CASTING STANDARDS

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"This document builds upon and updates the previous Framework for Casting Standards (Royal College of Nursing (RCN) 2000) and thus acknowledges the work of the previous authors."

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CASTING STANDARDS
British Orthopaedic Association
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PREAMBLE
This document expands upon the initial document *A Framework for Casting Standards* (2000) compiled by members of the Society of Orthopaedic Nursing and produced by RCN publishers.

The aim of these casting standards is to guide and assist practitioners who wish to set local standards to monitor their practice, identify opportunities for improvement and to evaluate change. In addition, it aims to provide information to increase understanding amongst managers about the nature of casting. The document outlines a set of standards for casting which are intended to act as a framework for local standard setting and audit. With very little research yet undertaken into casting and casting techniques, the standards are based on a consensus of expert opinion, generated by nurses, orthopaedic practitioners and other experts in casting, working in differing settings across the United Kingdom.

The measurement of care quality against agreed standards has become a fundamental part of healthcare. Indeed, the Francis report (2013) states that:

"Standards need to be formulated to promote the likelihood of the service being delivered safely and effectively, to be clear about what has to be done to comply, to be informed by an evidence base and to be effectively measurable*."* P 87.

Healthcare professionals have a responsibility to continuously work to improve quality of care (RCN 2012). Patients and the public expect, and are entitled to, health services which are safe, effective and continuously improving (Health and Social Care Act 2012 & Department of Health (DOH) 2013).

INTRODUCTION
Casting, the application, adaptation and removal of patients' casts, is a skill requiring knowledge and judgement, not forgetting sensitivity, in order to safely care for the patients. Casting is not solely carried out by orthopaedic practitioners and nurses but, is also undertaken by other members of the multiprofessional team. Whilst most casting takes place in a casting room, many patients are cared for within the Emergency Department, Minor Injury Units, Diabetic clinics, wards and other areas. It is hoped that practitioners working within these areas will be able to use the *Casting Standards* as a template to help them develop local standards which specify the resources they require, the methods that they will use and the outcomes that they should expect.

The care described in the standards is based on the patient's right to be valued as a unique person and to retain control of their own self (DOH 2010, Mental Capacity Act 2005, NHS Wales 2010). Assessment of a patient's needs and negotiation with the individual about the care they will receive helps to protect their autonomy.

A patient's needs can include deficits in their knowledge about why they need a cast and care of themselves in a cast, biological crises, difficulties in the environment or restrictions imposed by treatment regimens, such as the inability to mobilise themselves in the usual way.

The standards within this document are not new. Instead, they represent practice that the British Orthopaedic Association Casting Committee (BOACC) believes should be an integral part of care. The standards have an audit protocol, which identifies a method by which actual care can be compared with that recommended by the standards.

The standards are presented in a format designed to allow practitioners to use them as a template for care. The Quality Standards describe the resources required to achieve the standard, the Compliance section describes the actions that need to be taken and audited. Before they are used in practice, these national standards should be interpreted for use in the local area – for example, where is casting performed in your area of work? Are there specific resources that you have to consider in that area? Similarly, this document provides a template for devising a local audit protocol which can be used to measure local performance against the agreed standards. Improvements in practice can then be strived for and quality of care for the patient enhanced.

In addition, the standards in the framework can be used to help set contractual standards between care commissioners and providers and demonstrate whether they have been achieved (RCN 2012).

STANDARD REFERENCE: NO 1.
TOPIC: QUALIFICATIONS OF STAFF IN A QUALITY CASTING SERVICE

STANDARD OBJECTIVE: **All patients who require casting care receive a safe, effective level of care in an environment which is under the direct supervision of personnel who hold the British Casting Certificate (BCC).**

RATIONALE: The Trust/ Health Board management and casting staff must recognise and respond to a dynamically changing service in order to maintain quality of care. This quality is maintained by responding to information provided by quality improvement programmes, clinical audits, contract compliance and service levels. The importance of providing high-quality care and assessing that quality has become increasingly central to the provision of services in the twenty-first century (DOH 2010).

A collaborative approach using communication and documentation is required to ensure involvement of the team in order to achieve optimum outcomes for patients. Staffing levels and skill mix should reflect the specific needs of patients in association with the procedure being undertaken. Patients have a right to be treated with a professional standard of care, by appropriately qualified and experienced staff (NHS 2013).

Casting is a skill that is not acquired casually and requires underpinning knowledge to practice competently (Drodz et al. 2009 a). Assessment and planning for the patient's needs must be undertaken by a BCC holder to ensure the cast is applied by a competent practitioner within the limits of the medical prescription. The cast should be of a high standard and applied with the patient in the most comfortable position (British Orthopaedic Association (BOA) 2013). Implementation and evaluation of evidence-based care and techniques is required to ensure the basis for further planning and that optimum care for the patient is reached without additional complications (Nursing and Midwifery Council (NMC) 2015, BOACC 2011). Fitting a cast is a highly skilled job and should not be undertaken lightly as poor casting techniques can lead to circulatory and nerve impairment, pressure ulcers, mal-union of fractures and stiffness of joints (Lucas and Davis 2005).

The BOA Patient Liaison Group, in their patient standards, state that, should an adult or child following injury or operation require a cast, they would expect that it is put on either by, or under the direct supervision of, a member of staff who holds a current BCC (BOA Patient Liaison Committee 2012).

The ESSENCE of Care , in the Benchmarks for Care Environment (DOH 2010), states, under Education and Training:

■■ Staff are competent to assess, plan, implement, evaluate and revise care according to all *people*'s and carers' individual needs

■■ Education and training are available and accessed to develop the required competencies of all those delivering care

The NHS patient safety alert ((National Reporting and Learning System (NRLS) 2009) also supports the need for education and training to prevent pressure ulcers under casts. Furthermore, Atrey et al (2011) showed, in a review of litigation cases, that 7.3% of all claims in children were linked to the complications of casting. All received high payouts.

1 *See Appendix, Principles of Casting*

	Quality Standard	Compliance
	S1 The Trust/Health Board ensures that the casting room has a funded establishment where all staff hold the BCC or are working towards the qualification. There is a partnership of responsibility between staff and their managers that enables them to undertake study to the level of the BCC.	**Evidence** **C1** The majority of staff in the casting room hold the BCC (see Appendix 8) Staff in the casting room hold or are under the direct supervision of someone who holds the BCC. Staff who do not hold the BCC and apply casts under supervision are working towards the qualification.
	S2 The Trust/Health Board provides regular and recorded education and training.	**C2** Staff are supported and encouraged to maintain their personal professional development in line with current NMC and BOA guidelines for re- registration.
	S3 The Trust/Health Board has an agreed method for determining skill mix and staff levels	**C3** Staff report to management when: a) Staffing falls below the pre-determined level b) There is no person on duty, or available, who holds the BCC c) The person in charge believes the skill mix in the casting room to be unsafe d) Patient safety is compromised e) There are iatrogenic complications
	S4 The Trust/Health Board devolves where possible, the casting room budget to the senior person in charge	**C4** a) Person in charge of casting room is aware of the budget for their area and orders, uses and evaluate products to provide the best possible care. b) All staff are aware of minimum and maximum stock levels and use stock appropriately.
	S5 The Trust/Health Board has a management structure which includes a programme for clinical governance i.e. • Clinical audit • Information management • Research and effectiveness/evidence based practice • Patient and public Involvement • Risk • Training, education and continual professional development • Staffing and staff management	**C5** Orthopaedic Practitioners: a) Contribute to quality initiatives within the Trust/ Hospital b) Collect feedback from patients c) Participate in audit d) Undertake research to contribute to the evidence base e) Contribute to the risk assessment process

1 *See Appendix, Principles of Casting*

STANDARD NO 2.

