

THIRD EDITION

# DENTAL ASSISTING

Instruments & Materials Guide

Pat Norman  
Donna Phinney  
Judy Halstead

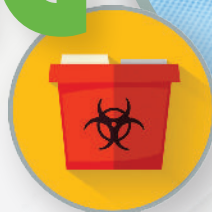


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# PREFACE

Dental instruments and materials are continually developing and changing as technology advances and clinical needs arise. Manufacturers of dental instruments provide many designs and sizes and are continually making improvements as new procedures and materials become available. Dentists select instruments and materials they feel the most confident and comfortable using when working with patients. Each procedure requires special instruments and materials to accomplish the task.

Many types of instruments and materials are used in the dental office. Examples include instruments and materials used in dental hygiene; diagnostic and restorative procedures; endodontic, oral maxillofacial surgery, implants, orthodontic, pedodontic, fixed and removable prosthodontic specialties; disinfection and sterilization of instruments and equipment; and laboratory settings. Having a comprehensive grasp of the instruments and materials used is beneficial for patient education and protection.

The dental assistant is responsible for

- keeping the instruments sterilized and in working condition
- ordering new instruments as needed
- keeping the instruments in sequence while assisting during procedures
- sterilizing and maintaining instruments
- knowing all the materials used in the dental office
- ordering, stocking, preparing, and mixing materials

This third edition of *Dental Assisting Instruments and Materials Guide* is designed to give dental assistants the basic knowledge

necessary in relationship to each instrument and material presented. The instruments and materials are categorized in groupings that follow basic dental procedures in general and specialty dentistry. This allows students to easily study similar information. Students are able to view each instrument and learn its uses, parts, and other miscellaneous information. In addition, students will learn the use, composition, properties, Occupational Safety and Health Administration (OSHA) properties, mixing and setting times, and directions for each material associated within that section. There are too many different brands of each material to include in one text but we tried to include a variety of materials for dental assistants to gain an understanding of the basics so they can use this information and apply it to any brand name. The guide also covers sterilization equipment, solutions, and monitors.

Students will find this guide to be a helpful tool in their educational learning process in addition to their main textbook and clinic/laboratory experience.

## New to This Edition

Updates have been made throughout the text to address changes in instruments and equipment.

## Chapter 1

- Chapter renamed: Properties and Care of Dental Instruments
- Added information and images of precleaning, disinfecting, and sterilizing solutions

## Chapter 2

- Updated images and information

## Chapter 3

- Added coverage and images of the following: evacuator screens, air-water syringe, saliva ejectors, and water-line treatments
- Updated images and information

## Chapter 4

- Updated images and information

## Chapter 5

- Added numbers to clamps
- Updated images and information

## Chapter 6

- Updated and added images and information

## Chapter 7

- Updated images and information

## Chapter 8

- Combined information about Black's numbering system

## Chapter 9

- Added information and images on caries detectors/indicators solutions, desensitizers, relief gel, varnish, liners and low-strength bases, and core build-up materials
- Updated images

## Chapter 10

- Added information and images on amalgam bonding agents, amalgam restorative materials, and best practices for handling amalgam and waste and its disposal
- Updated and added images

## Chapter 11

- Added information on composite shade guides and composite polishers
- Updated and added images
- Added information and images on etching and bonding materials
- Added information and images on composite, compomer, and glass ionomer restorative materials

## Chapter 12

- Added information and images on tooth slooth, glass bead sterilizers, and Bunsen burners
- Added information and images on sodium hypochlorite, formo cresol, root canal lubricant, and sealer
- Added information and images on temporary restoration materials
- Updated and added images

## Chapter 13

- Added coverage of dry-socket materials

## Chapter 14

- Combined content where appropriate

- Added information and images on alginate, alginate substitute, and impression material flavorings
- Added information and images on supplies needed: bowls, spatulas, and impression trays
- Added information and images on waxes and cement materials

### Chapter 15

- Added information and images on preventive materials: pit and fissure sealants, prophy paste, and fluoride
- Added information and images on in-office and at-home whitening solutions
- Added information on tray setup for application of dental sealants

### Chapter 16

- Added information and images on Florida periodontal probe system and periodontal dressing
- Updated and added images

### Chapter 17

- Added information and images on bite registration materials and wax materials
- Added information and images on impression trays

- Added information and images on final impression materials
- Added information and images on temporary crown acrylic and materials
- Added information on temporary and permanent cementation materials

### Chapter 18

- New chapter focusing on implant systems; content formerly combined with Chapter 16
- Added information and images on implant supplies and instruments

### Chapter 19

- Updated images

### Chapter 20

- Added information and images on plaster and stone
- Added information and images on pumice, laboratory waxes, thermoplastic, custom tray, and vacuum-forming materials

### Chapter 21

- Added information and images of Scan X Digital

## DESCRIPTION OF ICONS



**Heat Sterilization**



**Cold Sterilization**



**Disposable**



**Disinfect**



**Sharps Container**

## ACCOMPANYING TEACHING AND LEARNING RESOURCES

### Online Instructor Companion Website

An online Instructor's Manual accompanies this book. It contains information to assist instructors in designing the course, including a test bank powered by Cognero®, PowerPoint Lecture slides, and an Image gallery. Sign up or sign in at <http://www.cengage.com> to search for and access this product and its online resources.

