# Dental Lab Has Many Potential Contamination Sources

*Potential Sources for Cross-Contamination in the Dental Lab.*

Jennifer A. Harte, DDS, MS, and John A. Molinari, PhD

-*Special Presentation;* ():

Most items requiring infection control in the dental lab originate in the dental operatory or are returned to the operatory from the lab. Cleaning, disinfection, and sterilization result in a product that can be safely handled.

The dental lab has many potential sources of contamination. Potential sources for cross-contamination include dental prostheses, appliances, and any item used in fabrication, such as impressions, occlusal rims, and bite registrations. Therefore, these items should be handled in a manner to prevent exposure of the dental staff, patients, or the office environment to infectious agents. Also, there can be case-to-case transfer in the lab or the lab area by surface contact, handpieces, burrs, pumice pans, aerosols, dust, and unwashed hands. Patients can be at risk due to potential cross-contamination between prostheses and appliances worked on in the lab. Overall, very few pieces of equipment are unique to the dental lab, and most items requiring infection control in the dental lab originate in the dental operatory or are returned to the operatory from the lab. For example, dental impressions may be contaminated with saliva and blood. Prostheses and appliances go from the lab to the operatory and back again during the fitting process of construction. Patient prostheses and appliances requiring lab repair are often grossly contaminated. Infection control procedures help reduce the spread of pathogenic microorganisms by breaking the chain of infection during vital periods in the fabrication, repair, and delivery of prostheses. In summary, cleaning, disinfection, and sterilization result in a product that can be safely handled by lab personnel and office staff. This is basically an extension of routine cleaning, sterilization, and disinfection recommendations that have been established for dentistry in general. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Dental Lab Asepsis

**print tag:** ()

# Early Disinfection Reduces Contamination Risk for Lab Equipment

*Prevent Contamination by Cleaning, Disinfecting, and Sterilizing Items Entering Dental Lab.*

Jennifer A. Harte, DDS, MS, and John A. Molinari, PhD

-*Special Presentation;* ():

Early disinfection makes handling items entering the dental lab safer and greatly reduces the chances of transferring contamination to lab equipment, which is often difficult to clean and disinfect.

Dental prostheses, appliances, and any item used in fabrication are potential sources of contamination in the dental lab. These items should be cleaned, disinfected, and sterilized in a manner to prevent exposure of office staff and patients to infectious agents. Depending on the amount of contamination or the task being performed, personal protective equipment (PPE), such as gloves, masks, protective eyewear, and gowns, is indicated just as in the operatory. In the dental lab following disinfection and sterilization, most items can be handled as noninfectious if separate clean work areas are available. Bringing contaminated items and materials into the dental lab increases the potential for cross-contamination. Therefore, clean and disinfect all items before they are brought into the lab or the lab area or before shipping them to the commercial lab. Early disinfection makes handling the items safer and greatly reduces the chances of transferring contamination to lab equipment, which is often difficult to clean and disinfect. Following decontamination of lab items, some type of lab gown or coat is still recommended in the work area to protect employees' clothes. In the dental lab, other barriers are often required as safety precautions to protect lab technicians. PPEs are often necessary more for safety than for infection control in the lab. For example, whenever rotary equipment is used, the risk of exposure to aerosol spatter and projectiles is increased. Therefore, protective eyewear with solid side shields and a mask would be indicated. Preventing macroscopic injury (solid particles and projectiles injuring the lab technician) is as important as preventing microscopic exposures to various contaminants. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Dental Lab Asepsis

**print tag:** ()

# Special Precautions Needed When Handling Lathe, Pumice

*Special Safety and Infection Control Precautions Needed for Dental Lathes, Pumice, and Rag Wheels.*

Jennifer A. Harte, DDS, MS, and John A. Molinari, PhD

-*Special Presentation;* ():

To decrease the potential spread of microorganisms via pumice, dispense only the amount of material needed to accomplish the procedure and then dispose of the unused portion when finished.

Some dental labs have lathes to make adjustments on prostheses. A few special safety or infection control precautions should be followed when using this equipment. When operating a dental lathe, the opportunity exists for injury and the spread of infectious microorganisms from the rotary action of the wheel, stones, and bands. Therefore, protective eyewear, a safety Plexiglas shield on the front of the lathe, and an adequate ventilation system are recommended. Use of a mask is highly recommended, as well. If gloves are worn when operating the lathe or any rotary equipment, extreme caution is indicated to avoid getting the gloves caught in the equipment. The risk of infection when handling contaminated items is considered greater than the physical hazard presented by the lathe. Therefore, gloves should be worn when necessary, and appropriate caution should be exercised when using the lathe. In the dental lab, the pumice used to polish appliances, prostheses, and other items is particularly susceptible to contamination with microorganisms because of the warm and wet environment. To decrease the potential spread of microorganisms, pumice can be mixed with clean water in a diluted 1:10 bleach solution (or another appropriate disinfectant) and then changed when contaminated or at least daily. An even better idea to minimize cross-contamination is to dispense the pumice in unit doses for each case - to dispense only the amount of material sufficient to accomplish the procedure and then dispose of the unused portion when finished. Rag wheels should be cleaned and disinfected daily, at a minimum, but heat sterilization is preferred. The pumice or polish machine should be cleaned and disinfected daily, at a minimum, according to the manufacturer's directions. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Dental Lab Asepsis

**print tag:** ()

# Contaminated Impressions Transmit Microbes to Casts

*Disinfecting Impressions and Other Items Before Shipping to Commercial Lab.*

Jennifer A. Harte, DDS, MS, and John A. Molinari, PhD

*-Special Presentation;* ():

Microorganisms can be transferred from contaminated impressions to dental casts, and certain microbes have been demonstrated to remain viable within a gypsum cast material for up to 7 days.

A dental office should clean and disinfect an impression or some other item before shipping it to a commercial dental lab. Microorganisms can be transferred from contaminated impressions to dental casts, and certain microbes have been demonstrated to remain viable within a gypsum cast material for up to 7 days. Incorrect handling of contaminated impressions, prostheses, or appliances, therefore, offers an opportunity for transmission of microorganisms. Therefore, personal protective equipment (PPE) should be worn until disinfection is completed, whether in the office or the laboratory. Dental impressions were one of the first laboratory items to be considered contaminated and a potential infection control problem. However, the first extensive study on disinfecting impressions was not published until 1981. Traditionally, impressions were rinsed under running water only after being removed from the mouth to visibly eliminate the saliva and blood. Although rinsing significantly reduces the number of microorganisms, in most cases it does not decontaminate the impression. However, chairside rinsing of the impressions or other lab items remains the first step in a successful infection control program for the lab. Many studies have been performed to evaluate the effects of various disinfectants on different types of impression materials. However, only a few studies have evaluated the effectiveness of disinfecting impressions, so current recommendations are based on results extrapolated from the efficacy of disinfectants on other surfaces. In general, select a disinfectant with a short contact time to minimize distortion and deterioration of surface quality of the resulting stone cast. In summary, to clean and disinfect an impression or another item, such as a bite registration or a wax occlusal rim, first rinse it under running tap water to remove any blood and saliva. Then, according to the manufacturer's instructions, disinfect the impression using an intermediate-level (tuberculocidal) disinfectant registered by the Environmental Protection Agency. Finally, after the recommended contact time, rinse the item thoroughly with tap water to remove any residual disinfectant. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Dental Lab Asepsis

**print tag:** ()

# Porous Nature of Acrylic Makes Adequate Disinfection Difficult

*Use of Disinfectants to Decontaminate Acrylic Surfaces.*

Jennifer A. Harte, DDS, MS, and John A. Molinari, PhD

*-Special Presentation;* ():

Dentures or other acrylic appliances that require repair should be cleaned and disinfected before handling. Even after disinfection, wear gloves and handle these items as if they are contaminated.

