Support Equipment

The physical aspects of today’s dental practice are quite complex. A lot of equipment and other items are needed in the office not only to support the treatment of patients but also to keep all patients and employees safe during normal and emergency situations. The term “support equipment” may be defined in different ways, but this article considers support equipment as items other than the dental chair/light, handpiece units and hand instruments. Examples include equipment needed to:

- reprocess contaminated instruments (e.g., sterilizers, cleaners);
- operate high-speed handpieces and 3-way syringes (e.g., air compressor);
- provide good quality water for the handpieces and 3-way syringe (e.g., water treatment systems);
- provide vacuum (e.g., vacuum pump);
- take, develop, record and view radiographs (e.g., x-ray equipment, darkroom apparatus, view boxes, computers);
- enhance vision (e.g., loupes (see Glossary), microscopes);
- document cases (e.g., regular and intraoral cameras);
- take patient records (e.g., face bows, articulators);
- maintain patient records, appointment schedules, insurance/billing information (e.g., computers, printers, fax);
- administer sedation and monitor body responses (e.g., nitrous oxide (NO₂) system, (see Glossary), nitrogen tank);
- cure resins (e.g., curing lights);
- adjust or prepare appliances and prostheses (e.g., dental lathe);
- take blood pressure (BP cuff); and
- provide emergency care (e.g., oxygen, resuscitation bag, automated external defibrillator - AED (see Glossary)).

Not all of the support equipment mentioned requires routine infection control procedures during use. For example, the vacuum pump, air compressor, and sterilizer are necessary equipment but usually do not become contaminated with patient materials and are not normally handled with patient-contaminated gloves. On the other hand, some support equipment becomes contaminated with...
Support Equipment

continued from front cover

every use through direct contact with patients or through indirect contact with contaminated gloves or other items.

The infection control aspects of using support equipment depend upon several factors including:

Š the equipment manufacturer's directions for preventing contamination or for decontamination (see Glossary);

Š when and how the equipment becomes contaminated;

Š the ability of the equipment to withstand heat sterilization or sterilization with a liquid sterilant;

Š whether the equipment can be protected with a surface barrier.

So the general options for equipment asepsis are to:

• discard after a single use;

• protect from contamination;

• clean and sterilize;

• clean and disinfect (see Putting It All Together on pages 4-5).

Safety support items

Numerous other items are needed to support patient and employee safety in the office such as medical emergency kits; MSDS files; fire extinguishers; emergency exit plans and signs. Keeping these items updated and making sure all employees know where to find these things are very important.

— OSAP

Safety Challenge

Copy this page and ask each staff member to take this quiz.

Where are these items in your office? List the location of each below.

FIRST AID KIT

FIRE EXTINGUISHER

EXIT PLAN

MSDS

Infection Control in Practice is a resource prepared for clinicians by the Organization for Safety & Asepsis Procedures with the assistance and expertise of its members. OSAP is a nonprofit, independent organization providing information and education on infection control and occupational health and safety to dental care settings worldwide. Infection Control in Practice is published six times per year and is a trademark belonging to OSAP. OSAP assumes no liability for actions taken based on information herein.

Contents of this issue copyright © 2008 by OSAP. All rights reserved under international and Pan-American copyright conventions.

Printed in U.S.A. Reproduction in whole or in part is forbidden without prior written permission. Back issues are available for a small fee. Send requests for permissions, purchases of back issues and address changes to OSAP, P.O. Box 6297, Annapolis, MD 21401 or office@osap.org.
Some patients may be curious about the workings of a dental office. Also young or first time patients will hear “unusual” noises (e.g., vacuum pumps, air compressors, high-speed handpieces, ultrasonic scalers, beeps, buzzers, etc). So be ready to explain about the office equipment to calm their nerves or answer questions.