### PowerPoint Lecture® Slides

These vibrant Microsoft® PowerPoint lecture slides for each chapter assist you with your lecture by providing concept coverage using images, figures, and tables directly from the textbook!

### Cengage Testing Powered by Cognero

Cengage Learning Testing Powered by Cognero is a flexible online system that allows you to author, edit, and manage test bank content from multiple Cengage solutions; create multiple test versions in an instant; and deliver tests from your learning management system, your classroom, or wherever you want.

# ACKNOWLEDGMENTS

I want to thank those who encouraged and motivated me to update and develop this instrument and materials guide. Donna Phinney and Judy Halstead have been the most inspirational and motivational mentors I could have ever asked for. They encouraged and molded me through my education and career in dentistry. Thanks to my students for asking us to develop better ways to learn and remember instruments and materials that are used in dental procedures. Each year, students' quest for knowledge becomes more creative and inventive. A quick reference is necessary in the busy lives of students who must fit so many things into their schedules. My goal was a quick reference to meet their needs.

I would like to thank Cengage and its staff, including Senior Project Managers Anubhav Kaushal and Jenny Ziegler, and Product Manager Lauren Whalen, whose assistance and encouragement in this project are greatly appreciated.

Last, but never least, I would like to thank my husband, Jim, and my family, for their continued support throughout all of our endeavors.

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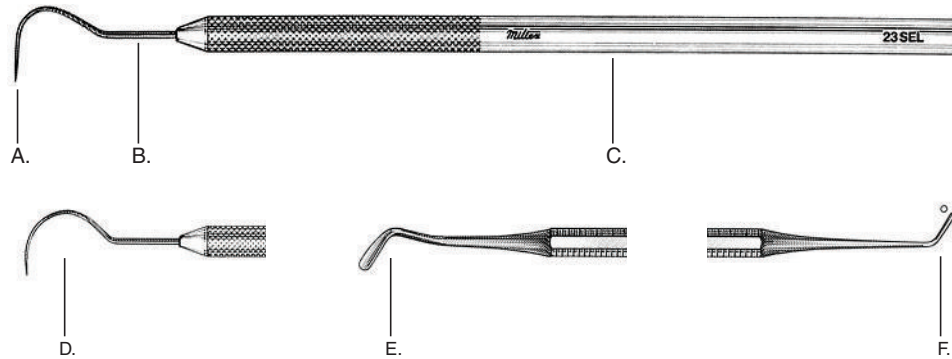
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# CHAPTER 1

## Properties and Care of Dental Instruments



## Basic Structural Parts and Working Ends of Dental Instruments



### Use

Dental instruments are used to accomplish a variety of tasks. Each procedure requires special instruments for its unique tasks. Most instruments are constructed of stainless steel, high-tech plastic/resin, or anodized aluminum. The working end of an instrument performs the specific function of the instrument.

### Properties

- A. Working end
- B. Shank
- C. Handle

### Notes

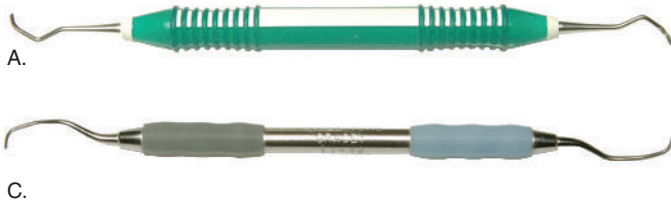
The working end may be a point, blade, or nib.

- D. The point is sharp and is used to explore, detect, and reflect materials.
- E. The blade may be flat or curved and may have a rounded or cutting edge.
- F. The nib is a blunt end that may be serrated or smooth.

There are single- and double-ended instruments. On some double-ended instruments the primary working end is marked with an indented ring around the shank or the handle.



## Ergonomically Designed Handles



### Use

The handle or shaft of an instrument is where the instrument is held by the operator. Some handles are ergonomically designed for easier handling and better grip.

### Notes

- In traditional instruments, handles may be smooth, serrated, round, or hexagonal (six-sided). Some may have cone socket handles that allow the working ends to be replaced.
- Ergonomic handles may be larger and designed with rests and grooves.
- Some handles are covered with a soft, rubber-like material for more comfortable handling.
- Handles are made of lightweight, sterilizable materials.

## The Shank



A.



B.



C.



D.



E.



### Use

The shank connects the handle to the working end. It narrows or tapers from the handle to the working end. The shank may be angled to reach different areas of the mouth. Instruments that are used in the posterior regions of the mouth have more angles, whereas straighter or slightly curved instruments are used in the anterior regions.

### Properties

- A. Straight (no angles)
- B. Curved (slightly curved)
- C. Monangle (one angle)
- D. Binangle (two angles)
- E. Triple angle (three angles)

## Color Coding



A.

B.

C.