TOPIC: HEALTH and SAFETY

STANDARD OBJECTIVE: All casts are applied, adapted and removed in a safe environment
RATIONALE: The provision of care by the practitioner to the patient within the casting service must be provided by adherence and compliance to current national and local policy initiatives (Health and Safety Executive (HSE) 2002, 2005). These ensure a quality service to the patient and provide a safe environment for both practitioner and patient. Without compliance to health and safety requirements, lack of essential maintenance and poor practice are likely to cause harm and injury to patient and staff (NMC 2015).

	Quality Standard	**Compliance**
	S1 The Trust/ Health Board provides education and update sessions on statutory and local requirements and guidelines about: a) Control of Substances Hazardous to Health (COSHH) b) Fire c) Personal & environmental safety d) Moving and handling e) Infection prevention & control f) Personal protective clothing g) Use of equipment and specific tools: e.g. cast saws, shears etc. h) Specifics of care of casts and casting	**C1** All staff receive education and attend update sessions within an agreed time frame about: a) COSHH b) Fire c) Personal & environmental safety d) Moving and handling e) Infection prevention & control f) Personal protective clothing g) Use of equipment and specific tools: e.g. cast saws, shears etc. h) Specifics of care of casts and casting
	S2 Education and training are available for staff on health and safety matters specifically related to the casting area: e.g. care of casting materials, disposal of casts, hygiene.	**C2** All staff have received education and training on health and safety matters specifically related to the casting area: e.g. care of casting materials, disposal of casts, hygiene.
	S3 The Trust/Health Board provides protective clothing and equipment in line with health and safety requirements; e.g. masks, goggles and ear defenders.	**C3** Staff follow statutory and local guidelines in the use of protective clothing and equipment. a) Offering them to patients and other staff b) Using them themselves

	S4 The Trust / Health Board has a documented programme of planned maintenance of equipment to ensure it conforms with national standards.	**C4** Staff ensure that equipment is checked and maintained and that records are kept, according to statute and local policy. Staff ensure that the casting room meets the health and safety standard by using established systems (e.g. to report problems, request maintenance and repairs etc)
	S5 The Trust/Health Board ensures that the casting area has: a) Good lighting b) A programme of cleaning to ensure soiling from casting materials is removed and floors are kept clean and dry. c) A disposal system for casts d) Good ventilation e) An oscillating cast saw with extraction unit	**C5** A safe environment is generated which protects staff and patients from harm: a) There is good lighting b) Cleaning records are available for inspection c) Staff can identify the correct disposal method for casts after routine wear and when soiled with blood or body fluids. d) There is ventilation in the plaster room e) There is a cast saw which has an extraction unit
a)	**S7** The Trust/Health Board has a programme for: a) Monitoring dust and noise levels in line with current legislation b) Annual health checks of staff for lung function and hearing levels	**C7** Staff ensure that: a) Risk assessments are available and up-to-date for dust and noise exposure in the casting area. b) Staff lung function and hearing levels are checked annually

STANDARD NO 3.

TOPIC: COMMUNICATION and DOCUMENTATION

STANDARD OBJECTIVE: Patient treatment episodes are documented in full and effectively disseminated to all those involved in the patient's care, in both written and verbal forms
RATIONALE: Communication is a fundamental part of patient care and, with record keeping, forms an integral part of nursing and patient care (NMC 2015). Poor verbal and written communication can lead to mistakes as the patient passes through the care system. To ensure that everyone involved in care receives adequate information to enable safe practice, documentation and the dissemination of information must take place chronologically (NMC 2009, Casey & Wallis 2011).Care records are clear, maintained according to relevant guidance and subject to appropriate scrutiny (DOH 2010).

	Quality Standard	**Compliance**
	S1 Hospital generated paper and computer systems are available for: • Medical prescription request form for patients' treatment which provide a designated section for the signature and name of the prescriber • Multiprofessional collaborative care planning • Documentation of patient care episodes	**C1** Staff read the casting prescription before commencing treatment (see Appendix 3) Staff assess patients' needs before commencing care using patient documentation and discussion with patients/carers (see Appendix 1) Staff record each episode of patient care
	S2 The patient's nursing, medical notes and x-rays are available throughout their treatment episode	**C2** Relevant patient documentation is available for observed care episodes
	S3 Systems of record keeping comply with national and local standards and policies, including *Record Keeping; guidance for Nurses and Midwives* (NMC 2009)*; Article 8 of the Human Rights Act 1998; Data Protection Act 1998;*	**C3** Staff record care given, contemporaneously, in the relevant section of patients' hospital documents and in the casting room register according to local protocols Each entry in the patient's documentation is legible, written in black ink and includes: date & time, practitioner's signature and printed name. (Appendix 8)
	S4 The Trust/Health Board makes available *Record Keeping; guidance for Nurses and Midwives* (NMC 2009)	**C4** Staff are able to locate a copy of *Record Keeping; guidance for Nurses and Midwives* (NMC 2009)
	S6 The ethos of confidentiality is high priority within the Trust/Health Board	**C6** Staff have access to, and have completed education in information governance, including Article 8 of the *Human Rights Act 1998; Data Protection Act 1998* Staff ensure that communication is undertaken in a manner that ensures patient confidentiality. Staff ensure that patients' documents are held and moved securely.

STANDARD REFERENCE: NO 4.

TOPIC: CAST APPLICATION

STANDARD OBJECTIVE:

All patients have the most appropriate, functional and comfortable cast applied.

RATIONALE: Patients must receive the most appropriate cast for their condition. Without attention to the details of positioning, padding and materials, the cast will neither be functional nor comfortable (Dandy and Edwards 2009). It is also important that the cast is applied carefully and by a skilled practitioner, as poor casting techniques can lead to circulatory and nerve impairment, compartment syndrome, mal-union of fractures and stiffness of joints (Bakody 2009, Drozd et al. 2009b).

The comfort and safety of patients during the procedure is essential. Initial patient assessment should include a pain assessment following which, analgesia is provided and its effects monitored (Gregory 2005). Appropriate risk assessment should be carried out to prevent injury to staff, patients or carers during the procedure.
(see standard no.2)

	Quality Standard	**Compliance**
	S1 The Trust/Health Board ensures that there is at least one member of staff in the casting room **at all times** who holds the BCC to supervise the application of casts.	**C1** Staff who hold the BCC assess, plan and supervise the implementation and evaluation of care of patients who require a cast; (see Appendix 1) They: a) Check the medical prescription form b) Assess patients needs c) Consider any relevant predisposing factors in the patient's history, e.g. diabetes, rheumatoid arthritis, neurological impairment, allergies d) Consider the condition of the skin and limbs, eg. the injury, bony areas, redness, ulcers, swelling. e) Plan patients care f) Ensure that the equipment and materials are ready for use and conveniently situated g) Explain the procedure to the patient h) Gain patient's informed verbal consent i) Apply a cast in the correct position j) Apply suitable undercast padding being aware of any specific areas to pad k) Check the cast is comfortable and functional.

