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## Overview

This standard focuses on preparations for the design and manufacture of restorations: single metallic restorations, single metallic restorations and copings for the application of tooth coloured materials, single tooth coloured restorations, metallic substructures and metallic bridge components, single tooth coloured restorations based on metallic substructures and tooth coloured bridge restorations based on non-metallic substructures.

You need to prepare and maintain environments, materials and equipment for the design and manufacture of the restoration, produce custom made trays, working casts and dies either by analog or digital method.

The term 'client' is used to mean the member of the oral health care team who has prescribed the custom-made restoration. Clients may be external to the organisation (such as other laboratories, dental practitioners, training schools) or internal (within a dental hospital). The individual is the one for whom the restoration is being made.

The design and manufacturing process may be carried out in a regulated dental laboratory within a variety of settings.

Users of this standard will need to ensure that practice reflects up to date information, policies and regulations.

## Performance criteria

### *You must be able to:*

1. communicate with relevant others at a pace, manner and level appropriate to their understanding, preferences and needs
2. review the prescription and contract and correctly identify the materials and equipment which will be required and prepare them in the correct manner
3. evaluate the casts or the digital representation and the prescription to determine what needs to be incorporated into the design of custom-made trays
4. apply appropriate spacer materials to the cast or create digital representations to:
  - eliminate undercuts
  - provide the correct amount of space for the impression material selected by the client
5. apply a separating medium to the cast that is appropriate to the cast material and the processing method to be used
6. form the selected material over the cast to the predetermined peripheral outline, and where required, fix appropriate handles and finger rests
7. separate the appliance from the cast in a manner that prevents damage and remove any spacing materials that remain
8. smooth the periphery, handle and other surfaces of the appliance and perforate the tray surface as required
9. confirm that the finished tray is clean, is free of defects and conforms to the prescription
10. clean the custom-made device, correctly identify it with the individual's unique reference and date of production and return it to the client at the correct time
11. on receipt of the custom tray impression or appropriate digital information, determine the prescription requirements from the information available
12. clean the received impression, confirm that it is free of voids or defects which render it unacceptable and prepare it appropriately to receive the cast material
13. inform the client in an appropriate manner if the impression is not of sufficient quality and obtain a replacement impression
14. prepare necessary materials to produce casts and dies that are fit for purpose by either analogue or digital means.
15. construct soft gingival areas appropriately to the required amount for the dies that need them

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16. produce margin edges on dies by sectioning and trimming them accurately to the clinical edges reproduced on the impression
  17. finish casts and dies so that they meet auditing and recording requirements
  18. evaluate casts and dies against restoration requirements and eliminate any unnecessary undercuts
  19. mount casts on an appropriate articulator, articulate them correctly and consistently with the individual's occlusal registration and record the information
  20. apply die surface hardener and spacing materials if these are required
  21. store casts and dies which are not in use in an appropriate safe manner and place
  22. dispose of waste in accordance with all relevant legislation, guidelines, and workplace procedures
  23. complete and store all documentation in accordance with relevant legislation, guidelines, and workplace procedures

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## Knowledge and understanding

### *You need to know and understand:*

1. how to communicate with relevant others at a pace, manner and level appropriate to their understanding, preferences and needs
2. the importance of applying standard infection control precautions and the potential consequences of poor practice
3. Skeletal anatomy, tooth morphology, orofacial musculature including the tongue and temporomandibular joint function and movement
4. principles and methods of articulation
5. the principles of restoration design
6. the principles and use of digital design and manufacturing
7. the range of equipment used in the design and manufacture of dental devices
8. cast and mould manufacture and digital simulation methods
9. the range of designs required for impression and duplicating materials
10. legal and physical implications of modifying manufacturer products and ensuring quality assurance .
11. different methods of waste disposal and how to apply these
12. the importance of updating documentation and storing individuals records safely and securely

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Prepare environments, custom-made trays, casts and dies for the design and manufacture of restorations



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