**Use** Color coding is a method used to easily identify instruments, tubs, and trays. Color coding may be used to indicate the sequence of a procedure, sets of instruments for specific procedures, treatment rooms where instruments are stored, individual operators, or any combination of these.

**Properties** There are many types of materials used for color coding, including:

- A.** Plastic rings.
- B.** Tape.
- C.** Color-coded tray, mouth mirror, bur block, tray mat, and plastic rings. (Color-coded tubs and various-size trays are also available.)

**Notes** Materials used for color coding must be autoclavable and durable.

# Dental Precleaners, Disinfectants, and Sterilants



Source: Lenti Hill/Shutterstock.com

<b>Use</b>	<ul style="list-style-type: none"><li>• Used for cleaning and removing bioburden from instruments prior to disinfection and sterilization</li></ul>	Type I:	General purpose
<b>Composition</b>	<ul style="list-style-type: none"><li>• Proteolytic enzyme detergent</li><li>• Concentrated formula</li></ul>		Dilution: 1 part solution to 10 parts water
<b>Properties</b>	<ul style="list-style-type: none"><li>• Machine uses solution by cavitation.</li><li>• Noncorrosive, nonammoniated, and nonsudsing solutions.</li><li>• Solution available in different types.</li></ul>	Type III:	Plaster and stone remover: no dilution
		Type IV:	Tarter and stain remover: no dilution
		Type VI:	Temporary cement remover: no dilution
			<ul style="list-style-type: none"><li>• Solution changed when cloudy.</li></ul>

## Ultrasonic Machine and Cleaners



**Precautions** Use appropriate personal protective equipment (PPE) and follow all Occupational Safety and Health (OSHA) guidelines.

1. Glasses
2. Mask
3. Heavy utility gloves

### Directions

1. Dilute 1 part solution to 10 parts water into a clean ultrasonic cleaner.
2. Submerge the basket containing the contaminated instruments in the solution.
3. Place the lid on ultrasonic cleaner and set the timer for 2 to 10 minutes to remove debris.
4. Remove the lid and the basket of instruments and rinse thoroughly under warm water for 30 seconds.
5. Dispense instruments onto towel, blot dry, and separate instruments for cold/heat sterilization.

## Banicide Plus®



### Use

- Used for cold sterilization and high-level disinfection

### Composition

- Active ingredient: 3.4% glutaraldehyde

### Properties

- Requires the addition of an activator prior to use.
- Additional additives guard against corrosion.
- Mint-scented.
- Banicide may be used as a sterilant/high-level disinfectant for up to 28 days after initial use.
- Store at 24°C or 75.2°F.
- Can be deactivated with 850 g of glycine for disposal down drains.
- Sterilant: Submerge instruments for 10 hours.
- High-level disinfectant: Submerge instruments for at least 90 minutes.

## Banicide Plus® *Continued*



**Precautions** Use appropriate PPE and follow all OSHA guidelines.

- Ingestion: It may cause irritation and possibly chemical burns of the mouth, throat, stomach, and esophagus.
- Eyes: Contact with the solution may cause damage to the eyes, including severe corneal injury, which may cause permanent impairment of vision. Vapors may cause stinging sensation in the eyes.
- Skin: Direct contact with the solution may cause skin irritation or aggravation of existing dermatitis. Skin may turn yellow or brown, which is harmless.
- Inhalation: Vapor is irritating to the respiratory tract.
- Ventilation and skin and eye protection should be used.

### Directions

1. Open the screw lid on the gallon container and the activator.
2. Pour the activator into the plastic gallon container.
3. Place the lid back on the gallon container and move it to incorporate the activation into the entire solution.
4. Make a note of the date that the activator was placed in the container either on the bottle or somewhere close by. It is advisable to make such as note on any sterilizing or disinfecting tub/tray that is being used.
5. The solution is ready to use for 28 days.

## Biocide G30™



### Use

- Used for cold sterilization and high-level disinfection
- Reusable for 30 days for sterilization and disinfection

### Composition

- Active ingredient: 2.65% acidic glutaraldehyde

### Properties

- Ready to use, no chemical activator required.
- Contains a rust inhibitor to protect instruments.
- Active for 30 days.
- Lemon-scented.
- Sterilant: Submerge instruments for 10 hours.
- High-level disinfectant: Submerge instruments for at least 45 minutes.

### Precautions

Use appropriate PPE and follow all OSHA guidelines.

- Ingestion: Contact with solution may cause irritation and possibly chemical burns.
- Eyes: Contact with solution may cause damage, including severe corneal injury, which could permanently impair vision. Vapors may cause a stinging sensation in the eyes.
- Skin: Direct contact with the solution may cause skin irritation or aggravation of existing dermatitis. Skin may turn yellow or brown, which is harmless.
- Inhalation: Vapor is irritating to the respiratory tract.
- Ventilation and skin and eye protection should be used.



## Biocide G30™ *Continued*



### Directions

1. The solution is ready to use.
2. Pour the solution into the disinfecting/sterilizing tub/tray directly from the gallon container.
3. Place a note on the container about when the solution was first used. Also make a note on the disinfecting/sterilizing tub/tray to indicate when the solution was first used.
4. Solution is active for 30 days.

## Birex™ SE



### Use

- Broad-spectrum cleaner and antimicrobial, intermediate-level disinfectant for hard surfaces

### Composition

- Phenylphenol
- Phosphoric acid

### Properties

- Complies with OSHA's BloodBorne Pathogen Standard and the CDC guidelines for intermediate-level disinfectants.
- 14-day shelf life (after mixing).
- Available in twenty-four 1/8-oz packets and spray bottle.

### Precautions

- Easy to store.
  - 10-minute disinfecting contact time.
  - Biodegradable.
- Use appropriate PPE and follow all OSHA guidelines.
- Concentrate is corrosive to tissues.
  - Dilution is slightly irritating to eyes.
  - Concentrate is severely irritating to skin and eyes.
  - It will cause an upset stomach.
  - Chemical is listed as a carcinogen or potential carcinogen.

## Birex™ SE *Continued*



### Directions

1. Fill water to the correct level in the quart spray bottle that comes with Birex.
2. Dispense one 1/8-oz packet into the water.
3. Label the spray bottle with the activation date.
4. Shake bottle slightly to evenly dispense the packet into the water.
5. It is ready to spray on hard surfaces for disinfecting in 10 minutes.

# CaviWipes 1™



## Use

- Surface disinfectant and cleaner

## Composition

- Isopropanol
- Ethylene glycol monobutyl ether
- Diisobutyl phenoxy ethoxy ethyl dimethyl benzyl ammonium chloride

## Properties

- Disposable towelettes presaturated with surface disinfectant.
- Available in individually wrapped towelettes, XL (three times larger), or a dispensing canister.

## Precautions

- Nonwoven, nonabrasive towels.
  - Recommended for all nonporous surfaces.
  - A wall mount for the canister is available.
  - 1- and 3-minute disinfectant available.
- Use appropriate PPE and follow all OSHA guidelines.
- Skin: Not considered an irritant.
  - Eyes: Contact with eyes can cause reversible damage.
  - Inhalation: May cause mild irritation.

## CaviWipes 1™ *Continued*



### Directions

1. Pop-up center-hinged plastic lid.
2. Towelettes can be dispensed as a single sheet by tearing at the perforated line or by taking as many as needed before tearing at the perforated line.
3. Use one towelette to preclean the surface of debris, then dispose of the towelette.
4. Use a second towelette to wipe nonporous surfaces to disinfect; leave surface wet for 1 to 3 minutes depending on surface contact disinfectant used.

## Cetylcide II



### Use

- Used as a broad-spectrum surface disinfectant and cleaner

### Composition

- Dual quaternary ammonium compound
- Sodium carbonate
- Tergitol NP-10
- Ethylenediaminetetraacetic acid

### Properties

- Environmental Protection Agency (EPA)–registered broad-spectrum disinfectant.
- Complies with OSHA's BloodBorne Pathogen Standard.
- Environmentally safe/biodegradable.
- Lemon-scented.
- Tip and pour bottle for easy mixing.
- Each quart yields 16 gallons of solution.
- Biodegradable detergent with cleaning properties.
- No alcohol, bleach, iodophor, phenol, or glutaraldehyde.

## Cetylcide II *Continued*



**Precautions** Use appropriate PPE and follow all OSHA guidelines.

- Eye: Corrosive and irritant; prolonged contact may cause corneal burns.
- Skin contact: Corrosive and irritant.
- Ingestion: May be fatal. Burning pain, swelling in digestive tract, paralysis, circulatory shock may occur.
- Inhalation: Will cause irritation of mucous membranes, coughing, and shortness of breath.
- Systemic and other effects: None reported.

### Directions

1. Fill measuring device with 1/2 oz of concentrate.
2. Dispense concentrate into 1-quart spray bottle that comes with the solution or obtained separately.
3. Fill the quart bottle with water.
4. One-step cleaning and disinfecting.
5. 10-minute disinfecting contact time.

## Coecide™ XL and Coecide™ XL Plus



### Use

- Used for sterilization, high-level disinfection, and intermediate-level disinfection

### Composition

- Coecide™ XL: 2.5% alkaline glutaraldehyde
- Coecide™ XL Plus: 3.4% alkaline glutaraldehyde

### Properties

- Corrosion inhibitor.
- Activator included.
- EPA-registered for use and reuse up to 28 days after activation.
- Can activate 1 quart at a time for economy.

### Precautions

- Sterilization: 10 hours at 25°C.
  - High-level disinfection: 90 minutes at 25°C.
- Use appropriate PPE and follow all OSHA guidelines.
- Acute and chronic: Avoid skin contact. Repeated contact with skin may cause sensitization in some people, resulting in allergic contact dermatitis. Moderate to severe irritation to skin, eyes, and mucous membranes. Low to mild irritation by inhalation. Toxic if ingested.
  - Ventilation and skin and eye protection should be used.