	S2 A system is in place for ensuring that the Trust/ Health Board provides all other staff involved in casting patients with planned education in the practical skills and underpinning knowledge, at least to the level of the BCC syllabus (see appendix 9).	**C2** Patients receive care from staff who either hold the BCC or who are preparing for the BCC course and are supervised by a BCC holder.
	S3 The Trust/Health Board provides a suitable variety of materials and a system of clinical supervision and continuing professional development (CPD) to ensure that the BCC holder has attended regular update education on the variety of casting materials and techniques currently available. This will ensure that staff have the knowledge and facility to choose the most appropriate type of cast.	**C3** Staff are competent in using a range of materials and techniques to suit different patients needs. These products and equipment are available: a) A range of stockinette sizes b) A variety of undercast padding and felt c) A variety of casting materials d) Adjustable height patient trolleys e) Adequate linen and pillows f) Knee rests and other specialist supports g) Cast instruments h) Electric oscillating cast saw with dust extraction
	S4 The Trust/Health Board provides education on a) The methods of communication b) The use of pain assessment tools c) Pain assessment and management d) Working with children and vulnerable adults	**C4** Staff a) Work collaboratively with adults, children and vulnerable patients whilst applying casts b) Communicate effectively with patients throughout the procedure c) Regularly assess patients pain d) Plan the most effective methods of managing patients pain e) Ensure analgesia is provided as required f) Evaluate efficacy of analgesia g) Provide patients with adequate information to promote self-care (see Appendices 4, 5 ,6 & 7)

STANDARD NO 5

TOPIC: CAST ADAPTATION AND REMOVAL

STANDARD OBJECTIVE: Patients have their casts adapted and removed safely
RATIONALE: For the effective and safe management of removal of casts, personnel with the necessary underpinning knowledge and skills must be responsible and accountable for the assessment, planning, coordination and implementation of the patient's care (NMC 2015). A commitment to patients total wellbeing is essential because missed complications of casting and fractures and/or delay in responding to signs of such complications may cause patients unnecessary injury (NRLS 2009). Removal of a cast seems such a simple task, it is said that anyone can undertake it. However, it is fraught with dangers for the patient and therefore possible litigation, because tools such as the oscillating cast saw and plaster shears can damage the skin and tissues when used incorrectly (Shuler & Grisafi 2008). Risks increase with lack of experience, patient sedation and a worn or damaged saw blade (Shore et al. 2014). The increasing range of materials and techniques available mean that a range of skills and knowledge is required to accurately assess and remove these casts safely (Miles & Campbell 2012).

	Quality Standard	**Compliance**
	S1 The Trust/ Health Board ensures that: a) The equipment and materials required are available e.g. oscillating electric cast saw with extraction unit, plaster shears, spreaders, bandage scissors, nibblers, knives. b) All equipment complies with current health and safety legislation.	**C1** Before starting the procedure, staff: a) Ensure that equipment and materials are ready for use and conveniently situated e.g. oscillating electric cast saw with extraction unit, plaster shears, spreaders, bandage scissors, nibblers, knives. b) Check all equipment is compliant with current legislation and safe to use.
	S2 The Trust/ Health Board ensures that education is provided by a BCC holder in the practical skills for adapting and removing casts and the underpinning knowledge. The Trust/ Health Board ensures that these skills are demonstrated in practice.	**C2** Staff records show evidence of relevant qualification or education and competences. Staff : a) Check the medical prescription form b) Assess the patient's needs (physical and communication) (see Appendix 2) c) Explain the procedure to the patient d) Obtain the patient's informed consent e) Provide support for patients' injuries, fractures or operation sites by replacing the bivalved cast f) Ensure that this support is in place when patients travel between departments g) Provide aftercare that considers: I. Skin care II. Further support e.g. splints, crutches, sticks III. Verbal and written advice IV. A follow up appointment
	S3 The Trust/ Health Board ensures that education is provided on the different needs of vulnerable patients.	**C3** Staff use their knowledge to choose the most appropriate tool for use with children, vulnerable adults, those who are particularly nervous and with patients who are unconscious.

STANDARD REFERENCE: NO 6
TOPIC: PATIENT EDUCATION & INFORMATION

STANDARD OBJECTIVE: Patients and/or parents/carers receive and are helped to understand treatment options and the written and verbal education and information on how to care for themselves in a cast.

RATIONALE: Patients, carers and significant others must be given clear explanations of treatments proposed so they receive the information required for decision making, to gain their permission for treatment, to win their confidence and allow them to make informed decisions about their own care. Children and vulnerable adults should have a parent or trusted adult accompanying them during treatment. Support and appropriate information should be given to them, according to their age and abilities (DoH 2013, General Medical Council (GMC) 2008).
In everyday life communication is often taken for granted, but it can be a disaster if it is ineffective in the healthcare setting (McEwen & Harris, 2010). Education for the patient, their carers and other members of the healthcare team is vital to ensure they receive adequate information to help them avoid and recognise complications and give them greater confidence to care for themselves (Breckenridge and Blows 2008).

Education, information and advice should be given verbally and in writing. They should be given early in the care process to allow patients to absorb what has been said and to ascertain whether the information has been understood. (Miles& Campbell 2012)

	Quality Standard	**Compliance**
	S1 Staff have the knowledge to discuss with patients the options and proposed treatment in order to gain informed verbal consent from the patient.	**C1** Patients receive clear information on options and proposed treatment in order to make informed decisions about their care.
	S2 Staff understand the importance of giving information, advice and education to their patients to help them avoid and recognise complications and care for themselves and the cast.	**C2** Patients/ carers are given information on cast care a) How to prevent and recognise complications b) Exercises c) Using an appliance or walking aid
	S3 The Trust/Health Board has written information available for the patient/carer with additional details of how to contact casting staff, or out of hours, an identified person, knowledgeable in casting (see Appendix 4)	**C3** Verbal and written information is provided to each patient/carer, which covers details in C2 above and in addition gives details of whom to contact if necessary at anytime.
	S4 The Trust/Health Board provides education on communication appropriate for children, vulnerable adults and those with different needs.	**C4** Staff are able to communicate effectively with children, vulnerable adults and those with different needs.
	S5 There is education available for staff in the supply and fitting of appliances. (e.g. slings, sticks, crutches, " off the shelf" braces and splints)	**C5** Patients are educated in the safe use and fitting of appliances. (e.g. slings, sticks, crutches "off the shelf" braces and splints)
	S6 An outpatients appointment system is in place so that patients are aware of when to return to the hospital.	**C5** Patients return at the correct time for the next phase of their treatment.