In the dental lab, disinfectants are used to decontaminate various items such as impressions. Reports have been published regarding the effects of disinfectants on different dental lab materials, such as acrylic items. The porous nature of the acrylic makes it difficult to adequately disinfect these items. Dentures or other acrylic appliances that require repair should be cleaned and disinfected before handling, but they should be handled as contaminated. Therefore, wearing gloves while handling them, even after disinfection, is recommended. It is also recommended that these acrylic items undergo another round of disinfection after any adjustments, such as grinding. To accomplish subsurface disinfection of acrylic items, the process is a little different than for disinfecting an impression. Place the acrylic item in a resealable plastic bag containing an intermediate-level disinfectant, and then place it in an ultrasonic cleaner for the recommended contact time of the disinfectant. It is important to note that denture cleaners and cleaning agents made for ultrasonic cleaners in the dental office cannot substitute for appropriate disinfection. An intermediate-level disinfectant must be used. In the United States, disinfectants are regulated by the Environmental Protection Agency (EPA) and by the Food and Drug Administration. According to the Centers for Disease Control and Prevention, any EPA-registered disinfectant without tuberculocidal activity is considered a low-level disinfectant, and any EPA-registered disinfectant with tuberculocidal activity is an intermediate-level disinfectant. All EPA-registered disinfectants carry a warning on their labels stating: "It is a violation of federal law to use this product inconsistent with its labeling." Therefore, all directions and safety precautions listed by the manufacturer must be followed carefully. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Dental Lab Asepsis

**print tag:** ()

# Sterilization of Dental Items Enhances Infection Control Program

*Disinfection and Sterilization of Lab Equipment, Burrs, Impression Trays, and Environmental Surfaces.*

Jennifer A. Harte, DDS, MS, and John A. Molinari, PhD

*-Special Presentation;* ():

Dental items that ultimately come in contact with mucous membranes require sterilization. However, routine heat sterilization of heat-tolerant items enhances the overall lab infection control program.

For the dental lab, there are recommendations and protocols for the disinfection and heat sterilization of lab equipment, burrs, impression trays, and environmental surfaces. In most cases, intermediate-level disinfection (a disinfectant with tuberculocidal activity registered by the Environmental Protection Agency) is sufficient for decontaminating items handled in the dental lab. The primary concern is preventing exposure of employees to infectious microorganisms and the cross-contamination of cases being processed. Only items that ultimately come in contact with mucous membranes require sterilization. However, routine heat sterilization of items that can withstand heat enhances the overall lab infection control program and further reduces the potential for cross-contamination. Items that require heat sterilization include metal impression trays, facebow forks, orthodontic pliers, burrs, and polishing points. By following the procedure of disinfecting items before they are brought into the lab, such as impressions or partial dentures needing repair, the need to disinfect or sterilize burrs, polishing points, rag wheels, or lab knives after every case is eliminated. However, if lab items, such as burrs, rag wheels or lab knives, are used on contaminated or potentially contaminated appliances, prostheses, or other materials, then they should be cleaned and heat sterilized between cases. Items that cannot withstand heat sterilization, such as case pans, articulators, or lathes, should be cleaned and disinfected according to the manufacturer's instructions. However, any heat-tolerant item destined for intraoral use must be cleaned and heat sterilized before reuse. Surface cleaning and disinfection procedures are similar for environmental surfaces in the dental lab and those in the dental operatory. Using disposable surface barriers is an acceptable alternative for an environmental surface or equipment when contamination is anticipated, similar to use of these barriers in the dental operatory. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Dental Lab Asepsis

**print tag:** ()

# Little Regulated Medical Waste Generated in Lab

*Accumulation and Handling of Dental Lab Waste.*

Jennifer A. Harte, DDS, MS, and John A. Molinari, PhD

-*Special Presentation;* ():

Overall, very little regulated waste is generated in a dental practice. Nonetheless, some dental offices and labs are placing large volumes of general waste in boxes and sending them off to medical waste haulers.

In the dental lab, an important consideration is the accumulation and handling of laboratory waste. Overall, very little regulated waste is generated in a dental practice. Nonetheless, some dental offices and labs are placing large volumes of general waste in boxes and sending them off to medical waste haulers. Because this is not necessary, such disposal of general waste is very costly and time-consuming. Most lab waste, with the exception of sharps, can be disposed of in the regular trash. However, sharps must be disposed in accordance with the Occupational Safety and Health Administration (OSHA) and with state and local regulations. By definition, according to OSHA, regulated medical waste includes: solid waste soaked or saturated with blood or saliva (including gauze saturated with blood after surgery); extracted teeth; surgically removed hard and soft tissues; and contaminated sharps (needles, scalpel blades, wires). Only small amounts of regulated waste are generated in the lab, and other than sharps, examples of lab-regulated waste may include disposable trays, impression materials, and contaminated packing materials, if these packing materials cannot be disinfected. Recommendations for lab waste are very similar to those for operatory waste. Disposal of non-sharp-regulated medical waste in a dental lab can usually be done using a single leak-resistant biohazard bag. Sharps, such as scalpel blades, needles, syringes, and unused sterile sharps, should be disposed of using a puncture-resistant container with a biohazard label. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Dental Lab Asepsis

**print tag:** ()

# Casts Frequently Contaminated, Need Disinfecting

*Effective Disinfection of Dental Casts.*

Jennifer A. Harte, DDS, MS, and John A. Molinari, PhD

-*Special Presentation;* ():

Effective disinfection of a dental cast is important because casts frequently become inadvertently contaminated when trying in crowns and during denture fabrications and when adjusting wax occlusal rims.

In dental practices, bacterial contamination of dental casts can occur and requires an effective method to disinfect them. Casts frequently become inadvertently contaminated when trying in crowns and during denture fabrications and when adjusting wax occlusal rims. This makes disinfection of the cast necessary. In the dental lab, care must be taken when disinfecting dental casts. Preventing contamination is almost more important than disinfection. To disinfect a cast, drainage of the disinfectant must first be facilitated. Place the casts on their ends before spraying them. If a cast is disinfected before shipping it to a commercial lab, then it must be allowed to dry before wrapping and packaging it for shipment. Another option is to soak casts for 30 minutes in a 0.5% concentration of sodium hypochlorite and saturated calcium dihydrate solution (SDS). SDS is produced by placing uncontaminated, set gypsum (stone) in a container of water, and soaking the cast in that to disinfect it.