• Give special consideration to children; allow the young patient to first hear the noise from the particular piece of equipment and describe it, before using it intraorally.
## Asepsis suggestions for some support items

- **X-ray head**: Use a fresh plastic cover or clean and disinfect with each patient.
- **X-ray controls**: Use a fresh plastic cover with each patient.
- **Darkroom apparatus**: Do not take contaminated items into the darkroom. Use plastic covers for the film packets to prevent their contamination and remove the covers without touching the film packets before taking into the darkroom.
- **Daylight loaders**: Do not contaminate them. Remove contaminated gloves before using. The sleeves cannot be disinfected.
- **X-ray view boxes**: Don’t contaminate them. If accidentally contaminated, clean and disinfect.
- **Computers**: Do not contaminate them. Remove contaminated gloves before use. Also avoid getting glove powder on these items. Alternatively, use a plastic surface cover or disinfectant wipes. Do not spray or submerge in a disinfectant. A study has shown that computer keyboards can be decontaminated using disinfectant wipes (e.g., alcohol-quats). In this study wiping 300 times did not affect the physical nature of the keys. Touch-screens should be cleaned following the manufacturer’s directions. This usually involves wiping with a soft cloth and a recommended cleaning solution not allowing the cleaning solution to get inside the unit. Wipe dry with a clean soft cloth.
- **Cameras**: Most, if not all, intraoral cameras cannot be heat sterilized or exposed to chemical germicides. However, the lens/handpiece can be protected with a clear plastic sheath to prevent contamination. Regular cameras should not be touched with contaminated gloves/hands for it’s difficult to cover them and they cannot be disinfected. Also avoid getting glove powder on these items.
- **Chairside microscope**: Do not contaminate. Do not handle with contaminated gloves and avoid contact with glove powder. Plastic barriers can be used over most parts. Keep dust-free by covering when not in use.

---

### Options for Equipment Asepsis

**Equipment that has direct patient contact** (e.g., intraoral cameras, NO₂ masks)
- If the item is not disposable, consider using a plastic surface cover over those parts of the equipment that contact the patient (e.g., digital x-ray sensor, intraoral camera) to prevent contamination.
- If a surface cover interferes with operation or use of the equipment, consider cleaning and heat sterilizing after each use.
- If it cannot be heat sterilized, consider not using the equipment or sterilize it with a liquid chemical sterilant/high level disinfectant (if allowed by the manufacturer) and rinse thoroughly. If it cannot be covered or sterilized, don’t use the item.

**Equipment that does not contact the patient but can become contaminated indirectly** (e.g., x-ray head and controls, cameras, lab equipment)
- If it becomes contaminated via handling with contaminated hands, cover with a plastic barrier, use fresh gloves to handle, use overgloves or clean and disinfect.
- A listing of some EPA-registered germicides as of June 30, 2008 is available.

---

*Asepsis suggestions for some support items continued on page 5*
Putting It All Together continued...

continued from page 4

• Curing lights: Avoid their contamination by protecting with a plastic surface cover. Disinfecting these may cause serious damage.

• Nitrous oxide systems: Disposable nasal hood or disposable hood liners are available. Some are also autoclaveable. Reduction of ambient nitrous oxide through system maintenance, scavenging, ventilation, use of the minimal effective dose, and patient management is critical to maintaining the lowest practical levels in the dental environment. More information on nitrous oxide is available4.

• Emergency equipment: Oxygen masks and resuscitator bags should be kept dust free in plastic bags during non-use.

• Dental laboratory equipment: The best approach to laboratory asepsis is to clean and disinfect impressions, prostheses and appliances before taking them into the lab so they will not contaminate lab equipment. Disinfect the lathe (e.g., two times a day). When lathe polishing, use a separate, disposable Styrofoam or plastic pan liner for each case. Also use fresh pumice for each case. Stones, rag wheels and bands can be sterilized or disinfected or discarded between cases. Many polishing attachments for handpieces (such as brushes, cups and wheels) are disposable. If attachments are not disposable (e.g., some burs, stones, polishing points), sterilize or disinfect between cases according to the manufacturer’s directions.

Get staff members involved:
Make a copy of the checklist below, and “clip and save” as a discussion guide for an upcoming staff meeting to review asepsis procedures for safety and support equipment.