## Coecide™ XL and Coecide™ XL Plus *Continued*



### Directions

1. Open the container top on both the activator and the solution.
2. Pour the activator into the solution.
3. Place the top on the solution and mix slightly to incorporate the activator thoroughly. Dispense into disinfecting tub/tray.
4. Write on the bottle the date of activation and/or on the disinfecting tub/tray to note the active duration of 28 days at 25°C.

## MetriCide 28



### Use

- High-level disinfectant or sterilant on immersible instruments

### Composition

- 2.5% buffered glutaraldehyde

### Properties

- Attains an alkaline pH of between 7.5 and 8.5.
- Active up to 28 days at 25°C.
- Sterilization: 10 hours at 25°C.
- Disinfection: 90 minutes at 25°C.

### Precautions

Use appropriate PPE and follow all OSHA guidelines.

### Directions

- Skin: Mild to moderate irritation.
  - Eye: Direct contact can cause irritation.
  - Ingestion: Toxic.
  - Inhalation: Low or mild irritation.
1. No dilution.
  2. Place solution in the sterilizing/disinfecting tub/tray.
  3. Immerse instruments in the solution.
  4. Write the date of use on the disinfecting tray to note the active duration of 28 days at 25°C.

# Sporox II



- Use**
- Sterilizing and high-level disinfecting solution
- Composition**
- Active ingredient: hydrogen peroxide 7.5%
- Properties**
- Ready to use; no mixing or activation required.
  - No noxious odors.
  - Oxidizes away dental debris and contaminants.
  - High-level disinfecting: 30 minutes at 20°C.
  - Sterilization: 6 hours at 20°C.
  - May be reused for up to 21 days.
- Precautions**
- Use appropriate PPE and follow all OSHA guidelines.
  - Corrosive to eyes.

## Directions

- May be harmful or fatal if swallowed.
  - Do not get in eyes, on skin, or on clothing.
  - Use safety glasses and gloves.
1. Place the solution in sterilizing/disinfecting tub/tray. No activation is required.
  2. Immerse instruments in the solution.
  3. Sterilization: 10 hours at 20°C.
  4. Disinfection: 90 minutes at 20°C.
  5. Write the date of use on the disinfecting/sterilizing tray to note the active duration of 21 days.

## Procedure: Precleaning, Disinfecting, and Sterilizing Basic Dental Instruments



This procedure is performed by the dental assistant in the sterilization area. See Chapter 6 for cleaning, lubricating, and sterilizing handpieces and Chapter 7 for sterilization of burs.

- Equipment and Supplies**
- Ultrasonic unit ready with solution
  - Disinfecting solution in spray bottle mixed and ready
  - 4 × 4 and 2 × 2 gauze

## Procedure: Precleaning, Disinfecting, and Sterilizing Basic Dental Instruments *Continued*



### Directions

1. Review the Material Safety Data Sheet (MSDS) for all solutions.
2. Wear appropriate PPE.
3. Wash hands and pull on utility gloves.
4. Remove all disposable supplies and dispose of correctly in biohazard bag, sharps container, or nonregulated garbage can.
5. Submerge instruments in the ultrasonic solution for 2 to 10 minutes to removed biofilm.
6. While ultrasonic unit is running, use a surface disinfectant following manufacturer directions to disinfect tray, mats, material bottles, pens/pencils, and anything that cannot be placed in heat sterilization. All surfaces need to be sprayed and cleaned first, then wiped to remove debris. The surfaces are then sprayed a second time and the solution is left on surfaces for the time designated time by the manufacturer.
7. Once ultrasonic cleaning is complete, remove basket and rinse all instruments under warm water for 30 seconds.
8. Dispense instruments onto towel on the decontaminated area and pat dry.
9. Divide instruments for cold and heat sterilization as appropriate.
  - a. Place heat-sterilized instruments into the autoclave.
  - b. Place items that cannot be heat-sterilized into the cold sterile solution.
10. After the time has elapsed for spray disinfectant area, dry tray, mat, and any miscellaneous items used in procedure.
11. Disinfect all areas touched (control pads, counters, lids, etc.).
12. Remove glasses and mask, wash utility gloves, then remove utility gloves and wash hands.
13. Do not break aseptic technique.



# CHAPTER 2

## Disposables and Barriers



## Micro Applicator and Brushes



### Use

- To place etchants
- To apply bonding agents
- To apply primer
- To apply sealants
- To apply varnishes
- To apply hemostatic solutions
- To get into those hard-to-reach areas

**Properties** Plastic handles with micro ball end of nonabsorbent fiber or bristled tip brushes.

### Notes

- Instruments normally come with bendable neck to allow easy placement and precise application.
- Micro applicators are available in regular, fine, superfine, and ultrafine.
- Micro brush tips are available in fine or regular.
- Micro applicators and brushes are available in a variety of styles, sizes, and colors.
- Both micro applicators and brushes are disposable.



## Cotton Rolls and Cotton Pellets



### Use

**A.** Cotton rolls are used in all procedures:

- to dry an area,
- for isolation.
- to provide a rest for the evacuation tip.
- to apply topical anesthetic.
- To retract tissues.

**B.** Cotton pellets are used to:

- dry tissues and tooth structures.
- place dental materials, such as cavity varnish.

