The Newcastle upon Tyne Hospitals NHS Foundation Trust

Job Description

1 Job Details

Job title	Clinical Perfusionist
Pay band	7
Directorate	Cardiothoracic Services
Ward/Dept Base	Perfusion
Hospital site	Freeman

Essential Requirements

- To have attained Accreditation of the Society of Clinical Perfusion Scientists of Great Britain and Ireland.
- To be a registered member of the College of Clinical Perfusion scientists and achieve the re-accreditation criteria at the predetermined time intervals.
- Requires highly specialised knowledge acquired through a unique mixture of theoretical and practical work, which is over a significant training period.
- Must possess excellent communication skills and work well as an integral team member in the perfusion department and also in the multidisciplinary theatre team.
- Be self-motivated and take an interest in research and development programmes and training of student perfusionist.
- Able to work independently and participate in departments 24 hour emergency on-call rota as the secondary perfusionist.
- Ability to adapt to changing circumstances and a commitment to professional development.
- To be aiming towards the MSc in Perfusion Science.

Desirable Requirements

- To be actively training to become proficient in paediatric perfusion techniques and ECMO (extracorporeal membrane oxygenation).

2 Job Purpose

- As an autonomous practitioner a Clinical Perfusionist should offer a comprehensive specialist clinical and technical service during both routine and emergency procedures as a vital member of the multidisciplinary team during cardiac surgery. Train to become competent in all aspects of neonatal and paediatric perfusion. Participate in the emergency on-call rota. The clinical perfusionist will also participate in the education of trainee perfusionists and contribute to departmental research.
- Safely perform a range of highly specialised perfusion techniques on adult patients during routine and emergency cardiopulmonary bypass.
- Construct, prime and operate the cardiopulmonary bypass machine to maintain

"life support" for the period of cardiopulmonary bypass according to local and occupational clinical policies and protocols.

- Assess the patient's relevant medical history, pathology and diagnosis and make appropriate decisions concerning conduct of the procedure.
- Administer drugs including colloid/ crystalloid fluids, vasoactive drugs, cardioplegia solutions, potassium, anticoagulants, haemostatic drugs, sodium bicarbonate and osmotic diuretics as clinically indicated.
- Prepare and deliver cardioplegic solutions to arrest the heart and give a still bloodless field in which the surgeon can perform heart surgery. Deliver multiple doses of antegrade and/or retrograde cardioplegic solutions to optimise myocardial preservation during open heart surgery.
- Maintain patient's blood pressure at adequate level whilst on cardiopulmonary bypass, by mechanical and pharmalogical means.
- Maintain adequate levels of oxygen and carbon dioxide in patients' bloodstream using an artificial lung (Membrane Oxygenator)
- Manipulate on a second-to-second basis the patient's cardiovascular system whilst on cardiopulmonary bypass.
- Monitor a wide range of highly complex and routinely conflicting clinical information on a minute to minute basis such as blood oximetry, cardiac output, systemic vascular resistance, ventilation and anticoagulation whilst observing renal status and blood glucose levels and take appropriate autonomous action.
- Undertake, analyse and interpret arterial/venous blood gases and coagulation status.
- Take where appropriate, delegated responsibility for the delivery of a highly specialist perfusion service, ensuring the service is effective and well-coordinated.
- Advise clinicians on the suitability of equipment and persuade clinicians on appropriate course of action.
- Determine the requirements for and perform where clinically indicated, haemofiltration and blood transfusion during cardiopulmonary bypass.
- Set up and manage, where appropriate; antegrade/retrograde cerebral perfusion, deep hypothermic circulatory arrest and mechanical support devices.
- Assist senior clinical perfusionist in construction and management of extracorporeal membrane oxygenation (long term cardiopulmonary bypass)
- Undertake retrieval and preservation of donor organs (heart and/or lungs) from hospitals in our retrieval sector
- Ensure quality control, calibration and maintenance of complex medical equipment in Clinical Perfusion and their safe use incompliance with Near-Patient testing Policies.
- Assisting when necessary with education of trainee clinical perfusionists.
- Training of nursing and medical personnel in use of blood gas analysers
- Participating in Clinical Perfusion 24hr emergency on-call rota as second on-call

3 Dimensions

- Train and act as mentor to student perfusionists. To use knowledge and skills acquired over an extensive training period, to ensure that cardiopulmonary bypass is performed to the highest standards and to monitor and continually improve on the quality of service provided.

