REGULATION 28: REPORT TO PREVENT FUTURE DEATHS

	REGULATION 28 REPORT TO PREVENT FUTURE DEATHS **THIS REPORT IS BEING SENT TO:** **1. Mark Cubbon, Chief Executive, Portsmouth Hospitals NHS Trust** **2. Philip Dunne MP, Minister for Health (maternity care)** **3. Will Hancock, Chief Executive, South Central Ambulance Service NHS Foundation Trust**
1	**CORONER** I am Karen Harrold, Assistant Coroner for the coroner area of Portsmouth & South East Hampshire.
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. http://www.legislation.gov.uk/ukpga/2009/25/schedule/5 http://www.legislation.gov.uk/uksi/2013/1629/made
3	**INVESTIGATION and INQUEST** On 27 April 2015 the Senior Coroner, David Horlsey, commenced an investigation into the death of Rafe Robbie Angelo who survived 37 minutes after birth on 23rd September 2014. The investigation concluded at the end of the inquest on 7th November 2017. I recorded the following NARRATIVE CONCLUSION: Rafe Robbie Angelo was born on the labour ward at the Queen Alexandra Hospital in Portsmouth at 17:30 hrs on 23rd September 2014. His mother, [redacted] had gone to the Blake Birthing Centre at 04:30 hours the same day in active labour. After artificial rupture of [redacted] amniotic membranes thinly stained meconium was noted and persisted until 14:15 when first stage of labour was complete. After an hour of pushing at 15:20 thick meconium was noted and a decision was made to transfer [redacted] to hospital by ambulance. The ambulance arrived at hospital at 16:40. CTG monitoring began at 16:55 and was classified as pathological at 17:10 requiring a forceps delivery. Rafe was delivered by spontaneous vaginal delivery at 17:30, was pale and floppy, not breathing and tests showed he was severely acidotic. The grave nature of Rafe's condition was not recognised at the hospital until 20 minutes before delivery due to a number of delays between the appearance of thick meconium and eventual delivery as well as a series of communication failures between staff at the Blake Birthing Centre, the ambulance service and hospital staff including: • Not requesting a time critical transfer by ambulance; • The ambulance making a non-urgent stop after despatch; • The full history and the need for urgent delivery including the change to high risk were not communicated.

	As a result, Rafe died after 37 minutes of profound resuscitation at 18:07 the same day. I decided the medical cause of death was: 1a) Acute global cerebral hypoxia/ischaemia; 1b) Umbical cord compression.
4	**CIRCUMSTANCES OF THE DEATH** [redacted] was admitted to the Blake Birthing Centre (the Blake) on 23 September 2014 at 4.30 am after 39 weeks pregnancy. She reported having contractions for two days and was found to be in active labour as she was 5 cms dilated. Fetal heart rate (FHR) was regularly monitored by intermittent auscultation using a handheld Doppler and found to be normal with no decelerations. A change of midwife occurred at 08.10 and as little progress in dilation had been achieved by 09:25, an artificial rupture of membranes took place. This caused some progress as shortly afterwards dilation was noted to be 7cm. By 09:25 thinly stained meconium was noted but no decision made to transfer to hospital. Throughout this period FHR continued to be checked regularly and was within normal variability and no decelerations heard. However, by 11:10 baby's heart rate had dropped below baseline of 130-135 to 110-115 beats per minute (bpm). The rate dropped again at 11:30 and the midwife consulted a colleague who suggested to [redacted] to change position. This led to FHR baseline improving. At 12 noon, a discussion took place about pain relief and possible use of the birthing pool but this was not possible until 14:30. Thinly stained meconium was still noted at 14:15 by when [redacted] was fully dilated and the first stage of labour had been completed. Contractions continued and by 14:55 [redacted] was feeling the need to push. At 15:10 a discussion takes place about transfer to hospital. The midwife recorded in her notes that this was the first time a transfer had been requested. [redacted] and her family told me that by this time several transfer requests had been made. A second midwife came to examine [redacted] and when she was asked to get out of the pool, thick meconium started to drain and a decision was made by the midwives to request an ambulance and transfer to hospital. Throughout this time regular checks were made on baby's heart with no concerns regarding decelerations. A maternity support worker made the call to the ambulance service at 15:37 and an ambulance was dispatched at 15:46 arriving at the Blake at 16:08. In the meantime, a midwife at the Blake bleeped the relevant midwife at the hospital to report her findings in advance of mother's arrival at hospital. Further dark liquor was noticed and FHR continued to be checked with no apparent cause for concern. The ambulance left the Blake at 16:22 under blue lights and used the siren when needed to navigate through traffic arriving at hospital by 16:40. The midwife travelled with Ms Angelo and her sister and continued to check the FHR in the ambulance. These timings were confirmed from SCAS computer records. The midwife recorded that the party arrived at the labour ward at 16.52 and electronic fetal monitoring by CTG began at 16.55 and recorded baby's heart rate as 127 bpm. I have noted that the midwife's timings were at slight variance with SCAS records. By 17.05 the FHR was 120 but contact was lost. When the CTG transducer was repositioned there were deep and repetitive decelerations which were recognised as pathological. The Registrar who came on duty at 17.00 carried out a review at 17.10 and decided an instrumental delivery by forceps was appropriate to expedite delivery.

