Neutral Citation: [2015] IEHC 141

THE HIGH COURT

[2011 No. 6299 P.]

BETWEEN

AVA KIERNAN

(A MINOR SUING BY HER MOTHER AND NEXT FRIEND, RUTH KIERNAN)

PLAINTIFF

AND

HEALTH SERVICE EXECUTIVE

DEFENDANT

JUDGMENT of Mr. Justice Cross delivered on the 4th day of March, 2015

1. Introduction

1.1 The plaintiff was born on 27th July, 2007, and resides in Co. Meath. Her birth was uneventful and she brings these proceedings against the defendant, claiming that her serious neurological symptoms which were undoubtedly attributable to hydrocephalus were caused or materially contributed to by reason of the negligence of a servant or agent of the defendant in her failure to detect the hydrocephalus prior to its causing significant neurological damage.

1.2 Due to the good sense of the parties, the issue of liability was agreed to be decided prior to the issue of quantum.

1.3 I was greatly assisted by counsel throughout the period of the trial and by their subsequent submissions as to fact. I was also greatly assisted by all of the witnesses both witnesses as to fact and lay witnesses, all of whom gave honest evidence according to their beliefs and recollection. There was some criticism by the plaintiffs of the independence of one of the defendant's witnesses who's working area overlapped with the area where the plaintiff was treated but I do not find any merit in that objection.

2 Hydrocephalus

2.1 Within the brain there are chambers that contain a fluid called Cerebrospinal Fluid (CSF) which has been constantly produced and reabsorbed. If the brain cannot absorb this fluid sufficiently quickly, the ventricles will enlarge. This enlargement may be caused by a blockage of the flow of CSF or by a failure to reabsorb the fluid sufficiently quickly. This second cause is called "communicating hydrocephalus" and is what occurred in the plaintiff's case.

2.2 As the CSF increases inside the brain, the ventricles enlarge until they compress the adjacent brain tissue. An infant's brain tissue is reasonably compliant and allows for movement and compression without producing signs or damage like a sponge ultimately, as the amount of fluid continues to increase in volume, it starts to compress the rest of the brain against the inside of the skull bones. This process results in raised pressure being exerted on the brain itself which will, if untreated, eventually cause severe and irreparable brain damage. Once the brain tissue has been damaged, it seems that it cannot be repaired.

2.3 The brain damage occurs in an exponential manner because at the beginning of the process, the head expansion is relatively easy in young infants because the skull bones are pliant. As the process continues, it becomes more difficult to spread the bones apart and the expansion of the skull cannot accumulate any increased pressure and at the late stage in the development of the condition, symptoms tend to arise such as bulging fontanelles.

2.4 In order to relieve the pressure once the condition has been recognised, a shunt is placed in the brain which drains the fluid into the abdominal cavity. A person may be suffering from hydrocephalus without any obvious symptoms and, of course, without any consequential brain impairment. If the shunt can be placed sufficiently early before any significant brain damage has occurred then there is a benign result. If the shunt can only be placed after significant brain damage has occurred then it seems the best that can be hoped for is to stop further deterioration.

2.5 In the plaintiff's case, by the time the shunt had been inserted unfortunately, significant permanent neurological damage had occurred.

2.6 The plaintiff's hydrocephalus has been clinically described idiopathic i.e. there is no known medical cause. The fact that there is no known medical cause does not, of course, mean there is no cause, merely, that medical science cannot determine what the cause is to their satisfaction so that a medical determination can be made. If it is possible to do so, I have to determine from the evidence before me what, on the balance of probabilities, is the cause of the hydrocephalus. It is not for me to make any medical diagnosis but rather to decide the issue on the legal probabilities.

2.7 Professor Hill on behalf of the plaintiff concluded that the hydrocephalus was congenital i.e. that she had increased intra-cranial pressure since birth. It was further contended that as the plaintiff had communicating hydrocephalus, it was a slow process which would have been present for a long time. The defendants postulated that the communicating hydrocephalus may have been caused at some period after birth. For this to happen, the only possible explanations offered to the court were either that the plaintiff had suffered a trauma or possibly or illness such as meningitis. Having heard all the evidence, I accept that had the plaintiff suffered from meningitis, it would have been detected as a matter of probability in one of the medical examinations which took place of the plaintiff in hospital prior to her going on holiday and further had there been evidence of brain damage due to a trauma or indeed of meningitis, there would have been evidence of this discernable on the various imaging taken of the plaintiff subsequently. This was not the case. Furthermore, the plaintiff's mother denies any trauma and I accept that evidence.

