CONOR MITCHELL

Contents

Introduction

6.1 Conor Mitchell was born on 12th October 1987. When he was 6 months old he was diagnosed with cerebral palsy, which limited his physical development. He also had a history of mild epilepsy. He was described as extremely intelligent with a great enthusiasm for sports and games and a determination for independence.[1] In spite of his disability "*Conor was extremely healthy…*"[2]

6.2 On 27th April 2003 Conor became unwell and complained of a sore throat. He vomited, was lethargic and suffered periodic discomfort.[3] He failed to recover and over the course of the next 10 days was managed at home with antibiotics prescribed by his GP.[4]

6.3 On 8th May 2003, Conor was seen by the family GP, Dr Doyle, [5] who referred him to the Royal Belfast Hospital for Sick Children ('RBHSC').[6] However Conor's mother wanted him to be seen as soon as possible and took him to the Accident & Emergency Department ('A&E') of the Craigavon Area Hospital ('Craigavon').

6.4 On arrival Conor was examined[7] by Senior House Officer ('SHO') Dr Suzie Budd,[8] who took blood samples and, noting that he was pale, unresponsive and showing signs of dehydration[9] gave him a bolus of IV fluids.[10] Dr Budd then tried to refer Conor to the paediatric team but was advised that, because he was 15 years old, he was too old to be admitted to a paediatric ward.[11]

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1 087-001-003
2 087-001-002
3 087-002-015 to 018
4 087-002-015 to 018
5 327-003-001
6 088-002-022
7 087-028-131
8 327-003-003
9 087-028-131
10 087-029-133 & WS-352-1 p.7
11 WS-357-1 p.4 - Dr Michael Smith described how the hospital followed the relevant guideline at the time in which the upper age limit was the day before the patient's 14th birthday

6.5 Notwithstanding that he had the physiology of an 8 year old,[12] Conor was admitted for observation into the Medical Admissions Unit ('MAU')[13] which was an adult ward. He was given further IV fluids.[14]

6.6 During the course of the afternoon and early evening, Conor's condition seemingly deteriorated and at 20:30 he suffered two seizures in quick succession and stopped breathing.[15] Conor was intubated and ventilated and admitted to the Intensive Care Unit ('ICU').[16] A Computerised Tomography ('CT') scan was performed.

6.7 At approximately 12:00 the following day, 9th May, Dr Charles McAllister,[17] Consultant in charge of ICU, requested that Conor be transferred to the Paediatric Intensive Care Unit ('PICU') at the RBHSC.[18] The transfer was accepted by Dr Anthony Chisakuta,[19] the RBHSC Consultant Paediatric Anaesthetist who had also treated Lucy after her transfer from the Erne Hospital in April 2000.

6.8 Upon admission to PICU, Conor was examined by Dr James McKaigue,[20] Consultant Paediatric Anaesthetist. He was alert to the involvement of hyponatraemia in the deaths of Adam Strain and Claire Roberts and had had involvement with Lucy in April 2000. Thereafter, and on 12th May 2003, Conor was also examined by Dr Robert Taylor[21] who by that time may be credited with significant expertise in hyponatraemia.

6.9 In light of the CT scan and findings on examination, brain stem death tests were conducted on 12th May 2003. There was no hope and the decision was taken to discontinue treatment. Conor was pronounced dead at 15:45.[22]

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12 Dr Budd WS-352-1 p.6
13 087-014-079
14 087-015-082
15 087-024-114
16 087-024-115
17 327-003-004
18 087-043-181
19 327-003-006
20 327-003-006 & 092-017-039
21 092-017-057
22 092-017-058

6.10 Formal notification of the death was made to the Coroner and after due investigation, the cause of Conor's death was found at inquest in June 2004 to have been:

"*I (a) Brain stem failure.*

(b) Cerebral oedema.

(c) Hypoxia, ischemia, seizures and infarction.

II Cerebral palsy."[23]

Conor's Terms of Reference

6.11 Whilst hyponatraemia due to fluid mismanagement was not implicated in Conor's death, I added Conor's case to the remit of this Inquiry because of concern that his fluid therapy had not been managed in accordance with the Department of Health, Social Services & Patient Safety, Northern Ireland ('the Department') 'Guidance on the Prevention of Hyponatraemia in Children' (the 'Guidelines') issued only 14 months before.[24]

6.12 The Minister authorised the inclusion of Conor's death within this Inquiry.[25] I explained in February 2010, that

"*It is obviously a matter of concern if guidelines which have been introduced as a result of a previous death or deaths and which are aimed at avoiding similar events in the future, are not properly communicated to hospital staff and followed.*

It is relevant to the investigation to be conducted by the Inquiry, whether and to what extent the guidelines were disseminated and followed in the period after they were published. Another matter of interest is whether the fact that Conor was being treated on an adult ward, rather than a children's ward, made any difference to the way in which it would appear that the guidelines were not followed.

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23 087-057-221
24 Progress Hearing T-30-05-08 p.6
25 Progress Hearing T-30-05-08 9.6

Accordingly, the Inquiry will investigate the way in which the guidelines were circulated by the Department, the way in which they were made known to hospital staff and the steps, if any, which were taken to ensure that they were being followed. While this is an issue of general importance, it will be informed by an examination of the way in which the guidelines were introduced and followed in Craigavon Area Hospital in May 2003."[26]

6.13 Accordingly, in this chapter of the report, I examine Conor's case with predominant focus on the extent to which the clinicians who cared for Conor at Craigavon complied with the published Guidelines. Other matters are dealt with for purposes of context only. I do so with reference to paragraph 4.2 of the List of Issues (excluding reference to the RBHSC), namely:

"*Investigation into the care and treatment that Conor received in 2003 in relation to the management of fluid balance:*

(1) What understanding those who cared for and treated Conor had of fluid management issues raised by his condition.

