Regulation 28: REPORT TO PREVENT FUTURE DEATHS

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

	REGULATION 28 REPORT TO PREVENT DEATHS **THIS REPORT IS BEING SENT TO:** **The President, The Royal College of Emergency Medicine -** [redacted] **The President, The The Royal Society of Medicine -** [redacted] **The President, The Royal College of Physicians -** [redacted] **The President, The Royal College of Surgeons -** [redacted] **The President, The Royal College of Anaesthetists -** [redacted]
1	**CORONER** I am Samantha GOWARD, Area 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 2023 I commenced an investigation into the death of Derryck Lynn CROCKER aged 77. The investigation concluded at the end of the inquest on 30 July 2024. **The medical cause of death was:** 1a) Iatrogenic Cerebral Gas Embolism 1b) Lung biopsy under computed tomography (CT) guidance 1c) 2) Lung lesion, suspected cancer **The conclusion of the inquest was:** Died due to the delayed recognition and treatment of a rare, but recognised complication of a lung biopsy.
4	**CIRCUMSTANCES OF THE DEATH** On 3 May 2023 Derryck Crocker attended hospital for a lung biopsy after previous investigations had shown a suspicious mass. As part of the consent process the risks identified were bleeding/haemoptysis, infection, pneumonia, pneumothorax, insertion of chest drain & inadequate sampling. Air embolism was not a risk consented for at that time. The procedure started at 13.00 hours & biopsies were taken at 13.18 hours. Immediately after the samples were taken, Mr Crocker developed a cough. He then became semi-unresponsive. The resuscitation team were called and his blood pressure and oxygen saturations were said to be normal. A CT scan was done at 13.29 hours and was said not to demonstrate any significant abnormality, especially no evidence of an air embolism in the chest.

	A CT head scan was also done which demonstrated some low-density areas in the brain and the possibility of a fat embolism was suggested, or an air embolism in the cerebro-vascular fluid. The CT scan was reported at 1606 hours with these possible diagnoses mentioned. This led to a discussion with the neurosurgical unit at Addenbrookes who advised that this was not a surgical issue, but that a Neuro-Radiologist should be consulted if local Radiologists needed further advice. Care was then handed over to the resusitation team. Mr Crocker's family gave details of him being significantly unwell after he was taken to the Emergency Department. On the balance of probabilities this was due to a cerebral air embolism caused by the biopsy, a rare but recognised complication of any invasive procedure. At 2004 hours a CT chest scan was ordered due to haemoptysis. Mr Crocker collapsed in the CT department and had a brief seizure and then respiratory/cardiac arrest. After 2 cycles of CPR, return of spontaneous circulation was achieved and he was transferred to ICU. After his condition had been appropriately stablised, the Trust's Lead Consultant in the Hyperbaric Unit was contacted to discuss the possible benefit of delayed hypobaric treatment for the cerebral air embolism (evidence was that treatment is most effective if it is commenced within 4-6 hours of the embolism occurring). It was agreed to commence such treatment and this took place on 3, 4 and 5 May 2023 but did not lead to an improvement in his condition. On 7 May 2023 a diagnosis of a vegetive state was made and he was provided comfort care and end of life support and died at James Paget University Hospital on 10 May 2023.
5	**CORONER'S CONCERNS** During the course of the investigation my inquiries 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 as follows: (brief summary of matters of concern) 1. I heard evidence that there is a lack of understanding of the signs and symptoms of an air embolism and the risk of this following **any** invasive procedure. I heard evidence that nationwide and across all levels of specialism and seniority, there was a lack of knowledge and that air embolism is not something that is routinely taught as part of the training of doctors. While it is accepted that this is rare, it is life threatening if not appropriately treated swiftly. 2. I also heard evidence that in areas where enhanced training has been provided, due to adverse incidents such as Mr Crocker's death, there appears to be increased numbers of cases. This leads to the question of whether the lack of knowledge means that such cases are missed and unreported and the rise is due to greater awareness. 3. I heard that, in some cases, with timely treatment, outcome may be significantly improved, but that with delayed recognition and therefore delayed treatment, death is more likely. 4. I heard evidence that there is ongoing work with the Royal College of Radiologists to provide them training on this issue, but that training was needed to ensure that all other specialties who may encounter this condition have raised awareness nationally.
6	**ACTION SHOULD BE TAKEN**

	In my opinion action should be taken to prevent future deaths and I believe you (and/or your organisation) 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 September 24, 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: Mr Crocker's Next of Kin James Paget University Hospitals NHS Foundation Trust For interest I am also sending a copy to the Royal College of Radiologists. I am aware that they are already undertaking work with REAL and working on a training module. A copy will also be sent to: Department of Health Healthcare Safety Investigation Branch Healthwatch Norfolk NHS England and NHS Improvement 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 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 by the Chief Coroner.
9	**Dated: 01/08/2024**  **Samantha GOWARD** **Area Coroner for Norfolk** County Hall Martineau Lane Norwich NR1 2DH