2.8 Accordingly, on the balance of probabilities I rule out either any post birth traumatic event or disease as being the cause of the hydrocephalus and am forced to conclude as I do that the plaintiff was suffering from a congenital disability since birth which would

have shown up on radiological examination had these been ordered. It does not necessarily flow from this conclusion that, at any stage, any reasonable examination would have alerted her carers to the advisability of tests to assess her condition. Indeed, the central issue in this case is whether the public health nurse ought to have been alerted as to the possibility of a developing situation and taken appropriate action.

3 History
3.1 Two days after the plaintiff's birth, her head was measured by a consultant paediatrician at Our Lady of Lourdes Hospital, Drogheda at 35cm.

3.2 Following the plaintiffs mothers discharge she came under the care of the defendant via the public health care system which involved a number of visits initially to a midwife and subsequently with the public health nurses who recorded their findings on examination of the plaintiff on the official document named the "Child Health Services Pre-School/School Card" which contained various information including information of the plaintiff's head circumference plotted on a chart which showed 3 centile lines.

3.3 The plaintiff's complaints relate to the actions of public health nurse, R., in relation to her examination of the plaintiff at her home on 26th October, 2007 and at the health centre on 24th April, 2008 and again at the health centre on 8th September, 2008.

3.4 Unfortunately, public health nurse R. was medically unfit to attend court or indeed to give evidence by the time this matter came to trial. It is, of course, correct that I would have wished that public health nurse R. was in a position to give evidence as to what occurred but must decide this case on the evidence actually before me.

3.5 During the course of the trial, reference was made to a number of different charts. The only chart actually in use clinically in respect of the plaintiff was that chart with 3 centile lines contained in the previously mentioned Child Care Service Pre-School/School Card. Reference in the trial was also made to what was called a "five centile chart" which was in the health centre and which was, subsequent to the plaintiff's diagnosis, consulted by public health nurse R. to reassure herself that she had not been in error. Further charts were introduced in evidence by the defendant, the UK 1996 Chart (revised in 2002), the WHO UK Chart (introduced in Ireland in 2013) and upon which the defendants plotted the various measurements calculated by public health nurse R. and which had been entered by her on "3 centile chart". The defendants also introduced charts upon which they recorded the measurements which the plaintiff's expert had predicted was normal for a child. These charts were introduced to the trial by the defendant in order to support the defendant's case that there was nothing particularly worrying about the growth of the plaintiff's head.

3.6 Public health nurse R. utilised the "3 centile line" chart on the plaintiff's Child Care Service Pre-School/School Card. In relation to the plaintiff's head measurements, the initial, post birth, measure of 35cm is plotted with a circle around it. This measurement on the "3 centile chart" is approximately midway between the 3rd centile and the 50th centile line. Then on public health nurse R's examination at three months, the head circumference is measured at 41cm which measurement is circled and a line drawn between the birth measurement and the three month measurement. The 41cm measurement is midway between the 50 centile line and the 97 centile line.

3.7 The next examination which is the most contentious occurred at approximately nine months on 24th April, 2008, and up from the nine month line, the figure of 46.5cm has been charted with a circle around it and a line drawn from the four month reading goes to this figure. This figure has then got an x through it and the words "error" with an arrow pointing to that reading occurs on the chart. A figure of 46cm then appears up from the eight month line (at which there was no examination) which also is circled. There is a written entry beside the chart for that date and it is accepted by both sides that the figure of 46.5cm has been altered to read 46cm. In the notes of the visit the head circumference is recorded for that date as 46cm.

3.8 I believe what occurred at the examination on 24th April, 2008, is that public health nurse R., originally measured the plaintiff's head at 46.5cm and chartered this measurement on the 3 centile chart and also recorded it in writing. Probably because of concerns that the 46.5cm measurement at nine months was closely approaching the 97 centile line on the chart, I believe nurse R. re-measured the plaintiff's head and came up on the second occasion with a 46cm measurement which she then substituted on the record and on the chart. I believe that this alteration was probably done on the date of the original examination. I do not believe that it has been established that this alteration of the chart was brought about by any attempt, after the problem had been ascertained, to doctor the evidence out of any sinister motive and I reject the plaintiff's submission to that effect.

3.9 On the chart, furnished to the court, the next recording on the face of it seems to be at eleven months where 46.5cm is written and chartered with a circle around the recording and a line drawn from the nine month's reading flat across to this eleven month reading. This reading at eleven months is also crossed out and indeed no examination occurred in the health centre at this time.

3.10 There is a further entry on the card submitted to the court which gives a reading of 46.5cm for the examination on 8th September, 2008. This reading is also circled on the chart but no line connects it to the aforementioned reading at eleven months.

3.11 The defendant concedes that the reading of 46.5cm at thirteen months on 8th September, 2008, is an error and indeed represents a breach of duty (of which more below). The issue of the charts is made more complicated by the fact that the plaintiff's solicitors requested the original chart from the defendants and were given a copy of the original chart from the defendants, but this copy, while mostly identical to the chart submitted to the court has no reading for 8th September, 2008 and the purported reading for eleven months was not crossed out.

3.12 I believe what probably occurred was sometime after, a copy of the original had been sent to the plaintiff's solicitors, someone on the defendant's side realised that there had been no examination at eleven months and that there had been an examination at thirteen months which had been incorrectly entered at eleven months and accordingly, inserted the reading for 8th September and crossed out the reading at eleven months. To say the least, the note taking and recording was entirely unsatisfactory and below the expected standard of care, as any amendments to the chart should have been recorded and the reason for the amendments given but naturally that, of itself, is not causative of any injury sustained by the plaintiff. I also accept the evidence from a number of witnesses that where a head circumference is measured with two different measurements, the correct procedure is to record the largest measurement and accordingly, the correct procedure on 24th April, 2008, would have been to record the measurement of 46.5cm and treat that as being the accurate measurement of Ava's head on that date.

4 The Plaintiff's Case
4.1 The plaintiff's case is that shortly after birth, the plaintiff's head circumference was measured at 35cm. This was recorded on the 3 centile chart, somewhere between the 3rd centile and the 50th centile. At three months, the plaintiff's head circumference was recorded at 41cm which are on the 3 centile chart has risen to somewhere between the 50th centile and the 97th centile line. At nine months, the plaintiff's head circumference was measured at 46.5cm which is nearly at the 97th centile line and then re-measured, on

the same day, at 46cm which is somewhere below the 97th centile line but significantly closer to it than the 50th centile line. The plaintiff's head circumference was again measured on 8th September, 2008, at 46.5cm which it is conceded by the defendant as an incorrect measurement and indeed a breach of duty of care.

4.2 The plaintiff's case as stated by their nursing expert, Ms. Patricia O'Dwyer was that the growth chart gave vital evidence and that the data of a baby's length, weight and head circumference are critical to monitor the performance and growth of a baby. Ms. O'Dwyer stated that the absolute head circumference is not important provided that it is between the 3rd centile and the 97th centile, but what is important is the measurement over time to track the head growth to ensure that it follows at least roughly a centile line on which the measurements commenced at birth. The plaintiff's contention is that if the measurement crossed one centile line, as it had at three months, the public health nurse should have recalled the child, for further testing and monitoring and if it crossed two centile lines, as it had at nine months, there should be an immediate referral to the area medical officer or to a general practitioner. In this regard, Ms. O'Dwyer was supported by Prof. Hill, a Paediatric Neurologist. It is the plaintiff's contention that as her head measurement had crossed 50th centile line on the chart about three months, that the plaintiff ought to have been carefully monitored by the public health nurse and called back for further review within a few weeks or a month and re-measured so that the growth of the head could be measured and, if necessary, the plaintiff then referred to a doctor who would, in all likelihood have referred the plaintiff to a hospital for electric imaging which would have revealed the onset of the problem. The plaintiff contends that the failure of public health nurse R. to so react, at the three month stage represents negligence and breach of duty on her part.

4.3 The plaintiff further contends that whether a measurement of 46.5cm or 46cm was obtained at the nine month stage that, as the measurement crossed 2 centile lines on the chart, public health nurse R. ought to have immediately referred the plaintiff to her general practitioner. At the nine months examination, the plaintiff's mother stated, and I accept, that she brought to the attention of public health nurse R., the fact that the plaintiff, unlike her sibling at that age, was not holding her bottle and the bottle had to be propped up for her to take it. This concern was not recorded on the notes.