4 Organisational Arrangements

Reports to: Principal Clinical Perfusionist

Professionally accountable to: Principal Clinical Perfusionist and the Society of Clinical Perfusion Scientists of Great Britain and Ireland and the College of Clinical Perfusion Scientists.

Staff Responsible for: Mentor to student perfusionists.

5 Knowledge Training and Experience

- See essential requirements
- Attend national / international meetings to maintain professional registration.
- Be fully conversant with departmental / Trust policies and procedures.
- Attend mandatory training as required under Trust policy.
- Participate in Individual Performance Review and agree objectives / outcomes.
- Keep up to date with new techniques and developments in clinical perfusion.

6 Skills

Communication and Relationships

- Exchange of highly complex and intricate information between surgeon, perfusionist and anaesthetist, which has a direct effect on the well being of the patient.
- During cardiac surgical procedures you work under a constant stressful environment and the need for clear and precise communication is a prerequisite if this highly complex procedure is to be performed safely and to the highest standards. Any errors in communication at this level of responsibility could prove fatal to the patient.
- Post holder must be prepared for every eventuality when the patient is on cardiopulmonary bypass, as unpredictable events unfold you must try and maintain clear and precise lines of communication with the surgeon and anaesthetist. This can be extremely demanding as emotions and tempers are taken to breaking point when a patient's life is at stake and you only have a matter of minutes to correct the situation before irreparable harm can occur to the patient.
- There also needs to be good communication with other members of the theatre team, such as nurses and technical staff. This is essential to maintain a good rapport and team spirit within the cardiac theatres. This communication must also extend to intensive care units and wards where there must be a direct communications route, which is clear and precise to maintain the same level of quality and care standards to the patient.
- As an autonomous practitioner the clinical perfusionist will devise, describe and explain an appropriate care pathway for patients to consultant colleagues and other relevant members of the multidisciplinary team.
- Employ excellent communication skills in emotive, stressful and potentially antagonistic situations.
- Demonstrate excellent negotiation skills in the management of conflict across a range of situations.

Analytical and Judgemental

- By its very nature, the job of a clinical perfusionist requires a highly analytical mind, to approach and undertake the task of performing cardiopulmonary bypass procedures. Every operative procedure has the possibility of producing unique problems and it is the job of the perfusionist to logically and systematically diagnose the problem using their specialist knowledge and experience. The problems are often life threatening and must be solved under immense pressures and often strict time constraints.
- In an emergency situation, under immense pressure and often time constraints, the perfusionist must collate and interpret complex information, in a commonsensical way, to enable them to make a decision on the most appropriate course of action to solve the problem.
- Monitor and act upon a range of clinical information on a moment to moment basis.
- Analyse and interpret information, which is often incomplete and conflicting.

Planning and Organisational

- Manage and prioritise own caseload / workload independently.
- Liaise, coordinate and plan availability of / with other staff including other disciplines in order to fulfil particular clinical requirements.
- Close collaboration with coordinating personnel during organ retrievals from distant locations.

Physical Dexterity

- Assembly of highly complex cardiopulmonary bypass circuits, which will replace the function of the heart and lungs during open heart surgery, requires a high degree of hand to eye coordination and significant manual dexterity. Great care must be taken to construct the circuit using aseptic technique to ensure the sterility of the blood pathway. The same applies to the preparation of intravenous drugs which are added to the cardiopulmonary bypass circuit.
- The correct operation of the heart/lung bypass machine, during heart and/or lung surgery, requires great concentration combined with a high degree manual dexterity and sensory skills. This skill is learned over a long training period and teaching of the skills from more senior experienced perfusionists. Through supervised practice the skills are developed and honed to a high degree of competence.
- Act rapidly in the response to emergency situations both on-call and during normal working hours.
- Manipulation of the cardiopulmonary bypass circuit on a second to second basis requiring highly developed and advanced sensory skills.

