board. If a patient was deemed to be serious enough to bump other patients out of the triage line-up, then "next to be seen" would be written by the patient's name on the whiteboard. Nurse Whittier also testified that there was a constant reassessment going on of priorities in the Emergency Room over the course of time. Patients could be bumped ahead if they became worse or had serious problems. Patients could wait longer if they were not serious.

[34] Nurse Whittier then testified that she was concerned about the diarrhea and vomiting so that normal practice is to start a fluid challenge as soon as possible. The fluid challenge involves taking measured amounts of a fluid called Pedialyte. This liquid is taken in small amounts orally to see if the patient can tolerate it. Nurse Whittier indicated that she advised parents to give their children one ounce each 15 minutes of fluid and be monitored. She said that she did so as well in this case and she sent Maren and Deborah Burkhart out to the waiting room to do a fluid challenge and to go to the admitting desk to finish the paperwork. Nurse Whittier then left work on her shift.

[35] While testifying, Nurse Whittier also went through the log at Exhibit 11 to determine what was going on in the Emergency Room when Maren was there. Nurse Whittier recalled a very seriously ill child arrived just before Maren with severe respiratory distress and that 10 or so other

children were in the Emergency Room at the same time as Maren. Many of these children were more urgent than Maren. Nurse Whittier indicated that Maren had arrived at a "rush" with some high acuity patients. Again, I find that when Maren presented she was at best Semi-urgent by the triage standards at the ACH.

[36] Deborah Burkhart confirmed that she went to the Admitting Clerk and gave some information to her and then waited while doing the fluid challenge. Nurse Whittier testified that it was "typical" for Semi-urgent patients to go to the waiting room and in fact, this is what happened.

[37] Deborah Burkhart and Nurse Whittier confirmed that nothing was said to indicate Maren was in a life threatening situation. In fact, at this point, Maren and Deborah Burkhart were simply told to take fluid and wait their turn.

[38] The next evidence about Maren's care picks up again at page 10 of Exhibit 1. Nurse Deborah Benedick testified that she went out and brought Maren back to the Emergency Room at approximately 3:05 a.m. Her observations of Maren were that:

- Maren was in a wheelchair and was quite irritable;
- Maren was asked to stand to be weighed and needed to be encouraged to do so;
- She didn't stay standing and returned to the wheelchair;
- It was then necessary for an abdominal assessment. Again Maren needed "lots of encouragement" to get into the bed for assessment.

[39] Nurse Benedick indicated that Maren was at that point difficult to assess as she was irritable and uncooperative. Nurse Benedick felt it best to give Maren Tylenol in the hope it would make assessment easier in a short while. She decided to continue on the fluid challenge. Only 2 ounces had been consumed in nearly one hour by Maren. This decision to have Maren take Tylenol and continue the fluid challenge was done at approximately 3:15 a.m. after about 10 minutes of attempted and fruitless and non-revealing assessment. That further assessment revealed:

- Maren had a bleeding nose at home which stopped with pressure;

- Maren had dry and slightly tacky mucus membranes;
- Irritability and anxiety was present;
- Maren had periumbilical pain.
- There was a strong regular pulse;
- There was normal skin colour;
- Maren had warm dry skin;
- Maren had normal respiratory signs;
- There was a temperature of 37.7 Celsius.

[40] Deborah Burkhart testified that indeed she had waited about one hour after initial triage before Maren was assessed again. After the Tylenol was given, Maren was still agitated but in less pain and so after another 40 minutes or so, Deborah Burkhart left Maren to find a nurse. Deborah Burkhart indicated that she was told that long waits are not unusual and that the doctors had "sicker children" to see at that point. Deborah Burkhart indicated that she felt that the Tylenol had a positive effect and that Maren had actually shown some improvement and so she decided to go.

[41] Nurse Benedick testified that indeed around 3:55, the admitting clerk tracked her down to say that Deborah Burkhart was threatening to leave. Nurse Benedick went the room to find it vacant. She went to the front and found Deborah Burkhart and Maren in the process of leaving. Nurse Benedick testified that she discouraged them from leaving and told Deborah Burkhart that at the very least Maren would get an I.V. start for fluid rehydration. Deborah Burkhart could not recall such a discussion specifically but Nurse Benedick indicates that she gave Deborah Burkhart a hand-out and, that hand-out at Exhibit 10, deals with how to treat a child with diarrhea and vomiting. Nurse Benedick encouraged fluid intake and Deborah Burkhart assured her that Maren had improved with the Tylenol and then left.

[42] Maren's chart in Exhibit 1, page 10 is marked "LWBS" in capital letters (left without being seen) at 3:55 a.m. The last chart note indicates that Nurse Benedick was encouraging Deborah Burkhart to take Maren to a family doctor later that day.

[43] Deborah Burkhart, again, could not recall much of the discussion with Nurse Benedick but recalled being told before she left "You'll be back", words which were truly prophetic.

[44] Deborah Burkhart said in her testimony that she returned home and laid with Maren through the night. Maren's sleep was described her as "fitful". Despite her obvious hopes that a trend of improvement would develop with Maren, the morning of December 3rd, 1997 was much like the previous days. Maren continued to be repulsed by food and was not drinking, despite Deborah Burkhart providing her with her favorite juices to entice some fluid intake. Deborah Burkhart confirmed later to Dr. Carey Johnson in the Emergency Room that Maren's condition had "deteriorated" that morning.

[45] Maren was now 5 days without solid food and Deborah Burkhart confirmed her eyes appeared abnormal. Again, her hopes for improvement faded and by around noon, Deborah Burkhart decided she again had to take Maren for medical help.

[46] At this point, the timing of what happened with Maren's care becomes very important. As a result for the balance of these findings, I will deal with things in a chronological manner, based on the evidence at the Inquiry. I will do so commencing on December 3rd, 1997 at noon and will try and be as specific as possible as to time as the evidence will allow.

December 3, 1997

1200 noon

[47] I feel it necessary to make a finding of fact with respect to Maren's medical status at this point in time. I have already listed in great detail Maren's symptoms and her decline from Friday, November 29, 1997 to noon, December 3, 1997, nearly 5 whole days.

[48] I must conclude, based on the evidence before me, that clearly by this point in time, Maren had suffered a "burst" or perforated appendix. All of the medical evidence before me, both *viva voce* and textual, would indicate that it takes 24 to 48 hours of symptoms of appendicitis before perforation can be considered seriously. Doctors Selman, Eccles, Ross and Tobler all confirmed this. Further, Mr. Mitchell introduced textual authority in his cross-examination which is found at Exhibit 17 and described as the "Nelson Textbook of Pediatrics 1996". It states at page 1110 and I quote:

> Pertinent aspects of the history favouring a diagnosis of appendicitis include onset of pain before vomiting or diarrhea, loss of appetite, migration of pain from periumbilical to right lower quadrant, an aggravation of pain during the trip to the office or hospital. In excluding alternative diagnoses, it is essential to question the history of constipation, urinary tract systems, cough and fever suggesting lower lobe pneumonia, profuse diarrhea, headache, myalgias or other constitutional symptoms of viral syndromes and similar symptoms in other household members. Untreated appendicitis proceeds to perforation within 48 to 72 hours; therefore, duration of symptoms is very important in the interpretation of physical findings and in the determination of a treatment strategy.

[49] As will be seen, by 48 to 72 hours after the onset of symptoms, Maren must have suffered a burst appendix. Therefore, when she presents to Dr. Hickie at 8th and 8th Medical Clinic at noon on December 3rd, 1997, the infectious process would have been well underway for up to three full days. In fact, Dr. Selman, in cross-examination, gave his opinion to be that Maren's appendix had ruptured four days prior to him seeing her for a surgical consultation on the evening of December 3rd, 1997. He explained at page 350, line 18 of his testimony:

> ...usually patients don't get into trouble in the first 24 hours of an attack of appendicitis. We are not usually concerned in that first 24 hours of pain but after — any time after that, the appendix could have ruptured, so it could have ruptured and likely ruptured four days before I saw the patient.

[50] Further, given the size of the abscess eventually found in Maren's abdomen, which will be discussed herein later, I have no doubt that the rupture occurred many hours, if not days before

Maren went to the 8th and 8th Clinic. I am not convinced that Dr. Selman's estimate of four days is accurate but certainly Maren's appendix could have been burst for up to three days, in my view.

[51] Therefore, it is no wonder that Deborah Burkhart's hope that Maren would improve did not materialize by noon on December 3rd, 1997. However, despite Maren's "deterioration" and owing to her perceived "bad experience" at ACH, this time Deborah Burkhart took Maren Burkhart to the 8th and 8th Medical Clinic, a so-called "urgent care centre" in downtown Calgary. An urgent care centre was described Dr. Hickie as a medical facility providing more services and equipment than a family doctor's office but less than hospital care.

8th and 8th Clinic

[52] At 12:00 noon on December 3rd, 1997, Deborah Burkhart testified that she took Maren to the 8th and 8th Clinic and that Maren walked in by herself. Maren was given immediate help and Deborah Burkhart indicated that the nurse was "very good". Deborah Burkhart testified that she still didn't realize that Maren had a serious problem. The nurse apparently went to get Dr. Hickie right away because on her initial assessment of Maren there were absolutely no bowel sounds and she was very worried about Maren's condition.

[53] Dr. Hickie then saw Maren and his notes are found at page 216 at Exhibit 1. A report from Dr. Hickie is also found at Exhibit 9, which is dated on January 7th, 1998. This is a narrative report summarizing Dr. Hickie's dealings with Maren.

[54] Dr. Hickie testified that he recalled that the nurse came back to see him and felt that it was important that he see Maren as his next case. She brought Maren right back to the examination room. Dr. Hickie immediately observed that Maren had a mild fever and extreme abdominal pain across both lower quadrants. Dr. Hickie listened to her bowel sounds and for three minutes heard almost no bowel sounds. He attempted to palpate Maren's abdomen and found that she was guarding. He determined that she an acute abdomen. Dr. Hickie admitted in cross-examination that in his

examination of Maren, he saw no evidence of dehydration and could only conclude that she was dehydrated by her history of low fluid intake, vomiting and diarrhea. He felt, however, that Maren likely needed electrolytes because of her vomiting and diarrhea and that's why he ordered blood samples being taken. Dr. Hickie drew blood and sent it off "stat" to the lab.

[55] At this point there is a divergence in the evidence between Deborah Burkhart and Dr. Hickie. Dr. Hickie indicated in his testimony that he told Deborah Burkhart that Maren needed surgical assessment at the ACH. He indicated that Deborah Burkhart was "hesitant" about this and that Dr. Hickie attempted to work out a compromise. His evidence was that in order to encourage Deborah Burkhart to take Maren to the ACH he would draw blood. If the blood work confirmed that she had an infection, he would call Deborah Burkhart and she would take Maren immediately to the ACH.

[56] Deborah Burkhart's version of the facts is that she states Dr. Hickie did not tell her to go to the Emergency Room. Her evidence was that she was told that she shouldn't go to the ACH without blood work anyway. However, Deborah Burkhart confirmed in cross-examination, that she was advised that Dr. Hickie had concerns about appendicitis.

[57] Whose version of what happened, frankly, is not important here because the evidence will show that Deborah Burkhart did allow blood to be drawn from Maren. The blood work was sent away stat by Dr. Hickie. Dr. Hickie called Deborah Burkhart who then immediately went to the Emergency Room at ACH. Therefore, there was not a protracted "battle" to get Maren to the hospital once the blood work came back in any event. It did, however, delay Maren's presentation at the hospital for approximately 3 hours.

[58] With respect to the blood work, Dr. Hickie confirmed that he sent it off to the lab in a taxicab. The blood work is found at page 218 of Exhibit 1 in Dr. Hickie's materials on Calgary Laboratory Services' letterhead. Dr. Hickie testified that the key to this was the leukocyte count which was the white blood cells. It was highly elevated at 23.4, which I understand to be in thousands. Dr. Hickie testified that this was an indicia of acute inflammatory or infectious process going on in Maren's

body. The blood work was otherwise unremarkable except that Maren's potassium was quite low which Dr. Hickie said was not unusual for someone with vomiting and diarrhea.

[59] In terms of any difference that the delay made in Maren going home while the blood work was done, Dr. Hickie indicated that the best he could have done at 8th and 8th, in any event, was to offer Maren a bed and start an I.V. for rehydration. However, Dr. Hickie admitted that if Maren was eventually going to ACH, he would not have started an I.V. as he testified that it was better to rehydrate the child in the hospital if she was acute.

[60] After getting the blood work back, Dr. Hickie called Deborah Burkhart and told her what the results were. He told her to take Maren to the ACH. Dr. Hickie then called a Triage Nurse at the ACH and advised them that there was a child coming with an acute abdomen. He indicated in his telephone conversation that it was likely an appendix. Dr. Hickie then had a letter prepared which was faxed to the ACH along with the blood work.

[61] Dr. Hickie's faxed letter and the blood work appear at pages 217 and 218 of Exhibit 1. This document was eventually received by ACH and it also appears at page 12 of Exhibit 1 in Maren's hospital chart. The timing of this facsimile arriving at the ACH, however, is in doubt.

[62] The facsimile notation at page 12 of Exhibit 1 appears to show a time of 1553 with respect to the receipt of the fax. However, at page 218 of Exhibit 1, Dr. Hickie's faxed time appears to be two hours off, as it shows Calgary Lab Services tests coming back at 11:13 a.m. In fact, the lab results must have come back closer to 3:00 o'clock, given Dr. Hickie's testimony.

[63] Dr. Hickie's typed and dictated notes at page 219 of Exhibit 1, indicate that the blood results came back to him shortly after 1427 in the afternoon. This accords with Dr. Hickie's *viva voce* evidence which is that he sent the fax to the ACH at approximately 2:30. However, for whatever reason, there is no evidence that the ACH received Dr. Hickie's fax at around that time and in fact,

the facsimile does not turn up in Maren's chart to be seen by people in the ACH Emergency Room until well after 3:00 p.m.

[64] In any event, with respect to the letter Dr. Hickie sent to ACH, he did it because he said he knew it would expedite matters and that he was very strongly of the view that Maren had a burst appendix. He also understood that upon receipt of the fax, the ACH would understand that there might be peritonitis. Dr. Hickie confirmed that he knew that this was a serious situation and with all of the signs he felt that rapid surgical intervention or assessment was needed.

[65] With respect to the rapid surgical assessment, Dr. Hickie confirmed in cross-examination that he had the ability for a direct surgical referral. He did not do this because he felt that the surgeon would have said to him at ACH "send her to the E.R.". Dr. Hickie indicated that he expected that a "serial" assessment at ACH would take place by a Triage Nurse in the E.R. and then there would be a surgical assessment. In fact, this evidence was confirmed by the triage Nurse Benedick, who indicated that Maren would be seen by triage, an assessment nurse and then a doctor in the E.R. That doctor would then have to make a call for a surgical consultation.

[66] Interestingly, Dr. Tobler, the lone pediatrician in practice to testify, indicated that her preferred practice would be to send a child suspected of appendicitis to the Emergency Room at the ACH and that would be a more efficient way of doing things rather than a direct surgical referral. Dr. Tobler confirmed Dr. Hickie's evidence that Maren would be reassessed. Dr. Hickie indicated that he did not believe that the ACH would simply rely on his diagnosis in any event.

The "Second" Emergency Visit

1503

[67] Upon being called by Dr. Hickie, Deborah Burkhart testified that she took Maren back to the ACH Emergency Room. Exhibit 11 confirms that Maren re-attended at the Emergency Room at 1505

p.m. December 3rd, 1997, almost exactly 12 hours since her last assessment there by Nurse Benedick. This time, Deborah Burkhart and Maren again found "no line-up" or waiting period before seeing the Triage Nurse Colleen Gnenz. Her triage notes are found at page 77 of Exhibit 1. Nurse Gnenz testified that again, a contingent of six nurses and possibly a nurse's aid were on duty when Maren arrived.

[68] Nurse Gnenz testified that prior to Maren's arrival, she or some other nurse had received a call directly from Dr. Hickie and that in result Maren's attendance was expected. Nurse Gnenz had a paper at her triage desk to remind her of Maren's elevated white blood cell count and possible appendicitis. She was certain she did not see the fax or blood work from the 8th and 8th Clinic at that time. Nurse Gnenz saw Maren enter the hospital and began her assessment at that moment. Maren was very uncomfortable, she was pale, her lips were dry and her eyes were dark and sunken. A brief history was obtained and Nurse Gnenz made an immediate triage assessment which is not charted. That assessment was "urgent".

[69] A further review of the triage categories in Exhibit 10 reveals that Maren certainly had symptoms still less than the "emergent" categorization for triage but clearly she possessed symptoms of an urgent classification, including the pale skin colour, signs of dehydration, fever, irritability, right lower quadrant pain and moderate to severe pain.

[70] Given this categorization, Nurse Gnenz moved Maren immediately into a cubicle triage bed in the Emergency Room. She did this because of the information provided by Dr. Hickie and her initial assessment and was already thinking that Maren was a candidate for an I.V. start and blood work at the very least. The cubicle served as an active treatment room as the other such rooms in the Emergency Room were apparently full.

[71] Nurse Gnenz found the following vital signs upon the assessment of Maren:

- Temperature 38° C
- Pulse 120

- Blood pressure 130/72
- Breathing was described as "grunty"

[72] In addition, she found a tender abdomen and observed the adult diaper and Nurse Gnenz concluded that Maren needed "apparent intervention". I find that Maren was again in great pain. Her reaction to even the slightest touch was to yell and she repeated "Owie, owie, owie" to questions about her history. Maren was clearly guarding her abdomen at this time.

[73] Nurse Gnenz told the Charge Nurse Toni Barrie that they had a "very unwell child" who was "looking dry" and who was a "probable appendicitis". The Charge Nurse Barrie testified that she knew of a room clearing up and readied it herself. She took Maren to the room immediately thereafter from the triage cubicle. This whole triage process, from start to finish, took only 20 minutes.

1523

[74] Nurse Gnenz further confirmed that, unlike Maren's first visit, this second visit clearly had Maren classified as a surgical candidate. So, unlike the first Emergency Room visit, Maren was specifically not given oral fluids so as to not slow the road to possible surgery and anaesthetic. It is an apparent given that ideally a surgical candidate should not take fluids or solids. I.V. was not started immediately, however, as that could only be commenced with a physician's order. For this reason, apparently, Maren was marked on the whiteboard in Emergency Room as "next to be seen". It was hoped by Nurse Gnenz that Maren would be seen by a physician as soon as is possible so that orders could be received and treatment commenced as quickly as possible. Nurse Gnenz confirmed that Maren was not "bumped" while in the Emergency by any other urgent or semi-urgent patients and in fact Maren herself had likely bumped other patients.

1525

[75] Maren's care at this point at this point transferred to Toni Barrie, the Charge Nurse. The time was 3:25 p.m. She had just come on duty and also did not see Dr. Hickie's facsimile or blood work prior to seeing Maren. She did the next assessment of Maren and her notes are also found at pages 77 and 78 of Exhibit 1.

[76] Nurse Barrie testified that upon hearing from Deborah Burkhart that Maren had left without being seen the night before, she assured Deborah Burkhart that Maren was sick and needed to see a doctor right away. She told Deborah Burkhart that she would put next by Maren's name in red and would talk to a doctor. She then assessed Maren and found the following:

- Maren looked unwell, uncomfortable and was crying;
- Maren continued in a near mantra of "Owie, owie owie", or "Mommy, mommy, mommy";
- Maren was again difficult to assess and reacted to touching everywhere on her body;
- Maren's capillary refill was delayed to over 4 seconds.

[77] Nurse Barrie then left the room and started to get an I.V. ready and do blood work, paper work and other things to expedite matters for immediate care when a doctor showed up. She next bumped into a resident, Dr. Laura Dixon and asked her to see Maren immediately. Dr. Dixon agreed and saw Maren within five minutes of the room being prepared. That time is charted on page 76 of Exhibit 1, as 3:30 p.m.

[78] Before leaving Maren's care to others, Nurse Barrie also ensured that next was on Maren's board entry and then spoke to the Emergency Room doctor, Dr. Carey Johnson and told him about Maren specifically.

[79] I must remark on the testimony of these first two care givers in the Emergency Room. I accept Nurse Barrie's evidence that Maren's care was unusual at this juncture only because it was "very quick care". She confirmed that it was rare that the ACH Emergency Room could accommodate a patient seeing both a nurse and a doctor within five minutes. I find that, indeed, Maren's care at this critical time was expedited considerably by these two nurses. Likely, matters were helped greatly by Dr. Hickie's telephone call as well. I am left to wonder, however, what happened at this stage to Dr. Hickie's facsimile.

