INTRODUCTION:
The topics covered today are:

- Dental Cast or Dental Model
- Types of Gypsum Products
- Gypsum selection
- Gypsum Products Flowchart
- Schedule H form / Work Order
- Infection Control
- Procedures in pouring impressions
- The Type of Model Required for a specific case
- The Requirements of a Dental Model
- The correct Shaping of the Land Area
WHAT IS A DENTAL CAST OR DENTAL MODEL?

Is a **positive** reproduction or copy of the teeth and/or other tissues of the oral cavity, of the maxillary (upper) or mandible (lower jaw) over which a prosthesis or appliance (i.e. denture, etc.) may be fabricated.

TYPES OF DENTAL MODELS:

- STUDY MODELS
- PRIMARY MODELS
- SECONDARY MODELS
- CROWN AND BRIDGE MODELS
- DUPLICATE MODELS

WHAT IS THE PURPOSE OF A DENTAL MODEL?

A dental model is a direct link between the patient and the dental technician, unlike dentists who have a direct link to the patient. We use the model to construct appliances or prosthesis for that individual patient. The prosthesis being made depends on the accuracy, dimensions and contours of the dental model. Therefore proper care and handling of the impression are essential for an acceptable dental model.

WHAT IS A DENTAL IMPRESSION?

Is a **negative** reproduction or copy of the teeth and/or other tissues of the oral cavity, of the maxillary (upper) or mandible (lower jaw) over which a prosthesis or appliance (i.e. denture, etc.) may be fabricated.

An impression is made to produce a positive form, or cast, of the recorded tissues by pouring it with plaster or stone.
Types of Dental Gypsum Products

**DIE STONE**

When gypsum is heated under pressure the shape and size of the particles vary and in turn affect its properties.

**STONE**

**PLASTER**

Hemi hydrate plus water $\rightarrow$ Di hydrate

$\text{(CaSO}_4\text{)}_2 \text{H}_2\text{O} + 3\text{H}_2\text{O} \rightarrow 2\text{(CaSO}_4\text{2H}_2\text{O)} + \text{Heat}$
GYPSUM SELECTION

PLASTER: Used for articulation, flasking and basing models (weakest and cheapest material).

STONE: Used for pouring dentate, edentulous and partially dentate models where no metal work is required. Can also be used in equal parts with plaster, this is called a 50/50 mix. This is used where some strength and little dimensional change is required e.g. flaking (stronger than plaster and a little more expensive).

DIE STONE: Used when a greater degree of accuracy and strength are required e.g. Crown and bridge or cobalt chrome metal work, it should be vacuum mixed (strongest of the three, also most expensive).


### Schedule H form or Work Order

When an appliance is to be constructed the first action is that of the clinician to send the laboratory an authority to commence work on the case.

This authority is in the form of paper work known as a Schedule H form or Work Order.

This document supplies the technician with information:

- The clinician’s name and address
- The Dental Technician’s name and address
- The patient’s name
- A description of the work required (usually written and pictorially), plus shades and moulds for the tooth selection
- The date and time the work is required
- A drawn design
- See attached Schedule H form. They can vary in design, but essentially have the same information.

A work order is a **Lawful Document** and work should never commence without it.

A dental technician should not deviate from the clinicians’ written request unless they have spoken to the clinician and the change is then noted on the work order, the clinician may have reasons that are not self evident on a stone model e.g. weakened tooth due to compromised root; periodontal problems; teeth unsuitable due to fillings, facings, crowns etc.

The instructions from the work order must be related to the stone model you have, the instructions must be clear and unambiguous. If it becomes apparent that there will be a problem, it is always best to communicate with the clinician.
SCHEDULE H

DENTIST ACT, 1934

Order for the Mechanical Construction or Removal or Repair of Artificial Dentures or Restorative Appliances.

From: ........................................ Order

Address: ................................. No..........................

Date........................

Telephone..........................

INSTRUCTIONS

To........................................ You will need to complete the following by the:

Address.................................

Patient .................................

Case Type..............................

Tooth Selection

Maxillary Arch

<table>
<thead>
<tr>
<th>Anterior</th>
<th>Posterior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shade</td>
<td></td>
</tr>
<tr>
<td>Mould</td>
<td></td>
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</tbody>
</table>

Mandibular Arch

<table>
<thead>
<tr>
<th>Anterior</th>
<th>Posterior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shade</td>
<td></td>
</tr>
<tr>
<td>Mould</td>
<td></td>
</tr>
</tbody>
</table>

Signature of Registered Dentist

.................................
INFECTION CONTROL

Infection control is a tool we use to PREVENT cross contamination between patients and the dental team. In conjunction with infection control measures, Universal/Standard Precautions are also implemented.

