

Specialist Certificate in Clinical Transfusion Practice.

Full modules Descriptions

Compulsory Core Modules:

CM1 Patient Blood Management (PBM)

This module provides an introduction to Patient Blood Management (PBM) and explores the key principles involved in improving patient outcomes through the safe and appropriate management of blood and transfusion practice. The module covers the background and development of PBM within the UK and internationally, highlighting its importance in reducing unnecessary transfusions, improving patient safety, and supporting sustainable blood use. It introduces the three pillars of PBM: optimising haemoglobin, minimising blood loss, and managing anaemia and physiological tolerance.

The module also examines the causes, classification, and clinical impact of anaemia, including iron deficiency anaemia, anaemia of inflammation, and haematinic deficiencies such as B12 and folate deficiency. It outlines the investigations and laboratory tests used to identify and classify anaemia, alongside approaches to preoperative optimisation and clinical pathways designed to improve patient blood health before surgery.

In addition, the module covers strategies used to minimise blood loss during surgical and clinical care, including bleeding risk assessment, restrictive blood sampling, pharmacological interventions such as tranexamic acid, anticoagulant reversal, intraoperative cell salvage, and point-of-care testing. Postoperative anaemia management and discharge planning are also explored.

The final themes focus on the appropriate and restrictive use of blood transfusion, single-unit transfusion strategies, informed consent, patient-centred decision making, and the management of patients who refuse blood transfusion. Overall, the module emphasises a multidisciplinary, evidence-based approach to preserving patient blood, reducing transfusion-related risks, and promoting high-quality, individualised patient care.

CM2 Supply Chain & Component Management

This module explores the end-to-end management of blood components within the hospital supply chain, from receipt in the transfusion laboratory to administration to the patient. Learners will examine the design, operation, and performance of hospital blood component management systems, with emphasis on appropriate use, waste minimisation, and meeting special requirements.

The module covers storage, transport, and temperature control both within and outside the transfusion laboratory, as well as the ordering and preparation of components from prescription to issue. Principles and mechanisms of 'vein to vein' traceability will be addressed, including electronic issue, blood tracking systems, and remote issue processes.

Learners will also evaluate the laboratory's role in managing major haemorrhage, considering current guidelines and evidence-based practice. By completion, participants will have a comprehensive understanding of safe, efficient, and compliant blood component management in the hospital setting.

CM3 Leadership & Transfusion Liaison

This module focuses on Leadership and Transfusion Liaison. During this module, you will explore the definition of leadership and its underlying principles, including leadership theories, different leadership styles and leadership of change. You will then focus on leadership specific to transfusion and healthcare. Exploring in more detail the policies and leadership structures across the United Kingdom that underpin leadership in this discipline. Lastly there will be a focus on leadership and transfusion liaison which will describe the networks within the United Kingdom that allow collaborative communication team working and networking in transfusion to occur.

This module will acknowledge that participants have varying levels of leadership experience and knowledge. Some may have studied leadership theories and assessed their own leadership styles, while others may be less familiar with the topic. Since leadership theories and styles evolve over time, continuous reflection, learning, and practice-based exercises are used to supplement the material.

Rather than offering a comprehensive study of leadership, this module aims to highlight key principles and mechanisms that promote effective team collaboration and networking. Participants will be guided toward valuable resources and encouraged to apply their learning to real-world situations.

CM4 Education and Competence

This module focuses on education and competence, touching on its application within transfusion. During this module, you will explore the fundamentals of education theories, educational strategies and learning styles. You will then focus on evaluation and assessment, coaching and mentoring and constructive feedback, allowing you to specifically apply this to your role and experience within healthcare. The module will then focus on reflective practice, thinking about, and reflecting on, one's own actions and those of others to improve performance. This is a crucial skill to develop for effective Continuing Professional Development (CPD) which is a requirement for professional registration. Lastly there will be a focus on evidence-based practice, audit and the use of guidelines

This module will acknowledge that participants have varying levels of educational experience and knowledge and carry out different roles within healthcare. Some may have studied education theories and assessed their own learning styles, while others may be less

familiar with the topic. Since education theories and styles evolve over time, continuous reflection, learning, and practice-based exercises are used to supplement the material.

Rather than offering a comprehensive study of education and competence, this module aims to highlight key principles and encourage reflection on the individual's personal education, competence and development. Participants will be guided toward valuable resources and encouraged to apply their learning to real-world situations

CM5 Quality Management

This module provides a comprehensive overview of quality and regulatory frameworks essential to clinical transfusion practice. It emphasizes the importance of placing patients and donors at the heart of all practices.