1530

[80] Dr. Laura Dixon was present in the Emergency Room on December 3rd, 1997 in the capacity of a second year resident, training for family medicine. She was doing a four week rotation in outpatient pediatrics. She was working a 1:00 p.m. to 7:00 p.m. shift and was assessing patients in the Emergency Room for later review with the attending Emergency Physician. At 3:30 p.m., that physician was Dr. Carey Johnson, who was a full time pediatric Emergency Room physician at ACH and who had been there for seven years. He testified that there were at least two and possibly up to five physicians in the Emergency Room at the time that Maren arrived because there were residents and shift overlaps.

[81] Dr. Dixon then testified that her first knowledge of Maren at all was when she saw Maren's name on the Emergency Room whiteboard marked "next to be seen". Dr. Johnson confirmed that Maren had been "bumped ahead of other patients". At this point Dr. Dixon undertook to see Maren.

[82] Dr. Dixon met with Deborah Burkhart and Maren and began her history and assessment. Her notes are found at page 76 of Exhibit 1 and commence at the time of 1530 hours. Dr. Dixon testified that she had immediate concerns about Maren upon starting her history and assessment. She had the nurses' assessment at page 77 of Exhibit 1 to review and she confirmed that Maren was febrile, had a mildly elevated heart rate and seemed to be in pain. Although examination was difficult, Dr. Dixon

also determined that Maren had decreased bowel sounds and a tender abdomen. She checked Maren's skin and mucus membranes and found signs of dehydration.

[83] In addition, Dr. Dixon found the following history:

- 10 year old female complaining of abdominal pain;
- Well until November 28, 1997 when began vomiting and diarrhea, very foul smelling; Persisted until yesterday; No blood;
- Fever, anorexia, fatigue;
- Came to E.R. last night, lwbs;
- Went to 8th and 8th today - increased white blood cells, rebound;
- Now in +-+ distress, generalized abdominal pain, increasing with movement, walking, lowering bed, hitting bumps in car.

[84] Dr. Dixon's observations were that Maren looked "unwell" and confirmed the nursing assessment and observations about Maren's pain and behaviour. Vital signs were taken by her as follows:

- Temperature 38°C
- Pulse 120
- Blood pressure 130/72

1545

[85] Dr. Dixon finished her assessment at 1545. After her recorded information, Dr. Dixon then spoke to the attending Emergency Physician, Dr. Carey Johnson. She related the information and her concerns. They re-attended on Maren together at 3:45 p.m. and as a preliminary diagnosis were concerned about appendicitis. When they returned to Maren's room, she was nervous and described as "rocking" in her bed. Her face appeared dry and her eyes were sunken. At this point, Dr. Johnson testified that he did not believe Maren needed intensive care treatment in the Intensive Care Unit. She

had no cardiac problems, no respiratory problems and he did not feel that she was suffering from anything that was life-threatening. The issue of intensive care admission for Maren and its appropriateness will be discussed in some detail herein later. However, Dr. Johnson indicated that it was not something that crossed his mind given what he saw Maren experiencing.

[86] Dr. Dixon then testified that Maren was dehydrated and needed I.V. fluid. She stated this was based on her history of diarrhea and vomiting, no fluid intake and pain. It was agreed by Dr. Johnson that she was "clearly dry" and he based that upon her history and his examination of Maren. He determined that Maren needed fluids now and a physician order was given at 1600 hours.

[87] Dr. Johnson testified that at this juncture the "whole point" of the fluid resuscitation was to get Maren into a situation where she could have a complete evaluation and a safe evaluation. In addition, in the back of his mind was Dr. Hickie's diagnosis and that Maren needed to be rehydrated for possible surgery. In addition, he needed to eliminate other causes for Maren's problems before referring her for a surgical consultation.

[88] Dr. Johnson's reference to Dr. Hickie's diagnosis is not based on the facsimile from the 8th and 8th Clinic discussed earlier. Rather, Dr. Johnson indicated that he only saw a note summarizing Dr. Hickie's concern and was aware of them before he assessed Maren. Dr. Dixon testified that at some point she saw Dr. Hickie's facsimile but couldn't confirm if it was on the chart as she entered the room or if she saw it later. In any event, it does not appear that by 1600 hours, the facsimile had arrived in the Emergency Room. Dr. Hickie's information, however, had been conveyed to the Emergency Room Physicians.

1600

[89] The initial Emergency Room Physicians' Orders are found at page 76 of Exhibit 1. They show an order for the following:

- npo (no oral ingestion);
- I.V. of normal saline 920 cc bolus (22 cc/kilogram kg)

[90] In addition, Dr. Johnson asked that tests be ordered for a complete blood count, a urine dip, a blood culture and electrolytes. Dr. Johnson indicated that at this point it was important to compare the blood work with Dr. Hickie's blood work to determine whether there had been a deterioration in Maren's condition or further problems.

[91] Again, Dr. Johnson indicates that he did not believe that he saw the actual blood work but may have known that it was on its way. Dr. Johnson also testified that it was important to get Maren rehydrated and that he expected the rehydration to take place "over many hours".

[92] At approximately 4:00 p.m., Nurse Angela Faulkner came on shift and was advised by the Charge Nurse Toni Barrie that there was a child with abdominal pain who was dry and would need an I.V. and had been marked "lwbs" the night before. Nurse Faulkner testified that she at that point did not see Dr. Hickie's fax and, in fact, did not see it subsequently.

1630

[93] Blood work was drawn by the Triage Nurse and sent to the lab. The bolus is started at the same time. It is confirmed by Dr. Johnson that the needle I.V. size - 22 gauge - chosen for the I.V. was a nursing decision based on the assessment of the child's vessels and the availability of access. There will be a discussion later as to the appropriateness of the 22 size bore catheter used for the bolus.

[94] Nurse Angela Faulkner entered Maren's room at 4:30 p.m. and her chart notes commence at the top of page 78. She indicated that her initial involvement with Maren was brief. She stated that

Maren was highly agitated and so no real assessment was done at that time. Maren continued to complain of pain "everywhere".

[95] As indicated, at 4:00 p.m., orders were given by Dr. Johnson for Maren to go "n.p.o." (No oral intake of fluids or solids) and to start a normal saline 920 cc. per hour bolus I.V. and to take blood work. Nurse Angela Faulkner testified that she got the orders and much of the preparation work had already been done by Nurse Toni Barrie who anticipated this and had things laid out.

[96] Nurse Faulkner put an I.V. catheter into Maren's right hand and drew blood. The blood was sent away "stat" as is normal for the ACH Emergency Room. She then set up a pump as fast as it could go to deliver 920 ccs per hour and left. The fastest the pump would go was 999 ccs per hour.

[97] Nurse Faulkner's notes at page 78 of Exhibit 1 indicate this took place at approximately 4:30 p.m.

[98] Importantly, Nurse Faulkner testified that she chose the size of the I.V. catheter. She stated that her practice was to put a tourniquet on and assess the size of the patient's veins. She then chose an appropriate catheter size, based on her experience regarding how big the vein is and what size she felt she could get in. She chose a size "22" angiocath.

[99] Nurse Faulkner left just as the resident doctors were coming back to see Maren for their 4:30 assessment.

1700

[100] The blood work on Maren, ordered by Dr. Dixon, appears to have been completed at 1700 hours by the documents at page 113 and 121 of Exhibit 1. It would have been received shortly

thereafter. Dr. Johnson testified that by 1700 hours, he had the 8th and 8th blood work but not the ACH blood work back yet.

[101] Importantly, Dr. Johnson indicates around this time, after his assessment of Maren, he saw Dr. Eccles at the Emergency Room desk. She asked about the Emergency Room roster and Dr. Johnson pointed to Maren as a possible appendix but told Dr. Eccles that Maren was still too unstable from a fluid or electrolyte status to be a surgical candidate. All he could say was that it was after 5:00 p.m. when he had this discussion with Dr. Eccles. Dr. Eccles, in her testimony, confirms that she was in Emergency seeing another patient and saw a fax from the 8th and 8th Clinic. She had reviewed it and also felt that Maren was a likely surgical consultation. She recalls being told by Dr. Johnson that Maren could not be evaluated and that she needed fluid.

[102] Accordingly, I conclude that at around 1700 hours, the fax from Dr. Hickie was being circulated in the Emergency Room and that it had been seen by Dr. Johnson, prior to him getting the blood work back from the ACH. Further, before Dr. Eccles left for the day, she was aware of Dr. Hickie's provisional diagnosis and the blood work that had been done on Maren at the 8th and 8th Clinic.

1720

[103] According to the chart, the normal saline bolus was completed at 1720, some 50 minutes after commencement. Nurse Faulkner approached Maren to see if there was any improvement and found Maren still to be in pain and highly agitated. She then set the I.V. to 40 ccs per hour and she awaited a further order.

1800

[104] Dr. Dixon testified that the blood work results were looked at by her at around 1800 hours and she reviewed them with Dr. Johnson. The results showed an elevated white count indicating an infectious process going on. Electrolytes were by and large normal with marginally low sodium.

[105] Dr. Dixon described the blood work at page 121 of Exhibit 1, showing a "slight" deviation from normal for electrolytes. Dr. Johnson indicated the blood work showed an anion gap, suggesting Maren was moderately dehydrated and was retaining some acid. Dr. Johnson also indicates that by that point he had seen the 8th and 8th blood work and compared it. It was comparable information so Dr. Johnson took comfort that Maren's condition was not deteriorating rapidly and that she was not needed of a different treatment plan.

[106] Dr. Johnson indicated in his testimony that due to Maren's reaction to being assessed, it was not until his third assessment of her that he could confirm how tender her abdomen was. Until then, he was unprepared to go to a diagnosis of appendicitis but after she stabilized and was assessed a third time, he concluded that it was, in fact, appendicitis. He also confirmed that by this time Maren had no symptoms of shock and was not in shock.

[107] Nurse Faulkner then notified the doctor or resident in charge about Maren's condition after monitoring her and at 6:00 p.m. was given a repeat order for a 920 cc. bolus.

[108] Maren was then reassessed again at 1800 hours by Dr. Johnson and Dr. Dixon. They indicated in their testimony that Maren was more comfortable and improved. She was talking to her mother. It was noticed by Dr. Johnson that she was not in much pain and so he attempted to palpate her abdomen. He indicated at that point that he could not palpate a mass in her abdomen. At this time, Dr. Jeff Grant arrived for his shift in Emergency and Maren's condition was discussed with him as well. A further order was made at 1800 hours by Dr. Johnson, based on his view that Maren still was

not hydrated enough. This order was to repeat the normal saline bolus of 920 ccs, now at 80 ccs per hour. Dr. Johnson then completed his shift.

[109] This order by Dr. Johnson was commented on by Dr. Cox, who later would be Maren's anaesthetist. Dr. Cox confirmed that prior to Maren's surgery, what he wanted to see was rehydration, especially with an appendicitis case. He indicated that there was a danger of decreased blood pressure or cardiac arrest from anaesthetic if rehydration had not been completed.

1830

[110] Nurse Pam Wenzlaw sees Maren and Deborah Burkhart struggling to go to the washroom. Maren looked unwell but was alert and oriented and was able to stand, bear weight and transfer to the toilet independently. However, Maren was not able to stand straight and remained "hunched" while guarding her right abdomen. She was also abrupt with her mother and looked tired and frustrated.

[111] Nurse Wenzlaw was an excellent witness in her *viva voce* testimony but again, much of the details she provided was not charted. She did, however, make a short chart note at page 78 of Exhibit 1, at 1830. She indicated that she felt that it was significant enough in terms of her involvement with Maren to chart something.

1900

[112] At 1900 hours, Maren's second bolus was done. Maren indicated she was feeling "a little better".

[113] At this point, the significant fact is that Dr. Selman now is covering for Dr. Eccles and is the surgeon on call at Alberta Children's Hospital. The evidence was clear that Dr. Selman was an experienced surgeon but was not a pediatric surgeon, such as Dr. Eccles. He had lots of experience, however, with respect to appendix cases and had done appendectomies in children before. Dr. Selman did work at ACH from time to time as a surgeon on call. Dr. Selman was now at his home and Dr. Eccles was out for the night at a social engagement with her daughter.

1915

[114] At 1915, there is a further physician's assessment done on Maren, this time by Dr. Jeff Grant, who had assumed primary care. The only chart note on page 76 of Exhibit 1 states that Maren had a "tender lower abdomen".

[115] Dr. Grant, however, testifies that he recalls that Maren was awake, alert and was satisfactory from a hydration status. He indicated that she was guarding her abdomen but when he tried to palpate he also found no mass.

[116] Both Dr. Grant and Dr. Dixon testified that their number one diagnosis at this point was a burst appendix.

1920

[117] Dr. Dixon now speaks with Dr. Grant. It is decided between them that a surgeon is now needed for consultation. Dr. Eccles testified that as at December 1997, there were only two full-time surgeons on at the ACH. One surgeon would always be on call and in this case, that surgeon was a replacement surgeon, being Dr. Selman, as discussed above. There were, however, only two full-time surgeons at the ACH at this time.

[118] Dr. Dixon indicated that at 7:20 p.m. she went to phone the surgeon. She spoke with Dr. Grant, who agreed to take over Maren's ongoing care in Emergency. Dr. Dixon was asked by Dr. Grant to call Dr. Selman and ask for a consultation and to inquire as to whether x-rays were needed.

[119] Dr. Dixon then phoned Dr. Selman and told him that she had a concern that she had a child with a perforated appendix and that while Maren's vital signs were stable, she was in pain. Dr. Selman advised her to do x-rays and that he would come in.

[120] Deborah Burkhart testified that by this point Maren had been in the hospital for nearly four hours. It had been made clear to Deborah Burkhart by the Emergency Room staff that nothing could be done until Maren had been properly rehydrated. Deborah Burkhart testified that the impression she got from the Emergency Room staff was that Maren was not at this point a very urgent case. As a result, around this time, Deborah Burkhart went to take a break and had gone off to the vending machine area of ACH. She was unaware that the wheels had begun to turn for a surgical consultation.

[121] As I indicated above, by this time, Maren had been in the Emergency Room for four hours. As to the reasonableness of this stay in the Emergency, all of the Emergency Room doctors felt it was a reasonable course of action and have no concerns about the course of Maren's care to that point. Dr. Selman confirmed that, based on what he saw in Maren's presentation, a delay in four to six hours before surgical intervention was not unreasonable. Dr. Selman confirmed that the delay could have lead to the development of a larger abscess, the potential for septic shock and the worsening of symptoms, including further dehydration.

[122] Dr. Cox testified that he was satisfied that a four to six hour period of rehydration at a reasonable rate was justified here and the time in Emergency was "well spent".

[123] Dr. Eccles also confirmed that six hours was not abnormally long if a patient needed fluid resuscitation like Maren did, upon her presentation to Emergency.

[124] At this point, as indicated, the wheels for a surgical consultation are in motion and matters proceed fairly rapidly. I will pause at this point to make some comments about the evidence and raise some questions with respect to Maren at this point. Particularly, I am interested in the issue of Maren's earlier presentation to the hospital.

Early Presentation

[125] I heard many witnesses about the length of time it took for Maren to present to the ACH and the effect that may or may not have had on her condition and her outcome. Dr. Ross, who gave the most detailed testimony of the "septic shock cascade", testified that in her opinion, the one thing that would have made the biggest difference in Maren's outcome was early presentation.

[126] Dr. Ross explained that the cascade she spoke of began upon Maren being infected. That would have happened when Maren developed appendicitis and would have lead to the formation of what Dr. Ross called "inflammatory mediators" at the site of the appendix. Then, Dr. Ross testified that once the appendix ruptured and an abscess developed, further inflammatory mediators are created to deal with the spillage of bacteria into the peritoneum. Once this happens, the earlier the infection is treated the better, and the less likely the patient will develop an augmented inflammatory cascade which can steam-roll into septic shock.

[127] Dr. Ross, Dr. Selman and Dr. Eccles all testified that the treatment for infection where there is an abscess in the gut is surgery and then antibiotics. Thereafter a patient usually needs supportive care such as fluids and ventilation assistance for improved cardiac output and oxygenation of the tissues to support the end organs so they have less hypoxic and metabolic damage. This supportive care can get quite aggressive if the patient falls down into the continuum of septic shock and the "cascade" described by Dr. Ross.

[128] Also, much has been made in cross-examination about the time until presentation to surgery after Maren arrived at the ACH the second time. In particular, we know that Maren left the

Emergency Room on December 3rd at 2:00 a.m. and was not operated on until 20 hours later. Further, she was back in the Emergency Room at 3:00 p.m. on December 3rd, 1997 and was not operated on for another six to eight hours.

[129] Dr. Ross, when asked about these types of delays answered candidly at page 1556:

> Q: Alright, can I ask you, you've talked about the size of the abscess not really being that particularly relevant. How about the time of presentation to Emergency or to — to surgery? Would that make a difference with respect to septic shock.
>
> A: Well, I think with any infection the earlier that you identify it and treat it appropriately, the less likelihood you have of starting the inflammatory cascade. The longer that you have an infection around, the more likelihood that you are going to have more immune mediators in the area as well as becoming systemically involved and I think the higher risk you have of — of getting into more severe parts of your own cascade.
>
> Q: Okay, so I'll ask you the same question about the surgical intervention. Can you say today that the outcome would have been different for Maren Burkhart had she been operated on 12 hours or 8 hours before?
>
> A: I mean I — again I don't have a crystal ball, but my guess would be it wouldn't have made a lot of difference.

[130] With this in mind I now turn to the events with respect to surgery.

1930

[131] At 7:30 p.m., the Emergency resident or doctor ordered I.V. fluids at 80 ccs per hour, which was administered by Nurse Faulkner.

[132] Dr. William Selman testified that after being called at 7:15 p.m. or so, he proceeded to the ACH and arrived at 7:30 p.m. He initially did not see Maren as she was in x-ray so he waited in Emergency.

[133] Maren returned to Emergency and was examined by Dr. Selman. He reviewed the x-rays which had just been taken and his assessment notes are found at page 63 of Exhibit 1. Those notes are rather non-revealing and show vital signs of blood pressure of 120/80, pulse 120 and speaks of marked right lower quadrant pain in the abdomen. Dr. Selman testified that upon examination of the x-ray, he immediately appreciated that Maren had a "large filling defect" in her pelvis with some "mass effect". He felt that a ruptured appendix likely was the cause.

[134] Around this time Deborah Burkhart had indicated that the nurses had come looking for her and called her back from her attempt to go out and have a break. Dr. Selman then spoke to Deborah Burkhart and told her he felt Maren had a ruptured appendix and needed an operation. Deborah Burkhart acknowledged his advice and he proceeded to write up the orders. As a result of the availability of the operating room, Dr. Selman did not have to rate Maren for a "waiting period" but if he did, he would have ranked her "E2" which meant surgery within 2 hours.

[135] Dr. Selman's orders are found at page 103 of Exhibit 1 and reconfirm no oral ingestion. He gave Maren pre-operative antibiotics of 500 milligrams of Ancef (now) and 250 milligrams Flagyl (now). He also needed a consent to be signed and obtained one from Deborah Burkhart.

1945

[136] Shortly after Dr. Selman had assessed Maren and while he was in the process of getting ready for surgery, Maren went to the bathroom again with Nurse Faulkner. Once again, there was no measurement or observation of urine volume or concentration, although the visit is charted at page 78 of Exhibit 1.

2030

[137] After Maren was examined, the operating room was confirmed and a consent was obtained, Dr. Selman then turned his mind to commencing the surgery. He called for an anaesthetist and by coincidence Dr. Robin Cox was in his office at the ACH. Normally, Dr. Cox testified that he would have likely been home if there were no surgeries but he was doing some paper work in his office and fortuitously did not have to travel to the hospital to deal with Maren's case. Also, Dr. Cox indicated that since the surgical suite was empty, matters could proceed immediately.

[138] Dr. Selman also called for assistance by way of his partner, Dr. Midland, who was also a surgeon. Dr. Midland made his way to the ACH at this time.

[139] Dr. Cox confirmed that he was called by Dr. Selman at around 8:30 p.m. and again, by happenstance was in his office. Dr. Cox stated that he had finished a previous case an hour earlier and was doing paperwork. Dr. Cox was just about to leave for home when he was called. He told Dr. Selman he would be ready any time the nurses were available. He then waited for a call and saw Maren within a half an hour which Dr. Cox described as "unusually fast".