7 Key Result Areas

Patient / Client Care

- Totally responsible for keeping patient alive during open heart surgery. The patient is totally dependent on the skill and highly specialised clinical expertise of the perfusionist whilst undergoing cardiopulmonary bypass. The perfusionist must rely on his/her highly specialised skills and knowledge, gained through a unique training programme embracing both academic and practical components, to ensure that procedures are carried out to the highest standards.
- All departmental policies and checklists must be adhered to, as well as conforming to the standards of conduct for cardiopulmonary bypass, as

recommended by the Society of Clinical Perfusion Scientists.

- The perfusionist has the responsibility of taking over the function of the patients' heart and lungs and maintaining an artificial circulation for the duration of the operation. This entails providing an adequate blood pressure by mechanical means and when necessary, with the application of intravenous drugs which will elevate or decrease the blood pressure as required, depending on the clinical situation.
- Adequate levels of oxygen and carbon dioxide must be maintained in the bloodstream by artificial oxygenation to ensure satisfactory function of all major organs, especially the brain, which is very susceptible to changes in oxygen and carbon dioxide.
- Patients in certain operations can be cooled from 37 degrees centigrade down to 18 degrees centigrade. At this temperature the artificial circulation is ceased while a critical part of the operation is undertaken (which can take several minutes) and it only due to the satisfactory cooling of the patients' brain to such a low temperature, that allows this action to occur.
- The perfusionist is also responsible for providing and administering a cocktail of drugs in a cardioplegic solution, which will instantly stop the patients' heart (and allow the surgeon to operate in a still blood free field) and also preserve the heart muscle during the operation. This is only a very small example of the magnitude and diversity of a perfusionist job, the full detailed job description is too complex and varied to give a full account of patient care issues at this stage.
- During cardiopulmonary bypass the clinical perfusionist will perform complex diagnostic procedures and interpret the results and initiate autonomously the required action.
- Ensure the risk of infection to yourself, colleagues, patients, relatives and visitors is minimised by:
    - being familiar with, and adhering to Trust policies and guidance on infection prevention and control
    - attending Trust Induction Programme(s) and statutory education programmes in infection prevention and control
    - including infection prevention and control as an integral part of your continuous personal/professional development
    - taking personal responsibility so far as is reasonably practicable, in helping ensure that effective prevention and control of health care acquired infections is embedded into everyday practice and applied consistently by you and your colleagues

Policy and Service Development

- Follows departmental policies, check lists and working practices as directed by the principal perfusionist.
- Provide input into changes in policies and practices at departmental level.
- Involved in the implementation of policies, both clinical and non-clinical.

Financial and Physical Resources

- To advise principal perfusionist of changes in stock levels when necessary and to liaise with him to ensure repair and maintenance of equipment used.
- Responsible for the safe use of equipment by other members of the team e.g. junior staff, nursing and medical staff (when using associated perfusion equipment).
- Use of highly complex and expensive equipment.
- Has responsibility for certain areas of stock control.

Human Resources

- To assist in the training and education of student perfusionists when required. Also the training of nursing staff in the use of blood gas machines and anticoagulation measurement equipment when necessary.

Information Resources

- Maintain accurate data recording in patient case notes and perfusion bypass charts.
- Maintain accurate patient details / operative data are recorded for audit / activity records.
- Maintain appropriate activity records for professional registration.

Research and Development

- Participate in research when requested by medical staff or by the principal perfusionist.
- Be involved in the evaluation of new technologies and equipment as and when necessary.
- To undertake any projects or investigative work as set out by principal perfusionist.
- Participate in departmental audits.

