NOTE TO DOCTOR

AND OTHER MEDICAL PROFESSIONALS ATTENDING A CRYONICS PATIENT

Name of patient:

The above-named patient in your care wishes to be cryogenically preserved on death in the hope that, at some future time, his/her body can be reanimated and restored both physically and with his/her memory and character traits intact. To this end, the patient has signed a contract with the *Cryonics Institute / Alcor Life Extension Foundation**, a cryonics storage provider which has undertaken to preserve the body in liquid nitrogen until reanimation is possible.

To maximise the chances of this being possible, it is imperative that the patient's body be cooled and prepared for freezing with minimal delay after death. The patient has therefore also made arrangements with Cryonics UK (CUK) to provide rapid cool-down, perfusion with a cryoprotectant and freezing on death. Your help and co-operation to allow the patient's wishes to be carried out would be greatly appreciated.

REQUIREMENTS FOR OPTIMUM CRYOGENIC PRESERVATION

The stages of the cryopreservation process are:

1. IMMEDIATELY ON CLINICAL DEATH, the patient is given chest compressions and lung ventilation, and cooled down with ice (especially the head) to minimise ischemic damage.
2. MEDICATIONS ARE ADMINISTERED (especially heparin) to maintain blood flow, reduce damage due to ischemia and regulate body chemistry;
3. BLOOD IN THE HEAD IS REPLACED BY A CRYOPROTECTANT to inhibit the formation of ice crystals on freezing; then
4. THE BODY IS COOLED ON DRY ICE (carbon dioxide ice) to about -65°C before being flown to the cryonics storage provider to be stored indefinitely in liquid nitrogen.

STAGE 1 (the initial cool-down process) should begin immediately on clinical death to minimise tissue damage, especially brain damage, in the same manner that CPR must be carried out quickly to avoid brain damage. Ideally, cooling should begin within five minutes of death, accompanied by chest compressions and lung ventilation. To do this requires either that confirmation of death is given immediately or that CPR and cooling may be carried out before confirmation of death by a medical professional.

STAGE 2 (medications) clearly cannot take place until confirmation of death has occurred.

STAGES 3 AND 4 (perfusion and freezing) may follow unless the GP or other attending doctor require to visit the body before either perfusion or freezing occurs, in which case these stages must both be delayed.

*Delete as appropriate.

ARRANGEMENTS FOR CONFIRMATION AND CERTIFICATION OF DEATH

The requirements for confirmation of death depend on the GP: on previous Cryonics UK cases these have varied but CUK have always been allowed to carry out CPR procedures and cooling of the head.

Doctors' requirements for visiting the body for certification of death have also varied, with some doctors requiring to see the body but others not.

Background information giving our understanding of the legal and professional requirements for confirming death are given as an appendix to this note.

Confirmation of death

Alternative arrangements, based on past experience, include the following. All assume that death is expected and the patient has been visited by the attending doctor within 14 days prior to death.

The GP agrees to confirmation being carried out by any competent person.

- This may be a relative or other person, with prior agreement of the GP.

IN TERMS OF OPTIMUM CRYOPRESERVATION, THIS IS BY FAR THE BEST OPTION AS IT MINIMISES RISKS OF DELAYS.

The GP agrees to confirmation being carried out by another medical professional such as a suitably qualified and experienced nurse, ambulance paramedic or by suitably-experienced care home staff.

- Use of a suitably qualified and experienced nurse, staying close by to be available within minutes of death, greatly reduces the risk of delay.
- Similarly, death is routinely confirmed by staff in some nursing homes, where staff are available to rapidly certify death.

THIS OPTION IS MORE PROBLEMATIC BUT WILL USUALLY ALLOW DELAYS TO BE KEPT WITHIN REASONABLE LIMITS.

The GP requires that confirmation of death be carried out by the GP or another doctor.

- Confirmation by the GP or an NHS locum would result in long delays and render the cryopreservation process almost pointless.
- An agency doctor can be on call to attend rapidly to give confirmation of death but, from experience, this is difficult to achieve and a rapid response by the on-call doctor is not guaranteed.
- To avoid delays in the initial cool-down, GPs have allowed CPR and cooling before certification. If used with an on-call agency doctor, this can reduce the risk of unacceptable delays, since the initial CPR and cooling process greatly reduces the rate of tissue damage.