**Resource:** Leung RL, Schonfeld SE. Gypsum casts as a potential source of microbial cross-contamination. *J Prosthet Dent* 1983; 49: 210-211. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Dental Lab Asepsis

**print tag:** ()

# Communications Endanger Infection Control Between Labs, Offices

*Disinfection and Communication Practices: A Survey of U.S. Dental Laboratories.*

Kugel G, Perry RD, et al:

*J Am Dent Assoc;* 131 (June): 786-792

Communications between dental lab personnel and dentists need improving because only 44% of lab personnel knew if impressions they received had been disinfected at the dental office.

**Background:** In the dental lab, disinfecting impressions is an important part of an infection control program.

**Objective:** To survey U.S. dental lab directors about the effectiveness of communications between lab personnel and dentists regarding the disinfection of impressions.

**Results:** The survey revealed a lack of communication between the dentist, dental staff members, and dental lab personnel in regard to disinfection of impressions. Only 44% of respondents knew if the impressions they received had been disinfected at the dental office. However, 23% did not know the method of disinfection used, and 47% did not know the length of disinfection time involved. Almost 50% of lab directors reported that they received inadequate instructions with regard to disinfection techniques.

**Conclusions:** Communications between lab personnel and dentists are lacking regarding the disinfection of impressions, especially the technique used in that disinfection process.

**Reviewer's Comments:** To put this into perspective, infection control is important, but we must remember that most materials should be handled or disinfected only once, to prevent damage and possible distortion of materials. Communication and understanding can help avoid duplication of effort and possible adverse effects on the materials. Therefore, dental personnel should communicate with the lab as to the type of disinfectant and the exposure time used in the dental office for cleaning and disinfecting dental impressions, stone models, appliances, and any other lab item.

**Additional Keywords:** Dental Lab Asepsis

**print tag:** () Refer to original journal article.

# Disinfect Appliances, Prostheses Before Shipping to Labs, Offices

*Communications Critical for Determining Lab's and Office's Roles for Disinfecting Appliances Before Shipping.*

Jennifer A. Harte, DDS, MS, and John A. Molinari, PhD

-*Special Presentation;* ():

Contaminated dental prostheses or appliances should be disinfected before the dental office ships them to the lab and when being returned from the lab to the office.

Communications between the dental office and the dental lab are critical, especially regarding fabricating a case. When a prosthesis or an appliance is delivered, the fit is important, but knowing what measures have been taken toward infection control are also very important. Ideally, contaminated items should be disinfected (1) before the dental office ships them to the lab, and (2) when being returned from the lab to the office. Both parties should be aware of the disinfection methods used by the other. Disinfected items should be labeled to indicate that they are disinfected. Otherwise, the lab or the dental office should assume that the items are contaminated and disinfect them as appropriate. Clinical materials that are not decontaminated before shipment are subject to regulations from the Occupational Safety and Health Administration and the U.S. Department of Transportation regarding transportation and shipping of infectious materials and contaminated items. Ship contaminated items in a closed container that does not leak. The container must either be colored red or identified with a biohazard label to specifically single out the item as regulated waste in the operatory. Appliances and prostheses delivered to the patient should be free of contamination. Therefore, when fabrication of an appliance is completed, communication between the lab and the dental practice is important to determine who is responsible for the final disinfection process. When returning items to the dental office, any lab that is a member of the National Association of Dental Laboratories labels the bag containing the disinfected appliance with a sticker indicating that the contents have been disinfected by the lab for the protection of the dentist, the staff, and the patient. If documentation is not provided by the lab, the dental office is responsible for final disinfection. Therefore, standard infection control procedures in the lab must be known to personnel using the facility and the customers, and the lab must be aware of the infection control philosophy used by their customers. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Dental Lab Asepsis

**print tag:** ()

# Microenvironment Inside Latex Gloves Can Cause Dermatitis

*Emerging Issues Regarding Dermatitis Related to Occupational Use of Latex Gloves.*

Nancy Andrews RDH, BS, and John A. Molinari, PhD

-*Special Presentation;* ():

Occupational skin issues are emerging related to (1) increased use of latex gloves, (2) increased use of surface disinfectants, which can be irritating, and (3) the fact that we are washing our hands more and more.

Personal protective equipment (PPE) includes items like gloves, masks, protective eyewear, face shields, and gowns or clinic jackets. The purpose of PPEs is to provide a physical barrier that covers the eyes, skin, nose, and mouth in an attempt to prevent occupational exposure to pathogens and irritants. As health care professionals, we have been adapting to the use of PPEs for >2 decades. We are seeing some emerging issues regarding the skin. These issues have a lot to do with increases in allergies and sensitivities that are related to (1) increased use of PPEs, namely latex gloves, (2) increased use of surface disinfectants, which can be irritating, and (3) the fact that we are washing our hands even more than before, especially using more antimicrobial soap, which can irritate the skin. Therefore, we are seeing an increase in dermatitis cases and more skin-related issues because we are trying so hard to manage asepsis. We are now fairly comfortable with wearing gloves to do our work. Because we take them for granted, we are wearing them for long hours. As a result, we have created a microenvironment under the gloves that can cause dermatitis simply because our skin is chapped, we have a sensitivity to one of the elements in the gloves, or we leave a little residual soap on our hands, which can irritate the skin. If the skin is irritated and there is dermatitis, then the microbes are not easily removed when we wash and try to clean that skin. In the end, the glove-handwashing-glove cycle can perpetuate the issue. Therefore, as it relates to gloves specifically, I think some of the big issues have become hypersensitivity, the need to know more about the products we are using, and the need to pay attention to the microenvironment that is created under the gloves. For example, people sometimes forget that just wearing gloves, in and of itself, can create some dermatitis problems. This problem is often related to how we use the gloves, not necessarily to the type of glove. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Personal Protective Equipment

**print tag:** ()

# Keep a Variety of Gloves on Hand in Your Practice

*Important Considerations When Selecting Gloves for Various Clinical Uses.*

Nancy Andrews RDH, BS, and John A. Molinari, PhD

*-Special Presentation;* ():

Important considerations for selecting gloves for occupational use are the intended task for which gloves are needed, anticipated chemical or physical exposure, need for sterility, sensitivities, fit, quality/cost, and use life.

When selecting gloves for occupational use, we have many more options today than in the past. Workers should be aware of these options and evaluate their selection of gloves according to the following criteria: task, anticipated chemical or physical exposure, need for sterility, personal or patient sensitivities, fit, quality/cost, and use life.