The module begins by defining quality in healthcare, referencing the World Health Organization's criteria: care must be safe, effective, timely, efficient, equitable, and people centred. Quality is not the sole responsibility of designated managers, but a professional duty shared by all healthcare staff.

A key concept is clinical governance, which ensures accountability and safety within healthcare organisations. The presentation outlines the Blood Safety and Quality Regulations (BSQR), derived from EU directives, which mandate standards for blood collection, testing, storage, and traceability. The MHRA oversees compliance, with inspections and reporting mechanisms like SABRE for adverse events. Transfusion practitioners play a vital role in ensuring compliance, particularly in traceability, training, and incident investigation.

The Human Tissue Act 2004 and Tissue Quality and Safety Regulations (TQSR) govern the use of human tissue, focusing on consent, storage and disposal. The Human Tissue Authority (HTA) licenses and inspects establishments, ensuring adherence to scheduled purposes such as research, human application (transplantation), public display, postmortem and anatomy. The Care Quality Commission (CQC) are another regulatory body which focuses on care quality in England. Each UK nation has its own regulatory body for this purpose.

Various UK organizations contribute to transfusion safety and quality, including JPAC, which develops guidelines for the blood transfusion services and maintains the "Red Book" and SaBTO, which advises on safety policies for blood, tissues and organs.

Quality assurance is achieved through Key Performance Indicators (KPIs) and Continuous Quality Indicators (CQIs), which must be SMART: Specific, Measurable, Achievable, Relevant, and Timely. These indicators assess structure, process, and outcomes, such as transfusion appropriateness, adverse events, and staff competence.

Quality improvement is a continuous process involving audit cycles and methodologies like PDSA (Plan, Do, Study, Act). The National Comparative Audit of Blood Transfusion (NCABT) provides national benchmarking and has introduced innovations like quick audits and implementation research.

Regulations and guidelines provide the standards, along with continuous learning, and patient-centred care ensures excellence in transfusion practice. But ultimately, quality is everyone's business.

CM6 Haemovigilance

This module focuses on haemovigilance and its impact on transfusion safety.

Haemovigilance reporting is the cornerstone for promoting transfusion safety, accountability and continuous improvement in blood transfusion practice. This module will enhance your knowledge of the role of haemovigilance systems in the United Kingdom and worldwide by exploring the activities and key priorities from various organisations. You will gain an understanding of how haemovigilance impacts on transfusion safety in clinical and laboratory practice through the application of the key principles of the haemovigilance cycle which ultimately benefit patients, donors and staff.

The module will cover the key highlights of the 2024 Annual SHOT report key findings and recommendations. This includes an overview of a holistic approach to safety, and sign posting relevant tools available which can be used to promote this. The module is interspersed with illustrative cases to illustrate how effective transfusion incident investigation impacts on patient safety.

Rather than offer a comprehensive study of haemovigilance, this module aims to focus on the key principles of haemovigilance and, in each section, offers an opportunity for reflection and suggests practical exercises which can be incorporated into daily practice. Included in the module is a document which can be used consolidate your knowledge gained during the haemovigilance module. This is not essential, but it will help put the information provided into context and support your learning.

Participants will be guided to key references, additional reading and resources and are encouraged to apply their learning to their own practice.

Supplementary Modules:

SM1 Advanced Patient Blood Management (PBM)

This module focuses on Advanced Patient Blood Management (PBM), addressing its principles and practical application across clinical transfusion practice. Throughout this module, you will explore the foundations of PBM, including the three core pillars: optimisation of red cell mass, minimisation of blood loss, and enhancement of anaemia tolerance. Emphasis is placed on appropriate transfusion decisions, transfusion alternatives, and the safe and effective use of adjunct therapies.

Building on the Core PBM module, this advanced module is designed to extend your understanding by focusing on more complex clinical scenarios and specialist areas of

transfusion practice. It deepens knowledge through case-based learning that challenges you to apply theoretical principles in real-life situations, encouraging critical thinking and reflective decision-making. These cases cover a variety of patient presentations from chronic anaemia in outpatient settings to ethical dilemmas such as transfusion refusal, and emergency scenarios requiring rapid intervention and blood conservation strategies.

The module incorporates a series of clinical discussions and examples that reflect everyday practice, ensuring knowledge is contextualised and relevant. Topics such as intraoperative cell salvage, community-based transfusion delivery, and PBM programme implementation are explored in greater depth, allowing you to consider PBM as both a clinical and organisational framework.

Recognising that participants come from varied clinical and transfusion backgrounds, the module is designed to be accessible and relevant to different roles and levels of experience. Some learners may already be familiar with PBM strategies or transfusion governance, while others may be encountering these concepts for the first time. Therefore, the module uses reflective activities, practical examples, and guided learning to deepen understanding.