8 Freedom to Act

- Must work to local perfusion protocols as directed by the principal perfusionist and be guided by the recommendations and code of practise of the Society of Clinical Perfusion Scientists.
- Has to be able to work independently and be accountable for own decisions in the clinical setting, as long as they comply with local agreed protocols and practises. By the very nature of the work the perfusionist must be able to work to a high degree of autonomy and decision making on a daily basis.
- Must be aware of the implications of clinical governance and strive to attain the highest standards possible and maintain a high degree of quality. Be aware of benchmarking process and clinical best practice evidence. To monitor standards and to continually seek to improve and deliver the highest quality service.

9 Effort & Environment

Physical

- Post holder will need to exert moderate physical effort for several short periods when:
    - Manoeuvring heavy equipment e.g. heart/lung machine in and out of theatre
    - Transportation of patients on ECMO/assist devices to other clinical areas
    - Collection and transport of cumbersome and bulky cardiopulmonary bypass disposable equipment
    - Transferring patients from the operating table to intensive care bed
    - Assisting nursing staff with positioning of patients
    - Disposal of bulky waste items
    - Attention to moving and handling regulations when moving heavy/bulky items

Mental

- There will be a requirement for frequent prolonged concentration when:
    - On-call for emergencies such as heart and/or lung transplants in adult or paediatric patients. Concentration has to be maintained for many hours during the night and frequently the perfusionist has to work for twenty four hours without sleep, as transplantation surgery often takes place in the early hours of the morning.
- The perfusionist often has to respond to unpredictable work patterns and this is especially true when undertaking emergency on-call duties. Even routine operations can be very unpredictable and will require extended periods of intense concentration and mental effort under stressful conditions.

Emotional

- The post holder will be frequently exposed to emotional / distressing circumstances when:
    - Dealing with death during procedures.
    - During emergency on-calls.
    - Empathising with and giving reassurance to other members of the multidisciplinary team after traumatic / distressing events.

Working Conditions

- Exposure to patient bodily fluids, infections high risk conditions e.g. Hepatitis / HIV / MRSA
- Exposure to highly unpleasant working conditions e.g. extremes of temperature, smell from diathermy
- Work with infection control and health and safety recommendations to carry out appropriately any necessary actions required for particular conditions

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Agreed post holder …….. Agreed manager ……
Date …… Date ……

The Newcastle upon Tyne Hospitals NHS Foundation Trust

Person Specification

JOB TITLE: Clinical Perfusionist **BAND:** 7 **DIRECTORATE:** Cardiothoracic Services

REQUIREMENT	ESSENTIAL Requirements necessary for safe and effective performance of the job	DESIRABLE Where available, elements that contribute to improved/immediate performance in the job	ASSESSMENT
Qualifications & Education	• To have attained Accreditation of the Society of Clinical Perfusion Scientists of Great Britain and Ireland. • To be a registered member of the College of Clinical Perfusion scientists and achieve the re-accreditation criteria at the predetermined time intervals.		
Knowledge & Experience	• Requires highly specialised knowledge acquired through a unique mixture of theoretical and practical work, which is over a significant training period.		
Skills & Abilities	• Must possess excellent communication skills and work well as an integral team member in the perfusion department and also in the multidisciplinary theatre team. • Able to work independently and participate in departments 24 hour emergency on-call rota as the secondary Perfusionist. • Ability to adapt to changing circumstances and a commitment to professional development.		
Values / Behavioural / Attitudes	• Be self-motivated and take an interest in research and development programmes and training of student Perfusionist. • To be aiming towards the MSc in Perfusion Science.	• To be actively training to become proficient in paediatric perfusion techniques and ECMO (extracorporeal membrane oxygenation).	
Core Behaviours	• Alignment to Trust Values and Core Behaviours		

CANDIDATE: **REFERENCE NO:**

SIGNED BY: **DATE:**

DESIGNATION: