REGULATION 28: REPORT TO PREVENT FUTURE DEATHS

*NOTE: This form is to be used **after** an inquest.*

	REGULATION 28 REPORT TO PREVENT FUTURE DEATHS **THIS REPORT IS BEING SENT TO:** **1. The Chief Executive, NHS England, PO Box 16738, Redditch B97 9PT** **2. The Chief Executive, Norfolk & Norwich University Hospital NHS Foundation Trust, Colney Lane, Colney, Norwich** **3. The Chief Executive, The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust, Gayton Road, King's Lynn PE30 4ET**
1	**CORONER** I am JACQUELINE LAKE senior coroner, for the coroner area of NORFOLK
2	**CORONER'S LEGAL POWERS** I make this report under paragraph 7, Schedule 5, of the Coroners and Justice Act 2009 and regulations 28 and 29 of the Coroners (Investigations) Regulations 2013.
3	**INVESTIGATION and INQUEST** On 12 May 2014 I commenced an investigation into the death of JACKSON TERRY SELLERS MITCHELL, AGE 6 DAYS. The investigation concluded at the end of the inquest on 15 OCTOBER 2014. The medical cause of death was 1(a) INTRAPERITONEAL EXTRAVASATION OF PARENTERAL NUTRITION SOLUTION AS A CONSEQUENCE OF 1(b) UMBILICAL VEIN CATHERTERISATION and PART II PREMATURITY and the conclusion of the inquest was DEATH DUE TO A RARE BUT RECOGNISED RISK OF NECESSARY MEDICAL TREATMENT.
4	**CIRCUMSTANCES OF THE DEATH** Jackson was born prematurely at 31 weeks gestation at Queen Elizabeth Hospital, Kings Lynn with a low birth weight of 1.78 kilograms. An umbilical venous catheter (UVC) was inserted to give parenteral nutrition feeding and fluid management. A heart murmur was detected on the morning of 8 May 2014. On evening of 8 May 2014 Jackson developed abdominal distension. In the light of the clinical picture a diagnosis was made of necrotising enterocolitis. Evidence was given that in the light of the presenting symptoms this was a reasonable diagnosis to make. A nasogastric tube was inserted to drain the fluids, Jackson was placed on nil by mouth and triple antibiotics were started. Jackson required cardio-pulmonary resuscitation. Arrangements were made for transfer to Norfolk & Norwich University Hospital (NNUH) which occurred at 8:40 am on 9 May 2014. A surgical drain was inserted and milky fluid was aspirated. The neonatal team at NNUH felt the presentation was due to

	extravasation of total parenteral nutrition solution and not necrotising enterocolitis. A large amount of fluid was drained before and after Jackson's transfer to the NNUH. The UVC was removed. Jackson continued to deteriorate and he died at 05:05 on 10 May 2014. Post Mortem Report gives the cause of death as 1a) Intraperitoneal extravasation of parenteral nutrition solution b) Umbilical vein catheterisation 2. Prematurity. The Post Mortem identified damage to Jackson's liver compatible with injury from the parenteral nutrition solution, which is currently deemed to be a "very rare" complication. There was no evidence of direct vessel perforation from the umbilical venous catheter tip.
5	**CORONER'S CONCERNS** During the course of the inquest the evidence revealed matters giving rise to concern. In my opinion there is a risk that future deaths will occur unless action is taken. In the circumstances it is my statutory duty to report to you. The **MATTERS OF CONCERN** are as follows. – The damage found to Jackson's liver at post mortem does not appear to be from the tip of the catheter but from the concentrated feeding fluid that was passing through it. Evidence was given that the ideal placement for a UVC tip is at the level of the diaphragm at approximately T9-T10 vertebral level. The UVC in this case was found to be in a lower lying position, but one which is presently acceptable to 80% of Doctors. There is a presently unpublished study from Southampton which found 16 cases of extravasation of fluid from UVC over a 2 year period. Extravasation was shown following routine screening of ultra sound scans, although in the study there were no fatalities. Most of the complications in the study occurred with low lying catheters. Further investigation is being carried out into the positioning of catheters and problems of extravasation of the fluid from UVC. It is understood NHS England are looking into whether any lessons can be learned from this case. No criticism was expressed at the inquest of any of the medical team involved in the care of Jackson.
6	**ACTION SHOULD BE TAKEN** In my opinion action should be taken to prevent future deaths and I believe your organisation has the power to take such action. The purpose of this Report is to see whether there are any learning points for the wider NHS and Neonatal Doctors and Nurses.
7	**YOUR RESPONSE** You are under a duty to respond to this report within 56 days of the date of this report, namely by. 29 December 2014. I, the coroner, may extend the period. Your response must contain details of action taken or proposed to be taken, setting out the timetable for action. Otherwise you must explain why no action is proposed.

8	**COPIES and PUBLICATION** I have sent a copy of my report to the Chief Coroner and to the following Interested Persons [redacted] (parents of Jackson) I am also under a duty to send the Chief Coroner a copy of your response. The Chief Coroner may publish either or both in a complete or redacted or summary form. He may send a copy of this report to any person who he believes may find it useful or of interest. You may make representations to me, the coroner, at the time of your response, about the release or the publication of your response by the Chief Coroner.
9	**DATE 27 October 2014** ..... **SIGNED BY CORONER**