STANDARD REFERENCE: NO 7.

TOPIC: PERSONAL PROFESSIONAL DEVELOPMENT

STANDARD OBJECTIVE: Staff practicing in the casting environment maintain, update and develop their personal and professional knowledge, skills and attitudes, recognising the duty of care and acknowledging their limitations, as required by the NMC, BOACC, Welsh Assembly Government (2011), Scottish Government (2009), Skills for Care and Skills for Health (2013) and other professional bodies, and the Health and Safety at Work Act 1974.

RATIONALE:

Casting is a speciality that requires staff to have the knowledge, skills and attitudes that will enable them to competently meet the needs of patients requiring and wearing musculoskeletal casts (NMC 2015, BOACC 2011, Drozd et al. 2009a).

The dynamic nature of casting and the goal of research based practice requires that professional development needs to be continually appraised and education planned to meet these needs. Reflective practice and review of critical incidents with colleagues can also contribute to improving the quality of care (Care Quality Commission 2010).

Since 2004, NHS staff are employed under the Agenda for Change (AfC) umbrella; the Knowledge and Skills Framework is a key component of AfC and staff are expected to develop their skills and knowledge with an ethos of lifelong learning (DOH 2004).

	Quality Standard	**Compliance**
	S1 The Trust/Health Board provides a mechanism for regular clinical supervision and for individual performance review.	C1 Staff identify their individual learning and development objectives as part of an ongoing review process.
	S2 The Trust/Health Board provides facilities for professional education e.g. online resources/ library, agreed study leave and study opportunities.	**C2** Staff use available resources for: a) Study b) Attending approved courses c) Identifying and achieving relevant knowledge of anatomy, physiology, orthopaedics and trauma d) Keeping abreast of developments in casting materials and techniques
	S3 The Trust/Health Board facilitates accessible education to update the staff's knowledge and skills in line with the requirements for BCC re-registration	**C3** Staff keep personal profiles detailing study undertaken and take opportunities to share knowledge and skills with their colleagues
	S4 The Trust / Health Board provides education and facilitates assessment in skills which enable staff to expand their role within the casting room, meet identified local needs and provide patient-centred care. For example, aseptic technique and basic wound assessment; removal of sutures and/or clips; removal of wires; fitting of "off-the-shelf" orthoses.	**C4** Staff follow local protocols and demonstrate best practice in carrying out procedures in the casting room. Staff keep a record of education and assessments and work within their personal sphere of competence, in line with relevant codes of conduct.

	S5 The Trust/Health Board provides access to documents that inform the staff of their professional and legal responsibilities.	**C5** Staff are aware of their responsibilities in meeting the requirements of the codes of conduct of e.g. NMC, BOACC, Healthcare Support Workersin Wales.
	S6 The Trust/Health Board provide a system for recording, monitoring and learning from critical incidents and patient concerns.	**C6** Staff understand their responsibility to record, review and learn from critical incidents and patient feedback.

Plaster Room Audit

Health Board/Trust:

Hospital:

Department:

Date:

Audit performed by: Name:

Signature:

Section 1 Staffing

Ref Standard 1, 5 & 7

Total number of staff who work in the department?

How many BCC holders work in the department?

How many have current registration with the BOA?

Is a BCC holder always available in the plaster room?

If no, what percentage of sessions during the last week?

Are there any trainee orthopaedic practitioners in the department?

yes/no

If YES:

Is there a training record? **yes/no**

Do they have a named mentor/supervisor? **yes/no**

Has a date been set for them to attend a
British Casting Certificate accredited course? **yes/no**

Ask staff

How are staffing levels in the plaster room determined?

What systems are in place to control and use stock and products efficiently?

Are any of the following available?:

Feedback from patients? **yes/no**

Comments:

Audit results? **yes/no**

Comments:

Evidence of research? **yes/no**

Comments:

Evidence of contributions to quality improvement? **yes/no**

Comments:

Evidence of contribution to education/training of other staff? **yes/no**

Comments:

Section 2 Cast Application

Ref Standard 3 & 6

Observe 5 episodes of care and complete the table below

	1	2	3	4	5
Medical prescription available and checked?					
Plan of care discussed with patient?					
Verbal consent obtained?					
Patient Assessment					
Skin					
Allergies					
Predisposing factors (e.g. diabetes, rheumatoid arthritis, allergies)					
Circulation					
Sensation & movement of extremity					
Pain assessment					
VTE assessment (lower limb casts)					
Cast Application					
Was skin condition taken into account (e.g. bony prominences)					
Was an appropriate cast material selected					
Review final cast					
Is the cast within the boundaries of the medical prescription?					
Is the position correct?					
Is the extent correct?					
Is the patient able to move their fingers/ toes as expected?					
Documentation					
Was the patient given verbal advice?					
Was the patient given written advice?					
Was the care documented on the patient record?					
Was the care documented in the plaster room register or diary?					
Infection Prevention					
Did the practitioner wash their hands before and after caring for the patient?					
Was all equipment cleaned after patient contact?					

Section 3 Materials and equipment

Are materials and equipment available, accessible, clean and in working order?
Complete the table below

	Available	Accessible	Clean	Working order
Range of stockinette sizes			n/a	n/a
Variety of undercast padding and felt			n/a	n/a
Variety of casting materials			n/a	n/a
Adequate supply of linen and pillows			n/a	n/a
Adjustable height trolleys				
Knee rests and other supports				
Casting instruments (scissors, spreaders, benders, shears)				
Electric oscillating saw with dust extraction				

Comments:

Section 4 Cast adaptation and removal

Ref Standard 4 & 6

Observe 5 episodes of care and complete the table below

	1	2	3	4	5
Was the medical prescription checked?					
Plan of care discussed with patient?					
Verbal consent obtained?					
Were the procedure and equipment explained?					
Procedure					
Was the limb supported during the procedure (i.e. on trolley or block)					
Was the patient positioned to avoid unnecessary over-reaching, bending or twisting by staff?					
Was the limb supported for transport between areas? (e.g. bi-valved cast/ sling/ pillow on leg rest)					
Was aftercare provided? E.g. washing if necessary/ removing old dressings/ ensuring patient comfort.					
Was the appropriate tool/ cast material used for different patient groups? E.g. Use of shears/ soft cast when appropriate					
Documentation					
Was the patient given verbal advice?					
Was the patient given written advice?					
Was the care documented on the patient record?					
Was the care documented in the plaster room register or diary?					
Infection Prevention					
Did the practitioner wash their hands before and after caring for the patient?					
Was all equipment cleaned after patient contact?					

Section 5 Documentation

Ref Standard 3

Are the following available?

Documentation for medical prescription **yes/no**

A casting room register or diary **yes/no**

Examine 5 episodes of documentation and complete the table below:

Is the documentation?	1	2	3	4	5
Recorded in black ink					
Legible?					
Dated?					
Timed?					
Signed by practitioner?					
Practitioner name printed?					

Section 6 Education and Development

Ref Standard 1, 3 & 7

Have staff received a personal appraisal with the last 12 months?

Total number of staff:

Number with up-to-date appraisal:

What resources are available for personal professional education?