SM2 Emergency Transfusion Medicine

The Emergency Transfusion module focusses on major haemorrhage and emergency transfusion medicine. The module describes the following:

- 1) How to recognise and manage major haemorrhages for a range of different patient groups, ensuring the appropriate blood components are transfused.
- 2) The physiology of shock and trauma induced coagulopathy and how to prevent this.
- 3) The acute management of major haemorrhage including pharmacological treatments and transfusion management.
- 4) The use of near patient testing in major haemorrhage.
- 5) Emergency transfusion developments.

There are questions included intermittently to check understanding and for reflective practice.

SM3 Haematology Patient Management

This module introduces learners to the fundamentals of normal haemopoiesis and the haematological consequences of abnormal haemopoiesis, including conditions such as acute and chronic leukaemias and myelodysplastic syndrome (MDS).

Learners will explore the use of appropriate blood tests—including genotyping—to support the diagnosis of specific haematological disorders and guide transfusion strategies.

Key topics include:

- Leukaemias

- Bone marrow disorders
- Haemoglobinopathies
- Immune and haemolytic disorders
- Disorders of haemostasis

The module will also cover:

- Special blood component requirements, illustrated through case studies
- Transfusion support in haematopoietic stem cell transplantation and solid organ transplantation
- Management of haemoglobinopathies and multi-transfused patients
- Complications such as alloimmunisation and antibody specificity
- Most appropriate blood product use

Reference will be made to relevant clinical guidelines, including those from the British Society for Haematology (BSH), with discussion of transfusion triggers and thresholds.

SM4 Laboratory Testing & Patient Management

This module examines the complex clinical and laboratory considerations in managing patients with specific transfusion needs across a range of settings. Learners will explore the role of clinically significant red cell antibodies, including the impact of monoclonal antibody therapies, in both antenatal and hospital patients, with a focus on the selection and ongoing provision of compatible blood components, including in emergencies.

The module covers the causes, effects, and management of haemolytic disease of the fetus and newborn (HDFN), including blood selection for intrauterine and exchange transfusion. Management of blood support for stem cell transplant patients is addressed, from pre-transplant preparation to post-transplant recovery. Learners will also investigate the causes and management of platelet refractoriness, and develop skills to recognise, manage, and report transfusion reactions. By completion, participants will have the knowledge to support safe, evidence-based transfusion practice for complex patient groups.

SM5 Obstetrics and Paediatrics

This module provides a comprehensive overview of UK transfusion practices in obstetric and paediatric care, with a focus on:

- Understanding the indications, risks, and benefits of blood transfusion in obstetric and paediatric populations.
- Application of UK-specific guidelines for safe and appropriate transfusion.
- Recognising special considerations in maternal and neonatal blood management.

In obstetrics, transfusion is most commonly required in the context of obstetric haemorrhage, including antepartum and postpartum haemorrhage (PPH). Key components

within the obstetrics section includes physiological changes during pregnancy, recognition of pregnancy related anaemia, the use of Massive Obstetric Haemorrhage protocols, NICE and RCOG/ BSH recommendations related to specific blood products.

This module emphasises patient blood management (PBM), including antenatal and post-natal optimisation of haemoglobin, early identification of anaemia, and minimisation of unnecessary transfusion. Informed consent, risks (e.g. alloimmunisation, infection), and documentation are also covered.

Transfusion in paediatrics requires age-specific considerations, including smaller blood volumes, weight-based dosing, and immature immune responses. The module outlines indications for transfusion in neonates and paediatrics with reference to UK-specific guidance. Topics include irradiation of blood products for immunocompromised patients, CMV-negative components, and the importance of minimising donor exposure in neonates through the use of dedicated paediatric packs. The module also introduces the concept of top-up and exchange transfusions and their indications.

This module integrates evidence-based practice, UK practice guidelines, and safety standards to support high-quality transfusion care in obstetrics and paediatrics. Through case-based discussions and scenario-based learning, knowledge is built upon and skills expanded to contribute to safe, effective transfusion decision-making in these high-risk patient cohorts.

SM6 Therapeutic Apheresis

This module provides an introduction to the principles and practice of Therapeutic Apheresis (TA) in accordance with UK national standards. Learners will explore the range of apheresis procedures, including plasma exchange, red cell exchange, and other modalities, with a focus on their clinical indications.

The module examines procedural considerations, patient-specific factors, and the safe and effective use of blood and blood components within TA. Participants will also gain awareness of current and emerging developments in TA and related services, enabling them to place current practice in a broader context. By the end of the module, learners will have a foundational understanding of TA and its role in patient management, equipping them with the knowledge to support safe, evidence-based practice.