	Senior Coroner, London Inner South, UK **Re: Arthur Brockett-Deakins, case ref 2648-11** **REGULATION 28 REPORT TO PREVENT FUTURE DEATHS** **THIS REPORT IS BEING SENT TO:** 1. Sir Andrew Dillon, Chief Executive National Institute for Clinical Excellence 10 Spring Gardens, London SW1A 2BU 2. Ms Jackie Smith, Chief Executive and Registrar General Midwifery Council (practice referrals) Standards and Guidance Department 23 Portland Place, London W1B IP2 3. Dr Ian Hudon, Chief Executive Medicines and Health Regulatory Authority 151 Buckingham Palace Road Victoria, London, SW1W 9SZ 4. Rt. Hon Jeremy Hunt, The Secretary of State for Health Richmond House, 79 Whitehall, London, SW1A 2NS
	CORONER I am Andrew Harris, senior coroner for the jurisdiction of London Inner South
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 21.10.11, I opened an inquest into the death of baby Arthur Brockett-Deakins, aged 3 years, who died on 18th October 2011. Proceedings were delayed by legal challenge and delays in securing disclosure. The inquest was concluded on 20th January 2014. Arthur died from: 1a Respiratory failure 1b Chest infection 1c Perinatal hypoxic ischaemic encephalopathy
4	**CIRCUMSTANCES OF THE DEATH** [redacted] booked for her first pregnancy with the private caseload team shared by two Band 7 midwives at St Thomas Hospital, the service being designed to promote continuity of care. Baby Arthur Brockett Deakins was born in a poor condition at 14.45 on 16th December 2007 and initially required resuscitation and ventilation. He survived, but was brain damaged, severely disabled with seizures, spasms, visual and hearing impairments, feeding and respiratory difficulties and requiring constant medical and parental support until. His condition was uncurable and he received all the treatment that was in his best interests. He died on 18th October 2011 at home from respiratory problems, these and his disabilities being a direct result of acute profound perinatal hypoxic ischaemic encephalopathy, which was not due to any inherent condition of the baby or mother or any antenatal factors.

	[redacted] was admitted in labour, after an unremarkable pregnancy. She was transferred to the hospital birthing centre at having progressed to 9cm dilation, for augmentation with Syntocinon and her labour was managed both midwives together. There was no case management discussion (or examination of cardiotocograph (CTG) and records) about starting Syntocinon between the case midwives and midwife in charge of the unit, as required in the Trust guidelines, this being a failure of care which contributed to HIE and amounted to neglect. The Syntocinon was started at the same time as the CTG was attached at 11.40 and the dose was progressively increased three times up to 2.4 mls per hour at 12.50 and then again at 1.30. These increases caused hypertonicity and hyperstimulation, which impaired the blood supply to the baby, causing HIE. These increases in Syntocinon and the failure to recognize the hyperstimulation, which was evident considering the records of frequency of contractions reached 6 in 10, amounted to neglect. I accepted the expert evidence that there was an opportunity to render care, which if taken even at 12.50 would on balance of probabilities have prevented the tragedy from occurring so that Arthur would not have died of HIE when he did. The CTG tracing was not normal from the outset, but there were some features which understandably reassured around 12.10. After 1pm the trace was at the very least atypical and the midwives had not realized that the machine was no longer displaying the foetal heart rate (FHR) but had picked up and multiplied the maternal heart rate (MHR). This phenomenon was rare and unexpected and the mistake could easily be made. Nevertheless the tracing at this time was sufficiently abnormal to require referral to an obstetrician. The failure to refer to an obstetrician when the CTG required it more than minimally or trivially contributed to the development of acute profound HIE and amounted to neglect. Midwifery attendance of labour for 15 consecutive hours, with one 40 minute break, has contributed to some or all of these failures.
5	**CORONER'S CONCERNS** During the course of the inquest the evidence revealed matters giving rise to concern. **MATTERS OF CONCERN** are as follows. **1. When to escalate concerns about a CTG**: With regard to not escalating an abnormal CTG that ran for about half an hour after augmentation of labour, reliance was placed by midwives on a clause of NICE Clinical Guidelines, Intrapartum Care, 2007, which advises that a 40 minutes trace should be studied before concluding if it is abnormal. Expert evidence from Dr [redacted] and Ms [redacted] suggested that this guidance was appropriate in the first stage of labour, but not in the context in this case, namely a slow second stage. **2. Training of one midwife in CTG interpretation:** Both midwives underwent voluntary further training and supervision, including an expert workshop on CTG interpretation. Both accepted that a number of errors had been made by them and applied the learning to their current practice. However even in retrospect, one of the midwives could not accept that the early CTG trace was pathological, as held by both expert obstetrician and midwife. Although she would refer now, there is doubt about the urgency. She said in court it would be within half an hour but also that 40 minutes was needed to see if it was abnormal. The expert midwife said that she needed further training on CTG interpretation. **3. Display of MHR as FHR on CTGs:** Ms [redacted] explained that if the foetus moves out of the range of the ultrasound field or the baby has sadly dies, the ultrasound transducer may then pick up the maternal pulse from the aorta, iliac or uterine artery and it is displayed as the FHR and can show reactivity and variability due to MHR changes and muscle contractions can be difficult to distinguish from the FHR. It is known that the rate can be doubled or halved.

