Overview

This standard focuses on the design and manufacture of partial removable prostheses; dental devices which are custom-made to fit the patient’s unique mouth shape and which replace one or more missing teeth. The prosthesis incorporates one or more of the following factors:

- a method of retention
- aesthetics
- the established occlusion
- the requirement for minor obturation
- immediate tooth replacement.

Partial removable prostheses may be made completely from polymeric materials, from polymeric with some metallic components, such as clasps or precision attachments for retention of the appliance, or from a metallic alloy framework on which the artificial teeth are embedded into acrylic held in place on the framework. A partial prosthesis should restore a natural appearance in colour, shape and size; fit the patient’s mouth comfortably, be retained in place in the patient’s mouth and should not attract a build-up of food debris. In order to manufacture a prosthesis which meets these aesthetic and functional requirements, you need to have an accurate cast or digital representation, an accurate record of the relationship between the patient’s upper and lower jaw and a record of the patient’s tooth shade. The term ‘client’ is used to mean the member of the oral health care team who has prescribed the custom-made prosthesis. Clients may be external to the organisation (such as other laboratories, dental practitioners, training schools) or internal (within a dental hospital). The patient is the individual for whom the custom-made prosthesis is being made. Users of this standard will need to ensure that practice reflects up to date information and policies.
## Performance criteria

**You must be able to:**

| P1 | effectively clean the returned occlusal registration rim and baseplate and transfer registration information accurately to the cast |
| P2 | evaluate the prescription, the casts, the design and decide the make up of the components |
| P3 | mount the cast on an appropriate articulator with any available occlusal registration information |
| P4 | determine path of insertion, survey and block out unwanted undercuts and duplicate the cast if required |
| P5 | transfer registration information accurately to the cast |
| P6 | modify, position and attach the prescribed artificial teeth to the baseplate |
| P7 | shape and contour the supportive wax consistent with the patient's musculature |
| P8 | effectively clean the trial removable prosthesis, prepare and package it safely for despatch and return it to the client at the agreed time |
| P9 | check the returned trial prosthesis for loosening or movement of teeth which may have occurred during try-in and make any adjustments which are necessary |
| P10 | fit the returned trial prosthesis to the cast if it needs to be modified, articulate it if this is required and make the required modifications |
| P11 | make a mould with the appropriate material to size and shape for converting the wax trial prosthesis to polymeric material |
| P12 | eliminate wax from the mould and prepare the surfaces of the mould and the artificial teeth for the introduction of polymeric |
| P13 | add spacers to create the correct size of void for a resilient lining reservoir chamber if this has been prescribed |
| P14 | select polymeric material and process to manufacturers' guidelines |
| P15 | process the polymeric material in accordance with the manufacturers' guidelines |
| P16 | release the processed removable prosthesis from the mould without causing damage and trim any excess material |
| P17 | select methods, materials and equipment for trimming, finishing and polishing the final prosthesis that are appropriate to the type of prosthesis and the materials used to make it |
| P18 | check finished denture fit and occlusion on the articulator and make any necessary adjustments to maintain the original vertical dimension of the occlusion |
| P19 | correctly identify the finished prosthesis with the patient's unique reference and date of production |
P20 effectively clean the finished prosthesis, identify with the patient’s unique reference and package it safely for despatch along with any instructions for the patient and/or client

P21 provide Statement of Manufacture for the appliance as required under current regulation
Knowledge and understanding

You need to know and understand:

K1 the skeletal anatomy, physiology of the head and neck and tooth morphology
K2 the structure, function, and movement of the oro-facial musculature including the tongue and temporomandibular joint
K3 disorders and diseases affecting the oral cavity
K4 tooth morphology and the form of the natural anterior and posterior teeth
K5 the aetiology and classifications of malocclusions
K6 the physiological and pathological changes associated with ageing process and trauma related to the oral environment
K7 the importance of retention of the periodontal ligament and the changes in proprioception due to loss of periodontal ligament
K8 the broader factors (sociological, behavioural, environmental and economic) that contribute to oral health and illness
K9 the emotional response by the patient to tooth loss
K10 the role of removable prostheses in the restoration and maintenance of:
  K10.1 tissue support
  K10.2 aesthetics
  K10.3 phonetics
  K10.4 function of occlusion and the temporomandibular joint
K11 the importance of restoring and maintaining the occlusal vertical dimension
K12 the benefits and restrictions of immediate tooth replacement in the provision of removable prostheses
K13 the benefits and restrictions of retaining root structures in the provision of removable prostheses
K14 the use and need for transitional removable prostheses
K15 the modern concepts for the use of resilient liners and tissue conditioners
K16 the design limitations of large anterior undercuts and pre-existing dental conditions
K17 retention and stability
K18 aesthetics and phonetics
K19 articulation
K20 the principles of partial removable prosthesis design
K21 the classification and sub-classification of materials on the basis of chemical composition and internal structure
K22 the mechanical, physical, thermal, chemical and biological properties of
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materials
K23 products used for cast and mould manufacture or digital representation
K24 waxes used in the manufacture of removable prostheses
K25 dental polymers
K26 structural features of polymer chains
K27 denture base polymers
K28 dental alloys
K29 the principles and use of digital design and manufacturing
K30 digital manufacturing methods related to rapid manufacturing of the metallic components of partial denture framework
K31 artificial tooth materials
K32 impression, duplicating and cleaning materials
K33 methods of developing, maintaining and improving communication and information relating to the provision of custom-made dental devices
K34 the importance of communicating with individuals at a pace, in a manner, and at a level appropriate to their understanding, needs and preferences, whilst maintaining their dignity and choice
K35 methods of infection control when handling received impressions and other items which may have been in the mouth, or which are intended to be placed in the mouth
K36 the purpose of personal protective equipment
K37 the range of equipment used in the design and manufacture of dental devices; methods of using equipment and materials safely including the use of chemicals and other hazardous substances; methods of storing different equipment and materials safely and securely; methods of cleaning and maintaining different types of equipment and your role in this
K38 the reasons for maintaining records throughout the process and of clearly identifying the products during the manufacturing process
K39 organisational procedures and requirements for the recording of information about incoming work, work in progress and work delivered to clients, and the purpose of this
K40 principles of quality assurance including effective recording and sampling; processes and procedures for quality assurance in your workplace
K41 methods of setting and calibrating equipment and of testing that this is correct
K42 the effects of modifying manufacturers’ products to meet laboratory requirements on the physical properties of products and on quality assured products, and the legal implications of poor manufacturing
K43 legal requirements of the contract of employment, confidentiality and
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employers’ regulations

K44 health and safety at work legislation and related procedures and liability; principles of and how to apply, legislation and regulations relating to the manufacturing of devices

K45 the role and obligations of members of the dental team and the regulatory functions of the General Dental Council
Additional Information

**External Links**

This standard links with the following dimension within the NHS Knowledge and Skills Framework (October 2004):

Dimension: HWB9 Equipment and devices to meet health and wellbeing needs
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