4.4 The plaintiff further contends that the recording of 46.5cm on the third relevant examination on 8th September, 2008, by public health nurse R., was clearly incorrect and this recording and public health nurse R's examination and findings were negligent. On that occasion, serious developmental regressions were brought to the attention of public health nurse R. who ascribed these regressions to her contention that the plaintiff was overweight and she then attempted to dissuade the plaintiff's mother from seeking any specialist medical advice in respect of the plaintiff's condition.

4.5 This submission is accepted by the defendants. Some eight days later on 16th September, 2008, when examined in hospital a measurement of 53cm of the plaintiff's skull was made and this measurement, which is accepted as accurate, is entirely incompatible with the reading of 46.5cm on 8th September, 2008. The defendants accept in relation to the examination on 8th September, 2008, public health nurse R., did not correctly address, the serious and significant developmental concerns brought to her attention by the plaintiff's mother and indeed, attempted to dissuade her from getting any further medical opinions, and, as indicated, it is not disputed by the defendant but that public health nurse R's examination and treatment of the plaintiff on this date was a breach of duty and I find negligent. As significant developmental injury had occurred prior to 8th September, the defendants contend that the failure by the public health nurse on that date did not create any material difference to the plaintiff's condition.

5 The Defendant's Case

5.1 The defendants dispute that the plaintiff was suffering from any congenital condition since birth and I have already rejected that contention. In relation to the three months, nine months and twelve months examinations, the defendants contend firstly that there was no abnormal growth in the plaintiff's head from birth to three months or from three months to nine months and they do so by reference to other growth charts which would be discussed below.

5.2 The defendants further contend that the growth of the plaintiff's head circumference at three months and nine months were normal by reference to the generally acceptable growth velocity in centimetres for girls at 14 weeks and 40 weeks respectively and if that proposition is correct then the impact of plotting the plaintiff's head circumference on the 3 centile chart is not relevant as had public health nurse R. sent the plaintiff for medical examination by a doctor, general practitioner or a consultant, they would have not been alarmed by the growth of the plaintiff's head. The defendants further contend that the guidelines in relation to the use of the 3 centile chart, was that in the absence of any clinical signs referenced for medical evaluation would only be made if the head circumference measurement was below the 3rd centile line or above the 97th centile line and this use was consistent with the then current referral guideline of the 2006 growth monitoring module.

5.3 It is further contended that the plaintiff's regression only commenced either in late July or August 2008 and that there is no evidence that the plaintiff had hydrocephalus or increased intracranial pressure at any point in time before these regressive signs became apparent in August or July at the latest. I have already decided that the hydrocephalus was, in fact, present from birth but, of course, it does not follow that any signs of the hydrocephalus were apparent or ought to have been apparent at the stages.

5.4 It is further contended that there is no evidence that the admitted breach of duty on 8th September, caused the plaintiff's injuries as she had already suffered a brain injury that caused her aggression and her other subsequent symptoms.

6 The Plaintiff's Development Post Birth

6.1 The plaintiff's birth was uneventful and all recording on the growth chart indicated that she reached the appropriate milestones. As stated, the plaintiff's mother did relate to public health nurse R. at the nine month visit that the plaintiff was not holding her bottle and indeed that the bottle had to be propped up and that this contrasted with the development of the plaintiff's sibling. The public health nurse reassured the plaintiff that this was normal and different children react differently and did not record the concern.

6.2 The plaintiff's mother had some concerns in relation to the plaintiff's general health at the beginning of the summer 2008 and as the plaintiff was due to go on holiday with her family in July the plaintiff's grandmother took her to hospital to ensure that she would be fit to travel. Two examinations were performed on the plaintiff and the plaintiff's grandmother was reassured that she could safely travel. The defendants contend that it is possible that the health concerns at the time indicated the presence of meningitis which was undetected at the medical examination. I do not accept that contention. I have no doubt but that even had the plaintiff's mother not recognised any of the signs of meningitis that an examination by a competent doctor on more than one occasion in hospital would have clearly revealed any such ailment.

6.3 As well as contending that there was a possible undetected problem of meningitis at that time, the defendants also contend that these examinations as revealed nothing of concern and recorded all developmental milestones having been attained they disprove any suggestion that the plaintiff was, at the time, suffering from hydrocephalus.

6.4 The plaintiff's grandmother brought the plaintiff to hospital, she did not relate any concerns in relation to the bottle and the

plaintiff's head was not measured and the plaintiff's growth chart was not available and clearly not consulted and accordingly, I do not find the examinations in hospital as being of any assistance to the defendant in ascertaining that at that time, the plaintiff was not in a deteriorating condition.