<table>
<thead>
<tr>
<th>SAFETY &amp; SUPPORT EQUIPMENT ASEPSIS CHECKLIST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Safety Equipment</strong></td>
</tr>
<tr>
<td>• Have you reviewed your office safety procedures recently?</td>
</tr>
<tr>
<td>• Have you recently checked that the safety equipment listed below is up to date and accessible?</td>
</tr>
<tr>
<td>- First Aid Kit</td>
</tr>
<tr>
<td>- Fire Extinguisher</td>
</tr>
<tr>
<td>- Emergency Exit Plan</td>
</tr>
<tr>
<td>- MSDS sheets</td>
</tr>
<tr>
<td><strong>Support Equipment</strong></td>
</tr>
<tr>
<td>• Have you recently reviewed asepsis procedures with staff for the office support equipment listed below?</td>
</tr>
<tr>
<td>- AED device</td>
</tr>
<tr>
<td>- Camera and accessories</td>
</tr>
<tr>
<td>- Chairside microscope</td>
</tr>
<tr>
<td>- Computer and keyboard</td>
</tr>
<tr>
<td>- Curing lights</td>
</tr>
<tr>
<td>- Darkroom</td>
</tr>
<tr>
<td>- Daylight loader</td>
</tr>
<tr>
<td>- Dental lab lathe</td>
</tr>
<tr>
<td>- Intra-oral cameras</td>
</tr>
<tr>
<td>- Nitrous oxide equipment</td>
</tr>
<tr>
<td>- Oxygen masks</td>
</tr>
<tr>
<td>- Resuscitation bag</td>
</tr>
<tr>
<td>- Vacuum line equipment</td>
</tr>
<tr>
<td>- X-ray head or sensors</td>
</tr>
<tr>
<td>- X-ray controls</td>
</tr>
<tr>
<td>- X-ray view boxes</td>
</tr>
<tr>
<td>- Other (unique to your practice)</td>
</tr>
</tbody>
</table>

Get staff members involved:
Make a copy of the checklist below, and “clip and save” as a discussion guide for an upcoming staff meeting to review asepsis procedures for safety and support equipment.

With permission from: Miller CH. Lab savvy.
Automated external defibrillator - AED: This is a portable electronic device placed on the patient's chest that automatically diagnoses the potentially life threatening cardiac arrhythmias of ventricular fibrillation and ventricular tachycardia and is able to treat them through defibrillation, the application of electrical therapy which stops the arrhythmia, allowing the heart to reestablish an effective rhythm.

Decontamination: Process or treatment that makes a piece of equipment, instrument or environmental surface safe (that is, no longer capable of transmitting a disease) to handle, use, or discard.

Digital x-ray sensor: This takes the place of x-ray film. Upon exposure it sends a digital image to a computer for viewing, storage and manipulation.

Loupes: Magnifying eyeglasses with side shields for eye protection.

Nitrous oxide: This is a gas (commonly referred to as laughing gas) that is used for inhalation sedation.

Resuscitation bag: This is a "squeezable" air bag with a mask that eliminates mouth-to-mouth contact during CPR.

Links to Resources


Stay ahead of your game!

Visit the OSAP website for daily and weekly updates on infection control and safety issues that can impact your world. This online feature is another benefit of your OSAP membership.

1. Login to www.osap.org as a member.
2. Go to “Member Advantage > IC Safety > In the News”(weekly) or “Monthly News Summaries”

“You can see a lot just by observing.”
— Yogi Berra
If you wish to obtain one (1) hour of continuing education (CE) credit, complete the following test and fax or mail it to the OSAP Central Office for grading. Please include a check or credit card to cover the appropriate fee as indicated below. Pending satisfactory results (at least seven out of ten), you will be issued a letter for one (1) CE credit hour. OSAP is recognized by the American Dental Association as a CERP Provider. For more information, call OSAP at 800-298-6727 (410-571-0003).

For each question, pick the best answer.

1. An example of support equipment that is used to operate a high-speed dental handpiece:
   a. is a vacuum pump.  
   b. are loupes. 
   c. is a laser. 
   d. is an air compressor.

