REGULATION 28 REPORT TO PREVENT FUTURE DEATHS

THIS REPORT IS BEING SENT TO:

1. The Royal College of Physicians
2. Department of Health
3. NHS England

1	**CORONER** I am Samantha Goward, Assistant Coroner for the coroner area of Cambridgeshire and Peterborough.
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. Coroners and Justice Act 2009 (legislation.gov.uk) The Coroners (Investigations) Regulations 2013 (legislation.gov.uk)
3	**INVESTIGATION and INQUEST** On 7 October 2021 an inquest in to the death of Charlotte Burton was opened. Charlotte died on 28 November 2020. The investigation concluded at the end of the inquest on 15 November 2023. The conclusion of the inquest was: **Medical Cause of Death:** 1a. Acute left ventricular failure 2. Morbid obesity and pre-eclampsia associated with cardiomyopathy **Conclusion** – Died from a naturally occurring condition, the treatment for which did not commence in time to avoid death.

4	**CIRCUMSTANCES OF THE DEATH** 1. Charlotte Burton was aged 40 when she became pregnant with her second child. She had a BMI of 45 and was using methadone as part of her treatment plan. As a result, she was under regular surveillance during her pregnancy and had regular growth scans as her age, BMI and methadone use all placed her in the high-risk category. 2. While some concerns were raised regarding care during pregnancy, labour and immediately after delivery, which were investigated by the HSIB and reviewed by an independent expert Obstetrician, none of these were causative of Charlotte's death. 3. Charlotte returned to hospital on 27 November 2020. While speaking to a neonatal nurse, she was increasingly short of breath, she coughed up blood and was transferred to the emergency department. 4. In considering the care provided to Charlotte at this stage, expert evidence in the fields of Obstetrics, Intensive Care Medicine & Anaesthesia and Cardiology. 5. Based on the expert evidence it was found that from the time Charlotte arrived in the ED, she had a number of signs and symptoms which pointed towards a likely respiratory and/or cardiac pathology which included shortness of breath, coughing up blood, fast respiratory rate requiring supplemental oxygen, bilateral lung crepitations and hypertension. 6. The initial medical review was reasonably comprehensive and the differential diagnosis and management plan appropriate, and appropriate blood tests and investigations were requested. The junior doctor quite appropriately included cardiomyopathy in the differential diagnosis. 7. Charlotte was given Frusemide due to concerns about heart failure and pulmonary oedema. As heart failure was being considered, the high blood pressure should also have been addressed. Expert evidence was that Frusemide should have been given twice a day, so a further dose should have been given around 1900 hours. 8. Charlotte had a raised NT-proBNP level and this is a test for heart failure, but can also be raised with pre-eclampsia. A chest x-ray was said to be difficult to interpret, but did have signs of significant pulmonary oedema. 9. A history of Charlotte having to sit on the side of her bed to catch her breath when she got up in the morning, was also said to be consistent with signs of heart failure.

10. Witness evidence from two of the Consultants (in Obstetric Anaesthesia and Nephrology) who reviewed Charlotte was that there had been some consideration of cardiac issues, which is supported by the medication prescribed, the undertaking of an echo and a decision to transfer to the coronary care team. However, neither was aware of whether or not there had been a review by a Cardiologist and the Trust's representative checked the records and confirmed that the echo was performed by a suitably qualified technician, but that there had been no cardiology input.

11. The expert Cardiologist was of the view that the treating Consultants had been falsely reassured by the echo showing a preserved ejection fracture and that this distracted everyone from understanding that the ventricle was having to work very hard, didn't relax properly and that the heart was backing up and causing the pulmonary oedema.

12. The expert accepted that it is much more common in older women and that to find it post pregnancy in a woman in her 40s was unusual. She stated that she would not expect them to have a full knowledge, but would expect an understanding that the NT proBNP and pulmonary oedema could be related to heart failure.

13. In light of the findings of the various examinations, the treating team should have considered diastolic heart failure as a likely cause of the pulmonary oedema which should have led to IV frusemide, glyceryl trinitrate (or a suitable alternative), oxygen and treatment of the hypertension.

14. There were operational issues that delayed a transfer to the coronary care team. The inquest also heard evidence from the treating clinicians that the Trust does not have any Cardiology cover, not even on call, after 5pm weekdays or at the weekend. It was stated that this was not an issue unique to this Trust and that there is a nationwide shortage of trained Cardiologists. The Trust does have the option to call Cardiologists at other hospitals, but there is no provision for on site assessment by a Cardiologist out of hours and transfer is often not possible due to severity of illness or the timescales involved.

15. It was found that had the nature of Charlotte's condition been recognised, she should have been prioritised for a bed on either the coronary care unit or ICU. Had Charlotte been under the care of ICU or specialist cardiac nurses, they may have recognised the need for cardiology input and discussed this with the on call Physicians to consider seeking advice. It was accepted that that this would not have led to a transfer in Charlotte's case, but on the balance of probabilities would have led to the Cardiologists or ICU clinicians giving the advice that experts recommended for appropriate treatment.

	16. Although Charlotte's condition did improve by around 1745 hours, she remained short of breath on minimal exertion and by 1930 hours was again requiring oxygen. From 2025 hours her respiratory rate and blood pressure were significantly elevated and oxygen saturations were persistently low. There should have been urgent escalation when Charlotte began to deteriorate again by 1930 hours. 17. 18. By the time the deterioration was recognised at 2245 hours, and intubation occurred at 2315 hours, this was sadly too late and was shortly followed by a cardiac arrest. Had the appropriate treatment, under the advice of a cardiology or intensive care specialist commenced between 1900 and 2100 hours, Charlotte would not have died when she did.
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 could occur unless action is taken. In the circumstances it is my statutory duty to report to you. **The MATTERS OF CONCERN ARE:** 1. The evidence indicates that there is a nationwide shortage of suitably trained Cardiologists and that, particularly in District General Hospital setting, this means that out of hours there is no provision for patients presenting with suspected cardiac problems to be assessed in person by a Cardiologist. The system is therefore reliant upon doctors of different specialities or cardiac nurses recognising the condition and the need for contact with specialist at a different Trust. This still does not allow for in person assessment unless there is a transfer which is not always possible due to the severity of the condition or cannot be achieved in a suitable timescale and this represents on ongoing risk of future deaths.

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 18 January 2024. 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) Charlotte's family (2) North West Anglian NHS Foundation Trust I am also under a duty to send a copy of your response to the Chief Coroner and all Interested Persons who in my opinion should receive it. I may also send a copy of your response to any other person who I believe may find it useful or of interest. 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.

9	**Dated: 23 November 2023** **Ms Samantha Goward HM Assistant Coroner** **For Cambridgeshire & Peterborough**