[140] At 8:30 as well, Nurses Barrie and Faulkner, in Emergency, prepared Maren for surgery. They took her vital signs and did the operating room paperwork necessary. They also administered the antibiotics as ordered by Dr. Selman. The chart at page 78, Exhibit 1, indicates 500 of Ancef at 2040 and 250 of Flagyl at 2045 were given in rapid succession. These antibiotics were available at hand and were already prepared by Nurse Barrie.

[141] Maren was then put on a stretcher and taken to the operating room with a washroom stop for about 10 minutes along the way. Maren was crying and was very upset. She did not want to be touched. Her vital signs were recorded at 2030 hours by Nurse Faulkner as follows:

- Temperature - 39.6°C

- Pulse 130
- Respirations 24
- Blood pressure 131/74.

[142] Maren arrived at the operating room and the Recovery Room Nurses Karen Lean and Ann Kobe testified as to that area of ACH. Maren was brought up from the Emergency Room on a stretcher and at that time there were no other patients in the operating theatre and no other patients on that whole area. The nurses testified that the recovery room itself can accommodate up to 10 patients. There were also six operating rooms and all were vacant.

[143] The nurses testified that on day shift there would be six nurses in the recovery room. At night there were normally two nurses and, in fact, there were two nurses present being Nurses Lean and Kobe for Maren's surgery.

2100

[144] At around 9:00 o'clock, Dr. Cox was called and went to the area just outside the operating room. He met Deborah Burkhart and began a review of Maren's history and her chart. From that he determined Maren presented and was treated for dehydration with a considerable amount of fluid resuscitation - approximately 2 litres by I.V. - which had improved her condition considerably.

[145] Dr. Cox then reviewed the blood work and confirmed a high white blood cell count, indicating to him an infectious process was at work in Maren's body. He considered the rest of the results to be normal and proceeded on the basis that renal kidney function and blood electrolytes were normal. Dr. Cox then proceeded to rate Maren's condition on that American Society of Anesthesiologist scale of 1 to 5. He testified that 5 is entirely healthy and 1 is very ill or moribund. He marked his grade of 2 for Maren at page 85 of Exhibit 1, based on the fact that she had a systemic illness but not of a severe or life-threatening nature. He would have rated her a 1 out of 5 if she had not been rehydrated.

[146] Dr. Cox's initial assessment of Maren is also found at page 85 of Exhibit 1 and reveals her pre-operative vital signs taken by the nurses. They were:

- Pulse 120
- Respirations 24
- Blood pressure 131/74
- Temperature 39.6

[147] In commenting on these vital signs, Dr. Cox indicated he had no concerns. He stated the fever was "a little high" but not abnormal for an appendix patient. Dr. Cox also reviewed Maren's medications. Dr. Cox decided he could proceed with I.V. anaesthetic through Maren's current I.V. site.

[148] Dr. Cox commented in his testimony that he had no problem with a use of a gauge 22 I.V. catheter. He indicated that had been no real blood loss in Maren and that there were only fluid losses. He indicated that he also had no concerns because the 22 bore I.V. catheter had also apparently worked very well in rehydrating Maren. He felt it was the appropriate choice for her veins and condition at the time.

[149] Dr. Cox indicated that the I.V. anaesthetic would have started after Maren was hooked to a computer monitor. The monitoring of Maren's condition is found at page 79 of Exhibit 1.

2115

[150] By 9:15 p.m., Maren was being put to sleep. The computer information at pages 79 and 80 of Exhibit 1 shows that vital signs and other monitoring commenced 5 minutes later at 9:20 p.m. with the induction of anaesthesia.

[151] Maren's vital signs were discussed by Dr. Cox in his testimony and he indicated that all were within expected ranges and were "satisfactory".

[152] By looking at the record of Maren's heart rate pattern which began at 120 beats per minute and decreased to 100 beats per minute, Dr. Cox indicated that the anaesthetic took effect. With the increase in heart rate to 120 beats per minute again at approximately 2140, Dr. Cox confirmed that was when the surgery began.

2140

[153] Dr. Selman testified that as soon as Maren was sleep he placed his hand on her abdomen and could feel a large mass, so large that it could be felt above her umbilicus. He decided to make a mid-line laparotomy incision and upon doing so encountered a large abscess cavity that he indicated was the size of a "good sized cantaloupe". He estimated that the size of the abscess was about 20 centimeters. Dr. Selman confirmed in his testimony many times that it was the largest abscess he had seen in a child.

[154] This remarkable abscess was removed by Dr. Selman and he began then to draw out all of the infection from Maren's abdomen. This was done by irrigation of the cavity with lots of fluid and by suction. Dr. Selman then found Maren's appendix and removed it. He placed several large Jackson-Pratt drains into the abscessed cavity and closed up the abdomen.

[155] The Scrub Nurse, Marguerite Ells, confirmed there was adequate staff to handle the operation with two scrub nurses present. Further, she confirmed that it was unusual for there to be "two full fledged surgeons" like Drs. Selman and Midland and normally a general practitioner would assist in the surgery. Nurse Ells testified that the surgery went quickly and efficiently.

2220

[156] Dr. Cox confirmed that at approximately 2220 Maren's surgery was completed and the anaesthesia would have been reversed. Her heart rate was 140 beats per minute and again, Dr. Cox indicated he had no concerns about Maren's condition. In particular, he indicated that the drug Atropine, administered at the end of surgery, actually causes an increased heart rate in and of itself for a brief period. Dr. Cox also indicated that upon commencing his job, he would have put Maren on a further one litre normal saline drip. His practice was to record the amount of fluid intake and output but he neglected to do that with Maren. He estimated he ran in an additional 500 millilitres of fluid during the surgery.

[157] Over all, Dr. Cox confirmed that he had no concerns during the surgery and that Maren tolerated the procedure very well.

[158] Dr. Selman also testified that he terminated the surgery at around 2220 hours and that in conjunction with Dr. Cox and Dr. Midland, they addressed their minds to Maren's post-operative care. The option was to send Maren to ICU or to a ward.

[159] Dr. Cox indicated that he felt she should go to a cluster. At that point, Dr. Midland asked "You don't think she should go to ICU, do you?"

[160] Dr. Cox testified that he had never had another patient go to ICU with an appendix operation. Dr. Selman recalled that Dr. Cox felt that Maren's condition was stable and satisfactory and that she could go to the cluster. This was based on her vital sign stability, according to Dr. Selman. In any event, the discussion was not a long one and all were in agreement. Maren was to go to the cluster and there was no argument or concern raised, apart from Dr. Midland's question.

[161] It is of interest to note that Dr. Eccles, who would have operated on Maren, had she not taken the evening off, indicated that on the observations and vital signs she saw in the chart, she would also felt that it was proper to send Maren to a cluster.

2230

[162] Dr. Selman left the operating room to write post-operative orders. They are found at page 103 of Exhibit 1 and will be discussed herein later. He called Dr. Eccles and discussed the case with her. He advised her to "take over care" and Dr. Eccles agreed. This discussion will also be discussed in some detail herein.

[163] Dr. Selman then called Deborah Burkhart. He explained the severity of the appendicitis Maren had. Deborah Burkhart indicated that he said that it was the "worst mess he had ever seen" and that Maren would probably never have children. She also indicated that Dr. Selman told her that Maren would be "sick for a long time". Dr. Selman confirms that he did tell Deborah Burkhart how long he expected Maren to be hospitalized and as well advised of the potential complications of pelvic abscesses, including a probability of infertility.

[164] The discussion which then took place between Dr. Eccles and Dr. Selman is of great interest. In particular, the recollection of Dr. Selman and Dr. Eccles differs about this conversation, Dr. Eccles, however, does confirm that Dr. Selman called her at approximately 2230 hours on her car phone.

[165] Dr. Selman's version of the conversation is that he told Dr. Eccles that Maren was going to U Cluster. He indicated there was no discussion regarding the ICU and she raised no issues with respect to a discharge on to a ward. Dr. Selman testified that he discussed his antibiotic regime of Ancef and Flagyl and the dosage and that Dr. Eccles told him that she felt they were appropriate

dosages. He states there was no suggestion from Dr. Eccles as to alternatives. He also indicated that there was no discussion of Maren's vital signs.

[166] Dr. Eccles indicates that Dr. Selman, indeed, advised her of his choice of Ancef and Flagyl. She indicates, however, that no dosage was discussed.

[167] Contrary to Dr. Selman's evidence, Dr. Eccles testified that Dr. Selman asked her about her antibiotic regime. She said that she told him her preference as Ancef, Flagyl and Gentamiacin. Dr. Eccles indicated that Dr. Selman also told her that he found a perforated appendix with a large abscess. He told her he drained and irrigated the abdomen and that there was a very large abscess the size of a "grapefruit". She stated that Dr. Selman then asked her to look in on Maren the next day and she agreed.

[168] I pause here with respect to this conversation to discuss Dr. Selman's post-operative orders. Those orders are found at page 103. They are as follows:

- npo
- nasal gastric tube for suction;
- ringers lactate at 125 cc per hour
- Ancef 500 grams ivq 8h
- Flagyl 250 ivq 8h
- up as fit
- dressing changed as necessary
- Jackson-Pratt drain emptied per shift
- morphine drip 500 milligrams in 100 ccs and run it 1 to 3 ccs per hour
- Gravol 25 milligram iv q4h
- cbc and sma 7 (blood work) in a.m.

[169] What is of particular interest to me is Dr. Selman's choice of antibiotics. Dr. Eccles did indicate in cross-examination that despite the fact that she would have used a different antibiotic

regime, she felt that the antibiotics and the dosages as described by Dr. Selman were "appropriate in the circumstances."

[170] Further, the Scrub Nurse Ells indicated that Dr. Selman confirmed with Dr. Cox, the pediatric dosage for his antibiotic regime and Dr. Cox had no concerns at that point with the choices being made by Dr. Selman.

[171] However, in retrospect, Dr. Selman's choice was the subject of much interest in the Inquiry. I now turn to his choice of antibiotic.

Antibiotics

[172] Much inquiry was made into Dr. Selman's choice of antibiotics, particularly post-surgically. Dr. Selman testified that his normal regime of antibiotics was Ancef and Flagyl. He confirmed that the main concern was bacteria after a ruptured appendix is bacteroides and E-coli, which are the most common organism to be covered with antibiotic treatment. Dr. Selman confirmed that it was the E-coli organism that would be "gram-negative anaerobic".

[173] Dr. Selman admitted that there were stronger gram-negative antibiotics (such as Gentamiacin) but felt he had covered the problem and that the regime he prescribed "fit the bill".

[174] Dr. Eccles testified that preferred the "triple" combination of using Gentamiacin for the gram-negative coverage it gives as well as Ampicillin and Flagyl. Dr. Eccles pointed out that, interestingly, although not known at the time, Maren did not actually have a positive blood culture with gram-negative bacteria in any event. This was revealed from the blood work done in ICU.

[175] Charge Nurse Tara Manzer testified that upon hearing the morning "report" for Maren, she had to double-check the antibiotic regime, as she confirmed the normal order post-surgically at the ACH would have been for Ampicillin, Gentamiacin and Flagyl.

[176] Dr. Ross testified that she felt Dr. Selman's prescription for antibiotics was appropriate and she echoed Dr. Eccles testimony that "we all have our own preferences" but that Dr. Selman's choices were appropriate.

[177] Further adding to the debate was Nurse Faulkner who found the pre-surgical antibiotics described by Dr. Selman of Ancef and Flagyl to be quite "typical". She indicated that there were no surprises to her.

[178] Nurse Jan Newstead, who assumed Maren's care in the U Cluster after surgery also testified that Flagyl was normally ordered and that Gentamiacin was also common with post-appendectomy patients. However, she did not have any concerns about the antibiotic regime as well.

2240

[179] Dr. Selman then dictated a post-operative report found at page 81 of Exhibit 1. He went to see Maren in the recovery room and indicated she was waking up and he felt she was doing fine. He did not check her vital signs (as found on page 84 of Exhibit 1) at the time of the surgery, but when questioned at the Inquiry, he said he reviewed them at some point and found them elevated. However, Dr. Selman was quick to point out that he considered them normal and "easily explained" by post-surgical pain. He found no evidence of instability when he saw Maren or in hindsight looking at the chart. No one advised Dr. Selman of any problem or instability when he was still in the operating theatre area.

2230

[180] Dr. Cox testified that after discussing Maren's eventual post-operative care, he reviewed her condition at approximately 10:30 p.m. He indicated he would have assessed her physically, including

vital signs, circulation to the extremities and overall appearance. He confirmed that post-surgically he was responsible for the monitoring and care of Maren.

[181] At page 80 of Exhibit 1, he lists Maren's vital signs at 10:30 p.m. as:

- Blood pressure 144/77
- Pulse 155
- Respirations 32
- Oxygen saturation 99
- Temperature 38.5

[182] These match the vital signs taken by the nurses at that time as will be discussed but Dr. Cox indicated that it was his normal practice to work together to gather information with the recovery room nurses. Their testimony confirms that and was as follows.

[183] The recovery room nurses returned to the operating room to find Maren being woken up by Dr. Cox and prepared to transfer Maren onto a stretcher for transfer into the recovery room. Maren was awake but not talking and Dr. Cox accompanied Maren to the recovery room.

[184] Once in the recovery room, Maren's portable oxygen was removed and she was put onto oxygen from the wall. She was also put on an oxygen saturation monitor which was attached to one of her digits. Her vital signs were taken and other matters were checked, such as dressings, drains and air entry. Maren still had a Foley catheter and urine was also being monitored. Maren, at this point, was given an I.V. drip of Morphine for pain.

[185] Maren's recovery room vital signs are found for the recovery room nurses entries at page 84 of Exhibit 1. Nurse Lean took the first vitals at 2230 and they are identical to Dr. Cox's vital signs discussed above because they were taken together. In addition, other observations are made by the nurses. They found that Maren's colour was normal and her skin was warm and dry. As for awareness, Maren responded to verbal stimuli at that point. Ventilation was found to be adequate and

Maren was recorded as having "non-purposeful movement". Based on all of her vital signs and observations, Maren is then monitored on a total "score" of vital sign rating that is kept to be reached for discharge. Maren's initial score at 2230 was a 5 of a possible 8. In addition to the raw "score", Dr. Cox indicated that standard discharge criteria included ensuring pain was adequately treated, an oxygen saturation over 90 and at least two sets of stable vital signs over 15 minutes.

[186] Nurse Lean indicated that the recovery room nurses looked for a 7 or 8 on the scoring chart before discharge, depending on all circumstances, and a 7 is not unusual for discharge, depending on other factors.

[187] At page 87 of Exhibit 1, intake and out take of fluids is also maintained. At 2230, Maren is noted as having one I.V. at 150 millilitres per hour. This was a reduced flow as ordered by Dr. Cox but he indicated it was still twice the normal maintenance fluid. Maren's urine output at 2230 was 80 millilitres.

[188] Around this time, Maren was taken off oxygen to see if she could breathe on her own well enough to be discharged.

2245

[189] Maren's vital signs were taken again at 2245, only 15 minutes later. At that time her vitals as per page 84 of Exhibit 1 were:

- Temperature 39 (up ½)
- Blood pressure 146/88
- Pulse 146
- Respirations 36
- Oxygen saturation 95
- Colour normal

- Awareness - responding
- Ventilation - adequate.

[190] Maren also now had purposeful movement of her limbs and her score went up to a 7 of 8.

[191] By this time Maren was described as being more alert and was angry if touched which the recovery room nurses indicated was "normal". Her urinary output was as per page 87 of Exhibit 1 and was not measured. Dr. Cox indicated around this time that Maren was to be put back on oxygen if her saturation dropped below 90. He then had a change of heart and intercommed the nurses to put her back in any event because "she was sick".

2300

[192] By 2300, Maren had been taken off oxygen and was breathing well on her own with adequate oxygen saturation. But she was put back on oxygen as per Dr. Cox's order at page 103 of Exhibit 1 and would remain on oxygen over night. Her new vital signs, as taken by Nurse Kobe at page 84 of Exhibit 1, were:

- Temperature - not recorded
- Blood pressure 122/74
- Pulse 152
- Respirations 28
- Oxygen saturation 91
- Colour - normal
- Awareness - responds to verbal stimuli
- Ventilation - adequate
- Movement - purposeful.

Maren again rated a 7 of 8. Her urine output was not recorded. The nurses indicated that she was still a bit angry but doing well and was stable.

[193] Dr. Cox testified that he checked on Maren twice by this time and found her to be slightly irritable but was breathing comfortable and her peripheral perfusion to her hands and feet were "very satisfactory". She was warm and pink and her vital signs were very stable. Dr. Cox told Dr. Selman Maren was fine when he saw him in the recovery room.

2315

[194] By 2315, Maren was a candidate for transfer to the cluster. Her vitals at page 84 of Exhibit 1 were:

- Temperature 39.3 (up again)
- Blood pressure 132/78
- Pulse 144
- Respirations 40 (elevated)
- Oxygen saturation 98
- Colour normal
- Awareness - fully awake and oriented
- Ventilation - limited breathing/dyspnea
- Movement - moves limbs purposely.

[195] Maren again scored 7 of 8 but while she gained a point for awareness as she emerged from anaesthetic, she lost a point due to her breathing backslide and being put on oxygen. Dr. Cox testified that it is an automatic loss of a rating point to be put on oxygen.

[196] Urine output was maintained as 47 millilitres combined. Drainage was now recorded from her nasal gastric (n/g) tube at approximately 45 millilitres for a total output of 153 millilitres while in the recovery room with an intake of only 98 millilitres.

[197] Maren was then discharged to the cluster. There were no concerns about her from anyone involved. All of the witnesses testified that what Maren was experiencing was normal post-surgically. Dr. Cox testified that it was also open for him to re-consider an ICU admission. He stated that he was looking for shock, cold extremities, respiratory problems, an inability to awaken, low blood pressure, low oxygen saturation, any significant change in vitals and low urine output. If needed, Dr. Cox indicated he could call an ICU resident or doctor for admittance. However, Dr. Cox indicated he had no concerns on what he observed from Maren or her vital signs to consider an ICU admission. At this point, her care transferred from Dr. Cox to Dr. Eccles who is now back as the surgeon in charge.

[198] In that regard, Recovery Room Nurse Lean testified that if she had concerns she would have discussed them with Dr. Cox, including a possible ICU admission but felt that was not necessary. Nurse Kobe also testified that Maren's vital signs clearly indicated that Maren had sepsis but that Maren was pink, had good oxygen saturation and good urine output. Maren was breathing fast but it was not laboured and her chest was clear. For these reasons, Nurse Kobe was not concerned with discharging Maren, despite the sepsis.

[199] All of the staff of the ACH who were asked at the Inquiry about Maren's U Cluster transfer at this point indicated that it was not unusual for an appendectomy patient to go there regardless of the size of the abscess, the length of the illness or other factors, as long as the patient was stable. This confirms what Dr. Cox was looking for when Maren was discharged.

[200] I now turn to Maren's time on the U Cluster.

2325

[201] Maren was taken from the recovery room to the nursing desk at the U Cluster to the recovery nurse at 11:25 p.m. That nurse was Jan Newstead, who Nurse Lean said was advised about Maren's procedure, her medications and her elevated vital signs. Nurse Lean wished her "good luck" as Maren was being difficult and testy and was yelling "Leave me alone, I want to be alone with my mother".

[202] Deborah Burkhart testified that post-operatively she felt that Maren was being "feisty". Deborah Burkhart was told not to get Maren anything to drink and she stayed by Maren's bedside for approximately 45 minutes. Maren then fell asleep and Deborah Burkhart went home to sleep herself. Maren's care was then taken over by Nurse Newstead.

[203] Nurse Newstead was an important witness to these proceedings and her testimony was very detailed. Nurse Newstead came to be a qualified nurse in 1988 and appears to have brought a maturity and compassion to her role as a "cluster" nurse at ACH since that time. Her charting and testimony was scrutinized carefully and I acknowledge how difficult this Inquiry was for her. She gave her testimony in a straightforward manner and was very helpful. I found her to be a caring and dedicated member of her chosen calling as a pediatric nurse. I will be reviewing her evidence in some detail and will be again, seeking assistance from Dr. Joubert about this crucial period of Maren's care.

[204] Nurse Newstead testified that she worked night shift on U Cluster from 2300 hours to 700 hours. She had been on duty since 2300 hours and was on shift with three other nurses.

[205] The normal contingent of night shift nurses for U Cluster was three and in fact, on this night, the night shift staff had been augmented to accommodate care for some higher needs patients on the cluster. The U Cluster normally has 3 nurses for 24 beds at night. The U Cluster roster for December 3, 1997 is at Exhibit 20 in these proceedings and shows upon Maren's transfer there were in fact only 19 patients. Of those 19, there were an as yet undiagnosed spastic quadriplegic, several asthma

patients, an pneumonia patient, a multiple trauma patient and a mix of more serious to less serious patients. This was apparently a fairly typical mix on a U Cluster night.

[206] Nurse Newstead was assigned Maren as a patient and was awaiting Maren's arrival from surgery. She testified, however, that nurses' work is a "team" and they will rotate throughout the cluster and will provide care or assistance to patients as needed. Nurse Newstead also indicated that there was another child in the same room with Maren and therefore every time she dealt with that child she also would care for Maren. The treatment and progress notes found, commencing at Exhibit 1, page 182 confirm, however, that Nurse Newstead was apparently Maren's prime care giver. Nurse Newstead's notes start at 2330.

2330

[207] Nurse Newstead met Maren coming through the door into her room on her stretcher. Nurses Lean and Kobe were present as was Deborah Burkhart. Maren appeared agitated and uncomfortable but was "aware of surroundings". Maren still had a nasal gastric tube, an oxygen nasal prongs and an I.V. in her right arm. She presented with a Foley catheter bag and a clean and dry abdominal dressing. Maren was transferred from the stretcher to a bed.

[208] Nurses Newstead and Lean exited the room and reviewed Maren's chart and orders. The post-operative vital signs were reviewed as was Maren's overall condition and demeanour. Pre-operative vital signs were not discussed. Nurse Newstead was told about the size of Maren's abscess.

[209] The doctor's orders for Maren's post-surgical treatment on the cluster have already been discussed and are found at Exhibit 1, page 103. Nurse Newstead reviewed these.

[210] Nurse Newstead then reviewed these orders and returned to a more detailed assessment of Maren. She checked to make sure oxygen was hooked up to the wall and checked the nasal gastric

tube drainage as well. She checked the dressing and the drains. She then took vitals. Her assessment is found on page 182 of Exhibit 1. It reveals that Nurse Newstead was relying on a machine to record blood pressure and pulse. Maren was also hooked up to an oxygen saturation machine. Both had alarms if there were problems or a decrease in vital signs.

[211] Maren's vital signs were taken at 2330 and are found at page 160 of Exhibit 1. They show as follows:

- Temperature 39.6
- Blood pressure 139/66
- Pulse 150
- Oxygen saturation 95
- Respirations 46

[212] Maren remained oriented but still was testy. Nurse Newstead left her Deborah Burkhart and returned to formally reassess her each half hour.

2400

[213] At midnight Maren's vital signs remained fairly constant. They were:

- Temperature 39.6
- Blood pressure 116/71
- Pulse 150
- Oxygen saturation 95%
- Respiration 42

[214] There are no corresponding notes charted at page 182 at the time this vital sign monitoring went on. Therefore Nurse Newstead indicated that Maren's demeanour and condition were as per the last assessment at 2330 hours.

[215] Nurse Newstead did testify in her *viva voce* evidence that she noted that Maren's respiratory rate increased when Maren became agitated going up to 50 to 60 breaths per minute and as a result she did not want to agitate her.

December 4, 1997

0030

[216] By 12:30 a.m. on December 4, 1997, Maren was asleep. Deborah Burkhart had just left as she had been waiting for Maren to settle. Nothing out of the ordinary occurred in Maren's vital signs at page 160 of Exhibit 1 and actually show some improvement, They are:

- Temperature downward trend (not measured)
- Blood pressure at 132/64
- Pulse 152
- Oxygen saturation 97%
- Respiratory rate 32.

[217] Once again, there are no corresponding chart notes to any extent, except to say that Maren is asleep and the mother is gone. This again, is found at page 182 of Exhibit 1.

0100

[218] Maren is again checked for vitals. They show:

- Temperature downward trend (not measured)
- Blood pressure 126/69
- Pulse 153
- Oxygen saturation 97%
- Respiration 38.

[219] There are no chart notes and all is apparently well at Maren's bedside.

0130

[220] Maren is again checked for vital signs. They show:

- Temperature 39.2 (measured)
- Blood pressure 136/78
- Pulse 150
- Oxygen saturation 96%
- Respirations 40

[221] Again, there are no chart notes and all was apparently well at Maren's bedside.

[222] By this point, Nurse Newstead was checking vital signs each half hour although there were no orders to do so. She confirmed it is cluster practice to do this frequent monitoring when a child arrives from surgery. Also, Nurse Newstead confirmed that she saw Maren a lot more than what is written down on the chart because she was "circulating through the room".

0200

[223] At 2:00 a.m., Maren continues to remain stable. Her temperature remains elevated at 39.2° C but was down from the initial post-surgical. A fan was placed at her bedside for comfort. Maren had now awakened for periods and continued to be irritable and quite restless on the bed. Nurse Newstead had no obvious concerns and would now do vital sign checks formally each hour.

0230

[224] At approximately 2:30 a.m., Nurse Newstead passed by Maren's room to find Maren vomiting a dark brown substance. She helped Maren to finish and then settled her while replacing her suction unit for her nasal gastric tube. Maren settled well and this event was charted at page 182 of Exhibit 1 but raised no concerns with Nurse Newstead.

0300

[225] By 3:00 a.m., Maren was asleep but started to take a turn for the worse. Maren had cold extremities and would not keep her covers on. In addition, her oxygen saturation would fluctuate radically. Nurse Newstead testified that Maren's oxygen saturation varied between normal (above 90) and then suddenly drop to lows of around 83 and then just as instantly jump back up to normal. This continued, despite Nurse Newstead trying the monitor on different fingers and toes.

[226] Nurse Newstead then called a Respiratory Technician who was in the ICU and on call 24 hours a day in the hospital to deal with oxygen saturation problems or respiratory emergencies. Dr. Cox indicated that this was a recently increased service to have a Respiratory Technician available 24 hours a day at the ACH and apparently, the Respiratory Technician answered the call quickly.

[227] The Respiratory Technician confirmed to Nurse Newstead that since Maren's extremities were cool, the readings would be inaccurate. In result the oxygen saturation monitor was taken off at this point. Nurse Newstead took Maren's vital signs at 3:00 o'clock a.m. and they are found at page 160 of Exhibit 1:

- Temperature (none recorded)
- Blood pressure 134/71
- Pulse (none recorded)

- Oxygen saturation 94%
- Respirations 46

It is important to note that this blood pressure at 3:00 a.m. would be the last recorded blood pressure for Maren while with Nurse Newstead and, in fact, there are no further recorded blood pressures on her chart at page 160, Exhibit 1. The blood pressure issue will be dealt with next.

The Blood Pressure Problem

0400

[228] At 4:00 o'clock a.m., Nurse Newstead again visited upon Maren to take vital signs. Her vital sign record of page 160 of Exhibit 1 shows the following:

- Temperature 39.2
- Blood pressure - none recorded
- Pulse 146
- Oxygen saturation - disconnected
- Respirations 48

[229] Nurse Newstead's testimony was that at 4:00 a.m., she simply neglected to write down a blood pressure. She indicated that it would have come off the same machine as the pulse and that this was an "error of omission". Based on her later testimony, I find that if Nurse Newstead had any problem at that point with respect to not getting a blood pressure or not finding a blood pressure, she would have charted it. There are no entries. She also said that if there was, in fact, no blood pressure she would have done something and probably called Dr. Eccles. In fact, that is what she did when she could not find a blood pressure and I find as a fact and conclude that at 4:00 a.m., Maren's vitals must have been within the same range and certainly in a range measurable not to cause concern in Nurse Newstead.

[230] The charted progress notes, however, have an entry for the time of 0400, which Nurse Newstead stated was an error and was crossed out so that the charting was actually reflecting the state of affairs done at 4:30 a.m. That note reads at pages 182 and 183 of Exhibit 1:

> Unable to get b.p., Attempted with old equipment. Patient rational, telling staff to leave her alone. Wants to sleep. Pulse 192-min. Hands and feet cold to touch. Urine output only 30 ccs since 0200 hour (sg 1030). Feels nauseated but n/g appears to be draining well.

[231] The vitals at page 160 of Exhibit 1 for 0430 also show the following:

- Temperature - none recorded
- Blood pressure - none recorded
- Pulse 192
- Oxygen saturation - disconnected
- Respirations - none recorded.

[232] The oxygen saturation had been disconnected and a Respiratory Technician named Cathy Courtney attended since she gave report about Maren that morning to Glenn Smith, the respiratory technician on days. She indicated she had a problem getting an oxygen saturation on Maren at that time because Maren's hands were "cooler than the sensor would pick up". Apparently, Ms. Courtney actually took a diaper, microwaved it and wrapped it around Maren's hand to enhance perfusion and get a reading. According to the report Respiratory Technician Courtney gave in the morning, she had been called "several times" to check out the oxygen saturation. Again, this is charted nowhere on Maren's record.

[233] Respiratory Technician Smith related though that he was told that once Maren's hand had been warmed an oxygen saturation of 97 or 98 was obtained so there had been no concern.

[234] Most importantly, Nurse Newstead testified at this time that she went to take the blood pressure reading at 0430 but "didn't get a reading". She followed her usual procedure of trying to

eliminate machine problems and used another machine or a "manual cuff" but got no blood pressure there as well.

[235] Dr. Cox testified that this was the process to be followed, i.e. trying to eliminate machine failure. He testified that Nurse Newstead could have tried to use a stethoscope on a cuff to get a blood pressure manually. If Maren was in ICU at this time an arterial line could have been used but this could not have been done on the cluster.

[236] I also find that the nurses at ACH, including Nurse Newstead, comprehended clearly the need to monitor blood pressure and be concerned about it. I specifically quote Nurse Jocelyn Whittier who testified that a drop in blood pressure was understood clearly to be a sign of "impending doom".

[237] As indicated above, much has been made about whether Maren had no blood pressure or no recordable blood pressure after 4:00 a.m. I have already found that Maren must have had a blood pressure at 4:00 a.m., based on Nurse Newstead's reaction. I am satisfied, based on the evidence of Dr. Ross as well, that a "no blood pressure scenario" is not possible at this time. In particular, Dr. Ross testified that if Maren had a pulse, and one is recorded after 4:00 a.m., then a peripheral pulse would indicate a systolic blood pressure of at least 80.

[238] I am also assured in my decision that Maren must have had a blood pressure at 4:00 a.m. as testified to by Nurse Newstead by what happened next at 4:30.

[239] Nurse Newstead testified that at 4:30 when she could not get a recordable blood pressure after trying various machines, she felt it was important enough to call the surgeon. Nurse Newstead took the vital signs down and assessed Maren as she decided that she needed to call the surgeon and knew that the surgeon would ask for this information and other detailed information on the phone. Nurse Newstead checked the urine bag and drains to assess fluid output. She took a sheet with her information on it and went to the desk to page the surgeon. By this time, it is almost 4:45 a.m. and

Nurse Newstead confirmed on cross-examination that she was certain that Maren had "no recordable blood pressure".

[240] I pause at this point to point out that if Nurse Newstead was concerned she had various options. This was confirmed by several of the staff that testified. In particular, she could have called an ICU doctor as there would have been a resident on staff. However, normally it is the treating physician that calls the ICU resident. Further, Nurse Newstead could have called the Emergency Room doctors but they usually are unavailable as they are busy and it is apparently inappropriate to call them except in the most dire of emergencies.

[241] In addition, residents are always available in the hospital and a resident would have been available to Maren had she been treated as a "teaching patient". Nurse Newstead did have the option to call a resident if she had serious concerns. However, I find that the protocol at the ACH was for Nurse Newstead to page the surgeon who was in charge of Maren's care and she did that. Dr. Eccles confirmed that there would have been a junior and senior pediatric resident at the ACH that night. However, she did state that proper protocol would be for the nurse to call the on call surgeon.

0445

[242] At 4:45 a.m., Nurse Newstead paged the surgeon on call and Dr. Eccles was awoken at home. Nurse Newstead told Dr. Eccles who she was and that she was calling from U Cluster at ACH. She asked Dr. Eccles if she knew Maren Burkhart, an appendectomy patient of Dr. Selman's. Nurse Newstead testified that Dr. Eccles either said that she had seen Maren or had heard of her while walking through the Emergency Room that afternoon. She also confirmed to Nurse Newstead that Dr. Selman had called her about Maren.

[243] At that point, Nurse Newstead relayed all of the vital signs that she had, including observations about cool extremities and not being able to pick up an oxygen saturation. She also

indicated she would have told Dr. Eccles about Maren's low urine output and would have related the vital signs.

[244] Dr. Eccles' recollection, as described in her *viva voce* testimony was that she was told that there was no blood pressure on one machine. Dr. Eccles indicated that Nurse Newstead indicated she hadn't tried another machine yet. She gave the vital signs, including an elevated temperature and pulse. She told Dr. Eccles about low urine output, cool peripheries and Maren making sense.

[245] Dr. Eccles indicated at this point that she assumed it was not a mechanical problem. She indicated that Maren would have had low or no blood pressure and her urine suggested low fluids. Dr. Eccles was asked to assume it was not mechanical and was asked for what her thoughts would have been. Dr. Eccles indicated she was concerned that Maren was hypovolemic from the third space losses of fluid into the abdomen. Dr. Eccles testified that very often after a surgery, the body will compensate by a flow of fluid into an area that has been intruded upon.

[246] Dr. Eccles indicated in her mind that she knew there would have been sepsis in Maren's system from the perforation but did not think of septic shock at that time. This, in part, was because Dr. Eccles had no sense from Nurse Newstead of any overwhelming panic.

[247] Dr. Eccles thought it was a "mechanical blood pressure cuff" problem. She testified that Nurse Newstead had <u>not</u> advised her that she tried different equipment with no success.

[248] Interestingly, in cross-examination, Dr. Eccles did admit that septic shock fit into her differential diagnosis. However, she was keen to stress that her first diagnosis was sepsis and septic shock was far down on her differential diagnosis list.

[249] In terms of action taken, Dr. Eccles indicated that her first priority was getting fluid into Maren if she was hypovolemic. As a result, Nurse Newstead was given an order to start a normal

saline bolus of 500 ccs rapid infusion. Dr. Eccles indicated that by "rapid" she expected the bolus to be administered within a half an hour.

[250] A discussion then ensued about the antibiotic regimen and Nurse Newstead wanted to make sure of the order. She testified that Dr. Eccles told her that the antibiotic Flagyl could wait until the bolus was done and told Nurse Newstead to give Flagyl as per the previous orders but in any event to hold off on the Flagyl until the bolus was done. Dr. Eccles confirmed in her testimony that she felt that the bolus was more important at that point and that she wanted to get fluids into Maren.

[251] Dr. Eccles' narrative report about this portion of her care (and in fact all of her care of Maren) is found at pages 68 and 69 of Exhibit 1 and basically reiterates what is said in her *viva voce* testimony on these points.

[252] Dr. Eccles' order was recorded on the Physicians' Order sheet on page 104 of Exhibit 1 at 0445 and signed by Nurse Newstead and then confirmed with the signature of Dr. Eccles subsequently. Nurse Newstead said that Dr. Eccles also told her to try and keep the covers on Maren and to watch so that she remained covered up. Nurse Newstead testified that she knew that Maren was becoming hypovolemic at this point despite the fact that Dr. Eccles had not mentioned that to her.

[253] Nurse Newstead also confirmed that Maren was now going to probably get the Flagyl late. The previous orders at page 103 of Exhibit 1 indicated that the Flagyl was to be administered around this time.

0500

[254] At this point Nurse Newstead started the bolus and Dr. Eccles remained at home. The bolus was to be started at 5:00 a.m. with an infusion of normal saline to bring up fluid volume in Maren.

Others asked about what they would have expected out of this "rapid infusion bolus" indicated that they would have expected it to be administered "fast" and Dr. Ross testified that she would have thought it would have been administered within 20 to 30 minutes. However, problems arose.

[255] First, Maren's vitals at 5:00 a.m. at page 160 of Exhibit 1 show that there is still no blood pressure recorded and that there is an elevated pulse of 180 and a respiratory rate of 52. Her heart rate had come down from 192 but all else was the same.

[256] Nurse Newstead testified that when she started the bolus, she only started it a 350 ccs per hour because she wanted to ensure that the vein could sustain the increased intake rate.

[257] After observing the vein for 10 minutes of flow at 350 ccs, Nurse Newstead increased the flow to 500 ccs on the pump. All of this time, Maren was apparently asleep and appeared comfortable. At this point, it would be between 5:10 and 5:30 a.m.

[258] Unfortunately, none of this was charted by Nurse Newstead.

0540

[259] At 5:40 a.m., Maren awoke and tried to remove the tape on her face which held the nasal gastric tube by pulling out the tube itself. Nurse Newstead and another nurse worked to steady Maren and readjust the tube. Maren was clearly annoyed and wanted to get a drink from the sink. Her bed had to be physically moved away from the sink according to the Progress Note at page 183 of Exhibit 1.

0600

[260] By 6:00 a.m., it was time to check Maren's vitals again. Her temperature had dropped slightly to 39°. There was still no blood pressure reading according to Nurse Newstead and there was no chart recorded blood pressure. Maren's heart rate had come down further to 155 beats per minute, which was about where she was at post-surgically for several hours. Her breathing rate had also reduced to 48. Urine output had not been recorded since 0400.

[261] Maren was simply being treated with the bolus which continued to go in relatively slowly and which was not done until approximately 0650.

[262] It is interesting to note that in Dr. Eccles' Narrative Report at page 68, she indicates as follows:

> At 7:00 a.m. the bolus had not been completed because of the difficulty with the size of the I.V....

[263] It is now nearly 7:00 o'clock in the morning and the day shift of nurses is about to come on. At this point, things happened rapidly and Maren's care is about to change dramatically.

0700

[264] At 7:00 a.m., Nurse Newstead charts that the bolus is finished. Urine output is measured at 50 cc. and is noted to be concentrated. The time had come to administer antibiotics now that the bolus was done and a 450 mg. Flagyl dose was due as per the previous order of Dr. Selman.

[265] However, at 7:00 a.m., Dr. Eccles calls to follow up on Maren's condition. She testified that she is told that the full bolus was not administered yet and an I.V. was running slowly. This is

contrary to the notes of Nurse Newstead. Nurse Newstead conveys that Maren is looking unwell, cool and "shutdown". She is, however, talking and rational.

[266] At page 104 of Exhibit 1, the Physician Orders indicate that Dr. Eccles changed the orders. The Ancef was now discontinued. Instead a trio of antibiotics would be given: 750 milligram of Ampicillin every 6 hours, 90 milligrams Gentamiacin every 8 hours and an increased dosage of Flagyl at 450 milligrams every 8 hours commencing at 7:00 a.m. Dr. Eccles testified in the stand that she was more "comfortable" with these. Her Narrative Report at page 68 of Exhibit 1, indicates that she increased the dose of Flagyl to give "better gram-negative coverage".

[267] In addition, and more importantly, to rapidly replace nasal gastric losses, a further bolus infusion of normal saline with additional salts (potassium) was ordered. What was most important about this order was that Dr. Eccles ordered a second I.V. to be started, using extra large I.V. catheter. This telephone change was charted by Nurse Newstead and later confirmed with the signature of Dr. Eccles. Nurse Newstead testified that such orders were normal from Dr. Eccles and she had no concerns at that point.

[268] Upon getting these orders Nurse Newstead took three of the four night nurses with her to Maren's room to look for an I.V. site. It was conceded by almost all of the cluster nurses who testified that finding an securing an I.V. site is an art and some nurses are better at it than others. Further, the day shift was coming on at 7:00 a.m. and so the night staff rallied around Maren to get Dr. Eccles' orders filled. Unfortunately, the night nurses could not get an I.V. site. Maren was not wanting to be bothered by this point and wanted to sleep and be left alone. However, as will be seen, Maren was far from being left alone as the new day commenced.

The Day Shift

0700

[269] After unsuccessfully trying to find an I.V. site, the night nurses sought help from the day shift. At the confluence of the two shifts there were now at least nine nurses on the cluster who came to Maren's aid. Three night shift and six day shift nurses were available for her care at that point. In addition, there was a charge nurse who helped in Maren's care, an nursing instructor who participated in Maren's care, four nursing students on U Cluster of varying levels of experience of which one was to also assist in Maren's care on U Cluster that day.

[270] Charge Nurse Tara Manzer indicated that prior to coming on shift, she bumped into Nurse Newstead who advised that Maren was having some difficulty. Nurse Newstead asked that "somebody strong" be assigned to Maren by the charge nurse. Charge Nurse Manzer felt that Nurse Robin Moss would be appropriate and in addition Nurse Moss had a nursing student with her that morning as well who could take over her other patients to free her up for Maren.

0710

[271] It was Nurse Robin Moss who was asked to go to help with Maren's I.V. site. Nurse Moss went to Maren and immediately had concerns about the ability of getting a new I.V. start in Maren due to Maren being cool peripherally. She communicated this to Charge Nurse Manzer who agreed to make a call for physician assistance. Nurse Moss also asked night shift nurses for help in finding an I.V. site and in particularly for holding Maren down so that an I.V. site could be found and secured.

[272] At that point, Charge Nurse Manzer had three options. She could either call a resident, a surgeon or anaesthetist. There were no doctors on the cluster at that time of day. Nurse Moss and Nurse Manzer testified that this was not unusual.

[273] Charge Nurse Manzer first called a resident who was asleep at home. The resident knew nothing about Maren and felt that an assessment was also in order so Charge Nurse Manzer moved on to another option.

[274] Charge Nurse Manzer then paged both the surgeon and the anaesthetist on call. Dr. Eccles was the surgeon and the anaesthetist turned out to be Dr. Cox. Charge Nurse Manzer asked for some vitals to be brought to her because she was certain that whoever answered the page would make inquiries. Charge Nurse Manzer recalled in her testimony that she was given a scrap of paper with Maren's information on it by a nurse named Val Beatty. She indicated it said "increased resps., tachycardia, cool limbs and peripheral shutdown" and it had a blood pressure of 108/60 written on it. Charge Nurse Manzer indicated she was "pretty positive" about this because she recalls concluding that Maren was not hypotensive and that she had a decent blood pressure. Charge Nurse Manzer does not recall getting information regarding temperature or capillary refill times at this point to convey to the doctor. Charge Nurse Manzer also indicated that she requested vitals because she, or other nurses would not be able to review Maren's chart in its entirety at shift change and would rely on verbal report and their own subsequent assessment.

[275] I pause at this point to deal with this fact as relayed by Charge Nurse Manzer and all of the other nurses. At shift change at 7:00 o'clock in the morning, the nurses who dealt with Maren indicated that they would not have had time to review her chart. Rather, they would have listened to an oral report of all patients, including Maren and then would have gone out themselves to look at the patient. They indicated they may have looked at the chart periodically but they would not have had time to review the entire chart, particularly all of the vital signs recorded the evening before and the notes written by Nurse Newstead.

[276] As for report, at 0700, a nursing student, Laura Faye, was patient-less that morning. After hearing report, her instructor Janice Parker-Sparrow indicated they would be taking Maren as a patient and so subsequent to hearing report, Laura Faye and Nurse Parker-Sparrow immediately went out and prepared Maren's I.V. bags as per Dr. Eccles' orders. Most nurses testified that they were sketchy about report on Maren but that they were advised she had a large abscess from a burst appendix the size of a grapefruit. They also recalled that she was restless through the night to the point of pulling on her tubes. They also heard that Maren tried to get up to get a drink of water. However, there was nothing at all in report about the fact that Maren now had not had a recorded or recordable blood pressure for over three hours.

0715

[277] Continuing on with Charge Nurse Manzer's search for help with an I.V. site, Dr. Cox gets a page for anaesthesia.

[278] He answered it and spoke to Charge Nurse Manzer who indicated that they were trying to place a second I.V. and were having difficulty. Dr. Cox asked who ordered the call and advised that it was the nurses. He ascertained that Dr. Eccles was coming in and then indicated that if they couldn't get it in or if Dr. Eccles wanted him, he would be available.

[279] Dr. Cox testified that he got no sense of urgency from the nurse who had called and simply asked them to follow up the written protocol to have a surgeon order the I.V. start through him. He felt they were only asking for "technical assistance" at that stage and were not in a crisis or urgent situation.

[280] Charge Nurse Manzer indicated that she was a bit "taken aback" by Dr. Cox's insistence on protocol but that immediately after hanging up, Dr. Eccles called at around 7:30 a.m.

0730

[281] Dr. Eccles had called in and the conversation immediately turned to Maren Burkhart. Importantly, Charge Nurse Manzer testified that when she relayed the vital signs to Dr. Eccles, Dr. Eccles said "Well, she's shocky". Charge Nurse Manzer agreed that Maren was exhibiting potential signs of hypovolemic shock at that point and was not in actual shock.

[282] I stop to point out that Dr. Eccles denied making such a statement about Maren being "shocky" but I find that Charge Nurse Manzer's recollection is most likely clear on this point, given her involvement at that stage and given her testimony which was most impressive in terms of recollection and detail. Again, though, she made it clear that she interpreted Dr. Eccles' comments as meaning only that Maren had signs that potentially could lead to hypovolemic shock.

[283] After the discussion of vital signs, Dr. Eccles did not order or approve an anaesthesia consult but rather had faith in the cluster nurses and said "You guys can get it - go antecubital if you have to, but you can do it. Get it in". Charge Nurse Manzer indicated that Dr. Eccles was understood to be saying that if Maren's peripheries were shut down a more central I.V. site should be tried.

[284] In the meantime, while the doctors were being paged and were being spoken to, Nurse Moss assessed Maren and finds that she looks "unwell". In fact, Nurse Moss was surprised by Maren's condition, given what she heard in report. She described Maren as being "diaphoretic", meaning her limbs were cool to the touch. Nurse Moss could not palpate any pedal or radial pulses immediately. Maren did have a femoral pulse and her trunk was warm. Maren's colour was also pale. Maren's chest was clear and she was not in distress with her breathing. Her drains were functioning. Nurse Moss' initial charting notes are found at Exhibit 1, page 184. The highlights are that Maren was:

- Awake but hallucinating and was slightly combative
- Extremities cool to the touch with capillary refill at more than five seconds

- Oxygen was being delivered by masks now as opposed to prongs and Maren was "fighting the mask".

[285] After assessment, the host of nurses (at least six) in Maren's room tried to get the second I.V. started. Eventually, with Maren being held down, the I.V. was obtained by Nurse Linda Gill. Maren was combative and unhappy during this procedure and reacted to the I.V. insertion according to Nurse Moss.

[286] Charge Nurse Manzer, at that point, entered Maren's room to find Nurse Linda Gill with the I.V. in Maren's left foot and I.V. was flushed and completed. The scene though made an impression on Charge Nurse Manzer who described a pale Maren being held down by many nurses to allow the I.V. to be placed in her struggling extremities.

[287] The scene also made an impression on Student Nurse Faye, who testified that when she entered Maren's room, Maren was thrashing around. Instructor Parker-Sparrow pointed out that Maren's extremities were cool to touch and were pale. Student Nurse Faye understood that at that point Maren was diaphoretic.

[288] Student Nurse Faye then began to chart. Her 0730 entry is important and is found at page 183 of Exhibit 1. It reads as follows:

> I.V. started in left foot, ran .940 n.s. with 20 meqkcl @ 500 ccs/hr. Before I.V. started, patient went into shock. Patient disoriented to time and place and lost consciousness. Respirations were tachypnic @ 46 breaths per minute. Patient didn't respond to I.V. poke and as soon as I.V. began infusing patient woke up and was alert to name and place. Patient extremities cold to touch with cap. refill 4 secs. Patient pale and diaphoretic with temp. 39.6°C. Apical pulse tachycardic at 166 bpm.

[289] While it is encouraging that charting was done at this crucial time of Maren's treatment, there is much controversy over the charting of Student Nurse Faye. In particular, it appears obvious that

Student Nurse Faye was drawing conclusions that weren't necessarily correct. In that regard, I prefer the evidence of Nurse Moss, who was more experienced and who took exception to some of the charting of Student Nurse Faye.

[290] In particular, Nurse Moss indicated that she disagreed with the note "patient went into shock". Nurse Moss said that this was simply wrong. She indicated that it was not the nurses' call to make and that it was not proper to chart it. Nurse Moss pointed out that this would not be a nursing diagnosis and in any event, Nurse Moss disagreed with the diagnosis.

[291] Nurse Moss testified that someone in the room may have said that Maren was "shocky" which she would have taken to mean that there was some symptoms or potential symptoms for hypovolemic shock. Again, it cannot be said that Maren did not have some symptoms of hypovolemic shock, given the evidence at the Inquiry.

[292] In fact, Student Nurse Faye, in her testimony agreed that the nurses only said, "She's shocky". Instructor Parker-Sparrow also indicates that no one indicated that Maren was in shock but nurses in the room indicated that Maren had symptoms of shock. Further, Student Nurse Faye indicated she relied on the observation of cool extremities to conclude that Maren was in shock. I, therefore, accept the evidence of Nurse Robin Moss that Maren was indeed not in shock at this point.

[293] Nurse Moss also disagrees with the charting of "patient lost consciousness". Nurse Moss indicated that Maren was not unconscious. Again, I agree with Nurse Moss as Student Nurse Faye testified that due to the chaos in the room and Maren's vocalizations which stopped during the I.V. insertion for a moment, Student Nurse Faye had concluded that Maren had gone unconscious for a moment. Student Nurse Faye said that she felt that when all went quiet in Maren's room, she was unconscious and then Maren "woke up" and was herself. Again, I accept the evidence of Robin Moss that Maren reacted to her I.V. poke and was not unconscious.

[294] I pause to point out that this is not an indictment of Student Nurse Faye but again at a crucial time, there appears to be some charting difficulties with respect to Maren's condition.

[295] With this charting issue dealt with, I now turn to what happened next in Maren's room.

[296] Charge Nurse Manzer indicated that after the I.V. site was confirmed, she spoke briefly with Nurse Moss and they were satisfied that fluid was satisfactorily running into Maren with a larger bore I.V. and that everything was stable now. In fact, Charge Nurse Manzer testified that within 15 minutes of the new I.V. site, Maren had improved urine output and was talking coherently. Again, no urine output was charted from 4:00 a.m. forward until 10:00 a.m. The urine output is charted at page 156, Exhibit 1.

[297] Nurse Moss testified that Maren had also improved. Nurse Moss stated that her option, if Maren had not improved at that time was to call Dr. Eccles again. She indicated, in her view, she could not call ICU herself. She could also only call a "code" if indeed there were code symptoms such as if Maren stopped breathing, if Maren's heart stopped or if Maren was in respiratory distress. If any of those symptoms would have been present Nurse Moss might have pressed a code button but she did not feel that Maren was a "code" patient. No other witness testified that they felt that Maren was a "code" or ICU patient at this point.

0740

[298] In the aftermath of the attempts to get the I.V. site, a respiratory technician, Glenn Smith arrives to check Maren's oxygen saturation and finds things "acceptable". He indicates, however, he can't get an oxygen saturation reading because Maren is too cool. He indicates he tried her toes and her hands but Maren was also "combative" and he could not get a reading. He did indicate that Maren answered appropriately and that she had normal respirations and colour. Respiratory technician Smith

indicates that he also microwaved a diaper to warm Maren's hands because he indicated that at this point Maren was cold "past her wrists".

[299] I pause as well now to make note of the fact that there is no charting anywhere of an oxygen saturation for the whole morning on a regular basis. The only charting of an oxygen saturation is at page 183 of Exhibit 1, which shows it being stable at 95%. However, the evidence given is that Maren's oxygen saturation was always acceptable. Further, Nursing Instructor Janice Parker-Sparrow testified that the oxygen saturation monitor "alarms" if the reading goes below 85%. She indicated that if that had happened it would have been charted. She is adamant that it did not happen and I accept her evidence and I accept the evidence of the respiratory technician that when he could get a reading on Maren it was "acceptable".

[300] I also note that Charge Nurse Manzer and Nurse Moss were also present when respiratory technician Glenn Smith was present. They testified that Maren's extremities were warming up and that a good oxygen saturation measurement in the mid-90s was obtained.

0800

[301] Student Nurse Faye testified as to the I.V.s being administered to Maren as documented at page 156 of Exhibit 1. Those notes show that in one I.V. (right arm) there were two sides to the pump and one side was delivering ringer's lactate and one side was delivering morphine. In the left foot was .9% normal saline with 20 mEq of potassium chloride.

[302] Laura Faye did another assessment and recorded vital signs. Her chart note for 0800 is found at page 183, Exhibit 1 and states:

> Neuro: alert and oriented to name. Not oriented to time or place. Patient hallucinating, she thinks there is a swimming pool outside her room, asking for mother. Speaking in sentences inappropriate to place, patient thinks she's downstairs at her house. Respirations fast

> and shallow at 36 breaths per minute. Air entry equal bilaterally. Air cleared to bases with no adventious sounds. Circ.: apical pulse fast but regular at 163 b.p.m. Patient is pale and diaphoretic. Extremities cool to touch with cap. refill 4-5 sec. bilaterally. G.I. & G.U. - nasal gastric tube in place and suctioning appropriately. Dark amber drainage in tube. Bowel sounds not heard in any quadrant. Presently small amount of amber urine in bag. Mfk: patient resting in bed, much calmer than she previously was. Ntog dressing dry and intact, no shadowing noted. I.V. infusing into right arm and left foot. Sites appear healthy.

[303] She explained with respect to fluid output, no measurements of nasal gastric tube fluid or Jackson-Pratt incision drains is measured until the end of the shift, so no entries are made unless it is flowing significantly. That is why there are no entries at page 156, Exhibit 1.

0805

[304] The student Laura Faye is also now monitoring Maren's vital signs every 15 minutes. At 0805, as per Exhibit 1, page 158, Maren's vitals were as follows:

- Temperature 39.6
- Blood pressure 108/58
- Pulse 163
- Respirations 47

[305] Fluid balance records are also being kept and at page 156, Exhibit 1, it shows that around this time no output is recorded but only an hourly input of 500 milligrams at 8:00 o'clock.

0815

[306] By 8:15 a.m., the bolus had been completed. Nurse Moss' charted notes at page 185 of Exhibit 1 show that despite this fairly quick fluid infusion, Maren was still confused at times but

realized she was in the hospital now. Maren's hands and feet were now warmer and her pulses were all palpable.

[307] The Student Nurse Laura Faye is now with Maren constantly and has been taken vital signs every 15 minutes.

[308] Nurse Moss also testified that around this time, the lab from the ACH came to draw blood pursuant to Dr. Selman's orders for blood work the next morning. However, the blood work could not be obtained from the designated area on Maren's arm for blood work. Since the lab could not get the blood antecubitally, the protocol was to notify Dr. Eccles that they were unable to get the blood.

[309] Dr. Eccles was about to arrive and as can be seen from her orders at page 104 Exhibit 1, the blood work was postponed to the next day.

[310] At 8:15 a.m., Dr. Eccles also arrives to examine Maren. To her surprise, Maren looks better than what she expected given what the nurses described at 7:00 a.m.

[311] It is worth quoting Dr. Eccles' Narrative Report at page 68 of Exhibit 1:

> With the second bore I.V., on my arrival on the ward, Maren now had a good recordable blood pressure and was stable. The blood pressure had been 100/60 for the last several vital signs and her urine output had now approached 101 ccs kg/hr, which was appropriate. She was again, oriented to place and person and carried on quite a coherent conversation with me with request to be allowed to go home and to take her medications at home. I told her this would not be possible and she would have to stay in hospital as she was still quite sick, but that her mother could stay overnight with her. Maren seemed reassured by the fact that her mother could stay with her. Her Jackson-Pratt drains were draining serosanguinous fluid as expected and her oxygen saturation was reading 96% on 2-1 oxygen by mask.
>
> It is my impression that Maren has had a lot of n.g. losses and is third spacing into her abdomen because of peritonitis. She will need a careful eye on her urine output and it will be recorded q1h. Orders

> have been left with the nurses to immediately contact me should the urine output decrease to less that 1 cc./kg/hr. and further boluses will be ordered. It is hoped that with the better gram-negative coverage that we will have better control of her sepsis. Her n.g. loss will be replaced with an ongoing order for their replacement with half normal saline with 10 kcl/1. It is hoped that she will do well and appears appropriately comfortable on her morphine infusion.

[312] In her *viva voce* evidence, Dr. Eccles confirmed that Maren had a recordable blood pressure for over one-half hour and there had in fact been three adequate blood pressure measurements. Dr. Eccles gave a "head to toe" assessment of Maren. She looked at her abdomen, listened to her chest and heart, looked at her drains, n.g. tube and urine.

[313] Dr. Eccles elaborated that Maren still had an increased heart rate and fever when she saw her but that was expected. She was oriented to person and place and was speaking coherently. Maren's urine output had picked up to an adequate amount of 100 mls. in two hours. Maren's extremities were warm and Dr. Eccles felt she was adequately perfused. Interestingly, Dr. Eccles did not review Maren's chart until after her examination as she wanted to see Maren right away. Dr. Eccles indicated that while Maren was still "very sick" she concluded that Maren was not in shock and that she had responded well to the fluid. Dr. Eccles talked to the Prime Care Nurse, Robin Moss who agreed that Maren had improved. She also eventually reviewed the notes and concluded that Maren had improved. Dr. Eccles indicated that she was not told of Maren's disorientation as revealed at the 0800 notes of Laura Faye or of slow capillary refill of greater than 5 seconds.

[314] At that point, and with this information, Dr. Eccles made further orders as found at page 104 of Exhibit 1 and described in her Narrative Report above. First, she ordered further Gentamiacin for the next day. She ordered further blood work to check electrolytes. Since there was a second I.V. now, Dr. Eccles ordered the second I.V. to run at 50 mls. per hour. Vital signs were ordered every two hours as was fluid intake and output levels. Lastly, Tylenol was ordered for comfort.

[315] Again, Dr. Eccles did not chart any of her examination. The only real charting by the surgeons was Dr. Selman's note at page 70 of Exhibit 1, which simply reports that there was a ruptured appendix, a huge abscess and that two drains had been placed.

0820

[316] During the time of Dr. Eccles' assessment further vital signs are recorded. By 8:20, at Exhibit 1, page 158 it shows the following vital signs:

- Temperature 39.2 (down)
- Blood pressure 103/60 (constant)
- Pulse 170 (up slightly)
- Respirations 36 (down slightly).

[317] Nurse Moss testified that she was happy with Maren's progress on the vital signs and was concerned about Maren being febrile. Again, Maren was left with Student Nurse Faye at her side to be monitored while the assessment was going on and thereafter.

0830

[318] Student Nurse Faye again charts her observations at this time about oxygen saturations. Her note at the bottom of page 183 of Exhibit 1 states:

> O2 sats stable at 95%. Machine giving readings and then it doesn't.

This was explained by Nurse Moss to be occurring as result of the coolness of Maren's extremities along with Maren's movements in bed. Laura Faye testified that the oxygen saturations were constant thereafter and therefore were not recorded.

0835

[319] Again, further 15 minute vital signs were recorded at page 158, Exhibit 1. They now show:

- Temperature 39.2 (constant)
- Blood pressure 98/56 (down)
- Pulse 170 (constant)
- Respirations 36 (constant)

0850

[320] Again, further 15 minute vital signs are recorded at Exhibit 1, page 158 as:

- Temperature 39.5 (up)
- Blood pressure 101/52 (up)
- Pulse 159 (down)
- Respirations 36 (constant)

[321] Nurse Robin Moss' charted notes at page 185 of Exhibit 1 state:

> Patient's feet and hands warmer to touch. Radial pulse is present. Responding appropriately at times.

This indicated to Nurse Moss that Maren was responding "very well" to the fluid bolus and concluding that she first saw Maren in the morning at 0700 there was no significant problems and that Maren had likely been dehydrated. Nurse Moss was confident enough to go on break now and leave Maren with Student Nurse Laura Faye.

0850

[322] At 0850, the last 15 minute vital sign is recorded at page 58, Exhibit 1 as described above. Subsequently, there were no vital signs on Maren's chart on page 158 of Exhibit 1. No further vital

signs are taken until 1050 as a result of Dr. Eccles' order for vitals taken every two hours. Again, given Maren's state this is a bit troubling to me and I await Dr. Joubert's views with respect to vital signs and monitoring.