(2) To what extent fluid management and record keeping was covered in the teaching/training of [those]... *who treated Conor.*

(3) To what extent the care and treatment which Conor received, both in Craigavon Hospital and the RBHSC, was consistent with the then teaching/training on fluid management and record keeping, in particular the Guidelines.

(4) Whether the fact that Conor was admitted to an adult ward was relevant to whether the Guidelines were adhered to."

6.14 I examine Conor's fluid management at Craigavon from admission to respiratory arrest taking into account the procedures and advices set out in the Guidelines and consider whether Craigavon took appropriate steps to disseminate and implement the Guidelines into clinical practice. Unlike the other cases covered by this report, I do not make any findings as to the clinical aspects of care, save for fluid management and make no findings

[26] 327-004-001-002

as to the cause of death. While I am conscious that some other issues are very important to Conor's family (for example the issues of seizures and communication), I do not make any findings in respect of these matters.

6.15 It is be acknowledged at the outset that the Southern Health and Social Care Trust ('the Trust')[27] and some Craigavon doctors and managers, made relevant concessions at public hearings in October 2013 which proved of considerable assistance to the Inquiry. I commend the Trust and the clinicians for taking such a sensible and constructive approach before this Inquiry.

Expert reports

6.16 The Inquiry was guided by the expert reports received from Dr Robert Scott-Jupp,[28] Consultant Paediatrician at Salisbury District Hospital and dated 19th September 2013[29] and 11th October 2013.[30]

6.17 The Inquiry also had the benefit of the report of Dr Edward Sumner (Consultant Paediatric Anaesthetist at Great Ormond Street Childrens' Hospital) who reported to the Coroner in November 2003.[31]

Schedules compiled by the Inquiry

6.18 In an attempt to summarise the significant quantities of information received, the following schedules and charts were compiled:

(i) List of Persons involved in Conor's case.[32]

(ii) Chronology of Events (Clinical).[33]

(iii) Schedule of Guideline Requirements and Conor's Treatment.[34]

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27 As successor to the former Craigavon Area Hospital Group Trust.
28 327-003-008
29 260-002-001
30 260-004-001
31 087-056-213
32 327-003-001
33 327-002-001
34 327-008-001

All of the above are available on the Inquiry website.

Guidelines on the Prevention of Hyponatraemia

6.19 I have commended Altnagelvin hospital for bringing the death of Raychel Ferguson and the risks connected with the use of Solution No.18 to the attention of interested parties across Northern Ireland. Their response led to the creation of the CMO's Working Group on Hyponatraemia and the production of the Guidelines. It may be useful to recall how this came about as context for Conor's case.

6.20 In June 2001 Dr Raymond Fulton, Medical Director at Altnagelvin, disclosed the circumstances of Raychel Ferguson's death to a meeting of Medical Directors[35] and suggested that there should be guidance to regulate fluid management in paediatric cases. He indicated that he considered Solution No.18 to be hazardous for use with post-operative children.[36] He also notified Dr Henrietta Campbell,[37] the Chief Medical Officer ('CMO') and reiterated his belief that regional guidelines were required.[38]

6.21 The CMO sought background information and received Dr Taylor's paper 'Hyponatraemia in Children'[39] on 30th July 2001. She then directed her Deputy, Dr Paul Darragh[40] to assemble a Working Group to examine the issue of hyponatraemia in children and to make recommendations in relation to paediatric fluid management.[41] Dr Darragh asked Dr Miriam McCarthy,[42] Senior Medical Officer, to convene the Group[43] "*… to consider how best practice could be brought to bear on the problem and to explore whether further advice needs to be issued by the DHSS&PS at this time to the profession.*"[44]

35 012-039-179
36 095-011-055
37 337-001-002
38 012-039-180
39 043-101-223
40 337-001-002
41 075-082-329
42 337-001-002
43 WS-080-1 p.2
44 007-050-099

6.22 A number of highly experienced clinicians were then invited to attend an initial meeting on 26th September 2001 to be chaired by Dr Darragh.[45] It is to be noted that Dr Darrell Lowry,[46] Consultant Anaesthetist at Craigavon, was present.[47] It was agreed at that meeting that regional guidance was indeed required for paediatric fluid management and Drs Crean, Jenkins, McAloon and Loughrey undertook to draft the Guidelines.

6.23 Following further meetings involving the Department, Directors of Public Health, the Paediatric Anaesthetic Group, the Specialty Advisory Committees and the Clinical Resource Efficiency Support Team, the CMO published the Guidelines on 26th March 2002. They were drawn to the attention of a very wide range of practising clinicians and healthcare professionals in Northern Ireland, including medical and nursing directors and consultants[48] on the basis that "*Hyponatraemia can be extremely serious and has in the past few years been responsible for two deaths among children in Northern Ireland.*"[49]

6.24 The CMO issued the Guidelines with the specific instruction that they be "*prominently displayed in all units that accommodate children* [50]and that they should complement local protocols. Importantly, it was stressed that steps be taken to "*audit compliance with the guidance and locally developed protocols...*"[51]

6.25 Published in the form of an A2 sized poster,[52] the Guidelines provided advice in relation to baseline assessment, fluid requirements, fluid therapy, monitoring and advice. In terms they required that:

(i) Weight and serum sodium levels be measured and recorded before commencement of IV fluids.

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45 007-048-094
46 327-003-004
47 WS-350-1 p.4
48 007-001-001
49 007-001-001
50 007-001-002
51 007-001-001
52 007-003-004

(ii) Fluid needs be assessed by a doctor competent in determining the fluid requirements of a child patient.

(iii) Replacement fluids be considered and prescribed separately to reflect fluid loss, both in terms of volume and composition.

(iv) Maintenance fluids be dictated by sodium, potassium and glucose requirements.

(v) The clinical state of the patient be monitored and fluid balance assessed at least once every 12 hours and that biochemistry sampling be carried out at least once every day.

(vi) Advice and clinical input be obtained from a senior member of medical staff.[53]

6.26 It was unusual for the CMO to issue guidelines on clinical issues. Accordingly, it should have been very clear to healthcare trusts that particular attention should be paid to implementation.