**Task:** No matter what you select as your glove, you must first evaluate the task or procedure for which the gloves will be worn and the level of exposure you will have. Consider things like length of the procedure and how the glove will be used during the procedure.

**Anticipated Chemical/Physical Exposure:** The anticipated chemical or physical exposure of the gloves should always be considered. For instance, if you know that you will be dealing with dental chemicals and you do not want to change your glove when you touch them, then you might select nitrile gloves, because they have a fair amount of chemical resistance, at least compared to latex gloves. If you will be handling instruments for processing or if you plan to clean up the room, then you will want to use heavy nonmedical gloves not intended for patient care.

**Need for Sterility:** The next consideration for selecting gloves to be worn during patient treatment is the need for sterility. These require sterile surgeons' gloves intended for use with 1 patient.

**Personal/Patient Sensitivities:** You must consider your personal sensitivities and those of the patient when selecting gloves. Consider things such as latex allergies or sensitivities to some chemicals.

**Fit:** Another extremely important consideration is how the glove fits and the ergonomics of using that glove. This choice is a personal thing, and each person should have gloves that really fit his/her hands.

**Quality/Cost:** Another issue is quality and cost. In some practices, the issue of quality and cost is the primary driver toward selecting and purchasing gloves. If the person counting pennies is making decisions about gloves without first considering other important selection factors, then he/she is putting the wrong priority first. While cost needs to be a realistic consideration, it cannot be the ultimate consideration over other more important factors that involve the worker and the patient.

**Use Life:** When selecting gloves, we must anticipate how people will use the glove. Single-use gloves are meant to be thrown away after being used on 1 patient. Other gloves have a limited life. Because we have all these alternatives in glove selection, we should have a variety of gloves on hand in our practices. Staff members should feel comfortable about selecting an alternative to latex if needed. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Personal Protective Equipment

**print tag:** ()

# Powder-Free Gloves Offer Big Benefits

*Debate Over Powdered Versus Powder-Free Gloves: Important Considerations.*

Nancy Andrews RDH, BS, and John A. Molinari, PhD

-*Special Presentation;* ():

If powder remains on your hands after removing gloves that contain powder, then you must clean your hands with soap and water. Alcohol-based hand sanitizers are not effective in the presence of powder.

Originally, when surgical and exam gloves first came into common use for health care professionals, they were loaded with powder. At that time, dusting powder was an important component that made putting on and taking off the gloves possible. The powder also helped prevent the gloves from sticking together inside the box and it helped prevent decay in latex gloves manufactured at that time. However, the powder was associated with some adverse health reactions. For example, the powder could cause a foreign body reaction when it came in contact with an open wound. For individuals with latex allergies, the powder served as an airborne carrier of natural latex allergens, leading to skin irritation, itching, pain, shock, or even death in severe cases. Gloves that contain powder appear to be a dying breed. Nonetheless, I still see some sold. I have had people with skin sensitivities share all kinds of crazy ideas about the powder in gloves, such as the powder protecting them from exposure to their gloves. They do not realize that this is not true - powder does not protect us from exposure to the elements in our gloves. Today's gloves require very little powder, if any, and they still go on smoothly and they are easy to remove. Therefore, when selecting gloves for your clinic, one of the considerations is whether you want powdered gloves or powder-free gloves. If you use powder, then you must consider the problems associated with aerosolizing that powder. In addition, presence of residual powder on your hands directly affects whether you clean your hands with an alcohol sanitizer or with soap and water. When you take the gloves off, if powder remains on your hands, then you need to remove it with soap and water. In the presence of residual powder, alcohol-based hand sanitizers are not effective for cleaning and disinfecting your hands. An important consideration in the debate over powdered versus powder-free gloves is that very fair-skinned individuals are prone to irritation dermatitis (a nonspecific dermatitis from perspiring under the gloves). If powder is present, it gets into small breaks in the skin and creates, for a very short time, a bothersome dermatitis that can spread. If your clinic has not already gone to powder-free gloves, I would suggest that you reconsider this issue carefully, because powder-free gloves are associated with some real benefits. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Personal Protective Equipment

**print tag:** ()

# Reliability, Hypoallergenicity Improving for Alternative Gloves

*Alternatives to Latex Gloves for Use in the Clinic.*

Nancy Andrews RDH, BS, and John A. Molinari, PhD

-*Special Presentation;* ():

Among health care professionals, latex gloves remain the gold standard for personal protective equipment. For individuals with latex allergies, there are many good alternative materials available on the market.

Among health care professionals, latex gloves remain the gold standard for personal protective equipment (PPE). One of the best known alternatives to latex gloves is nitrile gloves. The first nitrile gloves to be manufactured had problems with compliance because people did not like the way they smelled, they were not as flexible as latex when first put on, and the sizing was inconsistent. Although the original nitrile gloves were associated with several problems, the nitrile and chloroprene gloves (a neoprene blend) offered today are more flexible. They have been made to feel more like natural rubber latex gloves, and I think people like them better. Because the market is highly competitive, many options are available for just this one type of alternative glove. Some of the early research regarding the original polyvinyl chloride gloves and the vinyl gloves said that these alternatives to latex gloves were not reliable, were porous, and had pinholes. However, the vinyl gloves being manufactured today are much more reliable than the original ones that came out in the early 1990s. Therefore, I would recommend the newer version of these gloves. Polyurethane and styrene-based copolymer gloves are also available. There is a huge range of alternative materials available. However, from an immunology standpoint, nonlatex gloves - the nitriles, the vinyls, and some others - will definitely help a person who is allergic to latex. The overwhelming majority of people who have latex allergies, especially Type I reactions, and most of those with Type IV allergies, can use nitriles, vinyl, or chloroprene without fear of developing allergic reactions to them. A few cases have been reported in which individuals allergic to latex will develop a similar allergy to nitrile gloves several weeks to months after they begin wearing these types of gloves. Typically, this would be a Type IV allergy (delayed hypersensitivity reaction or contact dermatitis). In these cases, reactions are not to a component of the glove but to some of the chemicals used in the manufacture of the glove during the vulcanization process. For many years, these same chemicals were used in the manufacture of both latex and nonlatex gloves, so if a person developed an allergic reaction to an accelerator or thiurams in the gloves, they could develop a cross-reacting allergy to those same chemicals used in the manufacturing of a nonlatex glove. These reactions are not common. However, a number of nitrile glove manufacturers have removed some of the more allergenic chemicals from the processing that goes into making the gloves. Therefore, these gloves now have a much lower potential for inducing cross-reacting allergies. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Personal Protective Equipment

**print tag:** ()

# Today's Vinyl Gloves Safe Alternative to Latex

*Misconceptions About the Safety and Use of Vinyl Gloves Being Manufactured Today.*

Nancy Andrews RDH, BS, and John A. Molinari, PhD

-*Special Presentation;* ():

Some perceptions about the durability and dependability of vinyl gloves originally manufactured as an alternative to latex gloves still exist. However, gloves manufactured today are safe and highly reliable.