The only explanation that both expert midwife and expert obstetrician could reach for the unusual CTG trace after 1pm, in the context of the state of the baby at birth, was that the maternal pulse rate was masquerading as the FHR but it had been multiplied by 1.5. The CTG machine was not of the type that is known rarely to multiply by 2 and the phenomenon of a multiplication by a factor other than 2, being unknown to both experts in their long distinguished careers. Evidence was not heard from the manufacturer or the product's regulatory authority. The inquest heard that new CTG machines incorporate maternal ECG or pulse oximetry, which alerts staff to investigate when MHR and FHR appear the same. But it also heard that it will take some time before all old machines are replaced. It needs to be established if multiplication by 1.5 is a possible functional feature of some machines and if so whether either it can be designed away or whether dissemination or guidance or an action by the regulatory authority is needed to prevent it leading to a fatality or child disability.

4. Models of private midwifery led services for low risk pregnancy: The private midwifery caseload for low risk pregnancies was managed by a pair of midwives who set up the servicer to provide continuity of care. The midwifery service that was operating when [redacted] was pregnant was **not adequately documented**. No job description was seen by the court and the referral and operational arrangements were discussed, but no documentation was brought to the court. There was no evidence of risk assessment. Although NHS employees were required to be **self sufficient in terms of annual leave and sickness cover,** on call arrangements and use of NHS personnel except in emergencies. They did not at the outset have a **link obstetrician**. This led to fear of burn out, a sense of **isolation and lack of support** and collegiality.

When they transferred babies to the Hospital Birthing Centre, they were expected to refer to a duty obstetric consultant, access to whom was described as variable. **The midwife in charge of the NHS unit agreed that she provided a different threshold of care to private and NHS** mothers and was reluctant to intervene or review the care plan for augmentation of labour, which she would have done in an NHS patient. The midwives expected her to be involved but did not ask her. In the event no peer senior midwife or obstetrician saw [redacted] which was necessary. The reasons for non referral were complex and were not because the midwives thought they could not refer. Misjudgements were made which in part were caused by a **15 hour shift with only a 40 minute break.** This would not occur in contexts where there was normal NHS management of staff, but this arrangement continued apparently unknown to the NHS Trust management. The service is no longer operational, the Trust reporting that it was discontinued for economic reasons.

Expert advice considered that **the model of service created a risk of deaths**, although it was not found to have directly done so in this case. Dr [redacted] reported that **there were similar units operating elsewhere in the country and that the lessons from the difficulties in operating this one should be disseminated to other such units**. The expert midwife, Ms [redacted] was particularly concerned about adequate support and cover. Dr [redacted] was particularly concerned about the isolation and professional culture and **lack of interdisciplinary peer discussion**, in the context of increasingly risks in obstetric and midwifery practice.

The Trust head midwife reported that she expected that the matter would now be dealt with robustly by the **statutory supervision system. No evidence was heard about whether this was now effective in this regard, nor how influence and information could be brought to bear on those setting up or managing such midwife led services**. It was further reported that **not all midwives are members of the College that runs supervision** and that midwives are not necessarily practising within the NHS. Thus is it was not clear how the risks are best identified and managed across a complex mixed health economy, which is why the Secretary of State is an addressee of my report.

6	**ACTION SHOULD BE TAKEN** The following organizations are asked to consider the concerns arising from this case and whether any action is needed to reduce the risk of perinatal deaths. (1) **National Institute for Clinical Excellence** with regard to concern (1) – and when and if appropriate, (3) above (2) **Nursing and Midwifery Council** (practice referrals) with regard to concern (2) above (name and details of midwife attached separately) (3) **Medicines and Health Regulatory Authority** with regard to concern (3) above (4) **Secretary of State for Health and Nursing and Midwifery Council,** with regard to concern (4) above
7	**YOUR RESPONSE** You are under a duty to respond to this report within 56 days of the date of this report, namely by Monday, April 21st 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] next of kin [redacted] Field Fisher Waterhouse for the family Mr Ron Kerr CBE, CEO of St Thomas Hospital [redacted] DAC Beachcroft LLP for the NHS Trust [redacted], Thompson Solicitors for Midwife 1. [redacted] RCN Legal Services for Midwife 2. I have also sent it to Dr Nicholas Morris and Mrs Charlene Francois expert witnesses in this case and The Royal College of Obstetricians 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. If you would like further information about the case, please contact my officer, [redacted]
9	**[DATE]** 25/2/14 **[SIGNED BY CORONER]**