Learning Objectives
Lesson 34.1: Dental Hand Instruments

1. Pronounce, define, and spell the key terms.
2. Explain how to identify hand instruments, including the following:
   - Describe the three parts of a dental hand instrument.
   - Describe the instrument formula designed by G. V. Black.
3. Discuss the classification of instruments, including the following:
   - Discuss the theory of placing an instrument in a specific sequence.
   - List the examination instruments and their uses.
   - List the types of hand (manual) cutting instruments and their uses.
   - List the types of restorative instruments and their uses.
   - Describe additional accessory instruments and items used in general dentistry.
   - Describe the use of preset trays, tubs, and color-coding systems in dentistry.
Introduction

- Wide variety of dental instruments are used in dentistry today
- Dental supply companies manufacture many variations of instruments for the purpose of accommodating personal preferences

Instrument Number

- The dental manufacturer assigns a number to most instruments
- The dentist will often refer to pliers and forceps by their number rather than by their name
- It is advantageous to learn both the number and the name

Catalog Number
Instrument Design

- Hand instruments are designed with three specific parts
  - Handle
  - Shank
  - Working end

Dental Hand Instrument

- Black designed a formula that describes the angulations and dimensions of the working end of a hand instrument
- Hand cutting and scaling instruments have three sets of numbers that identify the:
  - Length of blade
  - Angle of blade
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#### Numbers in G.V. Black's Instrument Formula

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>First number</td>
<td>Width of the blade in tenths of millimeters (e.g., if the number is 11, the width is 11/10 mm)</td>
</tr>
<tr>
<td>Second number</td>
<td>Length of the blade in millimeters (e.g., if the number is 7, the length is 7 mm)</td>
</tr>
<tr>
<td>Third number</td>
<td>Angle of blade in degrees relative to the handle (e.g., if the number is 90, the working tip [blade] is at a 90-degree angle [right angle] to the handle)</td>
</tr>
</tbody>
</table>

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#### Instrument Classification

- Examination instruments
- Hand cutting instruments
- Restorative instruments
- Accessory instruments

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#### Instrument Sequence

- Procedure tray is set up from left to right
  - Based on how instruments are transferred and used throughout a dental procedure
- The clinical assistant uses the left hand when transferring instruments
- Most frequently used instruments should be placed closer to the dentist for ready availability
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Organized Instrument Tray

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Examination Instruments
- The most often utilized instruments on the tray
- Can be used in procedures ranging from:
  - Checking a specific problem
  - Providing a thorough oral examination
  - Evaluating a restored tooth

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Basic Setup

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Uses for the Mouth Mirror

A

B

Uses for Mouth Mirror (Cont.)

E

F

Hand (Manual) Cutting Instruments

- The next group of instruments placed on the tray setup after the examination instruments
- Dentists will have a preference as to what instruments they want included in this section
  - A combination of rotary instruments and manual cutting instruments interchangeably throughout a procedure
Restorative Instruments
- Used to place, condense, and carve the restorative dental materials back to reflect the normal anatomy of that tooth
- Instruments selected for the tray setup vary with the dentist’s preferences and the type of dental materials selected for the procedure

Accessory Instruments and Items
- Accessory items are not necessarily included in the tray setup but can be “pulled” from the dental cabinets or tub to be used for many procedures
- When additional items are used for a procedure, you must follow proper infection control guidelines regarding disinfection or sterilization of the item before you place it back

Preset Cassettes (Trays)
- Hand instruments and related accessories for a given procedure are prepared, stored, and transported together
  - Examination
  - Amalgam
  - Composite
  - Crown and bridge
  - Endodontic
  - Surgical
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Cassette for a Preventive Procedure

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Preset Restorative Tray

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Storage Tubs

- Supplies and dental materials for specific procedures can be stored in a covered plastic tub within each operatory
  - The combination is known as the tub and tray system
Color-Coding Systems

- One of the most convenient and efficient ways to organize instruments and supplies for specific procedures
  - Instruments with bands of the same color
  - Tray of the same color
  - Tub with dental materials of the same color

Questions?