E.g. intranet, library, reference books, study leave policy

Is there a system for recording and learning from critical incidents?

Please comment/describe:

Ask staff

What support do you have to maintain your Personal Professional Development?

(e.g. study days, online training, company visits, attending conferences)

Section 7 Health and Safety

Ref Standard 2 & 5

Is there a record of mandatory health and safety education completed?

yes/no

Are the following available?

Gloves (including non-latex)	**yes/no**
Aprons	**yes/no**
Masks	**yes/no**
Ear defenders	**yes/no**

Is there a completed maintenance programme and record for the oscillating cast saw? **yes/no**

Are risk assessment records available? **yes/no**

Are they up-to-date? **yes/no**

Is the COSHH register available? **yes/no**

Are cleaning records available? **yes/no**

Are they up-to-date? **yes/no**

Do staff receive Occupation Health assessment of hearing and lung function?

yes/no

If yes, how often?

Are cleaning records available which include all casting equipment?

yes/no

Section 8 Patient Education:

Ref Standard 6

Do the cast instructions provide information about:

Cast care	**yes/no**
How to prevent and recognise complications	**yes/no**
Exercises	**yes/no**
Using an appliance or walking aid	**yes/no**
Emergency contact numbers covering 24hrs	**yes/no**
Circumstances when the patient should return at once	**yes/no**

Appendix 1

GENERAL PRINCIPLES OF CASTING

Reasons for Casting

Casts are applied for a variety of reasons:

- For treating fractures
- After surgery
- To prevent and correct deformities
- For support and pain relief
- To aid the healing of pressure ulcers

The process should cause no injury to the client and it is clearly important, therefore, that a good cast be applied.

A good cast is functional and is:

- Applied in the correct position and fulfils its purpose.
- Whole, fully laminated and not consisting of a succession of un-bonded layers. This is achieved by the speed of the application and by constant moulding to bond the layers.
- Smooth inside, achieved by applying the under cast lining and bandages with an even pressure and without any creases or ridges.
- Well fitting, a loosely applied cast does not provide adequate splintage and can cause soreness by rubbing the skin. If the cast is applied too tightly, there is potential for neurovascular compromise.
- Light in weight. This is achieved by using only the necessary amount of casting materials.

Choice of Casting Materials

A variety of materials are available, including plaster of Paris and a range of resin-based materials. Plaster of Paris is the material of choice for fresh fractures, post-surgery and where swelling or bleeding may occur.

Where swelling is likely and the cast is split resin based materials may require cork or an equivalent to hold the joint apart, or alternatively the cast may need to be bivalved (cut in two pieces). It is important to consider the non-absorbent nature of resin-based casts before applying them in theatre.

There are a number of resin based materials which offer a wide range of techniques. Resin based materials are preferable when a lighter, stronger cast, with early weight bearing is needed. Combination casts can be a useful way of combining the absorbent and easily moulded properties of plaster of Paris with the strength and lightness of a resin based material. There are two methods of applying these. A lighter layer of plaster of Paris can be followed immediately by a layer of resin-based cast material. Alternatively, when a plaster of Paris cast is dry, a resin based material can be used for strengthening purposes.

The choice of material should be made by the practitioner, working within the medical prescription, after they have assessed the patient and using evidence based practice.

Preparing the Patient

- Read the medical prescription and check the patient's details.
- Explain the procedure to the patient and gain their informed verbal consent to proceed.
- Children should have a trusted adult with them for comfort and support.

Assessing the Patient

- What is the pathology or injury?
- Why is the cast being applied?
- Is there an underlying condition that may affect the way the cast is applied; eg, diabetes, rheumatoid disease, neurological impairment or allergies?
- In the case of lower limb casts has the patient been assessed for venous thromboembolism risk?
- Assess and record neurovascular status of limb/extremities.
- Examine the limb, is there a wound or redness present? Are there signs of pressure?
- Which bony areas will need extra padding?
- Where are the blood vessels or nerves that are close to the surface and may be compromised?
- Is swelling expected?
- Is the cast to be weight bearing?
- Assess the number of staff required to safely hold the patient's limb and apply the cast.

Based on the answers to these questions, decide which under cast padding and materials will be appropriate and gather together the equipment that is required for the application of the cast.

APPLYING THE CAST

Procedure

Do not use stockinette under a cast, when manipulating a fracture or when applying a full (complete) plaster of Paris cast to a new injury or in theatre. Stockinette can cause constriction and, when cut through for splitting a cast, may crease causing pressure.

When stockinette is being used, it should be measured before it is cut, allowing a small amount of extra material to turn back over the edge of the cast when finishing off. Roll it up before applying it to the limb.

It is important to position the limb before the padding is applied. This position must be maintained throughout until the cast is completely set. Movement will cause ridges to form in the cast, which can cause pressure ulcers. The position of the limb will vary, depending on the injury. Place the supports for the limb and ensure sufficient personnel are available to hold the limb and apply the cast safely.

It is essential that prominent bony areas, such as the ulnar styloid, medial and lateral epicondyles of the humerus, olecranon process, the malleoli, patella and head of fibula, should be padded with felt in order to reduce pressure and the incidence of ulcers under the cast. A layer of undercast padding should be applied firmly, smoothly and evenly.

Plaster of Paris

Open the plaster of Paris bandages and keep them dry until required.
Follow the individual manufacturer's instructions regarding soaking technique and water temperature, usually this is lukewarm water 20 - 25°c.Cold water retards and hot water quickens the setting process. Remember, that both extremes are uncomfortable for the patient and the heat may burn the skin. Soak the first bandage, hold the bandage loosely in the palm of the hand with the first few centimetres unwound to make it easier to find the end, and then submerge the bandage at a 45° angle whilst counting for three to four seconds, manufacturers' instructions may differ slightly. Remove and squeeze very gently to take out the excess water.

Bandaging should start at one end of the cast, with the bandage rolled away from the person applying it. Roll the bandage evenly and without tension, covering about one third of the previous turn and allowing tucks to form to accommodate the contours of the limb. The remainder of the bandages should be applied quickly before the first layer has set. Constant smoothing and moulding is necessary to laminate the layers, this makes the cast one whole and not a succession of layers. Use the palms of the hands for moulding rather than the fingers, which may cause dents and therefore pressure under the cast. Maintain the limb position until the cast is completely set to prevent ridges forming.

When the cast has been applied, the full length of the limb should be rested on a pillow. This prevents the cast from being dented, causing a pressure ulcer. Trim the edges to allow full movement of the joints not held in the cast. Turn back the stockinette over the edge of the cast and secure it with two layer strips of plaster of Paris. Do not let the strips go over the edge of the cast because this will create a sharp ridge.

Resin Based Materials

When applying resin based materials, follow the instructions for the plaster of Paris above, as far as the application of the undercast padding. Always use stockinette and make sure the padding extends beyond the extent of the cast to pad the edges.

When using resin based material, consider the strength of the materials and use the number of layers suggested in the information leaflets. Open and soak the first bandage, following the manufacturer's instructions on water temperature and soaking techniques.