6.27 Furthermore, and given that the CMO directed that the Guidelines be "*prominently displayed in all units that may accommodate children*",[54] it was clear that each and every hospital should display the Guidelines in all areas, including A&E and adult wards, where children might receive treatment. It should have been obvious that it would not suffice to display the Guidelines in children's wards alone and very evident that the Guidelines should be introduced to all clinical staff who might become engaged in the fluid management of children.

6.28 It is in this context that I examine how Craigavon responded to the publication of the Guidelines, what it did to implement them and how that was to influence the fluid therapy received by Conor.

53 007-003-004
54 007-001-001

Conor's Treatment at Craigavon

A&E

6.29 Upon admission to A&E Conor underwent routine blood tests and was prescribed intravenous fluids.[55] The fluids were documented on a fluid intake/output chart.[56]

6.30 It was subsequently observed that he appeared to be having seizures.[57]

6.31 Dr Scott-Jupp considered Conor's A&E fluid management with reference to the Guidelines. He considered that the requirements of the Guidelines had been complied with in respect of baseline assessment but expressed the following concerns about Conor's management in the A&E Department:

(i) That it was unclear whether it was Conor's actual weight or an estimate that had been recorded.[58]

(ii) That an arterial gas sample taken at 10:59 had been relied upon as an accurate indicator of Conor's sodium levels for the purposes of his fluid management, when such tests were known to be potentially unreliable.[59]

(iii) That the fluids administered to Conor in A&E were given "*as a replacement not a resuscitation fluid*"[60] indicating confusion between resuscitation and replacement fluids.[61]

(iv) That normal saline ought to have been administered in compliance with the Guidelines when Conor was thought to be in shock[62] (notwithstanding that he considered Hartmann's an acceptable fluid to use in the circumstances).[63]

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55 088-002-020
56 088-004-063
57 087-027-127
58 260-002-012
59 260-002-012
60 260-002-013
61 260-002-015
62 260-002-016
63 260-002-016

(v) That Conor's "*clinical state, particularly his degree of dehydration, was not well monitored*" and that "*no attempt was made to quantify his urine output prior to his arrival at hospital.*"[64]

(vi) That the monitoring of Conor's clinical state did not adhere to the Guidelines in consequence of which there was " *failure to make a more accurate assessment of his state of hydration* [which] *could have led to either excessive or inadequate fluid replacement, or to replacement with fluid that contained an inappropriate electrolyte content.*"[65]

(vii) That Conor did not have his fluid requirements assessed by a Paediatrician and that none of the doctors attending Conor in A&E were "*likely to have had the necessary skills, particularly in assessing a disabled child.*"[66]

(viii) That "*neither the ED (emergency department) staff, nor the adult medical doctors who subsequently saw him, were best placed to manage his fluids after the immediate resuscitation.*"[67]

6.32 Notwithstanding that the Trust rejected some of this criticism[68] I share Dr Scott-Jupp's concerns in respect of the management of Conor's fluids within A&E.

Admission to MAU

6.33 Dr Budd had tried to refer Conor to the Paediatric team[69] because she "*...considered that given that he had the physiological status of an 8 year old he would benefit from care under the specialist paediatric team. I intended him to be admitted there...*"[70] However, and notwithstanding

64 260-002-017
65 260-002-018
66 260-002-013
67 260-004-006
68 260-003-005
69 087-029-013
70 WS-352-1 p.6

referral of this issue to the Paediatric Consultant, the Paediatric Admissions SHO declined to admit Conor because he was over 13 years of age.[71]

6.34 Conor was therefore transferred to MAU and prescribed antibiotic medication and further fluids.[72] It is to be noted that Dr Catherine Quinn,[73] the Medical SHO, recognised that "*... My first fluid prescription (3 litre normal saline over 24 hours, or 125ml / hr) was based on a usual fluid regime for an adult patient. I did not make any additional calculations. This fluid prescription was not appropriate for Conor's size. This was highlighted by Dr Murdock during his review and I subsequently changed the prescription to a reduced volume and infusion rate on his advice...*"[74]

6.35 At that stage Conor's mother Ms Mitchell expressed concern about Conor's condition and made a request that he be transferred to the RBHSC.[75] In response Dr Marian Williams,[76] SHO, attended upon Conor at or about 20:30. She witnessed an episode of stiffening following by a prolonged seizure during which Conor stopped breathing.[77] An urgent CT scan was undertaken which was thought suggestive of subarachnoid haemorrhage. However, Dr Cooke, the Consultant Neurologist in the Royal Victoria Hospital ('RVH') who also saw the scan, did not consider surgical intervention to be indicated.[78]

6.36 In the circumstances it is unsurprising that Conor's mother should have expressed her unhappiness with the care given.[79] Dr Scott-Jupp examined the management of Conor's fluids in MAU with reference to the Guidelines and notwithstanding that the baseline assessment was properly conducted, he made the following criticisms in relation to the care given in MAU:

71 WS-352-1 p.6
72 WS-356-1 p.4
73 327-003-005
74 WS-356-1 p.5-6
75 087-002-020
76 327-003-006
77 087-035-164
78 088-004-055
79 087-001-008

(i) It was clear that "*the formula given in the Guideline was not used to calculate his maintenance fluids.*"[80]

(ii) An adult medical SHO and Registrar were unlikely to have had the necessary skills to assess the fluid requirements of a disabled child.[81]

(iii) There was a failure to distinguish between maintenance and replacement fluids.[82]

(iv) There was no estimate of fluid output and no calculation of estimated replacement requirement.[83] In particular "*the need for replacement fluids should have been assessed before the initial infusion was started and then again at intervals during the day by clinically assessing his state of hydration and his urine output.*"[84]

(v) There is uncertainty as to the volume of fluid actually received by Conor between 11:20 and 19:40.[85]

(vi) There was a failure to record the physical signs of dehydration.[86]

(vii) There was a failure to take urine samples for the purpose of osmolarity or biochemistry analysis so as to assess whether fluid replacement was required.[87]

(viii) The use of the antibiotic Ciproxin was inappropriate in the paediatric setting and contributed to Conor's fluid load.[88]

(ix) The rationale for this prescription was undocumented.