0900

[323] Dr. Eccles left Maren shortly after 9:00 a.m. to go to her surgical clinic in the ACH. She left instructions with Nurse Moss and the other nurses to be paged or notified if Maren's urine output dropped to less than 1 cc per kilo per hour or if there was any change in her vital signs.

[324] Nurse Moss testified at this point that she brought up the possibility of Maren going into intensive care with Dr. Eccles. Nurse Moss indicated that she felt it would have been appropriate for Maren to have gone to ICU at 7:00 in the morning and she raised the possibility with Dr. Eccles. Nurse Moss testified that Dr. Eccles indicated that she was "only a few steps away" and as a result of being in the hospital she wanted to be called if there as any change in Maren's condition. Nurse Moss indicated that the only thing that would happen in ICU as opposed to leaving Maren in the ward is that she would have better monitoring and almost one on one nursing. That was happening with Student Nurse Laura Faye in any event. Internal monitoring also would have been possible in ICU and Nurse Moss indicated that she did not have concerns after speaking to Dr. Eccles because she felt that there was adequate monitoring of Maren at that point.

[325] Charge Nurse Manzer also made a point of quizzing Dr. Eccles about Maren's condition. She testified that she told Dr. Eccles that Maren was still tachycardic, even more so than before, but that Dr. Eccles was happy with the status and wanted to be notified immediately of any changes.

[326] These nurses then testified that when Dr. Eccles left the ward, they were "comfortable" with Maren staying on the cluster. Nurse Moss particularly indicated that Maren made good progression

with her blood pressure, pulse and peripheral perfusion. She felt that Maren was less than stable and not uncomfortable with Maren being on the ward and in fact left for her break.

[327] At 9:00 a.m., a fluid balance is also recorded at page 156 of Exhibit 1. It now shows 550 cc per hour intake but no output figure is recorded. Again, this is troubling given Dr. Eccles' orders to carefully watch fluid output by way of urine.

[328] Nurse Moss testified that at 8:00 a.m., Maren's urine catheter would have been emptied. She testified that there is no mystery about not measuring urine at this point because for accuracy there would not have been enough urine to measure. Nurse Moss indicated that she would have waited to see what the fluid bolus just finished, would do to Maren's urine output.

[329] Further, Student Nurse Faye testified at this time that Gentamiacin was given to her. This was pursuant to Dr. Eccles' order of 0700 at page 104 of Exhibit 1.

[330] At this point a discussion of Maren's new antibiotic regime should be embarked upon. At 7:00 a.m. Dr. Eccles has ordered Gentamiacin, Ampicillin and a bolus. Nurse Moss testified that a bolus could not typically deliver the antibiotic and so there has to be a wait for the antibiotic delivery. That has been discussed already herein.

[331] However, in fact the bolus is given and Nurse Moss confirms at page 104 of Exhibit 1, the Flagyl was given at 7:00 a.m. Then there was a further bolus and Nurse Moss testified that at 9:00 a.m., the Gentamiacin could then be delivered. The Ampicillin was in fact being drawn up by the nursing student later in the morning when Maren went to ICU. That Ampicillin was taken to ICU by Charge Nurser Manzer and I will discuss the ICU record of what was given to Maren in some detail herein later.

[332] In any event, the evidence is clear that there was delay in administering certain antibiotics as a result of the need for fluid bolus and as to what effect that may have had, I have already asked Dr. Joubert to comment upon.

0930

[333] At approximately 9:30 a.m., Nurse Moss returned from her break to find Maren doing fine. The nurse who spelled off Nurse Moss indicated Maren was stable. At that time Nurse Moss went into Maren's room to find Maren looking "very comfortable". The room was dim and Maren was actually resting. Laura Faye was still at her side.

[334] Nurse Moss indicated that she watched Maren closely thereafter as she had another 4th year nursing student with her who was looking after the other two patients assigned to Nurse Moss. Nurse Moss testified that she had a lighter patient load and was spending quite a bit of time observing Maren.

0940

[335] At this time Student Nurse Faye gives Tylenol. This is shown at page 140 of Exhibit 1 in the medication record. The testimony at this time is that Maren was laying comfortably on her side when the Tylenol was given by suppository.

[336] Nurse Faye has charted the Tylenol dosage at page 184 under 0940. She indicates that the focus of charting was for "pain" and she states:

> Gave Tylenol 650 mg, rectally to maintain comfort level.

[337] I note that Nurse Moss disagreed with the charting of Student Nurse. Nurse Moss indicated that the Tylenol was not for "comfort" as in fact Maren was comfortable. Nurse Moss indicated that the Tylenol was for fever. While Nurse Moss' evidence appears to be contrary to Dr. Eccles' evidence that the Tylenol was to be given for comfort, Nurse Moss was adamant that at this point Maren was very comfortable and that Tylenol was being administered because Maren was febrile and it was hoped that they could bring her temperature down.

[338] Further, Nursing Instructor Parker-Sparrow testified that Maren was behaving "appropriately" at this point when the Tylenol was given and that she had no covers on at all.

[339] Again, I point out that I was struck by the problems with the accuracy of the charting of the student nurse at this point. The administering of the Tylenol is indeed properly charted in various places but apparently the interpretation by the student nurse as to what was being done was incorrect according to Nurse Moss. This period of charting was also criticized by the Intensive Care Nurse Patty Infusino in her testimony. She indicated she was not happy with the charting done on the cluster during this relatively crucial time in Maren's care. As to the effect of the charting on Maren's care at this point, I am unsure. I conclude the Maren was being monitored constantly after Dr. Eccles' "head to toe" assessment and I am also satisfied from testimony from the nurses, that if there were significant changes of problems they would have immediately been either charted or brought to Dr. Eccles' attention. In fact that is what will happen as we see herein.

1000

[340] At around 10:00 Charge Nurse Manzer took a break and went in to check Maren before she left. Charge Nurse Manzer asked Maren questions to determine her state of orientation. Maren confirmed that she knew she was in the hospital and was described by Charge Nurse Manzer as a "pinker" but tired, exhausted and "owly" girl. She was particularly upset from being roused from dozing.

[341] A further fluid balance check at this time was done showing input now at 600 cc per hour and with the first recorded output of urine at 100 cc.

[342] In this period between 9:30 and approximately 10:15 Nurse Moss testified that she was pleased with Maren's condition. In particular, she described Maren as looking "pretty good" and "very comfortable". Maren's room lights were dimmed and it was decided that no "morning care" such as teeth brushing or washing would be done, to let her rest.

[343] Maren's peripheral circulation continued to be good. Maren was still febrile but the Tylenol suppository had been administered and the nurses were waiting to see what effect that might have.

[344] This apparent sanguine state was encouraging to all nurses who testified. They felt they had weathered the storm together with Maren and were hopeful that the worst was behind her.

[345] Unfortunately, I am mindful of Dr. Ross' testimony regarding Maren's condition. She testified that children, even in septic shock, respond differently than adults to supportive treatment. In fact, Dr. Ross indicated that children can dramatically respond to a fluid bolus and rally and appear to be doing very well. Dr. Ross indicated however that this is deceptive since children can maintain blood pressure and look fine and then "fall off the edge" or "crash" just as dramatically. Apparently, Maren was in this deceptive state and the fall was about to come. Certainly, by 10:30 a.m. the hope that Maren had put the worst behind her was proven to be unfounded.

1030

[346] Things began to change for the worse at approximately 10:30 am. At that point, Student Nurse Laura Faye had been monitoring Maren for about an hour with periodic checks by other nurses. Student Nurse Faye commenced doing vital signs a bit early and started with Maren's

temperature. Her notes and observations are at page 184 of Exhibit 1 and are extremely important. I will quote them in their entirety:

> Mom at bedside. Patient has increased hallucinations an is becoming more disorientated. Unable to get a blood pressure or O2 sat. Patient becoming more restless in bed, is moving around and wants to get out of bed and go downstairs. Extremities are warming up however, cap refill 4-5 secs. Patient remains pale and diaphoretic, temp is 40.2°C. Respirations have slowed to 27 breaths per minute. Breathing heavily. Air entry equal bilaterally, air cleared to BOSES. IV infusing well. Presently explaining to mom situation. Patient recognizes mom but has become more irritable with presence. Will continue to monitor.

1045

[347] By this point Maren's temperature had increased significantly. Student Nurse Faye indicated that her next entry at page 184 Exhibit 1 timed "11:10" chronicles the time in actuality between 10:30 a.m. and 11:00 a.m. Student Nurse Faye testified that by 10:45 she could not get an oxygen saturation or blood pressure reading on Maren. Maren's breathing became laboured and so Student Nurse Faye went and got Nurse Moss.

1050

[348] Nurse Moss testified that although Maren was apparently better and stable for over an hour and half. At 1050 Laura Faye sought her out and said "Maren is starting to breathe the way she did this morning - do you want to come and look at her?" Nurse Moss proceeded to Maren's room to find a restless Maren with some increasingly laboured respirations. Nurse Moss indicated that, in fact, Maren was not back to her early morning state with breathing at that point but changes were occurring. Maren had developed a "bluish tinge" around her lips and was hypoxic or short of oxygen.

Accordingly, Nurse Moss again replaced the nasal prongs with a mask and increased oxygen to 10 litres/minute. A blood pressure was attempted to learn her status.

[349] Again, ominously there was no recordable blood pressure. Nurse Moss, understanding the urgency of the situation tried not to panic Deborah Burkhart and indicated she was going to get some equipment. In reality she rushed to page Dr. Eccles and a Respiratory Technician.

[350] Nurse Moss' notes at page 185 Exhibit 1 state:

> Patient resps becoming grunty but patient able to tell writer she is in the hospital. Patient's extremities warmer to touch. Cirumoral cyanosis with 2 litres per minute via prongs O2 at 10 lpm by mask initiated. Unable to obtain bp. Apix 100 bmp.

[351] Student Nurse Faye's notes at page 184 state for the 11:10 reading which again was likely around 10:50 a.m. are as follows:

> Patient becoming more restless with laboured breathing. Slight circumpallar around mouth, unable to get an O2 sat. Writer has informed RN of situation and RN presently in room to assess.

[352] At around this time, Instructor Parker-Sparrow comes into the room. She testified that she was shocked at the change she saw in Maren since helping administer the Tylenol one hour before. Nurse Parker-Sparrow said Maren was previously resting comfortably and was able to pull herself up in bed. She indicated that Maren had now taken a dramatic turn for the worse.

[353] Charge Nurse Manzer also indicated that shortly before 11:00 a.m. another nursing student named Kristy advised her that Nurse Moss was with Maren. Charge Nurse Manzer, sensing some anxiety, immediately went to Maren's room. On the way she passed Nurse Moss who was coming out to call Dr. Eccles and a Respiratory Technician. Charge Nurse Manzer arrived in the room to find Deborah Burkhart at the foot of the bed. She then turned to Maren and was immediately concerned.

[354] Maren was now taking deep and laboured breaths. Charge Nurse Manzer called out for a respiratory bagging unit in case Maren stopped breathing and was going to use it as a mask if Maren needed it.

[355] Charge Nurse Manzer then hurriedly began to assess Maren. She took Maren's hand and felt for a radial pulse. She put on a stethoscope and listened to Maren's apical pulse. She then checked her pedal pulse and found all pulses present but very weak.

[356] Charge Nurse Manzer then checked apcial pulse rate and was distressed to find a large decrease from previous tachycardia around 100 beats per minute. This, in combination with Maren's laboured respirations, lead Charge Nurse Manzer to conclude that Maren was "definitely going into shock".

[357] While doing her assessment, Charge Nurse Manzer testified that the Respiratory Technician arrived. Charge Nurse Manzer pulled Maren's eyelids open and said "Maren, Maren, can you hear me?" Initially, Maren shrugged and then closed her eyes - indicating a conscious state. But, within minutes, even that response was gone and Maren became unconscious very quickly. Her pupils ceased responding to light at this point.

1055

[358] Dr. Eccles receives a page and when she answers it she is told that Maren has taken a dramatic turn for the worse so Dr. Eccles went to her right away and arrived in less than a minute. Dr. Eccles' Narrative Report at pages 68 and 69 confirm the severity of the situation. She stated:

> I was called back to the ward to review Maren and she had taken a very dramatic and sudden turn for the worse. She then became cool, clammy with poor peripheral perfusion and had no recordable blood pressure. At this time she was no longer talking and had grunting respirations. A stat chest x-ray was obtained and respiratory was trying to get an arterial blood gas but had been unsuccessful. Her I.V.

> lines had been opened wide open to give her further fluid. Her O2 had been increased. On examination she does have good air entry bilaterally but it is obvious septic shock with poor perfusion. She now requires Dopamine and other pressers to maintain her blood pressure in the face of the sepsis as we have maximized her fluid intake and antibiotics.

[359] Dr. Eccles' *viva voce* testimony expands on her narrative. She testified that when she arrived at Maren's bed, Maren looked "markedly different". Maren was not responding to questions now. She was grunting in her respiration. She was cool, clammy and peripherally shut down. Once again, there was no recordable blood pressure.

[360] Nurse Moss' note at page 185 of Exhibit 1 and timed "11:10" was actually earlier and around the time that Dr. Eccles was doing her assessment. That note states as follows:

> Patient now becoming more unresponsive. Bagging unit set up; O2 via same at 10 lpn. Extremities now cooler to touch. Resps. attempting. Arinal stab at present and unable to obtain. Dr. Eccles has spoken with mom. Patient's pupils now dilated and respond slowly. Patient did not respond to femoral arterial stab.

[361] Dr. Eccles now does a brief assessment and took drastic action. She concludes Maren was in septic shock since fluids had been increased and Maren was still hypervolemic. Dr. Eccles testified that this should not have been the case given the fluid intake. Dr. Eccles then ordered both I.V.'s to be run "wide open" so that Maren got rapid fluids. She then immediately paged the ICU physicians as she concluded further that Maren need inotropes to increase her blood pressure. She also needed mechanical ventilation to assist her breathing. This was done by the respiratory technician in the room on the bagging unit.

[362] Dr. Eccles then had ICU paged and continued the check Maren. Charge Nurse Manzer testified at this point that Maren had no pedal and no radial pulses. She indicated that Maren then "mottled" before their eyes, becoming discolored with a bluish "road map" type of appearance, indicating circulatory collapse.

[363] Nurse Moss confirmed that Maren did not stop breathing while on the cluster.

[364] The Respiratory Technician, Glenn Smith, testified that he was indeed called to try and get a arterial gas from Maren. Again, this is not charted anywhere by him although it does appear in Nurse Moss' note as described above.

[365] Respiratory Technician Smith testified that normally he would get an arterial gas ready from a radial artery but he was unable to palpate a satisfactory pulse to enable a reading and so he "missed". At that point the ICU doctors arrived and Respiratory Technician Smith felt it was more important to get Maren to ICU than to try to get an arterial gas sample. Respiratory Technician Smith then connected Maren to a portable oxygen cylinder for the trip to ICU.

[366] Student Nurse Faye charts Maren's condition under the time "11:20" but indicated in her testimony this was around the time just before 11:00. She states:

> Patient totally unresponsive. Pupils dilated, resps. laboured and patient has started to grunt. Notified doctor and presently here to assess. Unable to get a BP. Patient pale and diaphoretic. Extremities cold to touch and cap refill 5 seconds.

1100

[367] ICU responded to Dr. Eccles page within 30 seconds with the arrival of Drs. Ross and Tobler. At that point, the Respiratory Technician was there administering oxygen with the mask and was getting an increased oxygen dosage from 2 litres by mask to 10 litres by mask. The Respiratory Technician was getting no reading also indicating a circulatory collapse. The x-ray that was ordered stat was taken of Maren's chest.

[368] Dr. Ross commenced an immediate transfer to ICU. It should be noted at this stage that very little is charted about Maren's care and literally nothing is charted for Dr. Eccles. There was

according to Dr. Eccles much verbal communication between her and the ICU nurses. Dr. Eccles' only real charting is her dictated report at page 68 and 69 of Exhibit 1 which was not dictated until some time after Maren had died.

[369] Maren's U cluster involvement is about to end with her transfer to ICU.

1115

[370] Nurse Moss charts her last full note at page 185 of Exhibit 1. It reads:

> ICU team here. Patient's legs now mottled. Feet and hands now cold to touch. I.V. lines changed to non-saline bolus 500 cc and 2/3 - 1/3. Patient non-responsive. Mom here. Parent Services called.

[371] At this point. Nurse Moss took Deborah Burkhart to the back room and told her to call someone for support. Deborah Burkhart said "No, no I am afraid she is going to die". Nurse Moss held her and clearly Deborah Burkhart was shaken about what she had seen, which was a dramatic change in Maren after which things moved very quickly, such that within one half hour Maren was in the ICU. Once out of the cluster, Nurse Moss said Maren was transported "within 30 seconds" to ICU.

[372] At this point Dr. Ross confirmed that around 11:00 she was in radiology and received a call from Dr. Eccles asking for a transfer to ICU for Maren. Dr. Eccles indicated at this point that she had a concern that Maren was in septic shock. Dr. Ross immediately proceeded to the cluster.

[373] When Dr. Ross arrived at Maren's room Dr. Tobler was also with her. Dr. Tobler, as described above, is a pediatrician who was on duty that day as a clinical assistant in ICU to allow residents to do other teaching duties on that day.

[374] The ICU at ACH has four intensivists. There is also always a resident on duty and Dr. Tobler came in once per week as a clinical assistant. There was one nurse for every 2 patients in ICU and things could be managed so that there could actually be one-on-one nursing care as we will see happened with Maren. Testimony indicated that there were often more nurses on ICU who were also available to be of assistance.

[375] Dr. Ross testified that when she arrived on U Cluster, Maren was being bagged with oxygen and a chest x-ray had just been done. Drs. Ross and Tobler did a very brief examination and confirmed on first site that Maren was "very unwell". She was pale and grey. Her peripheral perfusion was poor. She was cold through to her mid-thigh and upper arm now. Her skin was mottled. Her capillary refill was 4 to 5 seconds. There were no palpable distal pulses in either her radial or dorsalis pedis or posterior tibialis, however, there were femoral pulses and they were strong.

[376] Maren's heart rate was an alarming 200 beats per minute. Her chest sounds were "reasonable" with some crackles. Maren had a decreased state of mental consciousness and was unresponsive to pain, to voices or to other external stimuli. Dr. Tobler in fact described her extremities as being like "ice" to the mid thigh and mid arms at this point.

[377] Dr. Ross' provisional diagnosis was that Maren was in shock and that she needed to be assisted with ventilation. Dr. Tobler also concluded Maren was in shock, whether hypovolemic or otherwise. Her mental state indicated inadequate perfusion to the brain.

[378] In retrospective testimony, Dr. Ross admitted that by the time she saw Maren she was in the late stages of septic shock.

[379] I pause here to note that I was most impressed with the testimony of Dr. Ross. She was an obviously competent, highly trained and unflappable physician. She stressed throughout her testimony that there were no hard and fast "definitions" or categories with respect to diagnoses but everything needed to be taken in a "total clinical context". By that she meant that the whole picture of a patient

needed to be considered and judgment exercised in each individual case. This "contextual" approach was echoed by the other nurses and doctors who testified that, with Maren, all factors were considered in determining what care was needed from skin color to consciousness to parental reaction to vital signs to general observations.

[380] With respect to her diagnosis, Dr. Ross testified that she had a band of possible diagnoses at the point of first seeing Maren. She said that there had recently been an attempt by critical care physicians to distinguish between different levels of similar serious diseases relative to a body's reaction to inflammation ranging from shock, to systemic inflammatory response syndrome (SIRS), to septic shock, up to multi system organ failure. Dr. Ross indicated that the consensus of physicians was to define SIRS as a temperature of 38°C or less than 36°C with tachycardia for age, tachypnea for age, a while blood cell count of greater than 15,000 and band count greater than 10%. In fact, any two of these criteria would qualify as SIRS.

[381] Dr. Ross testified that for a diagnosis of "Sepsis" there must be a proven infection with bacteraemia (where blood grows a particular bacteria) in conjunction with the SIRS criteria. In Maren's case it was agreed by all witnesses asked that she had sepsis from her abscess and peritonitis.

[382] Next on the scale for a diagnosis would be "severe sepsis" or "severe SIRS" (no bacterial focus) which would include one organ showing hyper perfusion plus lactid acidosis, plus urine output of less than .5 mls per kilo per hour, hypoxemia and altered mentation.

[383] Next on the continuum is septic shock which is sepsis plus SIRS plus hyper perfusion of at least two or more organs, or one organ being unresponsive to adequate fluid bolus or iontropic agents. This can result in multi-system organ failure.

