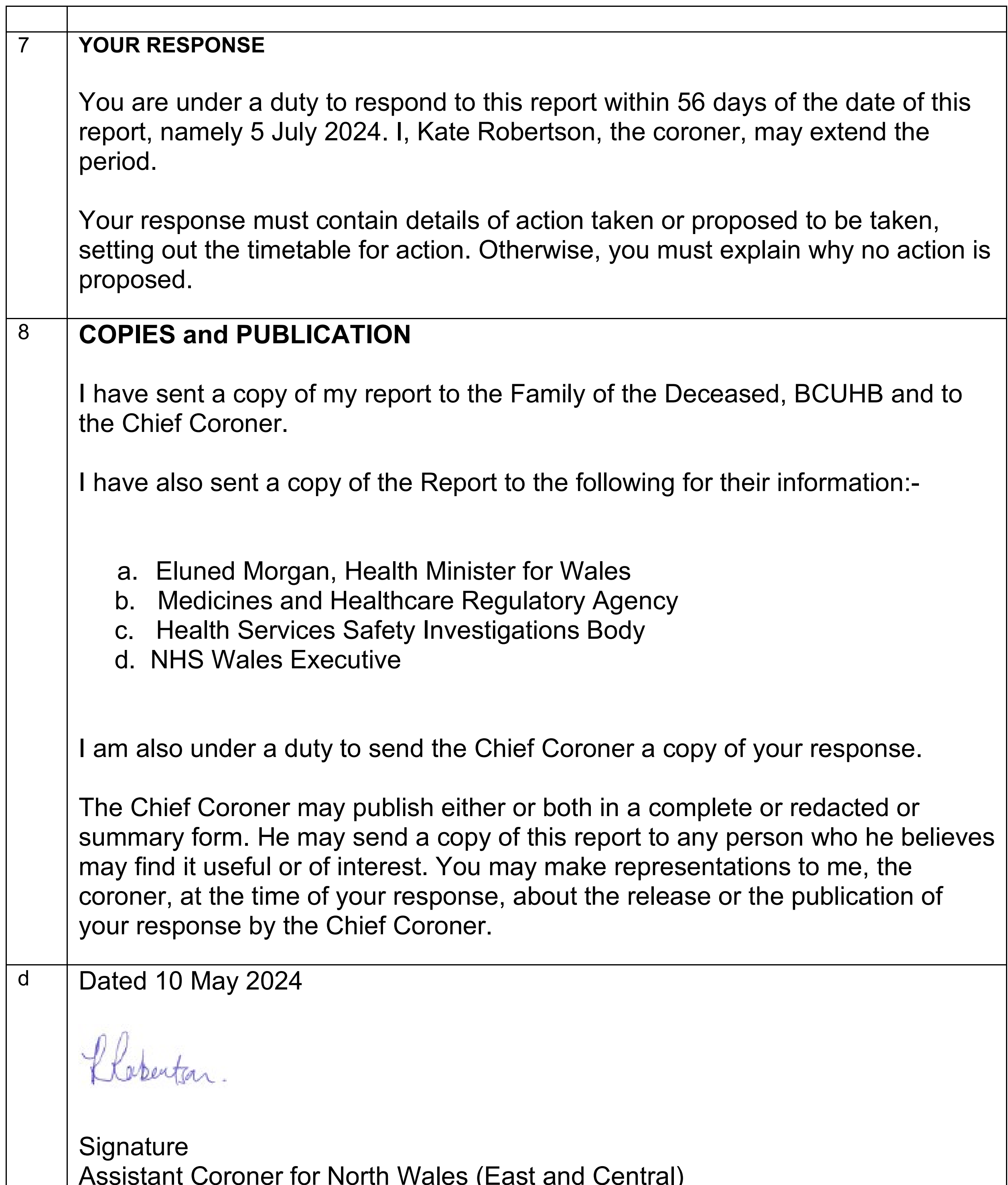
Kate Robertson
Assistant Coroner for North Wales (East and Central)

	REGULATION 28 REPORT TO PREVENT FUTURE DEATHS **THIS REPORT IS BEING SENT TO:** BOC Limited
1	**CORONER** I am Kate Robertson, Assistant Coroner for North Wales (East and Central)
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 December 2020 an investigation was commenced into the death of Ben Christopher Harrison following his death on 18 December 2020. The Inquest concluded on 10 May 2024 with a narrative conclusion.
4	**CIRCUMSTANCES OF THE DEATH** The circumstances of the death are as follows : Ben was aged 37 at the time of his death on 18 December 2020. He had known psychiatric issues. On 15 December 2020 and whilst a voluntary inpatient at the Ablett Psychiatric Unit, Glan Clwyd Hospital (part of the Betsi Cadwaladr University Local Health Board 'BCUHB') he was found in cardiac arrest with a ligature around his neck, [redacted]. He was resuscitated and oxygen cylinder utilised. The cylinder has two valves one on the top and one on the side, both of which must be opened before the cylinder will function. The valve on the side of the cylinder was not opened and so Ben was ventilated only on room air for approximately 5-10 minutes during the resuscitation process.
5	<u>**CORONER'S CONCERNS**</u> During the course of the Inquest, the evidence revealed matters giving rise to concerns. 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. – Evidence was heard during the Inquest that a CD Oxygen cylinder manufactured by BOC was used during the resuscitation of Ben. I was shown during the Inquest how the oxygen cylinder is operated. In order for the cylinder to release oxygen the valve on the side must have its tab removed and then the valve itself rotated until it is open with the valve at the top also needing to be opened. In Ben's resuscitation, this did not occur. The side valve had not been opened meaning that for 5-10 minutes Ben was ventilated on room air only. Once it was noted, it was immediately corrected. The evidence at Inquest was that having two valves was confusing for users and at times of high intensity and highly charged situations, even with training, those operating the cylinder may not necessarily recall that there are two valves to open. It is understood that more pronounced wording has been included on the side valve to attempt to alert users though this is not particularly pronounced. There have been 22 incidents with oxygen cylinders at the Health Board since 2014, including 2 since January 2024. There has been additional training for staff over recent years as part of their ALS / ILS training including specific focus on these cylinders and yet issues with the two valves on the cylinder remains. It is understood that BCUHB have referred numerous concerns to BOC over recent years and some minor amendments have been made to the cylinders. BCUHB also reported to the Medicines and Healthcare products Regulatory Agency (MHRA) on 6 October 2022 under The Yellow Card Scheme. No response was formally received. I remain concerned that the CD Oxygen cylinders manufactured by BOC which, it is understood, supply most if not all Health Boards in Wales (under procurement processes) are unsafe for use in heightened / pressurised situations in that it is not overtly clear how the cylinders are to be operated with the confusion of the two valves. This is evidenced by very similar ongoing issues identified by BCUHB even with adequate training of staff.
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 5 July 2024. I, Kate Robertson, 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 Family of the Deceased, BCUHB and to the Chief Coroner. I have also sent a copy of the Report to the following for their information:- a. Eluned Morgan, Health Minister for Wales b. Medicines and Healthcare Regulatory Agency c. Health Services Safety Investigations Body d. NHS Wales Executive 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.
d	Dated 10 May 2024 K Robertson. Signature Assistant Coroner for North Wales (East and Central)