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80 260-002-013
81 260-002-012 to 013
82 260-002-013
83 260-002-015
84 260-002-014
85 260-002-014
86 260-002-017
87 260-002-018
88 260-004-005

(x) There was failure to ensure that Conor was reviewed by a more senior member of staff, most particularly in order to determine whether Conor was experiencing seizure activity.[89]

6.37 I share Dr Scott-Jupp's concern about Conor's fluid management in MAU. However it is important to note that Dr Scott-Jupp did not "*consider that inappropriate fluid management was a contribution to* [Conor's] *death.*"[90]

Admission to the Intensive Care Unit and PICU

6.38 Conor was transferred to Craigavon ICU at 22:00. Dr McAllister[91] assessed Conor's score on the Glasgow Coma Scale ('GCS') as 3/15, made a detailed examination and found almost no neurological response to stimulation.[92] Conor's basic brain stem responses were tested and Dr Richard Brady,[93] SHO, recorded that "*all appearances are that this unfortunate young fellow is brain stem dead.*"[94]

6.39 After additional neurological examination, consultation with Dr Anthony Chisakuta[95] at RBHSC and discussion with Conor's family, the decision was made to request Conor's transfer to PICU at the RBHSC[96] "*in view of weight and complex problems.*"[97]

6.40 When Conor was admitted to PICU at 19:00 on 9th May 2003 it was noted that his neurological condition remained unchanged. It was then that the Paediatric Anaesthetists took the view that Conor "*cannot survive this episode.*"[98] At 15:15 the decision was made to discontinue treatment and Conor was pronounced dead at 15:45 on 12th May 2003.[99]

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89 260-002-018
90 260-004-005
91 327-003-004
92 088-004-055
93 327-003-003
94 088-004-056
95 325-002-004
96 088-004-057
97 088-004-059
98 092-017-057
99 092-017-058

Post-mortem and inquest

6.41 Dr Janice Bothwell,[100] RBHSC Consultant Paediatrician, reported Conor's death to the Coroner's Office with a clinical assessment of "*Brainstem dysfunction with cerebral oedema. Cause of cerebral Oedema related to (1) Viral illness (2) Over-rehydration/inapprop fluid management; (3) status epilepticus → causing hypoxia.*"[101]

6.42 The Coroner directed a post-mortem examination which was conducted by Dr Brian Herron[102] (who had likewise performed the post-mortems on Claire Roberts and Raychel Ferguson) and once again sought the opinion of Dr Edward Sumner.[103] Dr Herron presented his autopsy report on 3rd March 2004 and concluded that death had been caused by cerebral oedema.[104] However, he expressed uncertainty as to the underlying cause of the cerebral oedema. He nonetheless suggested that the seizures may have been an important factor in the death.[105]

6.43 The Coroner, Mr John Leckey, conducted an inquest on 9th June 2004 and found the cause of Conor's death to be:

"*I (a) Brain stem failure.*

(b) Cerebral oedema.

(c) Hypoxia, ischemia, seizures and infarction.

II Cerebral palsy."[106]

6.44 It is relevant to note that Mr Leckey concluded that "*the fluid management at Craigavon Area Hospital was acceptable.*"[107] In this he was informed by Dr Sumner's evidence that the fluid management in Conor's case had indeed been "*acceptable.*"[108] However, and notwithstanding his evidence,

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100 327-003-006
101 087-137c-455
102 327-003-007
103 327-003-008
104 087-055-204
105 087-055-204
106 087-057-221
107 087-057-223
108 087-038-173

Dr Sumner took the unusual post-inquest step of writing to the Coroner, the CMO and Dr John Jenkins[109] to express misgivings about Craigavon's approach to fluid management:

"*Having got home from Conor Mitchell's inquest, I feel I must communicate my great unease. This is the fourth inquest I have attended in Belfast where sub-optimal fluid management has been involved...There was no calculation of the degree of dehydration nor the fluid deficit and no calculation of the maintenance fluids for a 22kg child. You will see from the enclosed copy of the fluid charts that the first prescription is not even signed. In my opinion the initial rate of infusion was unnecessarily high... there was a lapse in infusion for some hours... The basis of these amounts makes no sense to me at all. There was no note of volumes or urine passed, even though it was collected and I could not even find a basic TPR chart...My overall impression from these cases is that the basics of fluid management are neither well understood, nor properly carried out.*"[110]

6.45 It is therefore clear that there were significant failings in relation to Conor's fluid management. The fluid record did not adhere to the Guidelines, there was confusion in respect of both prescription and appropriate fluid and there was a failure to ensure that Conor was reviewed by senior staff.

6.46 It is surprising that both Dr Sumner and the Coroner should have described Conor's fluid management as "*acceptable*" when Conor's fluids were clearly not managed in accordance with the Guidelines. However, I accept that the concerns expressed by Dr Sumner in private correspondence, were his considered appraisal, upon reflection, of the treatment given to Conor at Craigavon.

6.47 Whilst recognising Dr Scott-Jupp's opinion that inappropriate fluid management did not contribute to Conor's death, I nonetheless find that the treatment failed to comply with the Guidelines. Notwithstanding that the Trust does not accept all the criticisms levelled by Dr Scott- Jupp, I conclude

109 327-003-007
110 087-062i-247 to 248

that there was failure to assess Conor's degree of dehydration and a failure to calculate maintenance fluids. Additionally there is uncertainty as to the rate and duration of infusion and a failure to document urine output. In short, the basics of fluid management were neither well understood nor well performed by clinicians in A&E and MAU.