6.5 The first major signs of developmental concerns and regressions occurred after the plaintiff returned from her holidays in Spain. The plaintiff's mother attempted to get a consultant to examine the plaintiff but was advised that the waiting list was very considerable. Then in great concern she called at the clinic on 8th September, where the plaintiff was examined and public health nurse R. who noted the developmental concerns but advised the plaintiff's mother that the regressions were caused by the plaintiff being overweight and advised a diet and also counselled against the plaintiff's mother spending money on any medical opinion.

6.6 Fortunately, the plaintiff's mother went to her general practitioner who immediately noticed the alarming regressive developments and immediately referred the plaintiff to Our Lady of Lourdes Hospital where her head circumference was measured at 53cm. The plaintiff's growth charts were not available to the hospital or to the hospital in Dublin to which the plaintiff was subsequently transferred and initially hydrocephalus was not identified as the problem. However, the hospital had great concerns over the developmental regressions of the plaintiff but they did not apparently have sufficient information at that stage, without the plaintiff's growth charts and without any input from public health nurse R., to diagnose hydrocephalus prior to performing a scan. The plaintiff was sent for elective procedure which due to lack of availability of beds was then delayed and the plaintiff was discharged home and readmitted and an MRI scan was preformed and the problem was identified and a shunt was put in which will remain for the rest of her life.

6.7 Unfortunately, due to the elapse of time in this progressive debilitating condition, significant brain damage had occurred with development deficits which will not be reversible.

7 The Charts

7.1 After the diagnosis of hydrocephalus was made, public health nurse R. in order to reassure herself turned to a chart which was apparently on the clinic wall or otherwise available in the clinic known as the "5 centile line chart" to record her original findings. There is no evidence that this chart was ever used prior to the diagnosis in relation to the plaintiff. On this chart, the original health circumference of 35cm is charted and on this chart, that measurement is recorded somewhere between the 50th and 90th centile line. At three months, the measurement of 41cm charts on the 90th centile line and though this is a monthly chart if an allowance is made for the fact that the examination was after the three month period, the 41cm charts somewhere between the 50th and 90th centile line. The nine month measurement at 46cm was charted again at the 90th centile line and if allowance is made for the actual date of the charting it is, again, just below the 90th centile line. Public health nurse R. did not chart a measurement of 46.5cm at the nine month period but had she done so, it would have been over the 90th centile line.

7.2 On the WHO head circumference line, the birth chart 35cm recorded on the 85th centile line, the three month of 41cm is again on 85th centile line and the nine month chart 46cm is above the 85th centile line and below the 97th centile line. The defendants did not chart 46.5cm at nine months but again that would have been above the 97th centile line.

7.3 On the UK Girls Growth Chart, the birth measurements if recorded on this chart and if taken at 39 weeks gestation would be on the 75th centile line and if recorded as on the birth line, it would be approximately midway between the 75th and 50th centile line. On that chart, the three month measurement of 41cm is just short of the 75th centile line of 46cm if recorded not at three months but at fourteen weeks and approximately on the 75th centile line if recorded at three months. The nine month measurement if recorded at 40 weeks is on the 75th centile line and approximately midway between the 75th centile and the 91st centile line if at nine months. If 46.5cm is the correct measurement it would chart midway between 75th and 91st centile at 40 weeks and on or just over the 91st centile line if the appropriate date was the nine month figure.

7.4 The major difference between the various charts is really only in that the original "3 centile line" (chart for reasons that were not really explained to me) had the original birth measurements equating to a significantly lower line than the other charts. Otherwise the charts were broadly similar.

7.5 The defendants utilised the other chart to support their contention that at the three month or nine month period, there was no evidence of alarming head growth and had the plaintiff been referred to a specialist at either date, nothing alarming would have been diagnosed as any specialist would have referred to the birth charts as outlined above.

7.6 The defendants through their experts emphasised that what was important was the rate of growth rather than the head circumference itself and their expert, Mr. McConnell stated that he would not have considered the measurements to be a problem had he known that the plaintiff had a head circumference of 41cm at fourteen weeks and 40cm at 40 weeks. In this, Dr. Millet agreed.

7.7 There was a significant dispute between the experts on both sides as to what would be the expected growth of a child's head from the birth head circumference as given.