### Properties

Cotton rolls are made of super absorbent and nonlinting cotton. They are either smooth or braided with silky yarn. Cotton pellets are small balls of absorbent cotton. Both cotton rolls and cotton pellets come in several sizes.

### Notes

- Some cotton rolls are designed not to adhere to mucous membranes or sensitive tissues.
- Cotton rolls are available in different lengths and widths, both sterile and nonsterile.
- Cotton roll dispensers are available.
- Cotton pellets come in different sizes.
- Cotton pellet containers designed for easy dispensing are available.

## Cotton-Tipped Applicators



### Use

- To dry and remove debris from the oral cavity and the tooth
- To apply lip lubricant
- To apply topical anesthetic or medication

**Properties** Wood handles with tightly wrapped cotton tips.

### Notes

- Cotton-tipped applicators are available in 3-inch and 6-inch lengths.
- Some are sealed in autoclavable bags of 100 tips.
- These are disposable.

## Gauze Sponges



### Use

Gauze sponges have many functions, including their use in:

- Absorbing moisture.
- Retracting tissues such as the tongue, cheeks, and lips.
- Receiving debris or teeth/tooth fragments.
- Keeping instruments clean during a procedure.
- Applying pressure to a bleeding area.
- Disinfecting equipment, instruments, and the procedure area.

**Properties** Gauze sponges are folded pure virgin white cotton gauze; some are filled with 100 percent cotton fiber filling.

### Notes

- Gauze sponges are available in various sizes (e.g.,  $2 \times 2$ ,  $3 \times 3$ ,  $4 \times 4$ , and  $5 \times 5$ ), and they come filled and unfilled.
- Nonwoven sponges, which are made of a rayon/polyester blend, are also available. These sponges are softer, very absorbent, and are less adhesive to the wound. The unfilled sponges come in 4, 8, and 12 ply (layers).
- Both sterile and nonsterile gauze sponges are available. They are usually purchased by the case but also can be purchased in individual presterilized packets of two cotton-filled sponges.

## Face Masks and Shields Used in Dentistry



**Use** Face masks and shields are part of infection control techniques to prevent the spread of disease by protecting the dentist and dental auxiliary personnel from exposure to blood, debris, and dust while performing skills/tasks. Masks and shields also prevent cross-contamination between the dental team members and the patient.

**Properties** One-piece masks are made of soft white, 3-ply, fluid-resistant, nonwoven fabric made from polypropylene. There are inner and outer layers designed to resist moisture and to prevent irritation for sensitive skin. These masks are secured in place with elastic loops that fit around the ears or with ties that tie in the back of the head. Other masks are molded and are constructed of several layers of fluid-resistant material. Most masks have a flexible aluminum nosepiece that secures the mask around the nose to prevent safety glasses from fogging.

## Face Masks and Shields Used in Dentistry *Continued*



Disposable face shields are clear, distortion free, and fog free, and wrap around the face for protection. They are held in place by a soft or hard plastic headband.

- A.** Face masks in a variety of types, colors, and designs.
- B.** Face mask in place with eyewear.
- C.** Face mask in place with disposable face shield.

### Notes

- Face masks should be worn with a disposable face shield or eyewear.
- Face masks are disposable.
- Face shields are disposable.

## Protective Eyewear



### Use

Protective eyewear protects the eyes of the dentist, assistant, and patient from blood, saliva, and debris during dental treatment. Eyewear also offers protection from infectious diseases and aerosol droplets that may be transferred during treatment.

**Properties** Eye protection used in dentistry consists of eyeglass frames and lenses, which are usually made of lightweight plastic material.

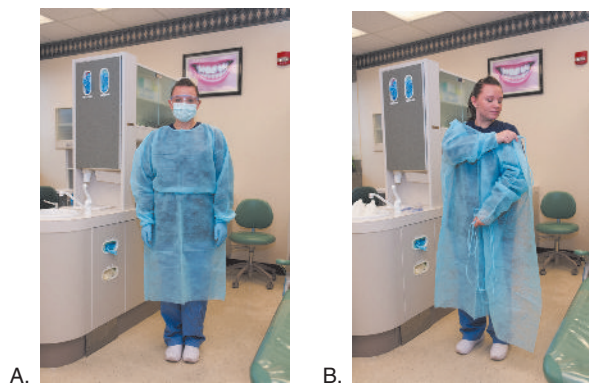
- A.** Examples of protective eyewear
- B.** Eyewear on dental assistant
- C.** Eyewear on dental assistant

### Notes

- Eyewear comes in many styles and colors and is often adjustable. All styles are designed to provide eye protection from the side, front, and top.

- Anti-fog products are available to minimize fogging. Eyewear can be run under warm water to reduce fogging.
- If glasses are worn, side shields (Figure C) or goggles can be worn over them to ensure protection.
- The lenses of some eyewear are amber, gray, or dark; such eyewear is worn when the curing light is used during a procedure.
- Preassembled disposable eye shields are available.
- Eyewear needs to fit properly and be comfortable so that it can be worn for long periods of time.
- Eyewear is meant to fit over the face mask.