THIS OPTION PRESENTS SIGNIFICANT PROBLEMS AND RESULTS IN DELAYS WHICH CAN SIGNIFICANTLY AFFECT THE QUALITY OF CRYOPRESERVATION.

Certification of death

Where death is certified by somebody other than the GP or other doctor, the GP may or may not require to view the body after death.

IF THE GP DOES WISH TO VIEW THE BODY FOR CERTIFICATION, THE STAGE AT WHICH IT IS VIEWED WILL HAVE A MAJOR IMPACT ON DELAYS IN THE CRYOPRESERVATION PROCESS.

- If the body is to be viewed before perfusion and freezing begin, the body will probably have to be kept at the place of death until it is viewed*. This will delay the perfusion and freezing procedures.
- If the GP is happy to view the body after freezing, there will be no delays in the procedures, but the GP or other doctor will have to travel to the undertaker's/embalmer's premises where perfusion is carried out*.

*Because of the specialist procedures required of the embalmer, the undertaker's/embalmer's premises may be some distance away from the place of death.

APPENDIX

BACKGROUND INFORMATION ON WHO CAN CONFIRM/VERIFY DEATH

- **British Medical Association (BMA) guidelines** (Ref. 1) state that, under English law, confirmation of death does not have to be given by a doctor, nor does it require a doctor to be present or even to view the body at any time, although this is recommended where possible.
- The guidelines do not explicitly state who can verify death but the statement, under the heading "Legal requirements", that "If a patient is declared dead by a relative, a member of a nursing home, ambulance personnel or the police, GPs would be acting correctly in prioritising the needs of their living patients." implies that verification of death does not have to be given by a specially trained or registered individual and can, specifically, be given by a relative.
- The guidelines also recommend, under the heading, "Expected deaths at home or in nursing or residential homes" that there is little point in an on-call doctor visiting the deceased if death is out-of-hours, and that "If the home so requests, normally undertakers will remove bodies under these circumstances." and that, "The circumstances are similar if the person dies at home . . . If the relative is content to make arrangements with an undertaker, without the doctor attending, then there is certainly no need for a duty doctor to attend." This indicates that the body may be removed without the doctor viewing it and does not appear to place any specific limitations on the treatment that the body may receive, provided it is not cremated.
- For an unexpected but non-suspicious death, the guidelines advise that the doctor, or on-call doctor, should attend and is advised to inform the coroner. For suspicious death, the doctor has to inform the police.
- With regard to informing the coroner, the guidelines state, under the heading "Sudden or unexpected deaths" that the doctor has a responsibility to inform the police if he thinks a crime has been committed but, "English law, contrary to popular belief, does not, at present, place an obligation upon a doctor to report all sudden deaths to the coroner." but advises, "even where there are no suspicious circumstances, the doctor would be wise to notify the coroner." This indicates that for expected death, the doctor has no obligation to inform the coroner and implies that there is generally no need to do so.
- An article on the medical web site 'Patient' (Ref. 2) reiterates and duplicates the advice given in Ref. 1.

- **The Care Quality Commission** (Ref. 3), in an article, recommends following the BMA guidelines and, in addition, states that, in the case of a person dying in a nursing home, "The general agreement has been that, in cases like this, any competent adult can confirm death. We expect a competent adult to be an individual with the knowledge, skills and competencies required to be able to confirm death. Therefore, the doctor need not to confirm an expected death in a care home."
- It should be noted that the advice refers specifically to a care home and that the definition of a competent person is an expectation, not a requirement. Further, there is no indication of how these competencies are assessed, or specific requirement that the 'competent adult' be a healthcare professional, hold any specific qualifications or have undergone any specific training.

- **The Nursing and Midwifery Council (NMC)** (Ref. 4) states that "…a registered nurse may confirm or verify that death has occurred providing there is an explicit local protocol in place to allow such action…".
- However, the NMC requires that, "Nurses undertaking this responsibility must only do so providing they have received appropriate education and training and have been assessed as competent in accordance with the code…".
- The two above requirements mean that registered nurses must receive specific training in confirmation of death and must check with the controlling authority that there is a protocol in place for the verification of death by a nurse. In discussions with Fairway Training, their interpretation is that the nurse must have undertaken a course in verification of death, such as the course they provide, and that the controlling authority responsible for putting a protocol in place would be (for instance) Fairway Training in the case of their supplying a nurse or the nursing home if Fairway were to train nursing home staff. Fairway could assist nursing homes with regard to suitable protocols. In addition, a trawl through various regional NHS trusts shows that they tend to have such authorities in place for NHS situations, which could possibly form a template (with guidance from Fairway) for nursing homes.