6.48 It must therefore be asked how the clinicians in Craigavon could have so failed in these respects.

Implementation of the Guidance on the Prevention of Hyponatraemia

6.49 The CMO wrote to Trust Chief Executives on 4th March 2004 "*…to ask you to assure me that… these guidelines have been incorporated into clinical practice in your Trust and that their implementation has been monitored. I would welcome this assurance and ask you to respond in writing before 16th April.*"[111] The Trust Medical Director, Dr Caroline Humphrey,[112] replied to the CMO on 7th April 2004 to assure her that "*The guidance on the prevention and management of hyponatraemia in children was taken forward in Craigavon Area Hospital Group Trust by a group of senior clinicians including our Consultant Clinical Biochemist, a consultant representative from Accident & Emergency, two senior paediatricians and a consultant anaesthetist. The guidelines... have been adopted throughout the Trust including where children are treated by surgical teams.*"[113] Dr Humphrey also assured the CMO that the Guidelines were included in the induction given to junior doctors and had been subject to audit.[114]

6.50 Whilst the Trust has provided documentation to indicate that basic teaching was provided in relation to hyponatraemia and fluid management, no evidence has been forthcoming to indicate that anything was actually done in connection with the implementation of the Guidelines.[115]

111 007-067-137
112 327-003-004
113 007-073-145
114 007-073-145
115 329-018-006

6.51 Rather, Dr Humphrey gave evidence that she was in fact unclear as to who was responsible for the implementation of the Guidelines and did not actually know what was done about them.[116] In light of this evidence, her assurances to the CMO are a matter of serious concern, most especially given that the Trust has conceded that the Guidelines were not properly implemented at Craigavon.

6.52 Whilst the Trust attempted to suggest that Dr Humphrey had based her responses to the CMO "*on informal assurance mechanisms*"[117] it is clear that there was no basis for such assurances and they should not have been given. Whilst the failure to implement the Guidelines was an abrogation of responsibility, the deliberate attempt to mislead the CMO was a grave breach of professional duty and a failure in public service.

6.53 It would appear that the Chief Executive Mr John Templeton, [118] the Medical Director Dr William McCaughey,[119] and the Directors of Nursing Ms Bridie Foy[120] and Mr John Mone,[121] "*had the key responsibility for dissemination, implementation and monitoring of the guidelines.*"[122] Dr McCaughey indicated "*that details of implementation were appropriately delegated*"[123] to "*Clinical Directors in all specialties.*"[124]

6.54 He identified Dr Martina Hogan[125] as the consultant coordinating implementation within paediatrics.[126] Dr Hogan "*advised that Dr Bell initiated dissemination and implementation of Actions arising from the Guidelines…*"[127] Mr Ivan Sterling and Dr Jeff Lee, the Clinical Directors of A&E and MAU respectively[128] could not recall any direction about the

116 WS-354-1 p.6
117 340-001-009
118 327-003-008
119 327-003-004
120 327-003-002
121 327-003-003
122 329-018-007
123 WS-369-1 p.7
124 WS-369-1 p.4
125 327-003-003
126 WS-369-1 p.5
127 329-032a-001
128 329-032a-001 to 002

implementation of the Guidelines[129] and the Trust was "*unable to provide clarity on the units in which the 2002 Guidance was displayed...*"[130]

6.55 It would however seem at least possible that the Guidelines were displayed because it is recorded[131] that the Clinical Services Manager, Mrs Eileen O'Rourke[132] asked Nursing Sisters to check whether the Guidelines posters were on display on each ward.[133] Unfortunately Mrs O'Rourke was unable to recall the response elicited and there is no record.[134]

6.56 Irrespective of the Trust's subsequent acknowledgment of failings in this regard, the evidence reveals a confused detachment amongst senior staff in Craigavon as to what was to be done with the Guidelines:

(i) Mr Templeton, the Chief Executive of the Trust, while conceding that he held a joint responsibility for implementing the Guidelines and that he was made aware of the Guidelines by the Medical Director, understood it to be managed "*under the direction of the Chief Medical Officer.*"[135]

(ii) Dr McCaughey could not recall where the Guidelines were displayed[136] or what was done to develop or introduce compliant protocols.[137]

(iii) Ms Foy, Director of Nursing, accepting that she had joint responsibility for the implementation of the Guidelines,[138] had no recollection of seeing the Guidelines[139] let alone taking any steps to implement them.[140]

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129 329-032a-001 to 002
130 329-018-007
131 329-014-122
132 327-003-007
133 329-014-122
134 WS-370-1 p.4
135 WS-371-1 p.3
136 WS-369-1 p.6
137 WS-369-1 p.6
138 WS-367-1 p.6
139 WS-367-1 p.4
140 WS-367-1 p.5

(iv) Mrs O'Rourke, the Clinical Services Manager, stated that she had "*no recall of receiving this information*"[141] and could not remember if she "*forwarded the posters or whether they were sent to the Sisters from the Director...*"[142]

(v) Mr Mone told the Inquiry that he had no recollection of the Guidelines.[143]

6.57 This was a failure in both individual and collective leadership.

Evidence of the clinicians and nurses

6.58 This unsatisfactory situation was confirmed by the evidence of the clinicians who cared for Conor in both A&E and MAU.