## Protective Gowns



### Use

Gowns are used to cover clothing and protect from saliva, blood, debris, and fluids during dental treatment and sterilization procedures.

### Properties

Disposable gowns are made with polyethylene or polypropylene; have long sleeves, often with elastic or knit cuffs; and are constructed to fit closely around the neck. The length can be jacket length, at the knee, or longer.

- A.** Example of disposable protective gown that is knee length.
- B.** Example of a dental assistant placing a protective gown.

### Notes

- Gowns should be impervious to most liquids and aerosols.
- Gowns can be disposable or made from fabric for continued use.
- Both types are available in many colors and styles.
- Gowns should be changed daily or when contamination occurs.
- Gowns should be removed prior to leaving the dental office.

## Examination Gloves



Source: TunedIn by Western61/Shutterstock.com

### Use

Gloves are used as a barrier against microorganisms. Gloves are worn to protect dental team members from contact with saliva, blood, and debris.

### Properties

Examination gloves are made of several types of materials, including latex, nitrile, and vinyl. Gloves fit either the right or left hand and are powder free. They come in a variety of sizes, from extra small through extra large.

- A.** Vinyl gloves
- B.** Latex examination gloves
- C.** Colored nitrile examination gloves
- D.** Surgical gloves

### Notes

- Some gloves are scented, and some offer more tactile sensitivity and a nonslip grip on the fingertips.
- Nitrile and vinyl gloves are designed for dental assistants and for use with patients with latex sensitivity or allergies.
- Gloves are available in nonsterile (worn for most dental treatment) and sterile (for surgical treatment) types.
- Gloves are worn over the cuffs of the protective gown.
- Gloves are purchased in boxes of 100.
- If gloves are penetrated or torn, or if the user leaves the area, the gloves should be removed, hands washed, and new gloves placed before treatment continues.



## Overgloves and Utility Gloves



A.



B.



### Use

Overgloves are used to prevent cross-contamination. They are worn over examination gloves or alone when something outside the treatment area needs to be handled. An example would be holding a patient chart or if the assistant needs to retrieve an instrument from another area.

Utility gloves are used when disinfecting the dental unit and in the sterilizing area when cleaning and preparing instruments and trays for sterilization.

**Properties** A. Overgloves are clear polyethylene gloves that are sometimes textured. They are nonsterile.

### Notes

- B. Utility gloves come in a variety of colors and sizes to fit the left and right hands. They are one-piece, heavy-duty vinyl/ nitrile gloves that can be sterilized.
- Overgloves come in a box or bag of 100 or more. They are often referred to as food-handler gloves. They are available in numerous sizes.
  - The fingers of utility gloves are textured to prevent slippage. They are puncture- and chemical-resistant. Each individual should have his or her own gloves. They need to be used not only when handling contaminated instruments, but also when performing housekeeping tasks involving contact with blood or other potentially infectious materials (OPIM). They should be washed thoroughly after each use.

# Mouth Props



A.



B.



C.



D.



## Use

Props are used to assist the patient in keeping his or her mouth open during treatment.

## Properties

Mouth props are one-piece, wedge-shaped structures designed to fit the oral cavity. They may be made of rubber, plastic, or Styrofoam.

- A.** Styrofoam disposable mouth prop
- B.** Mouth prop in patient's mouth with ligature attached
- C.** Variety of sizes and colors of mouth props
- D.** Rubber bite block (prop)

## Notes

- Mouth props are placed in the posterior space between the maxillary and mandibular teeth.
- They are available as disposable or autoclavable items.
- They come in a variety of colors and sizes, from pediatric to adult.
- They are used often for sedated patients.
- For patient safety and to prevent choking, a ligature should be tied to the mouth prop.

## Cotton Roll Holders and Dry Angles/Dry Aids



A.



B.

Source: <https://www.practicon.com/garmer-cotton-roll-holder/p/7125010>



C.



D.



### Use

Cotton roll holders are used to hold cotton rolls on buccal and lingual surfaces of the teeth in a specific area on the mandibular arch. They are also used to isolate, retract, and hold cotton rolls to keep an area dry.

Dry angles/dry aids are used to keep the mouth dry by covering the Stensen's (parotid) duct to restrict the flow of saliva. They absorb saliva and keep the working area dry. They also protect the cheek during dental treatment.

The backing on some dry angles reflects light to improve visibility.

- Properties**
- A.** A cotton roll holder is a one-piece plastic device with two clamps sized to hold a cotton roll connected with a flexible bow.
  - B.** Garmer cotton roll holders are smooth polished steel that keep cotton rolls in place; a sliding chin strap keeps the holder in place.
  - C.** Dry angles/dry aids are thin absorbent wafers/pads. They are angular in shape, with one side made of absorbent cotton and the other side consisting of moisture-proof backing. Some have a silver backing that reflects light into the oral cavity.
  - D.** Dry Angles in a patient mouth

## Cotton Roll Holders and Dry Angles/Dry Aids *Continued*



### Notes

- Cotton roll holders may be disposable or Garmer clamps made of stainless steel can be sterilized. They are available in different sizes and colors.
- Dry angles restrict the flow of saliva from the parotid gland for up to 15 minutes. They are considered a cotton roll substitute.
- Dry angles are ideal for bonding procedures, sealant application, placement of restorations, and cementation.