- **The Royal College of Nursing (RCN)** has similar requirements to the NMC and states that, "Confirmation or verification of death can be undertaken by a registered nurse however you must check your employer's policies to determine local agreements about the circumstances in which this can be done." This seems to indicate that the policy or protocol is to be supplied by the employer, which accords with Fairway's interpretation.
- As with the NMC, the RCN also requires that, "The nurse must be trained and deemed competent to confirm death, and there must be an explicit local policy in place which the nurse must check for specific details."
- The RCN further states that, "Experienced registered nurses have the authority to confirm death, notify the relatives, and arrange for last offices and the removal of the body to the mortuary or the appropriate funeral parlour." thus confirming that the body may be removed without being seen by a doctor.

REFERENCES

REFERENCE 1. BMA GUIDELINES

Source: *Confirmation and Certification of Death*, British Medical Association, Sep 2016. Internet: bma.org.uk/advice/employment/gp-practices/service-provision/confirmation-and-certification-of-death.

LEGAL REQUIREMENTS – CONFIRMATION AND CERTIFICATION OF DEATH

- English law ***requires*** the doctor who attended the deceased during the last illness to issue a certificate detailing the cause of death, *but not the fact of death*, and to notify the cause to the Register of Births and deaths.
- It does ***not require*** the doctor to confirm or report the fact that death has occurred, nor to view the body.
- Thus, there is ***no obligation*** for a ***general practitioner or any other registered medical practitioner*** to see or examine the body of a person who is said to be dead.
- If a patient is ***declared dead*** by a ***relative***, a ***member of staff in a nursing home*** or ***ambulance personnel***, GPs are under no obligation to visit the body and would be acting correctly by prioritising the needs of their living patients.
- ***Undertakers*** (funeral directors) ***do not have to be legally registered*** in England and Wales.

EXPECTED DEATH AT HOME OR A NURSING HOME

- BMA guidelines recommend that, for death ***during normal working hours***, a doctor who has been treating a deceased person during their current illness should ***attend to confirm death and issue the appropriate death certificate*** when the urgent needs of his/her patients have been met. Alternatively a colleague should attend and ensure the doctor is informed.
- For death during ***out of hours***, BMA guidelines state that there is ***little point in an on-call doctor attending*** a person who has died in a ***nursing home*** or ***residential home***. If the home so requests, normally undertakers will remove bodies under these circumstances.
- The situation if a person dies ***at home*** is similar but if a ***relative or friend*** is content to make ***arrangements with an undertaker,*** without the doctor attending, then there is certainly ***no need for a duty doctor to attend***.

UNEXPECTED SUDDEN DEATH WITH NO SUSPICIOUS CIRCUMSTANCES

- For ***unexpected death at home or in a residential or nursing home***, BMA guidelines recommend that the ***GP or on-call doctor attend*** as quickly as the urgent needs of their living patients permit to examine the body and confirm death, but this is ***not a statutory obligation***.
- There is ***no obligation*** under English law for a ***GP*** to ***report the death to the coroner*** but BMA guidelines ***recommend that he/she does so*** (through the local police) even for non-suspicious sudden death.

UNEXPECTED SUDDEN DEATH WITH SUSPICIOUS CIRCUMSTANCES

- The ***GP is under no obligation to attend*** a suspicious death and BMA guidelines ***advise doctors not to attend*** suspicious cases unless they are trained in forensic medicine.

REFERENCE 2. 'PATIENT' GUIDANCE PAPER

Source: *Death (Recognition and certification)*, Dr Hayley Willacy, updated by Dr Mary Harding, Reviewed by Prof. Cathy Jackson, Patient, 2015 Nov. Internet: patient.info/doctor/death-recognition-and-certification.