7.8 The different charts use different centile lines but these lines are, of course, a guide only. Evidence was given on behalf of the defendant by public health nurse R's companion that the instructions in relation to the growth chart were that there was no concern unless the recordings were either over the 97th line or under the 3rd centile line. This is similar to the instructions in the 2006 Growth Monitoring Module which stated:-

> "Head circumference measurements are a questionable value, unless they are concerned. If a measurement below the 0.4 or above the 99.6 advice should be sought. Most parents want to know if their child has a serious illness but it can take time to arrive at the decision whether the child has a health problem or not, and care must be taken not to create parental anxiety through repeated measurements and time delays in reaching a diagnosis.
>
> No definite recommendation for referral above a certain centile, including 99.6 can be made as many healthy children are above the 99.6 centile…"

It should be noted, of course, that the centile lines referred to in the 2006 Growth Monitoring Module (0.4 and 99.6) were not the same lines as any lines set out in the 3 centile chart (97th and 3rd).

7.9 I also accept the evidence from Prof. Hill on behalf of the plaintiff when he stated that measurements should be roughly parallel along the same centile line. Prof. Hill was of the view that crossing a centile line was of significance and suggested concerns. The defendants contended, however, that it was only with there was crossing of a number of spaces in a chart that any particular concern should be made. I do not find that debate to be fruitful. The number of lines and the number of spaces would vary depending

on the chart. What is important is that the growth is roughly along the same centile line.

8 The Legal Duty
8.1 Neither party made any submissions as to the legal duty but confine their submissions as to fact. The standard of care required of medical practitioners was classically stated in *Dunne v. National Maternity Hospital* [1989] I.R. 91, by Finlay C.J. when he held that the true test for establishing negligence in diagnosis or treatment on the part of a medical practitioner is whether the practitioner has been proved guilty "of such failure as no medical practitioner of equal specialist or general status and skill would be guilty of if acting with ordinary care". Traditionally, courts have assessed the negligence of nurses by application of the ordinary principles of the standard of care rather than the more deferential test applied to medical professionals.

8.2 In *Kelly v. St. Laurence Hospital* [1988] I.R. 402, the Supreme Court applied the general negligence test, the plaintiff in *Kelly* suffered from epilepsy, was taken off all medication which exposed him to an increasing risk of an epileptic attack in order to allow his medical adviser to diagnose more accurately the source of his medical condition and no special instructions were given as to any particular nursing care though the nurses were made aware of his history and the plaintiff in the middle of the night left the ward, crossed the corridor and he entered into a ladies toilet, climbed through the window and fell to the ground 20ft below, sustaining extensive injuries and Finlay C.J. stated:-

> "This is more precisely a case where the issue is one of nursing care and attention than one where the allegation of negligence is to be categorised as negligence in medical treatment. Undoubtedly, the extent and nature of the care and attention which a reasonably careful hospital would have afforded to the plaintiff whilst he was an in-patient there… depends to a very large extent on the foreseeability from a medical point of view of the risk that the plaintiff would, if allowed to go unattended to the toilet in the middle of the night, injure himself in some way.
>
> That does not, however, seem to me to make this a case solely to be tested by the standards which have been accepted by the courts with regard to allegations of negligence in treatment afforded to their patients by professional medical people."

8.3 In this case, the allegations clearly relate and only relate to the professional skill, judgment and practice of public health nurse R. and it is her professional standards as a public health nurse that have to be judged. As long as it is the law that professional standards of doctors or solicitors should only be considered in a certain way then I see no reason why the professional standards of a public health nurse should be assessed differently.

8.4 To apply a different and lesser obligations to a nurse than a doctor is to adopt what, in this day, seems to me to be to be an outdated view dating from a time nursing was a Vocational rather than a Professional qualification, and to revert to an age in which nurse had little, if any, professional autonomy and deferred entirely to the directions of doctors.

8.5 There may be a significant number of instants in which a nurse is acting in accordance with a prescribed system in which the alleged negligence is, in effect, the negligence of the system rather than of the individual, but in this case, I hold that the standard to be assessed is that standard appropriate to medical professional, as set out in *Dunne v. National Maternity Hospital*.

8.6 Public health nurse R. was acting as an autonomous public health nurse professional and she had professional standards to maintain and her obligations were to perform to the standard of a public health nurse. Any fault, in a legal sense, must be a fault within the *Dunne* principles.

8.7 I will analyse the possible negligence in the three imputed dates in reverse order of complexity.

9 The Examination on 8th September, 2008
9.1 The defendants admit liability in respect of the examination on 8th September, but plead that by that stage, the plaintiff had already suffered brain damage and no material difference was made due to the admitted negligence on that date.