[384] Dr. Ross then indicated that she would expect a patient who started down this continuum to start into a "cascade" through the various stages with the ultimate result being death due to multi-system organ failure.

[385] Dr. Ross then explained that a patient with SIRS would not be a candidate for ICU. She indicated that without significant changes or observations on examination, a SIRS patient would only be treated with supportive measures. Those supportive measures could include trying to remove or deal with the infection. In Maren's case, that was done with surgery to remove the abscess and with antibiotics. Fluid resuscitation would be administered and the patient would be monitored. If a patient started further into the " cascade" a decision would have to be made as to whether inotropic or vasopessor support would be needed. These last measures would require ICU admission.

[386] Dr. Ross testified that by the time she saw her, Maren, clearly needed ICU admission. Very little history was taken and no charts were read by Dr. Ross to come to this conclusion. Dr. Ross indicated that Maren needed to be intubated and ventilated. She needed large IV line centrally and an arterial line to be inserted. The goal in doing this would be to improve Maren's perfusion and increase her blood pressure.

[387] Dr. Ross concluded that Maren was at significant risk or acute respiratory distress syndrome (ARDS) as well as multi-system organ failure and dealt. In fact, when assessed in ICU Dr. Ross felt Maren was already in multiple system organ failure.

[388] In result, Maren was immediately transferred to ICU and as indicated this took only 30 seconds. She was "bagged" on oxygen the entire way and the IV had been opened wide. Pressure was actually applied to the bag to get fluids in more quickly.

[389] I refer to Exhibit 1 page 62 which is a summary report prepared by Dr. Ross, which outlines Maren's ICU treatment. There is also charting with respect to the ICU for Dr. Ross between pages 72 and 74 inclusive. Dr. Tobler charted her findings and observations at pages 70 and 71 and then subsequently at page 66 and 67 of Exhibit 1. I will not refer in detail to the ICU charting as the evidence from Drs. Tobler and Ross was fairly detailed.

Intensive Care Unit

1115

[390] Nurse. Patti Infusino, the ICU nurse who would look after Maren, testified that she was called at approximately 11:15 a.m. and was told that Maren was coming to ICU. A patient was transferred to a cluster to make room for Maren. This was not a "bumping" since the patient was about to be discharged and Nurse Infusino wanted a central bed with lots of room. Maren went into bed #6 as per Exhibit 25, being the ICU roster. It is clear from reading the ICU roster at Exhibit 25 that there were indeed beds available for Maren. All of the ICU witnesses that testified indicated that there was room in ICU and I find as a fact that there was room in ICU from the time Maren had checked into the hospital at approximately 3:00 p.m., December 3, 1997. The unavailability of an ICU bed in this case is not an issue.

[391] Nurse Infusino's chart notes commence at page 179 in Exhibit 1 and are extremely detailed. I should say as well that I was extremely impressed with the candor of Nurse Infusino's testimony. I found her, like Dr. Ross, to appear to have abilities and a personality suited to an intensive care situation. Nurse Infusino seemed similarly "unflappable" and was most helpful to the inquiry process.

1120

[392] Maren arrived at ICU and Dr. Tobler intubated her. Dr. Ross put in the central line. This line was to resuscitate fluid more quickly. Dr. Tobler put in the arterial line. This is an invasive line to be used to monitor blood pressure as well as getting access to blood work without drawing it. Particularly, the doctors were looking to monitor Maren's gas to determine her oxygen level in her blood.

[393] An overview of what was done with Maren from the *viva voce* testimony now follows.

[394] Once Maren was intubated and lines were in, Dopamine was immediately started to a maximum dosage with no effect. This drug was given to constrict peripheral blood vessels to raise blood pressure. Dr. Ross indicated that with fluids and inotropes she was hoping for improving contractility of the heart by improving cardiac output and thereby improving oxygenation of Maren's tissue. The Dopamine was given because Maren's blood pressure, as indicated by Dr. Ross' Narrative Report, was in the 40's on admission.

[395] Epinephrin was also started to for a maximum dose with little effect and with no lasting effect. This is also a vasopessor to raise blood pressure. Numerous Epinephrin and Dopamine boluses were given again with no lasting effects.

[396] Dr. Ross then moved to Norepenephrine a drug with even higher vaso-constrictive effects and titrated Maren's blood pressure to that. Maren's blood pressure came up and it was actually stable for an hour to an hour and half. In addition, approximately 2 litres of fluid and 750 ml of fresh frozen plasma were administered. Systolic blood pressure went into the 100's after this resuscitation.

1130

[397] At 1130 Nurse Infusino did an assessment of Maren. Her chart notes at page 179 of Exhibit 1 reveal the difficulties that Maren was in. Nurse Infusino was candid in her testimony and indicated that when she did this assessment of Maren she "didn't think she would survive".

[398] Specifically, with respect to vitals, Maren had a heart rate of 200 to 218 beats per minute. Blood pressure was unobtainable. Nurse Infusino testified that her recollection is that Maren had a blood pressure of 39/2 upon admission. Femoral pulses were present but radial pulses were not. Maren's skin was still ice cold and clammy and mottled. Oxygen saturation was low at 78 to 82 even while being bagged. Maren's chest was crackling indicating to Nurse Infusino that Maren had fluid

in her lungs. Very little fluid was being outputted with only a small amount of concentrated urine in the catheter bag. All I.V.'s at this point were wide open.

1147

[399] After the initial assessment and charting, the vital signs and medications were logged in great detail on page 172 of Exhibit 1. I do not intend to repeat vital signs as they were taken moment by moment and there was a great detail on this page from the ICU unit.

[400] I will deal now with the significant occurrences in that progressive treatment.

1244

[401] Maren, at this point, had suction applied to her lungs for bile. Nurse Infusino testified that Maren had probably aspirated as she was now having abdominal contents in her lungs. Fresh blood is also observed. However, at this stage, Maren is at the point where she begins having a fairly constant blood pressure.

[402] At around this time, blood work, known as Staps, which could be done in ICU was taken to see Maren's hemoglobin and ionized calcium levels. Maren had acidotic blood so Maren was given bicarbonate. She was also given calcium gluconat which is another inotrope.

[403] Maren was also given Fentanyal for sedation and her antibiotics were supplemented with Tefotaxine, Gentamiacin and Clindamycin for gram-negative and anaerobe coverage.

1300

[404] Dr. Tobler testified that at approximately 1:00 p.m. Maren had stabilized enough to be assessed. Dr. Ross confirmed that a stable blood pressure was obtained and held for about one and a half hours commencing around this time.

[405] Dr. Tobler's observations were as follows and are found at page 71 of Exhibit 1:

- Maren's heart rate, which was 218 when she first came on the unit was still elevated at 200 bpm so it was difficult to determine abnormal sounds.
- Her blood pressure was now 87/55 which was stable and improved but not normal and she was on high dose Inotropes
- Respiratory rate was 34, being driven by a ventilator at 100% oxygen, but Maren was over-breathing and taking some breaths on her own. At this point Maren was unresponsive to insertion of any of the lines into her body.
- Maren had course breath sounds with gastric secretions coming up from her n.g. tube with a little blood.
- Maren was still peripherally ice cold.
- Maren's abdomen was hard with no bowel sound which is what was expected post-surgically.
- Maren had only 50 mls fluid output from drains and urine over the prior 4 hours which was very low.

[406] Dr. Tobler, upon this assessment concluded that certainly that Maren had septic shock post perforated appendix.

1430

[407] At 2:30 p.m. Maren was coughing and fighting her ventilator. At this point Maren was given Midaxolam, another sedative to stop the fighting reaction.

1540

[408] At this time Maren began to develop arrhythmia and approximately 24 hours after arriving at the ACH, Maren had turned her last corner. Maren's blood pressure started to drop again and as charted at page 180 at Exhibit 1 more inotropes and fluids were given to her to try and stabilize her.

1545

[409] At 15:45 p.m. the ventilator alarms go off as a result of a higher pressure due to fluid or other problems in Maren's chest. Maren was taken off the ventilator and bagged again on 100% oxygen. Suction was used on her lungs with no fluid being retrieved.

[410] At this point Maren's heart is also in difficulty. She begins premature ventricular contractions with "bigemini" meaning an irregular heart beat followed by a premature beat or normal beat from Maren's ventricle before a return to a regular beat.

[411] Dr. Tobler and Dr. Ross indicated that Maren went initially into supra-ventricular tachycardia for 10 to 15 seconds which meant her heart was having very fast contractions above the ventricles. Dr. Ross was then going to administer Adenosine to block the supra-ventricular conduction and slow the heart rate but Maren moved quickly to having normal ventricle beats and immediately into ventricle fibulation. At this point, Maren's heart was not squeezing blood effectively and was only fibulating. Cardiac compressions were immediately started without success.

[412] Dr. Ross decided at this point to shock Maren's heart to obtain a normal rhythm and give another Epinephrin bolus.

1557

[413] Maren begins to "guppy breathe" meaning that she was trying to breathe around the endotrachal tube in her throat. Nurse Infusino indicated that this was a clear sign that Maren's ventilation was not going well. She was given Vecuronium to paralyze her. At this point it is clear that drastic measures are being taken to try and save Maren's life.

1600

[414] Dr. Ross shocked Maren's heart twice and continued with the Epinephrin. Blood work was again taken and Maren was acidotic. Bicarbonate was administered again. Maren's calcium was low and it was also administered again.

[415] However, after 15 minutes, Maren's pupils were fixed, dilated an unresponsive to light.

1616

[416] Dr. Ross knew then that it was time to stop. Treatment ceased.

[417] A code was called.

[418] Maren Burkhart was dead.

[419] It is obvious from the foregoing that intensive care is just that "intensive". Issues have been raised as to whether Maren Burkhart ought to have been put in intensive care earlier than 11:00 a.m. on December 4 1997. I now turn to the ICU issue.

The ICU Issue

[420] With respect to the issue of ICU admission as a proper alternative for Maren pre- or post-surgically, all witnesses up until her admission in the Cluster indicated that Maren was not an ICU candidate.

[421] The ICU criteria for admission is formally found in Exhibit 22. That Exhibit and protocol was in existence but not seen by many who testified. Dr. Cox, who was head of ICU prior to doing anaesthesia, indicated that ICU admission was not based on a "policy document" but rather on basic "instability" of patients. Dr. Ross confirmed this and indicated that she did not use Exhibit 22 but rather looked at each patient individually and assessed them for admission.

[422] Unfortunately, in correspondence from Dr. John Jarrel to Mr. Broadhurst dated January 23, 1998, and found as Exhibit 6, it was communicated that "multiple organ failure" was the admitting criteria for ICU. I find that not to be so.

[423] The Exhibit 22 ICU Criteria certainly confirms that multiple organ failure, is not the criteria for admission to ICU. Indeed, some ICU admissions are mandatory such as neonates post-surgically. Some of these patients are admitted as a matter of course.

[424] All of the physicians who testified indicated that ICU admission is indeed based on the circumstances of each child. The list of example ICU potential admissions at page 3 of Exhibit 2 indicates to me that Maren was not a candidate for ICU when admitted initially after surgery in U Cluster at 11:30 p.m on December 3, 1997.

[425] Also, to narrow the issues, clearly by the time she was sent to ICU on the morning of December 4, 1997 at approximately 11:00 a.m., I would find that it was appropriate to admit her at that time.

[426] Before discussing what some of the doctors say about this, I should set out the evidence about the intensive care unit generally.

ICU Generally

[427] The ICU unit was described in some detail by Dr. Ross. She stated that she would be the attending ICU doctor and then there is a "variable" resident staff. There could be at any time in ICU pediatric residents, emergency residents or anaesthesia residents, at varying levels of training. As well there are critical care nurses, respiratory care technicians, physical therapists, occupational therapists, or other physicians that consult.

[428] There are 9 pediatric ICU beds, 5 neonatal ICU beds, and one isolation bed. ICU beds are in reality "closed beds" according to Dr. Ross and the ICU admission criteria in Exhibit 22. By that it is meant that any admission to ICU must be approved by the attending Intensivist. That means that surgeons and other physicians cannot directly admit to ICU.

[429] Dr. Ross testified that in her experience children referred to ICU are never denied. She can only think of two instances where children were referred from rural areas and upon arrival were clearly found not to be ICU patients. Other witnesses could not recall denials of ICU admissions either. Further, Dr. Ross indicated that ICU can be flexible and "juggle" patients. Neonatal beds that are empty can be used for regular pediatric patients. Patients who can be put in clusters safely can be moved. The testimony of all witnesses about ICU is that no child has ever been put in another ICU such as Vancouver, Edmonton because of the ACH ICU being full (although the opposite has occurred).

[430] In addition, all witnesses questioned indicated that an ICU bed was available for Maren throughout her time at ACH if needed. I have already found the ICU was not full and a bed was available for Maren from her time of arrival at the Alberta Children's Hospital.

[431] With respect to that, Dr. Cox and Dr. Ross agree that upon admission, Maren was not a candidate for ICU. Further, they both indicated that as far as they were concerned post- operatively Maren was also not a candidate. Hypothetically they indicated if they had been called about Maren to do an ICU assessment post-surgically, they would not have admitted her and they both would have sent her to the Cluster. Nurse Infusino also indicates that her experience is that if patients are stable post-operatively, they are not ICU candidates.

[432] However, we know from the evidence described above that Maren was not stable by 4:30 a.m. post-surgically. In this regard, I am mindful of Dr. Cox' evidence which benefitted from his own experience as an Intensivist.

[433] Dr. Cox confirmed that by 4:30 a.m. Maren had a non recordable blood pressure which he said was definitely at least a "low blood pressure". He indicated that he would have dealt with the problem by getting fluid into Maren to raise her blood pressure - just as Dr. Eccles had ordered.

[434] However, Dr. Cox indicated that taking 2 ½ hours to get fluid in seemed "too long". He confirmed that to monitor blood pressure an arterial line could have been inserted and only ICU could do this. Further, inotropes could have been administered to raise the blood pressure but again only in intensive care.

[435] Further, Dr. Cox confirmed that Maren's symptoms by 4:30 may have indicated hypovolemia or even possible septic shock and so several ICU admission criteria may have indeed been met as set forth in Exhibit 22.

[436] Dr. Ross confirmed that by 4:30 a.m. Maren would have been at least a "candidate" for ICU but Dr. Ross would have wanted to assess her and would have wanted more information.

[437] On this point, Dr. Cox went so far as to say that Maren " possibly" should have been put in ICU at that time, but he was also quick to point out that really all ICU could have changed would be increased monitoring and that was already being done in U Cluster. This was confirmed by the nurses. I have already indicated that Nurse Robin Moss had questioned Dr. Eccles about an ICU admission around 9:00 a.m. on December 4, 1997. However, Nurse Moss indicated that the only difference in ICU would have been monitoring and the ability to administer Dopamine, Epinephrine or other inotropes. However, Nurse Moss confirmed that when Maren was in U Cluster, she basically was getting one on one monitoring, just not of an invasive nature.

[438] Dr. Eccles also echoed this sentiment when asked her opinion as to whether putting Maren in ICU earlier would have helped the outcome of her case. Dr. Eccles said this at page 1764 at lines 1 to 17:

> That's what I thought a great deal about, as it as my decision that she stay on U Cluster. I suppose in retrospect knowing what she - - - how she progressed, being in ICU would have been better from a monitoring point of view. Whether it would have made a difference in the outcome, I don't believe so. On U Cluster on the day shift, she had almost a dedicated one to one nurse. If she had gone to ICU at 8:30, 9:00 o'clock in the morning, she would have had a one-on-one nurse. She wouldn't have been intubated. She had no criteria for intubation or ventilation at 9:00 o'clock in the morning. She was on 2 litres of oxygen, breathing spontaneously with adequate oxygen saturations. Her blood pressure was adequate with the fluid. I don't believe they would have started inotropes. So I don't believe it would have made any difference in her outcome.

[439] Having said this, Dr. Eccles also agreed on cross-examination that if the bolus that she had prescribed had gone in within a half an hour in the early morning hours and there had been no change in blood pressure, then there was nothing else on U Cluster that would have been of assistance to Maren and she would have gone to ICU for inotropes.

[440] Dr. Ross also testified on this subject. She said that she could not say that Maren's outcome would have been different if she would have been in ICU. Certainly, she indicated that care would have been administered more quickly and sooner. However, Dr. Ross testified that once a patient is in septic shock "cascade" mortality is 50% whether it is picked up early or late and treatment is still supportive only.

[441] Further, Dr. Ross made it clear that admission to ICU was done on a patient by patient basis. By 4:00 a.m, December 4, 1997, Dr. Ross confirmed that Maren fit the criteria for severe sepsis and therefore if an assessment had raised further concerns, she would likely have admitted Maren to ICU at that point. However, Dr. Ross indicated as well that she would have ordered a fluid bolus just as Dr. Eccles did and I conclude from her testimony that she would have wanted to see whether there was any improvement or change before admitting Maren.

[442] Dr. Tobler indicated that she also would have liked to have assessed Maren before deciding on an ICU admission, but given the problems that were being presented at approximately 4:00 a.m. she would have "probably" admitted Maren to ICU for monitoring.

[443] One final piece of evidence to consider is the evidence of Glenn Smith, the Respiratory Technician. He confirmed that nothing in ICU would have varied from the Cluster in terms of Maren's care by him. The Respiratory Technicians would have used the same equipment. Any different equipment that Maren needed could easily have been brought to the Cluster if it was needed. So, from a Respiratory Technician point of view, ICU admission appears to be a non- issue and I so find.

[444] In conclusion on the ICU issue, I note that this is a matter of great concern to Maren's parents. In fact, a denial of admission to ICU was what apparently made Maren's case notable to the coroner, Dr. Denmark, as it was specifically mentioned in Maren's obituary. Further, in my initial Reasons for Judgment in this matter on July 15, 1998, one of the six initial issues raised was whether Maren should have been taken directly at some point to the intensive care unit.

Step-Down Unit

[445] Also, I raise a further issue which I refer to as "step down unit issue". An issue arose during testimony as to whether a "step down" or some time of interim ICU or unit or beds with bolstered monitoring equipment and a lower staff-to-patient ratio would have been of assistance in these situations even for a short duration before discharge to a cluster. Dr. Ross certainly was of the view that such a unit would be helpful for patients with less need for intensive care but greater need for monitoring. Other witnesses ruminated as to whether a step down unit would have been any help here given the kind of monitoring that Maren did get on the Cluster.

Conclusion

[446] I express my gratitude to the witnesses who testified from Maren's family, the Alberta Children's Hospital, and the Calgary Regional Health Authority. I observed how difficult this process has been on many of the witnesses. I am indebted to counsel for their canvassing of the issues, briefing of witnesses, and provision of documentation. I am satisfied that all of the relevant evidence with respect to Maren Burkhart's death has been put before this court. I doubt that any fatality inquiry has had such a thorough canvassing of issues in the past based on my experience. I thank everyone involved for their help.

Expert Opinion Evidence

[447] As ordered by me in my interlocutory judgment on August 4, 1998, I appointed Dr. Gary Ivan Edmund Joubert, the Director of the Pediatric Emergency Department of the Children's Hospital of Western Ontario in London, Ontario as an independent medical expert to review the evidence and issues arising therefrom. His *curriculum vitae* is attached to this report. I forwarded my Findings of Fact to Dr. Joubert, interspersed with issues and concerns upon which his expert opinion was sought. His written report (and attachments) is Exhibit #38 to this report.

[448] Mr. John Kingman Phillips was retained by Michael Broadhurst, Maren's father, to represent his interests throughout the inquiry. In turn, Mr. Phillips and Mr. Broadhurst retained the services of Dr. Murray Girotti, Senior Medial Advisor and Medial Director of Trauma Program at the London Health Sciences Centre in London, Ontario as an expert to assist them in interpreting the evidence adduced at the inquiry and to offer opinion evidence on the issues arising therefrom.

[449] Dr. Girotti's *curriculum vitae* is attached to this report. His written assessment and opinions are attached as Exhibit #39 to this report.

[450] Additionally, both doctors were examined by all counsel via video conference on March 27, 2000.

[451] I am grateful to both doctors for their assistance in reviewing the evidence and Findings of Fact. In large part, their written reports and *viva voce* evidence are the basis for my recommendations which follow.