Commence bandaging at one end, with the bandage rolled away from the person applying it. Roll it evenly around the limb and covering half of the previous turn.

The materials shape to the contours of the limb with just a little adjustment to the tension. Use slabs of the material where necessary to create the layers for strength and hold in place with a single layer of product. Apply as quickly as possible and smooth the layers to aid lamination. Any moulding should be done with the palms of the hands before the cast sets. These products conform well to the limb, but it is important when moulding to hold the area until the cast material has fully set or the mould will spring back. Maintain the limb position until the cast is completely set to prevent ridges forming.

If possible, apply the casting material accurately to the whole extent of the cast, turning the stockinette back over the edge of the cast, catching it in with the last layer of bandage. Care should be taken, however, not to pull the resin based material back with the stockinette, as this will crease at the edge of the cast. A ridge in that area could cause a cast sore and would also form a bulky edge.

Never be afraid to trim the edges, as it is essential to allow full movement of those joints not involved. Trimming can be done with scissors or a knife within a few minutes of setting. If the cast is set hard, small shears or an electric saw will be needed. Take care to pad the cut edges and hold the stockinette in place with adhesive tape.

Aftercare

Assess and record neurovascular status of limb/ extremities.
Clean the patient's skin and supply crutches or walking aids if necessary (see Appendix 5). It is very important to give the patient full verbal and written instructions on how to prevent and recognise complications and how to care for the cast. Ensure that the patient really understands when they should return urgently to the hospital (see Appendix 4).

Additional information should be given on specific exercises and coping in a cast at home. (see Appendices 6 & 7)

Appendix 2

CAST ADAPTATION AND REMOVAL

Check the cast saw thoroughly before use to ensure it complies with the Health and Safety Executive and COSHH regulations. (Please refer to Standard 2) Removal of a cast must always be undertaken by the method of bivalving the cast. To remove a cast in any other way is to risk injuring the patient. However, some casts applied with 'soft' or flexible materials may be removed with scissors or only require univalving.

BIVALVING

Bivalving refers to the cutting in two, along the length of a cast. When removing a limb from a cast, the cast must be fully bivalved to allow the limb to be lifted out safely. In this way, either half of the splint can be used as a back splint. Bearing in mind the patient's underlying injury or operation, mark the cutting lines down the medial and lateral sides avoiding bony prominences. This can be performed with either cast shears or, providing the cast is dry and lined with undercast padding, an electric oscillating cast cutter.

Noise can be very frightening for children and they must have with them a trusted adult. The use of headphones and music may help reduce the noise (Katz et al 2000).The results of poor practice may lead to screaming terrified children, and a fear that is lifelong. Careful explanation and a demonstration can help, but children may find the shears less traumatic. Remember there are available cast shears for use on resin based materials, but occasionally there may be no other option but to use the cast saw.

USING THE PLASTER SHEARS

The blade of the shears should pass between the plaster and the padding whilst keeping the blade parallel with the limb. If the blade is tilted either way the point or the heel will dig in or nip the patient.

The hand nearest to the cast holds the blade parallel and must remain still. To cut the cast, push the shears together with the other hand.

USING THE ELECTRIC CAST CUTTER

The cast saw must have a dust extraction unit to reduce the dust produced. It has an oscillating circular blade, which rubs its way through the hard plaster. It is relatively safe to use if handled correctly. It must only be used on dry, padded casts with the blade held at right angles to the cast and a straight cut made without dragging the saw along the cast.

Cut with the cast saw using an in and out motion holding the blade at right angles to the cast.
Beware, the saw blade can cut the skin or become hot enough to create a burn when:

- the blade is dragged along the cast, instead of the in and out motion
- the cast is bloodstained, the padding and the gauze become hard and the saw will cut straight through them

- in the presence of swelling or oedema the skin may be taut and therefore easy to cut with the saw
- there is prolonged use in one area
- the cast material is thick
- used for a long time on larger casts
- the blade is blunt or damaged
- the padding is thin (the patient may feel the heat even in normal use)
- the cast is unpadded then special care is needed.
- the cast is synthetic material, more energy is required to cut through the material and therefore heat is generated and may burn your patient.

If the patient complains, always believe them, stop and reassess, then continue carefully.

After both sides of the cast are cut through, it should be eased open with spreaders and bandage scissors used to cut the padding and any dressings through to the skin. Take care not to damage the skin with any instruments.

Replace the two halves together and secure with adhesive tape or lengths of cotton bandage for safety whilst the patient is passing between departments. If the patient's fracture or operation is not fully healed there is a real danger that fractures could be displaced during transit, and the patient will not be fully protected without the cast being in place. There may be times when the cast is being changed that the skin within the cast area will need gently washing and carefully drying before the cast is replaced. Great care must be taken to ensure the position of fractures or operation procedures are not displaced. When the cast is being removed for the last time, the skin must be washed and dried, and if very dry advice given on skin care.

Litigation cases relating to cast splitting and removal happen and are more likely if staff are inexperienced or poorly trained (Ansari 1998).

SPLITTING

Where swelling is anticipated splitting should always be undertaken immediately after application of a cast. The cast may be split using a cast saw or shears. Splitting a plaster of Paris or flexible resin based cast is undertaken by making one cut along the entire length of a cast and undercast padding through to the patient's skin ensuring that no fibres are left to constrict circulation or nerves. It may require easing apart gently by using cast spreaders. A strip of padding is placed in the gap made in the cast to hold it open, and a crepe bandage gently applied to hold it together.

It is vital that all cast and undercast fibres are cut through. Just one strand of stockinette or padding left uncut can maintain constriction.

Resin based casts which are rigid must be bivalved to relieve swelling and pressure and one side split to skin and then the two halves gently bandaged to hold the limb in position until the swelling has reduced and the cast can be rejoined or a new cast applied.

Medical intervention is essential if problems persist.

When swelling has subsided the cast may be secured using plaster of Paris or resin based casting material, or at that stage a new cast may be required to ensure the limb remains supported by a well fitting cast.

Appendix 3

Casting Request Form **Page 1**			
Hospital No.		**Date:**	
Name: **Address** **Post Code** **D.O.B.**		**Diagnosis:**	
	Type of Cast and any Special request / material	**Casting room comments**	
Right **Left**			
Reinforce			
Complete			
Weight Bearing Status	NWB: PWB: WB:		
Removal of Cast			
K Wire? **Wound?** **Remove sutures** **Dr. to see**			

NEXT ACTIVITY AFTER CASTING ROOM (please circle)
Xray Dr Review Orthotist Physiotherapist

Print Name	**Authorising Signature**

Does the patient suffer from any underlying conditions?	
Diabetes (has risk assessment been completed?)	
Neuropathic conditions	
Rheumatoid Disease	
Allergies	
Are they taking Steroids?	
Neurovascular assessment status	**Pre cast** **Post cast**
Skin integrity? Limb/s inspected:	
Any specific areas requiring extra padding	
Is this patient in a lower limb cast? • Has VTE risk assessment been completed and acted upon?	
Has manual handling assessment taken place?	