Gloves are an important part of the personal protective equipment used by health care professionals today. Because some individuals developed allergies to latex gloves, new gloves were manufactured using alternative materials to give people a choice. The early vinyl gloves that were manufactured in the late 1970s and early to mid 1980s were like boxing gloves: they were very stiff; they did not fit very well; and you did not have very much dexterity when using them. As people developed latex allergies, vinyl gloves were the only alternative for a time. The major problem with these vinyl gloves was that they did not hold up as long as latex gloves. Some cases were reported in which someone, during prolonged procedures, would have to change their gloves because the gloves were torn or compromised during a procedure. This was not typical for routine nonsurgical dental procedures. Unfortunately, some of the mental perceptions about the old vinyl gloves have carried over to today, resulting in some people believing that even the newer vinyl gloves manufactured today are not safe. However, the fact is, there have been no instances of blood-borne disease in health care professionals who have used these nonlatex alternatives, which shows that gloves made from these alternative materials work. I believe this fact is important because vinyl gloves certainly are not going to be first choice for many people. However, data demonstrate that, by using vinyl gloves, you will not be putting yourself at any untoward risk. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Personal Protective Equipment

**print tag:** ()

# Incidence of New Latex Allergies Declines Dramatically

*Latex Gloves Improve as Manufacturing Processes Have Changed.*

Nancy Andrews RDH, BS, and John A. Molinari, PhD

-*Special Presentation;* ():

Due to changes in manufacturing processes, today's health care worker is more concerned about what types or colors of latex gloves to purchase than about developing allergic reactions to them.

Gloves are a major piece of personal protective equipment used in dental practices. Originally, the standard glove being used was latex, but some individuals developed allergies to these gloves. Nitrile gloves by far are the major alternative for latex gloves. In fact, a number of offices and schools use nitrile gloves almost exclusively. As a result of this popularity, the costs of nitrile gloves have decreased, and manufacturing processes have improved the flexibility of these gloves. In addition, nitrile gloves are available in different colors and in a variety of different sizes. The gloves can also be purchased fitted or non-fitted, ambidextrous, and/or sterilized for surgery. Even with alternative materials available, latex gloves being manufactured today have been improved. Latex gloves of today, at least higher-quality gloves, typically are not as allergenic as those of the early 1980s and 1990s because the manufacturer washes them and removes a lot of the allergenic proteins. I would encourage people to research the quality of the glove and ask questions of the manufacturer that relate to allergenicity of the gloves. In 1997, a law was passed mandating that gloves had to meet much higher quality-control standards. Many of the good manufacturers of latex gloves had already implemented those standards. Regardless, the new law required manufacturers to ensure that (1) the gloves were of high quality and (2) they passed pinhole tests to show that the manufacturing process had achieved its purpose. Thus, the allowable number of natural defects in gloves was reduced, therefore quality control was automatically higher. What also happened was that, as part of the improved manufacturing of gloves - in particular latex - the number and extent of rinsing cycles in water was increased to remove more of the water-soluble proteins from the latex set and more of the water-soluble chemicals used in the vulcanization process. A number of these chemicals are allergenic and responsible for the Type I and Type IV allergies. Since this rinsing process was implemented, the incidence of new latex allergies in health care workers has declined dramatically. This improvement is encouraging for health care workers in general, because there was a time when people were concerned about staying in the field due to fears about developing latex allergies. Today, we are more concerned about types or colors of gloves to purchase than about developing allergic reactions to them. The change has helped improve all types of gloves that are available, not just latex. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Personal Protective Equipment

**print tag:** ()

# Fitted Gloves Diminish Stress, Improve Efficiency

*Correct Fit of Glove Important to Worker's Health and Efficiency.*

Nancy Andrews RDH, BS, and John A. Molinari, PhD

-*Special Presentation;* ():

We have learned that our gloves should fit our hands properly. Look for a glove that is proportioned correctly for your hand, considering the wideness of your palm, length of your fingers, and bulkiness of your hand.

Through their skin, health care workers are at risk of occupational exposure to various pathogens and chemicals. Gloves provide a barrier to the skin to reduce this exposure. Gloves are now being manufactured with a variety of options. One such option is the selection of ambidextrous gloves versus right-hand and left-hand fitted gloves for routine use. This is a relatively new option, and there are a few topics to consider when making this selection. Probably the foremost "practical" consideration in making this selection is that of cost. People purchasing gloves for offices immediately select ambidextrous gloves because they are more efficient for outfitting an entire office and because the purchaser is not aware of problems related to ergonomics. Health care workers have been wearing gloves for so long now that we recognize new ergonomic issues. These issues involve positioning, grip, and glove characteristics that may contribute to cumulative trauma disorders. For example, we have learned that the fit of the glove is an issue. Ambidextrous gloves are made on a straight mold so that they can be worn on either a left or a right hand and they can bend in either direction. The glove wants to keep returning to the straight position of that mold, so when you bend your hand and put it in its natural, relaxed position, you must fight against the glove. Even though this problem appears miniscule, it is one of those things that can eventually create stress on your hands. It may be a problem for circulation, it may cause fatigue in the hands, and it may push against the thenar muscle (the large muscle at the base of the thumb), which is an important issue for people at risk for carpal tunnel syndrome. Therefore, we have learned that our gloves really should fit our hands properly. It is very important to try on all different kinds of gloves. You want a glove that is proportioned correctly for your hand, considering the wideness of your palm, length of your fingers, and bulkiness of your hand. Because everyone's hands are so different, it becomes difficult when buying supplies for a large facility. The economics of the purchase can impel you to select gloves that will work for all employees, and you tend to select that median design. However, if gloves provided by a facility are not right for the hand of an employee, then he or she should speak up. Remember, the proper fit is not too loose and not too tight - just snug enough so that the glove is efficient and will not flop around. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Personal Protective Equipment

**print tag:** ()

# Skin Oils, Chemicals, Sharp Edges Compromise Glove Integrity

*Behaviors, Conditions, and Exposures That Compromise Barrier Properties of Gloves.*

Nancy Andrews RDH, BS, and John A. Molinari, PhD

-*Special Presentation;* ():

The useful life of the typical treatment glove is estimated to be about 1 hour, depending on use of the glove, chemicals to which they are being exposed, and natural oils and contaminants on the skin of the user.