	At this stage there was loss of contact with FHR and a fetal scalp electrode was requested. Following administration of a local anaesthetic an episiotomy was performed at 17.25 but spontaneous vaginal delivery was achieved at 17.30. Baby was born through thick meconium and was pale and floppy at birth with no spontaneous movements or respiratory effort. Cord blood was obtained. The paediatric registrar checked baby's airway but could not see any obstruction by meconium. No heart rate was heard and cardiac compressions were started. Baby was intubated and adrenaline given. At 11 minutes of age no gasps were noted and no heart rate recorded but at 17 minutes and 25 seconds of life a very slow heart rate was heard. At a later stage after further cardiac compressions, the saturation monitor was picking up a regular pulse and after palpation, weak femoral pulses were detected. At 23 minutes the heart rate was more than 100 beats per minute but by 29 minutes the heart rate was lost on the monitor. Although the consultant thought she could hear a heart rate at 30 minutes by 33 minutes no further heart beat was heard. Resuscitation efforts stopped after 37 minutes at 18.07 and this was noted as time of death. A post mortem was carried out on 8 October 2014 and the pathologist concluded there was evidence of an acute hypoxic mode of death mostly likely caused by umbilical cord compression during delivery.
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. To assist I **enclose a copy of my written findings of fact and conclusions** with leading paragraphs in bold. I will refer to relevant paragraphs below but also suggest the whole judgment should be read to understand the context of each concern. The **MATTERS OF CONCERN** are as follows: **1. Ante natal checks carried out to detect SGA babies** The risk assessment of Ms Angelo followed NICE guidelines at the time but I remain concerned that no simple weight check is done to check maternal BMI and that GROW charts only pick up 50-55% of cases where growth restriction occurs. A more holistic view is needed of risk factors especially in last few weeks from 34 weeks onwards as this is when the major growth spurt takes place and monitoring closely when additional factors surface is advisable e.g. as in this case cannabis and anti-depressant use were disclosed during this crucial period. [33; 36; 37; 97; 117; 125; **167; 168**] **2. Guidance needed post a bradycardic episode in labour** After the bradycardic episode at 11:10 when the maternal position was changed, the recovery rate afterwards was higher than the previous baseline from 130-135 to 150+ thereafter. This was still within "normal" range but it was accepted during the inquest that this could be abnormal and no guidance currently exists. . [118; **127; 128**; 172] 3. **Availability and use of CTG at birthing centres** CTG is not currently available in birthing centres and should be considered in emergency situations such as this case especially if it is not possible to transport the mother to hospital.

[54, 98, 115-116, 118, 121, 123, 134, **169-170**, 182-183, 186, 200]

4. **Clarification of what would be classified as urgent/non-urgent or an emergency in the transfer policy**

   The SIRI investigation highlighted that the instruction given to the maternity support worker was not clear about what category of transfer was required. That is why the maternity service has purchased cordless handsets so that the midwife giving clinical care can contact SCAS directly rather than delegate the task. The request is now made in the birthing room so the mother can hear. In evidence, [redacted] indicated that a transfer for epidural would be regarded as an emergency requiring an ambulance within one hour. This was different from [redacted] who felt the transfer would be classified as non-urgent. A discussion took place in court as SCAS representatives believed the response time was 30 minutes (para 151).

   This needs to be clarified between the Trust and SCAS and then clearly communicated to all staff.

5. **Discretion of SCAS call handlers if time critical factors are mentioned but birthing centre staff do not actually request a time critical transfer is requested.**

   [74-76, 132, 190, **191, 194**]

6. **Consider where the "Use of Standby Points" policy needs to be refreshed to make it clearer and more consistent**

   The call to SCAS from the Blake lasted 4 minutes, 57 seconds and the fact the baby was in distress was not mentioned until 3 minutes, 53 seconds. The responding ambulance was despatched at 15:46 and shortly afterwards the paramedic contacted control centre and indicated that it was appreciated the call was an emergency but could they use the facilities first. No questions were asked and permission was given. [redacted] accepted that if this had been designated as a time critical call, it may have made a difference as to whether permission to use facilities would have been given and asking questions or not would depend on the person taking the call from the paramedic. There was a policy to cover this sort of request – "Use of Standby Points" but it was accepted the policy is very broad and somewhat vague so it was accepted that it would very much depend on the person taking the call to probe further [74]

7. **Guidance for midwives about auscultation practice during transfer to hospital**

   [14, 48, 57, 115, 120]

8. **Ensuring an account is created for all staff authorised to use CTG equipment so that settings and prints can be run**

   [49, 65, **174**]

9. **Poor technical quality of the CTG readings at a crucial time especially given this was the first trace in am emergency situation**

   [66, 116, 123, **175**]

10. **Recording all requests to transfer to hospital in notes and active consideration by midwives**

    Although it was found that the notes in this case were very good, nevertheless there

	was a finding that the mother had made several requests to go to hospital mainly for pain relief during the course of the morning and early afternoon yet none of these requests were recorded in the notes or acknowledged by the midwife. In this case, it was agreed by several witnesses including [redacted] that if an earlier transfer had happened this would have led to CTG monitoring and picking up the earlier declerations. [23-26, 30-31, 45, 53, 58, **177-183**] 11. **System of relaying information from birthing centre staff to hospital staff in an emergency situation** This was a critical part of this case and as such needs further consideration of both the past and current systems and whether appropriate training has been given; whether it is currently working; and whether refresher training is needed. [119, 123, 131, **195-202**]
6	**ACTION SHOULD BE TAKEN** In my opinion action should be taken to prevent future deaths and I believe you have the power to take such action.
7	**YOUR RESPONSE** You are under a duty to respond to this report within 56 days of the date of this report, namely by 22 January 2018. 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: 1. [redacted] – Mother I have also sent it to: 1. [redacted] University Hospitals Bristol NHS Foundation Trust 2. [redacted] St George's University of London 3. [redacted] Portsmouth Hospitals NHS Trust 4. [redacted] Head of Maternity, Portsmouth Hospitals NHS Trust who may find it useful or of interest. 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: 27th November 2017** Karen Harrold Assistant Coroner Portsmouth & South East Hampshire