9.2 The negligence on that date was not just the incorrect measurement of the plaintiff's head but also that the specific serious developmental concerns and the counts of substantial regression raised by the plaintiff's mother were not recognised or addressed (by public health nurse R.) and indeed the plaintiff's mother was reassured that the only problem was excessive weight.

9.3 I do not accept the defendant's contention that only one week was lost by the admitted negligence of public health nurse R. on 8th September. Had she correctly measured the plaintiff's head and had she correctly diagnosed the plaintiffs mothers complaints, she would undoubtedly have immediately referred the plaintiff to hospital together with her growth chart and the hospital would have measured the plaintiff within a few days from 8th September and I accept at that stage, her head circumference would have been considerably over the 97th centile line though less than the 53cm measured on 16th September.

9.4 After public health nurse R's examination on 16th September, the plaintiff was, contrary to the advice of the public health nurse, taken by her mother to the GP who had not the benefit of the plaintiff's birth chart and who was alarmed by the serious developmental concerns and immediately referred the plaintiff to Our Lady of Lourdes Hospital where her head was measured at 53cm and the plaintiff was, in turn, referred to Dublin. The examining doctors were all handicapped and delayed in their diagnosis by not having the plaintiff's growth chart. Had this chart been available, it would have resulted in an earlier and easier diagnosis and treatment by the hospital.

9.5 Accordingly, had those steps been taken, the plaintiff's doctors would have been able to diagnose the problem as hydrocephalus immediately and rather than only one week delay, I find that at least two weeks and probably some two and a half weeks were lost.

9.6 Had the diagnosis been made on 8th September, given the developmental nature of the problem, I believe that the plaintiff would not have been in as bad a position as she is today and in that regard, I find that she did indeed suffer legally significant damage as a result of that negligence.

10 The Three Month Examination
10.1 I do not believe that public health nurse R. can be faulted in the legal sense or indeed, in any sense for a failure to be alerted by the recording of 41cm on the three month examination. It is true that using the 3 centile line chart, the reading had crossed from midway between the 50th and the 3rd line to midway between the 50th and 97th line. However, public health nurse R. guidelines were quite clear that absent of concerns, this was not a worry. Similarly, when you transcribe the reading of 41cm onto any of the other charts, there would not have been any grounds for concern. It is true that the reading had gone from the 50th to the 85th line on the 5 centile chart and had gone from the 75th to midway between the 75th and 91st on the UK chart assuming a fourteen week

measurement was used and had continued on the 85th line using the WHO chart. Accordingly, had the matter been referred for further measurement by public health nurse R. at three or four weeks post the three months examination, as argued by the plaintiff, I do not believe anything alarming would have been found by public health nurse R. on re-examination, or had the plaintiff been referred at that stage to a doctor for advice, no tests would have been carried out.

10.2 Accordingly, I do not find the defendants negligent in respect of the three month examination.

11 The Nine Month Examination

11.1 The nine month examination must be approached from the basis that the correct head circumference measurement was 46.5cm, not 46cm as finally recorded and as assumed by all the defendant's witnesses. This examination must also be judged by the fact that the public health nurse R. was clearly deficient in relation to her recording of the measurements, her changing of 46.5cm to 46cm and not recording the reasons for this alteration and also her failure to note the maternal concerns in relation to the plaintiff not being able to take or use her bottle and requiring it to be propped up in front of her so that she could drink from it.

11.2 I accept entirely the contention on behalf of the defendants that frequently babies of different ages to do not take their bottle at the same rate, or to the same degree as siblings. I also accept that where there are no real concerns, the function of public health nurse R. was in the first place to reassure. However, the maternal concerns in this case were not insignificant and ought at least to have been recorded.

11.3 I do not think it fair or right to take into account when assessing public health nurse R's negligence or the lack of it on the nine month examination, her undoubted serious negligence on 8th September, 2008, in which she not only failed to properly measure the plaintiff's head and was significantly in error in these measurements but also disregarded entirely serious parental concerns as to regression. I must and do assess the nine months incidents only by reference to the events of that day and any failures on that day are not by any of the admitted subsequent failures of public health nurse R.