- The paper ***reiterates*** and duplicates the ***advice given in BMA guidelines*** (1. above) in terms of legal requirements and the advisability and urgency of a visit from the deceased's GP.
- ***Death should be recognised*** initially by extreme pallor (especially the face and lips), and relaxation of the facial muscles. This leads to drooping of the lower jaw and open staring eyes. Five checks should then be made to confirm: (1) no palpable pulse; (2) no sounds detected with a stethoscope; (3) no observed respiratory effort; (4) no breath sounds detected with a stethoscope; (5) pupils dilated and not reactive to light.
- Other tests and advice are given for special circumstances but these would not normally be relevant for a CUK call-out where death is expected.
- A ***death certificate may be issued by a doctor*** who has provided care during the last illness and ***who has seen the deceased within 14 days of death*** ***or after death***.
- Some circumstances (listed in the paper), including ***suicide and death from neglect or exposure***, must be ***reported to the coroner***.

REFERENCE 3. CARE QUALITY COMMISSION

Source: *Nigel's Surgery 13: Who Can Confirm Death?*, Dr Nigel Sparrow, Care Quality Commission, 2015 Dec. Internet: cqc.org.uk/content/nigels-surgery-13-who-can-confirm-death.

- The article refers specifically to death at a care home.
- The Care Quality Commission recommends following the BMA Guidelines (1. above).
- The Commission also states that in the case of expected death at a care home, the general agreement has been that any competent adult can confirm death; a competent adult being an individual with the knowledge, skills and

competencies required to be able to confirm death. This leaves open the question of whether a trained CUK volunteer, following call-out guidelines, is considered competent.

REFERENCE 4. NURSING AND MIDWIFERY COUNCIL

Source: *Confirmation of Death for Registered Nurses*, Nursing and Midwifery Council, May 2013. Internet: nmc-uk.org/Nurses-and-midwives/Rgulation-in-practice/Regulation-in-Practice.

- A nurse cannot legally certify death but may verify or confirm that death has occurred, providing there is an explicit protocol in place for such action, which includes guidance on when other authorities (e.g. the police or coroner) should be informed prior to the removal of the body. However, nurses undertaking this responsibility must have received appropriate training and been assessed as competent in accordance with the code which states:
  - you must have knowledge and skills for safe and effective practice when working without supervision;
  - you must recognise and work within the limits of your competence;
  - you must keep your knowledge and skills up to date throughout your working life; and
  - you must take part in appropriate learning and practice activities that maintain and develop your competence and performance.
- In general, the guidelines reiterate and often duplicate the BMA guidelines (1. above).
- A review of several regional NHS trusts indicates that most or all regional NHS trusts have a protocol in place, although the regional NHS trust protocols may not be relevant for an agency nurse or nursing home, where protocols should be supplied by the employer (the agency or home).

REFERENCE 5. ROYAL COLLEGE OF NURSING

Source: *Confirmation or Verification of Death by Registered Nurses*, Royal College of Nursing, undated but references include a paper published April 2015, downloaded (PDF version) March 2017. Internet: rcn.org.uk/get-help/rcn-advice/confirmation-of-death.

- Confirmation of death can be undertaken by a registered nurse but the nurse must be trained and deemed competent to confirm death, and there must be an explicit local policy in place which the nurse must check for specific details and local agreements about the circumstances in which this can be done.
- When a patient dies, the nurse has a duty to inform the doctor who has been treating the patient, so that he/she can certify death. This may be pre-arranged with the doctor to take place at another time; for example when death occurs at night the doctor may be informed in the morning.
- Nurses may confirm death when discussion has taken place between the appropriate medical practitioner and the nursing staff and it has been agreed that further intervention would be inappropriate and death is expected to be imminent.
- Where death is unexpected, the nurse has the responsibility to initiate resuscitation measures unless it has been agreed that resuscitation measures should not take place.
- These principles for practice can apply in any health setting, in the NHS or independent sector.
- Experienced registered nurses have the authority to confirm death, notify the relatives, and arrange for last offices and the removal of the body to the mortuary or the appropriate funeral parlour. However, they must check their employer's own policy in this area for specific details as applicable to the situation, especially for unexpected deaths.
- Records must be kept, which must reflect that death is expected. Records should show details of confirmation of death, with time, date and any other observations that were recorded in line with an identified protocol, whether in the NHS or independent sector. The time and date the doctor was informed must also be included.
- Education and training must be made available and nurses should ensure they have enough confidence, competence, knowledge and skills to equip them for undertaking this role. Education should be based on the broad principles identified in the NMC Code (https://www.nmc.org.uk/standards/code/read-the-code-online/).