Personal protective equipment used by health care workers helps prevent the spread of infection by acting as a barrier to pathogens, foreign objects, and/or chemicals. However, in the case of gloves, various uses, work conditions, procedures, and chemical exposures may destroy their barrier properties, resulting in a higher risk of infection, contamination, or injury. The useful life of the typical glove is estimated to be about 1 hour, depending on use of the glove, the chemicals to which they are being exposed, and the natural oils and contaminants on the skin of the user. When we first started wearing gloves, they had powder on them. Many of us would wash the gloves immediately before we treated patients, but now we know that this behavior may compromise the gloves. Therefore, do not wash gloves before using them. Other potential causes of glove degradation over time include substances on your skin. Your own natural skin oils can degrade gloves. Also, hand lotions, residual soaps, and residual alcohol from an alcohol-based sanitizer all have the potential to degrade the gloves over time. Another important cause of glove degradation is the number of dental treatment chemicals you touch in the process of doing a procedure. Methacrylates and a host of other chemicals can degrade the gloves. Therefore, be aware of the contact your gloves have with these chemicals, and change the gloves as needed to keep your hands protected. Chemical or physical damage to the gloves is another concern. Some people use treatment gloves for handling disinfectants and sterilants, but they really should be using heavy gloves designed to resist punctures and penetration by chemicals. The Occupational Safety and Health Administration requires the wearing of heavy gloves when using disinfectants and sterilants because regular treatment gloves cannot hold up to these chemicals. Nonetheless, this is generally an area of noncompliance. In addition to this problem, treatment gloves can be torn or punctured by long fingernails, sharp corners on fingernails, and jewelry with sharp edges. Also, the things we are actually doing during dentistry can puncture our gloves. For example, touching sharp restorations, such as orthodontic brackets or wires, can tear a glove. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Personal Protective Equipment

**print tag:** ()

# Proper Fit, Consistent Use Essential for Protective Eyewear

*Proper Fit of Eyewear and Compliance With Use Regulations Important to Providing Proper Protection.*

Nancy Andrews RDH, BS, and John A. Molinari, PhD

-*Special Presentation;* ():

Compliance with use of appropriate protective eyewear has decreased in recent years. As a result, some health care personnel wear only their regular eyeglasses while working, which are too small to protect the eyes.

The Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control and Prevention (CDC) recommend use of protective eyewear and face shields for health care workers as part of their personal protective equipment. However, compliance with use of appropriate protective eyewear has decreased. Most of our new graduates have not had the experience of seeing someone get a broken dental explorer popped into an eyeball or other similar events. Because they are not familiar with the risks, they are not personally threatened. As a result, I have seen people work while wearing their regular street eyeglasses, which are too small to actually protect the eyes. Most of us have been told that we need eye protection with adequate side protection. OSHA also tells us that we need to wear glasses that protect our eyes from above - glasses that actually adapt closely to the eyebrow area and protect eyes from objects flying in from the forehead area. Therefore, protective eyewear used by health care workers should be well-fitting tight-adapting eye protection. More people are now wearing eye loupe magnifiers while they work, and some of the loupes fit snuggly while others leave you poorly protected. Proper fit must be an important consideration when selecting protective eyewear. Previous cases of occupational exposure serve as the basis for the OSHA regulations and the CDC's recommendations for protective eyewear. There have been reported cases in which a chunk of amalgam or a small piece of a tooth hit somebody in the eye during a restorative procedure. Other cases have been reported of individuals getting a bolus of saliva aerosolized into their eye, resulting in a potentially infectious situation. As a result, a few associated cases of staphylococcal conjunctivitis and other ocular infections were reported. In the worst of these cases, the infection caused long-term damage to the eye. We do not want to return to the times when these problems were more commonplace, but rather, we want people to recognize why they should be wearing their appropriately sized eyewear. Today, many options are available for protective eyewear. No longer is our only choice a pair of big heavy goggles. A number of companies offer eyewear with very lightweight frames. Also, a slightly flexible plastic shield that can be adapted over normal eyewear may be worn, and it does a good job at deflecting flying objects and protecting the eyes physically. These new shields and eyewear options have come a long way in their design - they are comfortable and optically clear enough that health care personnel actually wear them. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Personal Protective Equipment

**print tag:** ()

# New Face Shields Lightweight, Flexible, and Comfortable

*Face Masks and Face Shields Offer Added Personal Protection During Dental Procedures.*

Nancy Andrews RDH, BS, and John A. Molinari, PhD

-*Special Presentation;* ():

Face masks may not fit the face snuggly, may be worn incorrectly and used repeatedly by workers, and may suffer outside contamination from spray. Face shields can offer added protection for personnel.

Two important items on the list of personal protective equipment used by health care workers in the dental office are face masks and face shields. Face masks are disposable devices that cover the mouth and nose to protect the worker from microorganisms, body fluids, and small particles in the air. Some masks do not fit the face snuggly and leave gaps where contamination may occur. Sometimes compliance can be an issue when workers wear the mask under the nose and chin rather than over the nose and mouth. Face masks are designed for a single use and not to be put up or taken down repeatedly. Outside contamination from spray can be a problem, especially when working with ultrasonic scalers. As a result of these various issues, some workers want more protection than just their face mask. A face shield can provide this added protection. A number of face shields are available on the market today. People seem to like these new face shields, in part because they are lightweight and may be very flexible. One shield on the market can be thrown away after using it for 1 or 2 days, obviating the issue of a shield's long-term care. Some face shields fit over a through-the-lens eye loupe (not flip-up loupes). When purchasing a face shield, look for features such as impact-resistant plastic and adequate side protection. Be sure that the shield has a ledge coming out from the forehead region that adapts back to the forehead, protecting the eyes from objects falling down from the forehead area. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Personal Protective Equipment

**print tag:** ()

# Good Infection Control Protects Personnel, Patients, Offsite Labs

*Chapter 19: Infection Control in the Dental Laboratory.*

John A. Molinari, PhD

*-Special Presentation;* ():

When disinfecting impressions, immersion in the disinfectant is the preferred method, but the manufacturer should first be consulted to determine the stability of the impression material to various disinfectants.

In this chapter, the author describes both the need and requirements for infection control in commercial and in-office dental labs. Methods for disinfecting dental impressions are described, along with a discussion on making appropriate disinfectant choices based on the impression materials.

**Disinfection:** The 2 main goals of disinfection in the dental lab are (1) to prevent exposure of employees to infectious diseases, and (2) to prevent cross-contamination of cases. In the dental lab, intermediate-level disinfection is usually sufficient. However, items that will contact the mucous membranes must be sterilized. When handling contaminated items in the lab, personal protective equipment (PPE) must be worn, such as gloves, eyewear, and gowns. When operating the lathe or other rotary equipment, an approved dust/mist face mask and eyewear with side shields or a face shield are required. The equipment being operated must also have appropriate safety shields, and the lab must be equipped with proper ventilation when working with lathes and other rotary equipment.

**Disinfecting Impressions:** At the chairside, rinse the impression under running water to remove saliva and blood. For appropriate disinfection, contact the manufacturer to determine the stability of the impression material to various disinfectants. Immersion of the impression in the disinfectant is the preferred method. Hydrophilic impression materials should be immersed in a disinfectant that requires minimal exposure time (10 minutes). After the recommended exposure time to the disinfectant, rinse the impression under running water to remove excess disinfectant. **Dental Lab**

**Infection-Control Checklist:** (1) All lab personnel must use appropriate PPEs until items have been decontaminated. (2) Clean, disinfect, and rinse all dental prostheses and prosthodontic materials using an intermediate-level disinfectant registered by the Environmental Protection Agency. (3) Consult with manufacturers regarding the stability of materials to various disinfectants. (4) Establish reliable communications between the dental office and the offsite dental lab regarding disinfection of contaminated items and techniques used. (5) Clean and sterilize all heat-tolerant items used in the mouth. (6) Follow manufacturers' instructions regarding cleaning and disinfection or sterilization of contaminated items that do not normally contact the patient.