Casting Request Form Page 2		
DISCHARGE PLANS	NOTES	
HOME ENVIRONMENT		
Stairs **Companion** **Dependants** **Food**		
TRANSPORT		
PLASTER INSTRUCTIONS Includes contact details for Day and Night advice	Verbal	Written
WALKING AID INSTRUCTIONS		
Procedure explained to the patient and family		
Walking aid chosen		
Patient measured for walking aid whilst standing or referred to Physio		
Weightbearing Partial weightbearing Non-weightbearing Use of cast shoe Family aware of safety hazards		
Discharge instructions		
I confirm that I have been given verbal and written instructions regarding the care of my cast Signature of patient…….. or Patient representative …….. Print name and relationship to patient Date……..		
Casting Room Staff Name	**Casting Room Staff signature**	

(NB. You may wish to adapt the above example)

Appendix 4

---------- HOSPITAL TRUST
---------- DEPARTMENT
INSTRUCTIONS TO PATIENTS IN CASTS

Please read the following instructions carefully

Contact the Doctor or Hospital **immediately** if you experience any of the following:

- The toes or fingers become **blue** or **swollen** or you are unable to move the limb.
- The limb becomes more **painful**
- You have **pain in the calf**
- You have **pain in the chest or shortness of breath**
- You feel "**pins and needles**" or **numbness**
- Any "**blister like pain**" or rubbing under the cast
- **Discharge, wetness or smell** under the cast
- If you drop any object down inside the cast

CARE

Exercise the joints not held in the cast as much as possible.

Do not let the limb hang down unless it is being used; **elevate** the limb especially during the first few days.

Allow the cast to dry naturally and leave it uncovered for 48 hours if plaster of Paris or 2 hours if resin based material.

Do not sit close to the fire, as your cast may become hot and burn you

Do not wet the cast, it may disintegrate or cause skin problems

If the cast becomes **cracked, soft**, **loose or tight** contact the doctor or the hospital.

The contact numbers are:- Day……..
Night ……

I confirm that I have received a copy of "Instructions to Patients in Casts".

NAME (capital letters please)
…… DOB……..

Signed……. Date……

(NB. You may wish to adapt the above example)

Appendix 5

INSTRUCTIONS FOR USE OF CRUTCHES/STICKS

You have been issued with elbow crutches/sticks to aid your mobilisation. Please read the following carefully:

WALKING
- Move both crutches forward a short distance – if non weight bearing holding injured leg off the floor.
- Lean on the crutches – taking weight through your arms and hands.
- Step through with the good leg.
- Continue thus – keeping steps short and equal.

STAIRS
- The safest way up and down is on your bottom. If there is a handrail – use it!
- **ASCENDING:** Place good leg up the step first, followed by crutches and bad leg.
- **DESCENDING:** Bad leg and crutches down first, good leg follows. Can be a dangerous procedure.
- **NOTE:** Good leg to heaven!
  Bad leg to hell

SITTING DOWN
- Stand on the good leg, close to chair.
- Hold both crutches in one hand
- Feel for chair with other hand.
- Sit down

STANDING UP
- Hold crutches in one hand.
- Push on arm or seat of chair.
- Stand up on to good leg
- Place crutches in position.

MAINTENANCE
- Check crutches daily.
- Look for wear or dirt on ferrules. (rubber ends)
- Make sure wing nuts (on axillary) are tight.
- If you have a problem contact the department that issued them.
- When they are no longer requires, please return them promptly.

I confirm that I have received a copy of "Instructions for use of Crutches/sticks", and that I have been supplied with crutches, sticks, etc.) which I **have/have not** been taught to use. (Cross through where not applicable)
Name (Capital letters please……..…… Hospital No ……
Date of Birth ……
Signed …… Date ……

(NB. You may wish to adapt the above example)

Appendix 6

EXERCISES FOR LOWER LIMBS

For patients in below knee casts

When wearing a below knee cast, it is important that you do not allow the joints that are not in the cast to become stiff. Exercise is important in order to prevent this. Unless you are advised otherwise, this exercise should be gentle and not to a degree that causes you pain.

These exercises should be done at least six times every morning, noon and evening to prevent stiffness:

(Depending upon the extent of your cast, you may not be able to exercise all of your leg joints)

- Bend your toes and then straighten them
- Move your leg out to the side and back, to keep your hip mobile
- Bend and straighten your knee
- Press your knee into a pillow and feel your thigh muscle tighten.

Do not allow your leg to hang down for any length of time, as it may become swollen and painful. Elevate it to heart level when you are sitting.

If you are worried or have problems, contact the hospital where you had your cast applied or go to your nearest hospital

(NB. You may wish to adapt the above example)

EXERCISES FOR LOWER LIMBS

For patients in a leg cylinder cast

When wearing a leg cylinder cast, it is important that you do not allow the joints that are not in the cast to become stiff. Exercise is important in order to prevent this. Unless you are advised otherwise, this exercise should be gentle and not to a degree that causes you pain.

These exercises should be done at least six times every morning, noon and evening to prevent stiffness:

- Bend your toes and then straighten them
- Move your leg out to the side and back, to keep your hip mobile
- Exercise your ankle by pointing your toes away from you and them pulling your foot towards you
- Rotate your ankle, drawing a circle with your foot

CHECK with medical staff or physiotherapist that you are allowed to do the next exercise

- Press your knee into the back of the cast and feel your thigh muscle tighten, pull your toes towards you at the same time (static quadriceps contraction)

Do not allow your leg to hang down for any length of time, as it may become swollen and painful. Elevate it to heart level when you are sitting.

If you are worried or have problems, contact the hospital where you had your cast applied or go to your nearest hospital

(NB. You may wish to adapt the above example)

SHOULDER, ELBOW AND HAND EXERCISE

For patients with a below elbow cast

When wearing a below elbow slab/cast it is important that you do not allow the joints that are not in the cast to become stiff. Exercise is important to prevent this. Unless you are advised otherwise, this exercise should be gentle and not to a degree that causes you pain.

These exercises should be done at least six times every morning, noon and evening to prevent shoulder and elbow stiffness:

1. Raise your arm above your head (if necessary help it with the other hand)
2. Touch the back of your neck with your hand.
3. Touch the small of your back with your hand.
4. Straighten and bend your elbow.

Hand exercises

These exercises should be done at least 10 times an hour during the day and evening to prevent stiffness:

1. Make a fist with your fingers and thumb, relax it and then make a fist again.
2. Spread your fingers and thumb wide apart, relax and then spread them again.

Do not allow your hand to hang down for any length of time, as it may become swollen and painful. Elevate your hand to heart level when you are sitting or lying. If you have been given a sling, wear it for 24-48 hours unless you have been instructed otherwise. However, do not forget to remove the sling to do the above exercises.

If you are worried or have problems, contact the hospital where you had your slab/cast applied or go to your nearest hospital.

(NB. You may wish to adapt the above example)

SHOULDER AND HAND EXERCISE

For patients with an above elbow cast

When wearing an above elbow slab/cast it is important that you do not allow the joints that are not in the cast to become stiff. Exercise is important to prevent this. Unless you are advised otherwise, this exercise should be gentle and not to a degree that causes you pain.