(i) Dr Budd, who was responsible for providing Conor's initial intravenous fluids in A&E, told the Inquiry that she was not aware of the Guidelines at the time of Conor's admission.[144]

(ii) Dr Catherine Quinn, Medical SHO in MAU, said that she was not aware of the Guidelines before seeing Conor, was not aware of them on display in MAU and had received no formal training in the application of the Guidelines.[145]

(iii) Dr Andrew Murdock,[146] who as Specialist Registrar in Gastroenterology and General Internal Medicine had advised Dr Quinn in relation to managing Conor's intravenous fluids,[147] could not recall the Guidelines being brought to his attention or seeing the Guidelines on display in MAU or indeed in any other area of the hospital where he worked.[148]

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141 WS-370-1 p.3
142 WS-370-1 p.4
143 WS-375-1 p.5
144 WS-352-1 p.10
145 WS-356-1 p.9
146 327-003-005
147 087-025-117
148 WS-355-1 p.14-15

(iv) Dr Marian Williams, SHO in Paediatrics who attended Conor, could not recall whether the Guidelines were brought to her attention at that time[149] or indeed if they were on display in MAU.[150]

(v) Sister Irene Brennan (née Dickey),[151] the senior nurse on duty in MAU, acknowledged that the Guidelines were not followed in Conor's case because the nurses in MAU were unaware of their existence.[152] They had not been brought to their attention[153] and were not on display.[154]

(vi) Staff Nurse Francis Lavery[155] who had been on duty, could not recall receiving any specific training in relation to the fluid management of paediatric patients.[156] He stated that the Guidelines were not brought to his attention before Conor's admission[157] and confirmed that they were not on display in MAU.[158]

(vii) Sister Lorna Cullen[159] was the Ward Sister in MAU. She had no involvement in Conor's case.[160] Notwithstanding that she was the Ward Sister, she stated that the Guidelines were not brought to her attention[161] and were not displayed in MAU.[162] Nor was she aware of any other location within the hospital where the poster was displayed.[163]

(viii) Staff Nurse Barbara Wilkinson[164] was on duty in MAU. She was unaware of the Guidelines at that time and did not recall receiving

149 WS-358-1 p.5
150 WS-358-1 p.7
151 327-003-002
152 WS-353-1 p.13-14
153 WS-353-1 p.12
154 WS-353-1 p.13
155 327-003-002
156 WS-351-1 p.6
157 WS-351-1 p.10
158 WS-351-1 p.12
159 327-003-002
160 WS-374-1 p.4
161 WS-374-1 p.6
162 WS-374-1 p.7
163 WS-374-1 p.8
164 327-003-003

any training as to their use or application[165] and confirmed that the poster was not on display.[166]

(ix) Staff Nurse Ruth Bullas[167] [168] formally admitted Conor to MAU and likewise advised that she was unaware of the Guidelines at the time and could recall no training in respect of them.[169]

6.59 The evidence is clear that the CMO's instruction that the Guidelines be disseminated, implemented and developed was ignored. This was wholly unacceptable and a significant failure on the part of Trust. The acting Medical Director Dr McCaughey, the Directors of Nursing Ms Foy and Mr Mone, and the Chief Executive, Mr Templeton were in post and responsible.

Decision to admit Conor to an adult ward

6.60 The decision to admit Conor onto an adult ward was the subject of debate. Dr Scott-Jupp was of the view that Conor should have been managed in a paediatric setting which would have benefited his treatment in that:

(i) Greater attention might have been given to an early diagnosis of urinary tract infection.

(ii) A different antibiotic requiring less fluid would probably have been prescribed.

(iii) It is likely that he would have been treated throughout with normal saline.[170]

6.61 Notwithstanding that the Trust took issue with Dr Scott-Jupp's view as to the appropriateness of Conor's admission onto an adult ward,[171] Dr Scott-Jupp maintained that "*it should have been obvious to all concerned that this*

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165 WS-377-1 p.7
166 WS-377-1 p.8
167 327-003-002
168 Staff Nurse Bullas was subsequently removed from the nursing register by the Nursing and Midwifery Council following an upheld complaint raised by Ms Mitchell that she had failed to document concern about Conor's seizures or to escalate them to a senior member of staff.
169 WS-376-1 p.8
170 260-004-006
171 260-003-006

was a very immature, child-like 15 year old." He said he would "*have expected greater flexibility both at Craigavon and in Belfast. I do not believe age cut-offs should have been so rigidly applied.*"[172] It is not without relevance that despite his age RBHSC took account of his physiology and admitted Conor into PICU.[173]

6.62 The unfortunate result was that Conor was treated in A&E and in MAU by doctors and nurses who were ignorant of the Guidelines, in consequence of which:

(i) The management of Conor's fluids, whilst not the cause of his deterioration or death, was non-compliant and sub-standard.

(ii) The appropriate formula for calculating maintenance fluids was not used.

(iii) Conor's fluid output was neither measured nor recorded.

(iv) The entries in the fluid record are unclear to the point that they obscure how much fluid Conor received and when.

6.63 However, it is to be noted that within the Paediatric Department, Dr Michael Smith[174] recalled that the Guidelines were displayed on the ward.[175] Dr Hogan stated that she was trained in the use and application of the Guidelines.[176] Dr Barbara Bell[177] said that she received a copy of the Guidelines and had personally ensured that they were clearly visible in all paediatric clinical areas.[178]

6.64 Whilst there was uncertainty as to whether protocol was developed to complement the Guidelines as requested by the CMO,[179] it would nonetheless appear that a protocol for the management of intravenous fluids in children had been developed by Drs Smith and Lowry following

172 260-002-021
173 088-004-073
174 327-003-006
175 WS-357-1 p.10
176 WS-368-1 p.5
177 327-003-003
178 WS-364-1 p.4
179 WS-354-1 p.11 & 329-018-006 & WS-369-1 p.6

Raychel Ferguson's death and before the Guidelines were published.[180] Their protocol emphasised the need to calculate maintenance fluids separately from replacement fluids and contained a table to aid the proper approach to fluid management.[181]

6.65 I can only therefore conclude that had Conor been admitted to the paediatric ward as Dr Budd intended, he may very well have been cared for by medical staff familiar with the Guidelines and received appropriate fluid therapy. There might also then have been better engagement with Conor's mother.

6.66 This was an inconsistency which effectively meant that different paediatric patients could receive different treatment in different parts of the same hospital with potentially different outcomes. Such variation in the potential for appropriate treatment within a major hospital is troubling. That such a situation could develop reveals dangerous systemic vulnerabilities for which the Chief Executive, Mr Templeton, must bear responsibility.