**Resource:** The chapter reviewed here is found in: Molinari JA, Harte JA, eds. *Cottone's Practical Infection Control in Dentistry 3rd Edition* . Lippincott, Williams, & Wilkins; 2009: 247-269.

**Reviewer's Comments:** Protecting our clients, employees, and ourselves is the main objective of infection control in our dental practices. Therefore, infection control must be a priority. This chapter provides a thorough overview of dental lab infection control. The material is informative for all dental health professionals, regardless of the level of their previous experience with infection control protocols.

**Additional Keywords:** Lab Asepsis

**print tag:** () Refer to original journal article.

# Labs Disinfect Impressions Since Contamination Status Unsure

*Disinfection and Communication Practices: A Survey of U.S. Dental Laboratories.*

Kugel G, Perry RD, et al:

*J Am Dent Assoc;* 131 (June): 786-792

Only 44% of offsite dental labs receive confirmation that incoming impressions are disinfected at the office of origin. Even when verification is received, information is frequently lacking regarding the technique used.

**Objective:** To determine the effectiveness of communications between the dental office and the offsite lab regarding disinfection of impressions and the measures taken to prevent cross-contamination.

**Methods:** In a telephone survey of 400 randomly selected offsite dental lab directors, 16 open-ended questions were used to gather data.

**Results:** Of labs surveyed, a mean of 80 impressions were received each week. Of these impressions, 57% were made of polyvinyl materials, 27% were made of polyethers, 7% were made of reversible hydrocolloid, and 9% were made of other materials. Confirmation that incoming impressions had been disinfected at the office of origin was received by only 44% of labs. Of labs receiving regular confirmation of disinfection, 48% received this information via oral communications, and the remainder received verification via some written process, such as stickers or notes on the lab order form. Even when verification of disinfection was received, information was frequently lacking regarding the disinfecting solution, the technique used, and the exposure time. For example, 34% of directors said that immersion typically was used, 46% said that spray disinfection typically was used, and 23% said they did not know which technique was commonly used (some respondents gave >1 answer). About 20% of labs received impressions in plastic bags containing disinfectant solution. Because communications about disinfection were unreliable, 94% of offsite dental labs disinfected all impressions they received. Dental lab directors offered suggestions to dentists to improve the dentists' satisfaction with crowns and bridges coming from the lab. Overall, 53% of lab directors recommended that dentists use better trays, and 38% suggested that dentists allow the lab more time to complete the case. Other suggestions included use of a premixer for impression material (29%), use of a note to indicate the type of sterilization or disinfection used on impressions sent to the lab (22%), the making of better impressions by the dentist (13%), and the priority of having better communication with the lab (5%).

**Conclusions:** Communications are lacking with the offsite dental lab regarding whether impressions have been disinfected by the dentist's office, what type of disinfecting solution and technique were used, and the exposure time of the impression to the disinfectant.

**Reviewer's Comments:** This survey found that communication between dental practitioners and dental labs needs to be improved greatly. Infection control protocols must be in place to prevent the spread of infectious diseases via contaminated impressions between our offices and offsite labs. We must communicate with the lab to be clear about our roles in the disinfection process.

**Additional Keywords:** Lab Asepsis

**print tag:** () Refer to original journal article.

# Disinfection Reduces Contamination Risks From Offsite Lab

*Guidelines for Infection Control in Dental Health-Care Settings -- 2003.*

Kohn WG, Collins AM, et al:

*MMWR;* 52 (December 19): 1-66

To avoid contaminating the patient, appliances and prostheses returned from an offsite lab must be disinfected. Communications are critical for determining whether the lab or the dental office is responsible for this disinfection.

The authors of this report consolidate previous infection control guidelines and describe new guidelines for dental professionals. The following represents only a small portion of the guidelines in the actual report. Biopsy specimens should be transported in a sturdy, leakproof container with a secure lid and labeled with a biohazard symbol. Extracted teeth are considered to be potentially infectious and should be discarded in a medical waste container. Extracted teeth with dental amalgam should not be placed in medical waste containers destined for the incinerator. Dentists may return an extracted tooth to a patient when requested, which nullifies the infection control standard for that tooth. When dental prostheses, appliances, impressions, etc, are sent to an offsite lab, a dental health care professional (DHCP) must clean and disinfect the material, package it properly, and then provide written information regarding the disinfecting solution and technique, along with exposure time. To avoid contaminating the patient, appliances and prostheses returned from an offsite lab must be disinfected. Communications between the lab and dental office are critical for determining who is responsible for this disinfection step. A separate receiving and disinfecting area should be established in the lab to reduce contamination. The thermal destruction of tissue creates a smoke byproduct known as laser plumes or surgical smoke. The heated plumes include particles, gases such as hydrogen cyanide, tissue debris, viruses, and offensive odors. The laser operator and nearby DHCP should be concerned about aerosolized infectious materials being in the laser plume. Therefore, standard precautions should be used, including high-filtration surgical masks and full face shields. Central room suction units with in-line filters and dedicated mechanical smoke exhaust systems are also recommended.

**Resources:** CDC Morbidity and Mortality Weekly Reports. Guidelines for Infection Control in Dental Health-Care Settings -- 2003. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5217a1.htm. Accessed March 17, 2009.

**Reviewer's Comments:** The CDC provides the most comprehensive-based infection control document for dentistry. The guidelines are updated from time to time, and all practicing dentists should have a reference copy at hand. As with other infection control articles, these guidelines emphasize the need to communicate with the offsite lab regarding your office's infection control practices before shipping impressions.

**Additional Keywords:** Lab Asepsis

**print tag:** () Refer to original journal article.

# Disinfection Key to Infection Control for Lab, Operatory

*Chapter 51: Dental Services.*

John A. Molinari, PhD

*-Special Presentation;* ():

Good infection control must be practiced for items moving between the dental operatory and the dental lab. Items fabricated in the lab must be disinfected or sterilized before being delivered to the patient.