The Concern About Health Care Funding Cutbacks

[452] One of the primary areas of investigation in this inquiry was whether health care funding cutbacks were experienced by Alberta Children's Hospital; and if so, whether those cutbacks impacted on the care that was provided to or was available to Maren Burkhart. Michael Broadhurst, Maren's father, was quite concerned that issues relating to the health care funding cutbacks would not be fully explored and canvassed by the inquiry.

[453] I hope that Mr. Broadhurst will agree that the inquiry has left "no stone unturned" in pursuit of answers to his concerns.

[454] Allan Shewchuk was retained to assist and act as co-counsel with Alan Meikle, Q.C. in the presentation of evidence to the inquiry. Mr. Shewchuk has provided me with the following report

on the investigation regarding health care funding cutbacks, a summary of the evidence regarding cutbacks, and his conclusion on that particular concern.

> "Investigation Regarding Healthcare Cutbacks
>
> As I advised the Court, upon being retained in this matter, I met immediately with Mr. Meikle, counsel for the Attorney General. Mr. Meikle provided me with the complete healthcare record and other documents relating to the initial CRHA investigation into Maren's death. Mr. Meikle, thereafter, involved me at every stage of the preparation for evidence being called in the inquiry.
>
> In particular, over the course of the simmer of 1998, I attended at initial briefings with all of the staff at the Alberta Children's Hospital. As part of that process, there were lengthy briefing sessions and interviews with all of the nurses, from the initial emergency visit through to intensive care. Each of those witnesses was briefed with respect to the minutest details of their involvement in Maren's case and in each case those parties were extremely cooperative, sometimes despite the difficult subject matter.
>
> I wish to remind the Court that at each instance I offered the staff at the Alberta Children's Hospital the opportunity to speak with me privately or to provide me with information privately with respect to concerns they may have regarding healthcare cutbacks. I provided each of the staff at the Alberta Children's Hospital the opportunity to consult with or to discuss matters with me in an environment where they would not have to do so in front of their employer or their employer's counsel. In each case, the staff from the Alberta Children's Hospital were thankful for the opportunity to discuss healthcare cutbacks but did not feel that it was necessary to delve further into those matters as none of them were of the opinion that healthcare cutbacks had anything to do with a decline in the standard of care with respect to Maren's treatment at the hospital or with respect to her death.
>
> Further, by arrangement with Mr. Martland, each of the doctors involved in Maren's care were produced for a similar briefing session. In fact, those doctors were produced for briefing sessions without counsel present and Mr. Meikle and I had full and free access to medical records as well as to the caregivers. Again, in each case with

respect to the doctors, they were given the opportunity to discuss with me privately or through their counsel, concerns they had with respect to healthcare cutbacks and funding and the effect it may have had on Maren's care and her eventual death at the Alberta Children's Hospital. Again, in each case, the doctors declined my offer to speak privately since they were of the view that healthcare funding and cutbacks were not involved in Maren's death.

Similarly, after the commencement of the Inquiry, I requested access to management employees and officers of the Calgary Regional Health Authority. In addition, with Order of the Court, the CRHA and its officials were compelled to produce all relevant documentation and in particular, any relevant documentation that I requested in my investigation. Counsel for the CRHA cooperated fully but it was clearly understood that the CRHA was in a position of basically being served with a Subpoena *duces tecum* and that they had an obligation to provide any and all relevant documentation touching the matters at issue in the Inquiry.

Again, specific requests were made by me through counsel for the CRHA with respect to information relating to healthcare cutbacks. In particular, I requested information on the following areas:

- staffing
- funding and budgeting
- employee reviews and complaints
- budgetary policy and guidelines
- policies, rules and documentation relating to issues such as augmenting staff, increased care, and acute care
- supplies, equipment and access to specialized personnel such as respiratory technologists, intensive care personnel and other nursing and non-nursing staff
- any documentation relating to internal investigations that was not privileged and any documentation relating to any briefing of the media ro internal personnel that was not privileged.

I can confirm to the Court that, in fact, I was provided full and free access to all of this information. In the course of briefing officials and management of the CRHA, if further documentation appeared to be relevant, it was requested and provided promptly. Further documentation was provided to lay to rest certain issues so that the Inquiry did not get off track about concerns that were unwarranted

regarding matters touching on the management of the Alberta Children's Hospital.

As with the staff at the Alberta Children's Hospital, I asked each and every one of the management level employees and supervisors whether they had any concerns about healthcare cutbacks. Further, I gave them the opportunity to speak with me privately and again, each of them voiced general concerns at a management level about budgetary constraints but each of them confirmed in briefing and at the Inquiry that their primary obligation was to provide good care and that none of them felt that the Alberta Government's rollbacks or funding challenges played a part in a decrease in the level of care for Maren Burkhart or her death.

In addition, you will recall that at the end of each Court day or sitting, you would remind members of the public that if they had any information regarding Maren Burkhart or the circumstances surrounding her death that would be of assistance to the Court, that they were to come forward with that information. As you were no doubt aware, the media also covered this story quite extensively and it was made clear through the media that if persons had particular concerns regarding healthcare cutbacks that they could contact me directly. In fact, several people did contact me and I can assure you that none of them had any evidence that would have been of any probative value at this Inquiry. Most of it was anecdotal and frankly, had little or nothing to do with healthcare cutbacks.

Perhaps one of the most emotional moments of the Inquiry for me occurred when an elderly woman phoned me to discuss the case. She had had a young sister decades ago have symptoms of appendicitis. However, her parents did not take the child to a caregiver and as a result, her sister died in infancy. It was clear that this woman never got over that experience. Her telephone call to me related to public confidence in healthcare and she wanted to emphasize that the public needs to be aware of the high level of care given to pediatric patients at the Alberta Children's Hospital. She also wanted to ensure that the public did not avoid going to the Alberta Children's Hospital with children as a result of the negative media coverage regarding Maren Burkhart's death.

Therefore, with all of the opportunities for Maren's caregivers, doctors and the general public to give evidence with respect to

healthcare cutbacks, I now turn to what that evidence amounted to at the Inquiry.

Summary of Evidence Regarding Healthcare Cutbacks

As indicated, each and every one fo the people who testified was asked specifically about healthcare cutbacks. There was no evidence given from anyone involved in the system that healthcare cutbacks played a role in Maren's death. The indications from all of the people involved were that Maren's care and the care of all children at the Children's Hospital is paramount and that budgets are exceeded, staff work on their own time and people make do in the system. There is no doubt that the system is not "perfect" but for the purposes of this Inquiry, it was clear that despite the forum, either publicly or privately, no one was prepared to say that healthcare cutbacks or funding had any role to play in Maren's death.

You will further recall that the two experts that testified, Dr. Joubert and Dr. Girotti were each asked whether healthcare funding or cutbacks played any role in Maren's death. Both of them indicated that there were no specific instances they could point to where they could conclusively say that healthcare cutbacks played a part. While each of them raised concerns about areas of care being "stretched", neither of them were prepared to come out and say that healthcare funding or cutbacks were a cause in Maren's death.

In fact, Dr. Girotti indicated that from time to time Maren fell into pockets of care that were in excess of what would normally be required. We would remind you from the evidence from the Inquiry that would confirm what Dr. Girotti testified to which is as follows:

- When Maren attended at the Alberta Children's Hospital Emergency Room for her first visit on the early morning of December 3, 1997, it was confirmed that the Emergency Room was fairly empty and that Maren was immediately put into a wheelchair. A history was taken by the triage desk. It should be recalled that Debra Burkhart testified that upon arrival at E.R. at approximately 2:00 a.m., Maren's case was proceeded with initially very quickly. Staff at that time was six nurses and one patient caregiver. In addition, there were one and possibly two E.R. doctors on duty. Maren was triaged and the experts agreed that her triage categorization was correct.

- It is submitted that it appears that Debra and Maren Burkhart were dealt with expeditiously in terms of triage but ran into a situation, which was not uncommon, whereby there may have been more semi-urgent, urgent or emergent patients to be dealt with. This is not something that healthcare funding or further staffing would help, given the evidence at the Inquiry. Triage in emergency is dependent on what cases come in and which children need more immediate attention. It is submitted that Maren's wait was not inordinate and that her initial assessment and triage was correct and virtually immediate.

- When Maren went to visit Dr. Hickie at noon on December 3, 1997, Dr. Hickie's triage nurse rushed Maren in immediately to see Dr. Hickie. Dr. Hickie did immediate assessment, blood work and asked for results to come back "stat". He made contact with the Children's Hospital and Debra Burkhart within hours of seeing Maren and again, there appeared to be no wait whatsoever for Maren at this emergent care centre.

- Upon re-attending at the Children's Hospital after seeing Dr. Hickie, at the 8th and 8th Clinic, the evidence again was clear that Maren did not have to wait at the triage desk and that she was dealt with immediately. There was no other child at the triage desk and Maren's care began immediately in the room beside the triage desk. Thereafter, at that emergency visit, Maren was attended to by three doctors who monitored her condition and determined that rehydration was essential. Maren's condition was constantly monitored until she could be re-assessed at which time a surgical consultation was called for immediately.

- With respect to the surgical consultation, although Dr. Eccles had the night off, she had arranged for coverage through Dr. Selman. Dr. Eccles may have been aware of Maren's presence in the hospital as she had checked the Emergency Room as she was leaving for the evening. In any event, the evidence was that Dr. Selman attended within a half an hour after being called for the surgical consultation. Maren had no delay in x-rays or in her consultation with Dr. Selman who determined that surgery was necessary.

- Once Dr. Selman determined that surgery was necessary, he needed to call for an anesthetist and Dr. Cox happened to be

at the hospital and immediately available. In addition, there was no child in any of the surgical suites and there was ample surgical nursing staff. In fact, the "scrub nurses" were overstaffed and one of them was sent home. There was no delay in preparation for Maren's surgery.

- The surgeon and anesthetist determined that cluster care was appropriate. The cluster that Maren went to was not full and there was what could be considered a "full nursing contingent" on that cluster. While the doctors from London, Ontario who testified as experts in this matter indicated that it appeared that the nurses were "busy" on U-cluster, Dr. Girotti specifically testified that Nurse Newstead was apparently able to give Maren almost constant monitoring care and he had no concerns about the level of care that Maren had from Nurse Newstead.

- When Nurse Newstead needed to get hold of Dr. Eccles, Dr. Eccles responded immediately. At that time of the discussion between Nurse Newstead and Dr. Eccles, there were numerous options available to Dr. Eccles that were unrestricted as a result of budget cuts. In particular, Dr. Eccles could have:

- Called ICU and asked an intensivist to see Maren. The ICU doctors testified that they would not have refused a request to see Maren at that time, nor would they have refused admission to ICU at that time if it was necessary to do so.

- Made Maren a teaching patient or called a resident to assess Maren. There were apparently residents available in the hospital and again, there was no evidence that a resident would have denied care to Maren.

- It is submitted that Dr. Eccles decision was one based on judgment of the facts as presented to her by Nurse Newstead and based on her experience. Dr. Eccles was specifically asked whether staffing, equipment or healthcare funding had anything to do with her decision. She denied that that came into play and that there were ample resources for the care and treatment of Maren Burkhart, but Dr. Eccles made her decision based on her diagnosis and the information provided to her.

- When the day shift came on, and it was obvious that Maren needed her IV started, not one shift, but two shifts of nurses assisted in Maren's care. In addition, there was the nursing student Laura Faye and her teaching assistant Ms. Parker-Sparrow to augment the nursing staff.

- It is submitted that based on the testimony of the nurses who took over Maren's care, particularly Robin Moss and Tara Manzer, that Maren was given an extremely high level of nursing attention and care. In addition, it is submitted that Robin Moss and Tara Manzer were the two most impressive witnesses based on their dedication to pediatric nursing and to their care of children. It is submitted that those witnesses were also specifically asked whether healthcare funding or cutbacks had any affect on the care or the level of care that was given to Maren and they specifically denied same.

- When Dr. Eccles attended at the hospital in the morning and assessed Maren again, it was clear that whatever Maren needed in terms of care, whether it was nursing care, a respiratory technologist, x-rays or other matters, that it was available. There appears to be nothing that was wanting in Maren's care at this point.

- Most importantly, when ICU was called to take over Maren's care, they arrived at Maren's bedside immediately and Maren was taken directly to ICU. It is submitted that Maren received an ordinately high level of care in ICU and again, Dr. Ross was an extremely impressive witness in terms of her knowledge, dedication and work done with respect to Maren Burkhart. The ICU nurses, including Patty Infusino, similarly were impressive in terms of the level of care and dedication given to Maren Burkhart.

- All of these witnesses in intensive care were asked about healthcare funding and cutbacks and none of them gave any indication that this issue played a role in Maren's care and particularly in her death.

In addition to the foregoing evidence with respect to Maren's care, it is to be remembered that at all levels of CRHA management, the testimony was consistent. That testimony indicated that if additional resources by way of staff augmentation or overtime were needed in

> order to care for a child, then such additional manpower or assistance was forthcoming without question. It appears clear from the above evidence, that great weight must be given to the evidence of the CRHA management in this regard. It is submitted that it was abundantly clear that care came first to the professionals involved in the Alberta Children's Hospital from a nursing level through to a doctor level and at all levels of management.
>
> Again, it is submitted that the evidence simply does not bear out that healthcare funding or cutbacks had anything to do whatsoever with Maren's death.
>
> Conclusion and Recommendations
>
> Based on the foregoing, it is submitted that as counsel for the Inquiry looking into the issue of healthcare funding and cutbacks, that this Court should conclude that healthcare funding or cutbacks with respect to healthcare at the Alberta Children's Hospital from a government funding perspective did not play a role in Maren's death.
>
> It is submitted that this Court need not make recommendations with respect to healthcare funding or cutbacks in accordance with the *Fatalities Inquiry Act* as there was no evidence to support any finding or recommendations relating to this issue.
>
> In closing, it is clear that healthcare funding was of a concern to the individuals involved at the Alberta Children's Hospital. It is equally clear that we undervalue the work done by dedicated nursing and medical personnel. It appears that a person has to be a special breed to work in a pediatric care centre with sick children. Whether it is simply the dedication of employees that keeps the system working or whether it is the fact that there is no funding crisis in Alberta, is not something that this Inquiry can determine. However, it can be said with some certainty that Maren received dedicated and professional care at the Alberta Children's Hospital from the nursing staff in particular. Further, if demoralization, fatigue or bad attitudes exist at the Alberta Children's Hospital, they did not play a role in Maren's untimely death."

[455] I am in complete agreement with Mr. Shewchuk's conclusion. Parents of children who require care should have no qualms or reservations about taking their child to the Alberta Children's Hospital. It is a first-class facility that provides dedicated and professional care.

Recommendations to Prevent Similar Deaths

[456] Having dealt with the issue of health care funding cutbacks, I turn to the particular circumstances of Maren's death, and what might be done to prevent similar deaths.

[457] I am mindful that hindsight is the parent of future perfection. However, I am also of the view that the citizens of Alberta and, indeed, all Canadians should not expect perfection in the field of health care delivery systems; rather they are entitled to expect a high degree of adequate medical care.

[458] The evidence both from those involved in Maren's care and from the experts who reviewed that involvement, lead me to the conclusion that the care provided to Maren at the Alberta Children's Hospital was of that caliber.

[459] However, I make the following recommendations for improvements to the delivery system in place at the Alberta Children's Hospital. In doing so, I categorically state that these recommendations, if implemented, will not in themselves prevent death in all future cases. Nor am I of the view that the changes recommended would have prevented Maren Burkhart's death. If implemented, what they may do is improve the chances for survival in similar circumstances. It is impossible, in my view, to put a health care delivery system in place, at any cost, that will prevent the death of everyone who seeks medical care.

[460] **Recommendation #1:**

Patients who leave the Emergency Department prior to assessment by a physician should be contacted the following day by a health care professional.

[461]

[462] **Recommendation #2:**

At the time of contact, every effort should be made to ascertain the current status of the patient to determine if there has been any progress of the illness for which they presented to the Emergency Department, and further determine whether the patient requires further triage either by their family physician or by a return to the Emergency Department.

[463] **Recommendation #3:**

The Alberta Children's Hospital should record, monitor, categorize and review the numbers and reasons that patients leave the Emergency Department without being seen.

[464] **Recommendation #4:**

The Alberta Children's Hospital should continue their existing efforts to inform and educate the public concerning timely and appropriate presentation to their Emergency Department.

[465] **Recommendation #5:**

The Alberta Children's Hospital should inform the public about what they should expect to occur at the Emergency Department, including average assessment times for categories of suspected conditions.

[466] **Recommendation #6:**

The Alberta Children's Hospital should establish a protocol system to manage children who present with dehydration secondary to vomiting and diarrhea. This management protocol should include the provision of discretionary authority to a nurse, upon objective and subjective findings, to be able to

initiate intravenous therapy to patients when they deem it necessary, without the necessity of a physician's order.

[467] **Recommendation #7:**

The Calgary Regional Health Authority should develop a protocol whereby doctors employed in Health Clinics be allowed to directly refer patients to physicians and surgeons where time appears to be of the essence. To document such references, the Calgary Regional Health Authority should create and distribute appropriate forms to be attached to and form an integral part of the patients' charts.

[468] **Recommendation #8:**

The Alberta Children's Hospital should continually review and update their triage process and procedures, and involve their nursing staff in any decisions concerning categorization of presented patients and recording of objective observations in the triage process. Particular extra attention should be paid to situations involving difficult and/or uncooperative patients.

[469] **Recommendation #9:**

The Alberta Children's Hospital should review their policies concerning fluid challenges given to children in their Emergency Department to reduce the risk of aspiration pneumonia and delay in accessing surgical intervention.

[470] **Recommendation #10:**

The Alberta Children's Hospital should review and develop a standard approach to anti-microbial therapy which, following consultation and agreement by physicians at the hospital, should be adopted for all patients.

[471] **Recommendation #11:**

The Alberta Children's Hospital should ensure that a drug therapy book with standardized accepted dosages be available to physicians for quick and easy access and reference.

[472] **Recommendation #12:**

The Alberta Children's Hospital should implement a policy that all seriously ill pre and post-operative patients should become teaching patients to enable immediate access to a physician, thereby providing a team approach and continuity of care to the patient.

[473] **Recommendation #13:**

The Alberta Children's Hospital should develop a formalized protocol for post-surgical patients whereby a minimum number of vital signs be conducted on such patients, including measurement of urinary output, temperature, pulse, respirations, blood pressure, and oxygen saturation.

[474] **Recommendation #14:**

The Alberta Children's Hospital should ensure timely documentation (charting) of critical occurrences when a patient is in their care so all health care professionals can properly respond to those occurrences.

[475] **Recommendation #15:**

The Alberta Children's Hospital should develop a protocol for urgent or emergent intravenous access in children which is independent of the medical consultation routines that were in place at the time of Maren's death.

[476] **Recommendation #16:**

The Alberta Children's Hospital should provide ongoing training and education to all hospital staff and physicians about septic shock.

[477] **Recommendation #17:**

The Alberta Children's Hospital should reassess the admission criteria to their Intensive Care Unit, and provide guidelines to all of their care givers.

[478] **Recommendation #18:**

The Alberta Children's Hospital should establish a policy for providing in-house surgical support at night, funded by Alberta Health, or a policy to assign post-surgical patients to a resident or other medical doctor on the premises overnight.

[479] **Recommendation #19:**

The Alberta Children's Hospital should ensure that a protocol is in place that would allow all staff, at the time of transfer of care, to fully read and understand the charted history of patients, on paid time, while other staff continue to provide services as required.

[480] **Recommendation #20:**

The Alberta Children's Hospital should establish an auditing process of randomly selected charts to ensure better charting quality.

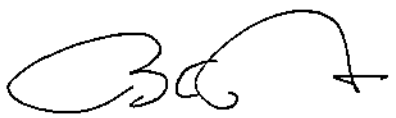
[481] **Recommendation #21:**

The Alberta Children's Hospital should conduct a survey of both nursing and physician staff focusing on morale, systems, work loads, personnel distribution, and other issues relating to patient care. Such a survey should be prepared and administered by an independent management consultant, preferably from outside of the province of Alberta.

[482] **Recommendation #22:**

The Alberta Children's Hospital should create an ongoing and independent Review Committee to fully investigate and generate internal recommendations following unexpected fatalities within the hospital. Such an independent Review Committee should be chaired by an individual from outside the Calgary Regional Health Authority.

Respectfully submitted the 15th day of June, 2000
at Calgary, Alberta.



Brian C. Stevenson
Assistant Chief Judge, Criminal Division - Calgary
Provincial Court of Alberta

BCS:lkh

See hard copy
for Appendixes.