Serious Adverse Incident Procedure

6.67 Craigavon had policy and procedure in place in 2003 for adverse incident reporting. However, Conor's death was not reported as an adverse incident[182] notwithstanding that the RBHSC reported both the fact of his death and the fluid mismanagement to the Coroner.

6.68 The decision not to report Conor's death as a Serious Adverse Incident ('SAI') was subsequently defended in correspondence by Dr Humphrey to Dr A.M. Telford, Director of Public Health, Southern Health and Social Services Board on the basis that fluid management issues were not in fact implicated in the cause of death.[183] Ignoring the fact that Conor's death was most unexpected and warranted investigation on that basis alone,

180 329-014-001 & WS-350-1 p.5
181 329-014-004
182 329-022-001
183 329-022-017

there was a failure to adequately review Ms Mitchell's express dissatisfaction and the uncertainties in clinical diagnosis.

6.69 Ms Mitchell continued to express her concern about the fluid management in correspondence with Mr Templeton in 2004 and 2005.[184] It was not until Conor's case was added to the work of this Inquiry that the Trust belatedly acknowledged that it "*can now be considered a serious adverse incident as defined in Circular HSS (PPM) 06/04.*"[185] This was an incident and a complaint which ought to have been thoroughly investigated. At the very least the Trust would then have been alerted to some of the many deficiencies now revealed.

Admissions by the Trust

6.70 The Trust properly issued the following apology in respect of its many failings in relation to the Guidelines:

"*The Southern Health and Social Care Trust, which includes the legacy Craigavon Area Hospital Trust... accepts that the DHSSPS 2002 guidelines on the prevention of hyponatraemia in children were applicable to Conor Mitchell. The trust accepts that for various reasons, which will be the subject of this inquiry, the directions of the Chief Medical Officer as contained in these guidelines and accompanying correspondence were not properly implemented in the medical assessment unit or emergency department of Craigavon Area Hospital at this time and that staff in those areas were not made aware of or trained by the legacy trust in the implementation of these guidelines. We would contrast that situation with the Southern Trust's response to the DHSSPS 2007 guidelines. 'The trust accepts that throughout his course of management in Craigavon Area Hospital in 2003, it was the trust's responsibility to ensure the clinicians and nurses who were looking after Conor Mitchell had the guidelines in the forefront of their minds when treating him and the trust accepts that these clinicians and nurses should have had this guidance available to them when treating Conor.*

184 329-022-021 to 033
185 329-022-018

Although there is nothing to indicate that the failure to comply with the guidelines resulted in Conor's death, the trust fully acknowledges its liability for the failures and shortcomings that occurred in the implementation of the DHSSPS 2002 guidelines on the prevention of hyponatraemia in children, both generally and specifically, in relation to Conor's care. The trust apologises to Conor's family for the failings referred to above and again offers our sincere sympathies to Conor's family."[186]

6.71 The family welcomed this admission and apology[187] and hoped that it would avoid "*extensive investigations on certain issues*" by the Inquiry and result in savings in public funds.[188] It was agreed that the admissions rendered it unnecessary for the treating clinicians to give oral evidence.[189]

6.72 Instead, I directed that the Trust provide written submissions detailing how and why it failed in Guidelines implementation and its omission to deal with the case as a SAI. In addition I sought particulars of those arrangements now in place in Craigavon to implement the Guidelines.

6.73 A paper was submitted by the Trust on 21st October 2013 indicating that:

(i) "*There may have been a perception at the time of the dissemination of the 2002 Guidelines that the guidelines were not applicable to adult medicine and therefore appropriate dissemination and training in the guidelines was not highlighted...*"[190]

(ii) "*Clear compliance and assurance processes should have been put in place to ensure that nurses and doctors in all areas where there was the potential for children to be treated were aware of and trained in the guidance.*"[191]

186 T-17-10-13 p.6-7
187 T-24-10-13 p.7
188 T-17-10-13 p.7-8
189 T-18-10-13 p.2
190 340-001-004
191 340-001-004 to 005

(iii) "*Assurance arrangements should have been agreed by both the Medical Director and Nursing Director...*"[192]

(iv) "*There appears to have been a breakdown in communication in relation to individual's roles and responsibilities regarding the dissemination of the guidelines.*"[193]

(v) "*There appears to have been a perception by the Director of Nursing that it was the CSM*'s *responsibility to implement the guidelines... in the absence of a clear assurance framework there was confusion of roles and responsibilities between the Director of Nursing and the CSM.*"[194]

(vi) "*That the governance arrangements within the Trust had not matured sufficiently to ensure an integrated approach to Governance. This resulted in the risk that the guidelines would not be disseminated down both nursing and medical lines simultaneously.*"[195]

(vii) "*There is no documented evidence or audit trail to evidence that Paediatric nurses were trained specifically on the 2002 fluid management guidelines.*"[196]

(viii) "*In retrospect both Dr McCaughey and Dr Humphrey advised that they based their assurances* [to the CMO] *with regards to the implementation of the 2002 guidelines on informal assurance mechanisms.*"[197]

(ix) "*It is evident in hindsight that Conor's case would meet the criteria for review as a SAI with respect to point 8 of Circular HSS (PPM) 06/04 Reporting and Follow up on Serious Adverse Incidents: Interim Guidance... Therefore in not reporting Conor's case as an SAI at the*

192 340-001-005
193 340-001-006
194 340-001-006 to 007
195 340-001-007
196 340-001-007
197 340-001-009

time there was a lost opportunity to identify and share learning across the region."[198]

6.74 On 23rd October 2013 I sought clarification on these submissions so as to confirm my interpretation of the Trust concessions.[199] At public hearing on 24th October 2013 it was furthermore accepted by the Trust that:

(i) Clinicians in wards other than the paediatric ward were not made aware of or trained in the implementation of the Guidelines, including A&E and MAU where children would be treated.

(ii) The Guidelines were not implemented within nursing practice in Craigavon, including paediatric nursing.