UNIVERSAL/STANDARD PRECAUTIONS

Universal/Standard precautions are a set of rules designed to prevent transmission of viruses, diseases and other blood bourne illnesses. E.g. Hepatitis

Universal precautions involve the use of protective barriers such as gloves, gowns, aprons, masks or protective eyewear which can reduce the risk to the technician. Each impression should be treated as being potentially infectious.

Steps in reducing risks are as follows:

• Keep all impressions in one area (contaminated area)

• Wear gloves

• Wear safety glasses

• Reduce air bourne infection (do not use compressed air)

• Wear a disposable gown on top of coat

• Rinse impression under running water to remove any saliva or blood

• Disinfect impression (immerse impression in a solution)

• Pour impression

• When separating impression make sure you are still wearing safety equipment

• Once you have finished be sure to remove apron and wash your hands well
Dental Impressions

Immersion, spraying and short-term submission have all been recommended for disinfection of impressions. A suggested technique for impression disinfection is as follows:

1. All food, mucous, visible blood to be rinsed off under running water.

2. Spray with neutral detergent and leave for 1 minute

   OR

   Soak for 2 minutes in 1:10 sodium hypochlorite solution.

3. Rinse again under running water.

Impressions should not be dried with an ‘air-blast’ as this creates an ‘aerosol’ effect of possible micro-organism spread. Of course, gloves, mask, apron and glasses should be worn during this procedure. The solution being used to disinfect should be kept fresh and in an enclosed container.
PROCEDURES IN POURING AN IMPRESSION

• Wear safety equipment
• Read Schedule H form
• Inspect for defects
• Disinfect impression-soak or spray
• Remove excess liquid-no compressed air
• Weigh and measure water and gypsum
• Place water in bowl first then gypsum
• Mix, use a technique which would reduce trapping air in mix
• Lightly vibrate bowl
• Begin to pour
• Start at one end only
• Watch gypsum fill impression-no bubbles
• Do not invert impression-use two pour technique
• Measure water and gypsum again and pour base
• Once set, remove cast, inspect
• Use model trimmer, and trim accordingly
• Remember not to damage any part of the oral morphology
• Clean and label model(not on the fitting surface)
TYPE OF MODEL REQUIRED

When pouring impressions the SCHEDULE H form should state what type of material it should be poured with. As a guide the following applies:

- No impressions are to be poured in plaster
- Edentulous impressions should be poured in yellow stone
- Partially dentate impressions where acrylic dentures are to be constructed are poured in yellow stone
- Partially dentate impressions where cobalt chrome castings or any metal work is required should be poured in die stone

Something to consider when selecting gypsum for a particular impression or appliance are the requirements of that case and the properties of the gypsum.
REQUIREMENTS OF A DENTAL MODEL

The success of any dental prosthesis relies primarily on two things: the impression and the stone.

To achieve an acceptable standard of work the model should possess the following qualities:

1. All surfaces to be contacted by the denture should be free of voids and grinding sludge left by the model trimmer.

2. The model surface must be dense and hard with no damage from a plaster knife or finger nails etc.

3. A model should extend sufficiently to include all of the area available for denture support. For example, a mandibular model should extend 1mm beyond the retromolar pads.

4. The peripheral roll should be complete and no deeper than 3-4mm, evenly distanced from the sulcus.

5. The land area must be dense and an even width-, 3-4mm.

6. The tongue area should be flat and smooth with the lingual roll intact.

7. The base of the model should be 12mm at its thinnest point. (see below)
DENTAL MODELS

HLTDT301B

WEEK 2

OUTCOME:
You should now be able to know the following:

- What a dental cast or model is?
- Types of Dental Models
- What is a Dental Model’s purpose
- What a Dental Impression is?
- Types of Gypsum Products
- Chemical Reaction of Gypsum Products
- Selection of Gypsum Products
- What is a Schedule H form or Work Order?
- What is Infection Control?
- Universal/Standard Precautions
- Methods of disinfecting impressions
- The procedures in pouring impressions
- The Type of Model Required for a specific case
- The Requirements of a Dental Model
- The correct Shaping of the Land Area