These exercises should be done at least six times every morning, noon and evening to prevent shoulder stiffness:

1 Raise your arm above your head (if necessary help it with the other hand)

2 Touch the back of your neck with your hand.

3 Touch the small of your back with your hand.

You may not be able to do 2 and 3

Hand exercises

These exercises should be done at least 10 times an hour during the day and evening to prevent stiffness:

3. Make a fist with your fingers and thumb, relax it and then make a fist again.
4. Spread your fingers and thumb wide apart, relax and then spread them again.

Do not allow your hand to hang down for any length of time, as it may become swollen and painful. Elevate your hand to heart level when you are sitting or lying. If you have been given a sling, wear it for 24-48 hours unless you have been instructed otherwise. However, do not forget to remove the sling to do the above exercises.

If you are worried or have problems, contact the hospital where you had your slab/cast applied or go to your nearest hospital.

(NB. You may wish to adapt the above example)

Appendix 7

COPING WITH YOUR CAST AT HOME

Below knee or long leg cast:

1. Remember that you may be unsteady due to the weight of your cast and need assistance, even if the cast is quite small.

2. Be patient. Do not try to move too fast.

3. Use your crutches and sticks until you are told otherwise.

4. If you are allowed to weight bear always wear your cast shoe when walking. If possible wear a thick soled shoe on your good foot to even you up to match the height of the leg in the cast.

5. Try not to get your cast wet. You can use a cast protector, available commercially[1], to keep it dry if you are bathing, showering or going outside but do not leave it on too long as condensation will collect inside the bag. .

6. A shower may be safer, but if bathing, try to assemble everything you need before you get into the bath. It is sensible to have assistance as you may be unsteady. Put your 'good' leg in the bath first. Support your cast leg between the taps or on a bath rack if strong enough. Empty the water out of bath and dry yourself before getting out leading with your cast leg. A damp towel placed on the edge of the bath may help to prevent you slipping.

7. Wet wipes are useful for cleaning your toes.

8. A small rucksack is useful for carrying things around the house, a tea trolley may be helpful too, pushing it in front of you, but do not use it to support your weight.

9. Loose rugs can be a hazard and are best removed until you are better.

10. A stool may be more comfortable to perch on than trying to sit in a chair.

11. When you are sitting, try to elevate your leg to the same level as your bottom to prevent and/or alleviate swelling. Use a pouffe or a stool.

12. Keep your foot warm with loose socks or a leg warmer.

13. Loose baggy clothing is practicable and comfortable.

14. If you need to keep the bedcovers off your feet at night hang the covers over a chair placed with its back against the bed. Pillows under the mattress will provide some elevation if you need it.

15. When going up or downstairs remember to lead with your good leg going up and your cast leg coming down.

16. If you fall don't panic, roll yourself onto your front and pull yourself into a kneeling position. You can use a stable piece of furniture to pull yourself up by.

17. Don't trust your furniture, remember it may move, wobble and not be strong enough for you to lean on or use to assist yourself.

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[1] *Your Casting Room staff will have details of cast protectors.*

Appendix 8

SKILL MIX/STAFFING FOR CASTING ROOMS

An agreed trust wide method for estimating safe staffing and skill-mix levels for the casting room should be in place and a formal risk assessment, using a recognised workload tool, acknowledging that every department is unique.

The following considerations should be made to assist this process:

- The average number of patients attending the casting room for each application/adaptation/removal of casts
- The average length of time needed to care for each patient
- The average number of patients needing two or more staff to apply/adapt/remove their cast
- Acknowledgement of time required for preparation/aftercare and other aspects of indirect patient care
- Acknowledgement of time required for ward, theatre and peripatetic visits
- The back-up arrangements for staff working alone in order to provide safe patient care; e.g. establish the whereabouts of other staff who can help in the casting room
- That at least one and preferably two British Casting Certificate holder are on duty to directly supervise casting staff
- Allocated time for education

Further reading:
RCN (2011) Guidance on safe nurse staffing levels in the UK.

(NB. You may wish to adapt the above example)

Appendix 9

BCC SYLLABUS FOR EXAMINATION

RELEVANT ELEMENTARY ANATOMY AND PHYSIOLOGY

LOCOMOTOR SYSTEM

Basic knowledge of the skeleton: nomenclature.
major joint movements.
Details of bones and surface anatomy of the upper and lower limbs.
The vertebral column, bony structures, normal curves and intervertebral discs.
Joints: basic details of the upper and lower limb joints.
Muscular system: main groups of muscles moving the limbs.
Nervous system: spinal cord in brief.
positions of nerves relevant to casting work.
Circulatory system: main blood vessels of the limbs.

TRAUMA

Fractures: types, healing and complications.

Description, treatment and any specific complications of trauma to:

- Wrist and hand
- Forearm
- Elbow
- Humerus
- Clavicle and shoulder
- Foot and ankle
- Tibia and fibula
- Knee
- Femur

Awareness of complications and handling of patients with these injuries:

- Trauma to the Pelvis and Spine

ORTHOPAEDICS

Brief description of each condition and treatment, especially those where casting is involved:

- Bone infections: osteomyelitis/tuberculosis
- Congenital talipes equino varus
- Developmental dysplasia of the hip
- Foot conditions, e.g. hallux valgus
- Knee conditions
- Osteoarthritis and Rheumatoid disease
- Osteochondritis e.g. Perthes disease
- Osteoporosis

BANDAGING Techniques of bandaging and the use of slings, collar n cuff

WALKING AIDS Basic principles and instructions

CASTING ROOM ISSUES

HEALTH AND SAFETY

MEDICO LEGAL:

- Record keeping / documentation
- Informed consent
- Ethical matters

CASTING TECHNIQUES

Assessment of patient including relevant history
Basic casting technique
Use of apparatus in the casting room
Care of patients in casts:
Trimming, drying and windowing
Checking of patients in casts
Verbal and written advice given to patients
Communications skills
Complications of cast fixation, prevention, detection and treatment
Walking attachments for leg casts
Removal of casts and subsequent care

SPECIFIC CASTS

Appropriate use of materials including plaster of Paris and alternative casting materials. Understanding of how to use and create:
Soft products and combicast techniques.
Producing the correct layers of resin based materials and using products making use of their properties

Positions, extent of cast and basic technique of:

Slabs: Metacarpal slabs, Below elbow, Above elbow, 'U' Slab, Below Knee

Casts:

POP		Lightweight resin based materials	
Below Elbow Bennett's type Above elbow	Below knee Above knee Casts for clubfoot	Below elbow Bennett's type Scaphoid Arm cylinder Above elbow	Slipper Below knee Leg cylinder Above knee Sarmiento type

Should have applied these casts on the course and understand the principles. Should be able to discuss care and troubleshoot any problems
Corset/jacket Hip spica Frog type in Humane postion Broomstick Shoulder spica Minerva jacket (demonstration only)

Functional bracing: Humerus, Femur, Tibia

Resting splints for limbs
Negative casting

Understand the principles of orthopaedic bracing and be aware of the following applications:
Futura wrist brace Humeral brace Tri-panel knee splint Range of movement knee braces

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