2. The most important thing about decontaminating equipment is:
   a. following the manufacturer’s directions. 
   b. to first clean it with alcohol. 
   c. use a low-level disinfectant.  
   d. to use undiluted sodium hypochlorite.

3. All of the following pieces of support equipment directly contact the patient except one. Which one is the exception?
   a. Digital x-ray sensor 
   b. Dental lathe 
   c. Blood pressure cuff 
   d. NO₂ nasal hood

4. None of the following pieces of equipment directly contact the patient except one. Which one is the exception?
   a. Chairside microscope 
   b. Vacuum pump 
   c. Automatic external defibrillator 
   d. Air compressor

5. A resuscitation bag:
   a. is a new type of high-volume evacuator. 
   b. is a special type of sterilization packaging material. 
   c. is used during CPR to assist a person’s breathing without mouth-to-mouth contact. 
   d. is a special reusable solid waste disposal container.

6. What is the best way to manage the asepsis of an intraoral camera?
   a. Sterilize it in a steam sterilizer after use on each patient 
   b. Sterilize it in a dry heat sterilizer after use on each patient 
   c. Wipe it down with a high-level disinfectant/sterilant after use on each patient 
   d. Cover it with a clear plastic sheath to prevent it from becoming contaminated during use

7. What is the best approach to laboratory asepsis?
   a. Decontaminate items (impressions, appliances, prostheses) before they are taken into the in-office lab 
   b. Heat sterilize lab equipment after use on each case 
   c. Spray all lab equipment with a low-level disinfectant after use on each case 
   d. Submerge all lab equipment in a high-level disinfectant/sterilant after use on each case

8. Computer keyboards are best decontaminated by:
   a. submerging it in a liquid sterilant for 30 seconds and letting it dry. 
   b. using a disinfectant wipe. 
   c. spraying it with an intermediate-level disinfectant and letting it dry. 
   d. cleaning with a sponge saturated with soap and water.

9. Contamination of darkroom equipment is best prevented by:
   a. soaking the exposed film packets in hydrochloric acid. 
   b. wiping with a sponge saturated with water. 
   c. autoclaving the film packets before taking them into the darkroom. 
   d. protecting the film packet with a plastic cover before placing it in the patient’s mouth and removing the cover before taking it into the darkroom.

10. Contaminated equipment that needs to be serviced must:
    a. be decontaminated by office staff, and any parts that cannot be decontaminated must be identified with labels. 
    b. be covered with a plastic environmental barrier by the office staff until being shipped for repair or until the service technician arrives. 
    c. be disassembled by office staff so the service technician can thoroughly disinfect it. 
    d. not be decontaminated before being serviced for fear of further damaging it before repair.

Mail or Fax completed test with the appropriate payment to receive one (1) hour of continuing education credit.

Your Name: ____________________________  OSAP Member Name: ____________________________  (If different)

Address: ____________________________  street  ____________________________  city/state  ____________  zip code  ____________  country

☐ VISA  ☐ MASTERCARD  ☐ CHECK ENCLOSED  Fee: ☐ OSAP MEMBER, $15  ☐ NONMEMBER, $20

Name on Card: ____________________________  Card Number: ____________________________

Expiration Date: ____________________________  Signature: ____________________________
Of course maintaining the office equipment is very important. These tips may help you prepare for those unexpected equipment problems that can stop or interfere with patient care. Sooner or later equipment will fail, so it is always better to have a plan in place when this happens.

Make sure there are operating/maintenance manuals for the equipment, and that someone in the office performs any necessary routine maintenance (e.g., periodically cleaning the autoclave drain).

Ideally a maintenance log should be kept to document service on each equipment item.

Review the warranty period on all equipment; when this expires, a preventive maintenance contract may be desirable.

Review all preventive maintenance contracts to determine renewal consideration dates.

Confirm radiographic equipment certification dates.

Make a list of contact information for all equipment repair/service technicians. Be sure to update this list when new equipment is purchased.

Determine where replacement equipment (e.g., a sterilizer) can be obtained when the primary equipment fails.