(iii) That there was no basis for the Medical Director, Dr Humphrey, whether alone or with input from Mr McCaughey, to give assurance to the CMO that there had been implementation of the Guidelines at Craigavon.

(iv) That a SAI investigation should have been conducted into the unexpected death of Conor under Circular HSS (PPM) 06/04 or the Trust's own policy.[200]

Subsequent developments

6.75 The Trust approach was of assistance. The Mitchell family then responded and stated that they wanted "*to see measures put in place that will prevent similar tragedies occurring in the future...*"[201]

6.76 It therefore became important to consider whether or not measures are now in place in Craigavon to ensure that paediatric fluid therapy is managed in accordance with the Guidelines.

198 340-001-010
199 340-008-001
200 T-24-10-13 p.19 line 21
201 T-24-10-13 p.8 line 15

6.77 I was informed that the Guidelines were superseded in 2007 by guidelines deriving from the NPSA Patient Safety Alert 22.[202] The approach taken by the Trust in light of Safety Alert 22 was described as including the presentation of an action plan to the Trust Board, the creation of a Working Group led by the Medical Director, a training programme, compliance audits and an independent review of the Alert.[203]

6.78 On 30th October 2007 the Trust reported that Solution No.18 had been removed from general use in Craigavon and new fluid balance and prescription sheets were under consideration.[204] A "*Hyponatraemia Meeting*" was held in January 2008 to consider how all 14-16 year old patients would receive treatment in accordance with the Guidelines irrespective of where they were treated.[205] Audits to ensure compliance were carried out in October 2007[206] and March 2008.[207]

6.79 The Trust also adopted a 'Paediatric Intravenous Infusion Policy' in October 2009 detailing the medical procedures for prescription, monitoring and review of intravenous infusions for children and young people[208] together with nursing procedures for the administration of fluids. Guidance was given as to the recognition of hospital acquired hyponatraemia.[209] In terms, the policy directed that nurses should consult the chart to satisfy themselves that prescriptions complied with the 2007 Guidelines before administering IV fluid and that they should carry out appropriate assessments, report changes in the child's condition and provide handover briefings to incoming staff.

6.80 The policy also contained an 'incident trigger' list[210] with an associated reporting mechanism[211] to alert clinicians to:

202 303-028-367
203 329-020a-001
204 329-020a-012
205 329-020a-001
206 329-020a-042
207 329-020a-038
208 329-020a-125
209 329-020a-133
210 329-020a-145
211 329-020a-146

(i) Any episode of hospital acquired hyponatraemia in children receiving IV fluids.

(ii) Any failure to check electrolytes at least once in every 24 hours in children receiving intravenous fluids.

(iii) The use of any IV fluid other than as outlined in the 2007 Guidelines.

6.81 Mandatory training for all medical and nursing staff in the management of IV fluids for children and young people was also stipulated by the policy.[212] The Inquiry has been provided with comprehensive documentation setting out these requirements. Moreover in relation to the clinical governance procedures set out in the policy, the evidence suggests that the Trust has undertaken audits every year since 2010 to assess compliance with the 2007 Guidelines[213] together with an "*Audit of Hyponatraemia.*"[214]

6.82 The Trust advised that the audit results are shared within a multi-disciplinary team and discussed at clinical governance meetings.[215] This in conjunction with developing external guidance has led to additional changes in practice including:

(i) The development and implementation of a revised fluid balance chart.

(ii) The development and implementation of guidelines for peri-operative fluid management in children to "*provide guidance and reduce the risk of harm associated with intravenous fluid administration to the paediatric patient in the peri-operative phase.*"[216]

(iii) Further review of the paediatric intravenous infusion policy.

212 329-020a-173
213 329-020a-004
214 329-020a-122
215 329-020a-008
216 329-020a-163

6.83 A Review of the Trust's 'Incident Management Policy' was completed in January 2013[217] and found "*clear guidance on incident reporting, investigation and the dissemination of learning from incidents and SAI's.*"[218] Likewise, assurances were given that since April 2012 the Trust has had a procedure[219] "*in place to ensure the systematic and integrated approach for the implementation, monitoring and assurance of clinical standard and guidelines.*"[220]

6.84 Accordingly, the Trust expressed the hope that it had been able "… *to demonstrate that they have reflected on their roles and responsibilities at this time and have identified and agreed on those factors which may have had an influence, or may have contributed to the failings in the dissemination and implementation of the guidelines in the Emergency Department and Medical Assessment Unit of CAH and furthermore the opportunities missed in the sharing of learning with regard these failings.*"[221]

6.85 On this basis I am of the view that the Trust has learned lessons and has implemented appropriate change in the years since Conor's tragic death.

Concluding remarks

6.86 Whilst I welcome the Trust concession that clear compliance and assurance processes in respect of the Guidelines should have been agreed and put into operation by the Medical Director and Nursing Directors, such concession cannot serve to avoid the just and appropriate criticism that Conor's treatment failed to comply with the Guidelines.

6.87 It is now acknowledged that there was a breakdown in communication between those in positions of governance as to their roles and responsibilities. This was a systemic failing for which the Chief Executive must bear responsibility.

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217 340-001-012
218 340-001-012
219 304-001-003 & 340-005-001
220 340-001-013
221 340-001-013

6.88 There was potentially dangerous variation in the care and treatment afforded young people admitted to Craigavon which was a serious systemic weakness.

6.89 The false assurance given the CMO that the Guidelines had been adopted and audited was a serious breach of professional duty and public service values.

6.90 Had the Trust conducted the SAI investigation of Conor's unexpected death, which it now accepts it should have done, it would have learned lessons to the benefit of all. That opportunity was lost.

6.91 Notwithstanding shortcomings and deficiency, the evidence as to policy, protocol, training, audit and review in the years since Conor's death, has provided some reassurance that lessons have been learned from this tragedy. Appropriate measures have been taken within Craigavon.