11.4 Allowing for 46.5cm measurement at nine months, the plaintiff's head circumference was above the 97th centile line on the 5 centile chart. It had risen from the 75th to approximately 91st centile line (if recorded at nine months) and between the 75th and 94th (if recorded at fourteen weeks) on the UK chart and it had risen from the 75th to above the 98th centile line at three months and at the 98th centile line at 40 weeks on the WHO 9 centile chart.

11.5 The 3 centile chart upon which the plaintiff's head measurements were first recorded is not a satisfactory vehicle in that it is clear that the birth measurements on the 3 centile chart will be on a considerably lower line than all of the more other up to date charts. If the 3 centile chart were the only guide then it is clear that many, if not most, infants would record head circumference increases through the centile lines using this chart.

11.6 Prof. Hill on behalf of the plaintiff stated, and I accept, that had the plaintiff been referred for medical examination following the nine month review, a paediatrician would have carried out an ultrasound scan or CT scan which he was of the view would have shown significant dilation of the ventricles and that an MRI scan may have also been performed.

11.7 Prof. Hill was also of the view, and I accept, that had the plaintiff been referred after her nine months measurement and a paediatrician had seen her within one month or so that it is almost certain that the head circumference would have been significantly increased by extrapolation from the 53cm that was recorded at fourteen months. The head circumference would have been increasing at the rate between 1.3cm or 1.4cm per month between April and September in order to have achieved a head circumference of 53cm.

11.8 This case and the negligence of public health nurse R. is not to be decided on millimetres. In my view, the key to this case was the evidence given by a neurosurgeon, Mr. McDonnell, called on behalf of the defendant who gave evidence which I accept that if the head circumference measurement was 46.5cm in April 2008, he would have considered that this was outside the normal range and would have given him cause for concern because the measurement would have gone beyond the 97th centile on the WHO chart. He indicated that he would have considered further monitoring and it would have looked into the situation in a few weeks after and would re-measure the head circumference.

11.9 I have already accepted that the plaintiff's head was growing steadily after April 2008 up the 53cm recorded in hospital and accordingly, any further examination or measurement, in say May 2008, would have revealed an alarming growth of the head. In addition, it has been was accepted by Mr. McDonnell, and I have found, that public health nurse R. ought at least to have recorded the parental concern in relation to the bottle. Many failures of infants to hold bottles can be entirely benign but the plaintiffs mothers concerns were not just of a plaintiff rejecting a bottle in the hope of having her mother to feed her but of the bottle being required to be "propped up". This is of a different level of concern than a baby throwing a bottle away in order to be fed by its mother. As Mr. McConnell stated this concern ought to have been recorded by public health nurse R.

11.10 I have come to the conclusion that had public health nurse R. accurately recorded the mother's concerns in relation to the bottle and also had she been alerted to the measurement of 46.5cm and its significance as stated by Mr. McConnell, she would undoubtedly have or ought to have had recalled the plaintiff for further examination four weeks or so after the April examination. Had this been done, further head circumference increases would have been found. I believe she then would or ought to have referred the plaintiff to the doctor together with the plaintiff's charts with accurate measurements of 41.5cm at nine months and the maternal concerns who, in turn, would have referred her to a specialist who would have carried out the necessary scans which would have revealed the developing problem.

11.11 Had this been done by public health nurse R., I find that the plaintiff's hydrocephalus would have, as a matter of probability, been detected prior to any significant damage having occurred and, as a matter of likelihood, the remedial action of a shunt would have prevented the significant neurological damage that ultimately occurred.

11.12 Accordingly, public health nurse R's failure is, her failure to record the maternal concerns; secondly, the failure to properly record the head circumference at 46.5cm; thirdly, the failure to record the reasons for her change of measurements; and fourthly, given the maternal concerns in relation to the bottle and the fact that the measurement was 46.5cm, her failure to have the plaintiff recalled in a few weeks for a further examination which would, in all probability, have prevented the calamity which occurred.

11.13 In the circumstances, I find that the first, second and fourth failures above represent a failure of public health nurse R. such as no public health nurse of equal, speciality or status or skill would be guilty of if acting with ordinary care and accordingly, represents a failure to abide by the standard of care set down by the Supreme Court in *Dunne* (above) and were materially causative of the plaintiff's present conditions in that had appropriate action been taken by public health nurse R., I find as a probability the plaintiff

would not have suffered the significant neurological damage that she has.

11.14 Accordingly, I find that the plaintiff is entitled to succeed against the defendant and I find that the defendant is liable for the failures on 24th April, 2008, as well as 8th September, 2008.