## Patient Bibs and Bib Holders



A.



B.



### Use

- Bibs cover the patient to protect against moisture and debris. Bib clips hold the bib in place.

**Properties** Patient bibs are two- or three-ply tissue with poly backing. Bib holders have two clips connected by a tube, strip, chain, or coiled expandable plastic.

- A.** Patient disposable bibs and disposable bib holders
- B.** Disposable bib with bib clips

### Notes

- Patient bibs come in a variety of sizes and contours, and are disposable.
- They may be purchased in many colors and printed designs with different features.
- Some bibs come with adhesive tabs so that bib clips are not required to secure the bib on the patient.
- Bib clips can be disposable, disinfected, and/or autoclavable.

## Tray Covers



### Use

Tray covers are used to cover the trays that are used to hold dental instruments, supplies, and materials used for a specific procedure; they protect the tray from moisture/liquid that may be produced during a procedure.

### Properties

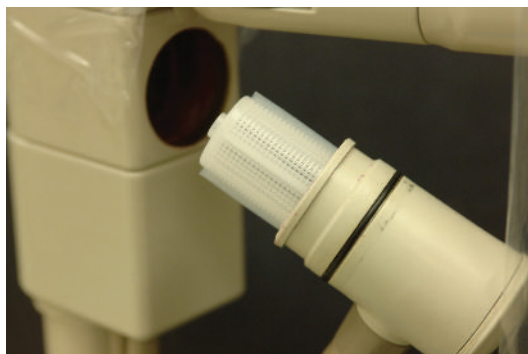
Made from heavyweight paper or a polyethylene-backed paper

- A. Plastic tray barriers: A plastic envelope that the tray is inserted into
- B. Paper tray covers: Low absorbency tray covering to place instruments onto

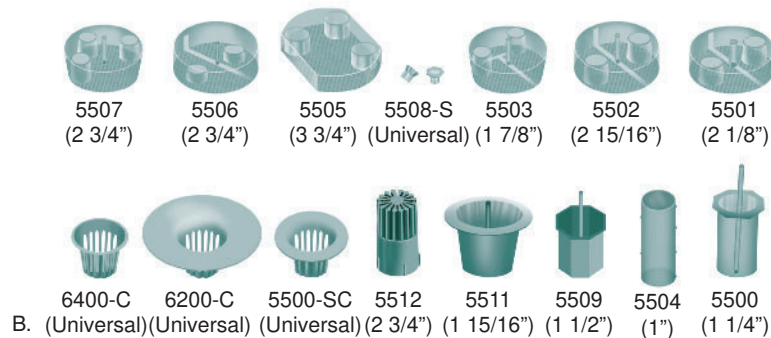
### Notes

- Tray covers come in many sizes to cover all sizes of trays.
- Tray covers come in many colors and several designs.
- Some offices use tray covers on the counter or cart without a tray.
- Tray covers impede the flow of moisture and protect the surface.
- Plastic tray barriers are available for increased aseptic technique.

## Traps, Screens, and Filters



A.



B.

Source: [https://www.bing.com/images/search?view=detailv2&ccid=yf1Y6xp8&id=6616DF4AF117A1B55F160ED24A40EC5738EDB0&thid=OIP\\_yf1Y6xp8Q0\\_qotzFLhPYAhaCx&mediaurl=https%3a%2f%2fwww.amtouch.com%2fimages%2fSTC-D001.jpg&expw=150&expw=400&q=evacuation+filters&simid=608005148628091283&ck=6217D1BD22B0EA4146CE863ECA6D7EF3&selectedIndex=0&FORM=RPRI&ajahist=0](https://www.bing.com/images/search?view=detailv2&ccid=yf1Y6xp8&id=6616DF4AF117A1B55F160ED24A40EC5738EDB0&thid=OIP_yf1Y6xp8Q0_qotzFLhPYAhaCx&mediaurl=https%3a%2f%2fwww.amtouch.com%2fimages%2fSTC-D001.jpg&expw=150&expw=400&q=evacuation+filters&simid=608005148628091283&ck=6217D1BD22B0EA4146CE863ECA6D7EF3&selectedIndex=0&FORM=RPRI&ajahist=0)

### Use

- Traps, screens, and filters are used to catch debris from the saliva ejector and high-volume evacuation (HVE) systems.
- They keep evacuation systems from becoming clogged with debris, which would reduce efficiency during a procedure.

### Properties

- Traps, screens, and filters are usually one-piece plastic devices designed to adapt to the different types of dental equipment.
- They are ordered by unit type and system used.

### Notes

- A.** High-volume disposable trap. Shown is the disposable trap removed from the dental unit for replacement.
- B.** Variety of high-volume disposable traps. The image shows multiple traps available; their use depends on the practice's dental unit.
- Traps, screens, and filters come in many shapes, sizes, and designs.
- Traps, screens, and filters are disposable in biohazard containers.