In this chapter, the authors describe mandated standards and recommendations from public health care agencies designed to reduce occupational exposures to various diseases for dental health care workers (DHCW). Among the many infection control measures detailed in this chapter, there is a discussion about dental laboratory asepsis. Good infection control must be practiced for items moving between the dental operatory and the dental lab. Contaminated items should be handled only while wearing gloves. In addition, caution must be exercised so that gloves are not torn or caught in dental lab equipment such as the lathe and other rotary equipment. In the lab, if a DHCW anticipates that a lab procedure will cause spatter or splashing of potentially infectious materials, then masks, protective eyewear, and protective clothing should be worn in addition to the gloves. When items are transported between the dental office and an offsite dental lab, good communications are essential regarding the disinfection of these items. Communications should include a description of the disinfecting solution, the disinfecting technique, and the exposure time of the item to the disinfectant. All prostheses, appliances, or impressions moving between the operatory and the in-house lab must be properly cleaned, disinfected, and rinsed before coming into the lab. Because not all materials are compatible with all disinfectants, manufacturers should be consulted regarding the stability of various materials during disinfection. Prostheses, appliances, and other items fabricated in the in-house lab must be disinfected or sterilized before being delivered to the patient.

**Resources:** The chapter reviewed above is from: *APIC Text of Infection Control and Epidemiology 2nd Edition* . Publisher: Association for Professionals in Infection Control and Epidemiology; 2005: 51-1 to 51-21.

**Reviewer's Comments:** This chapter provides current recommendations, practical protocols, and procedures for a complete infection control program. Although the scope of infection control recommendations is very broad in this chapter, it is easy to locate topics of interest for quick reference. This may be a good resource to have on hand in your practice. This review is an abstract of an audio presentation from *Practical Reviews.* If you do not have access to this presentation and would like to purchase a copy, please call 1-800-633-4743, email service@oakstonepub.com, or write Oakstone Medical Publishing, 100 Corporate Parkway, Suite 600, Birmingham, Alabama 35242.

**Additional Keywords:** Lab Asepsis

**print tag:** ()

# Microbial Contamination Seen With Dental Casts

*Gypsum Casts as a Potential Source of Microbial Cross-Contamination.*

Leung RL, Schonfeld SE:

*J Prosthet Dent;* ():

Gypsum casts serve as potential sources of microbial cross-contamination between patients and dental lab personnel.

**Objective:** To determine if gypsum casts serve as potential sources of microbial cross-contamination between patients and dental lab personnel.

**Methods:** All materials were sterilized, either by ethylene glycol, autoclave, or ultrafiltration. All impression and cast-pouring procedures were performed in a sterile laminar-flow hood. Three alginate (irreversible hydrocolloid) impressions were made of sterile typodont and were poured with sterile yellow artificial stone (mixed with sterile water under sterile conditions). These were the sterile controls. Another 3 impressions were made using typodont contaminated with *Serratia marcescens* . Casts were allowed to set for 4 hours under the sterile hood. Pieces of stone were broken off from each cast and put into a brain-heart infusion (BHI) medium and incubated for 24 hours. The BHI medium was streaked onto agar plates and incubated for 7 days.

**Results:** At 24 hours, the BHI medium from the contaminated casts appeared cloudy (indicating microorganism growth), while the BHI medium from the sterile casts remained clear (indicating no growth). The colonies growing on the agar streaked with BHI from contaminated casts were characteristic of *S marcescens* .

**Conclusions:** Dental casts may serve as a source of cross-contamination between patients and dental lab personnel. Gloves should be worn when handling these casts.

**Reviewer's Comments:** The authors of this good study published their findings of an early investigation regarding contamination of dental materials. Although published in 1993, the authors of this article remind us that dental casts can serve as a source of infection, and they reinforce the need for dental lab asepsis.

**Additional Keywords:** Lab Asepsis

**print tag:** () Refer to original journal article.

# Disinfecting Solution Not Harmful to Surface of Dental Casts

*The Effect of a Surface Disinfectant on a Dental Cast.*

Bass RA, Plummer KD, Anderson EF:

*J Prosthet Dent;* 67 (May): 723-725

Tap water can damage the surface of dental stone casts over time. A saturated calcium sulfate solution combined with 0.5% sodium hypochlorite does not significantly damage the surface of the casts during immersion.

**Objective:** To determine if the use of saturated calcium sulfate combined with 0.5% sodium hypochlorite as a disinfectant for gypsum casts in the dental lab damages the surface of stone casts.

**Methods:** 30 casts of improved dental stone were separated into 6 groups. Three different types of solutions were tested. Solution 1 was tap water. Solution 2 was clean, fully set dental stone pieces soaked in distilled water for 48 hours (saturated calcium sulfate solution). Solution 3 was clean, fully set dental stone pieces soaked in 0.525% sodium hypochlorite (disinfecting solution). Casts were randomly assigned to immersion in a test solution for either 30 minutes or 1 hour. After immersion, the casts were allowed to dry for 24 hours before evaluation. Dried casts were evaluated for their reproduction of the grooves of the steel die used to make the impressions.

**Results/Conclusions:** Tap water can damage the surface of dental stone casts over time. The saturated calcium sulfate solution did not significantly damage the surface of the casts and neither did the disinfecting solution. Use of a saturated calcium sulfate solution combined with 0.5% sodium hypochlorite can be used routinely in any dental lab for proper disinfection of stone casts.

**Reviewer's Comments:** Practical investigation looking at material compatibility with disinfectants. Remember, not all materials are compatible with all disinfecting solutions. Consult with the manufacturers to determine what disinfectants are safe for the materials commonly used in your practice.

**Additional Keywords:** Lab Asepsis

**print tag:** () Refer to original journal article.

# Two Thirds of Items Shipped to Lab Contaminated

*The Presence and Identification of Organisms Transmitted to Dental Laboratories.*

Powell GL, Runnells RD, et al:

*J Prosthet Dent;* 64 (August): 235-237

In 1990 before infection control became a hot topic for dental professionals, 67% of items transported from the dental office to a commercial lab were contaminated with bacteria on arrival in the lab.

**Background:** This article was published in 1990 when dental labs were beginning to be scrutinized as potential sources of cross-contamination. Guidelines for cleaning, disinfecting, and handling impressions, dentures, and other items transported between the dental office and the dental lab were beginning to be issued at this time. This study helped dental professionals to understand the importance of cleaning and disinfecting items being sent to the lab.

**Objective:** To determine if the transfer of contaminated dental items between dental offices and dental labs correlate with the transmission of microorganisms, and to identify the main microorganisms being transferred between these facilities.

**Methods:** 4 different dental labs in 4 different geographic locations in the United States were selected for this study. Dentures, impressions, and crowns were cultured on their arrival at each of these labs. Both viral and bacterial samples were collected for each lab.

**Results:** Of items sampled on arrival in the lab, 67% were contaminated with bacteria, but none were contaminated with viruses. Some of the bacteria present were *Enterobacter cloacae, Escherichia coli,* and *Klebsiella oxytoca* .

**Conclusions:** Bacteria of varying pathogenicity are being transferred from the dental office to the offsite lab on contaminated items. Further improvements must be made in the infection control practices of dental offices transporting items to a commercial dental lab. Although no viruses were cultured in this study, no generalized conclusions can be made regarding presence of viral particles on items coming from dental offices.

**Reviewer's Comments:** In this early study documenting dental material contamination, the authors make their point that items coming from the dental office must be disinfected before shipping to an offsite lab. Even today, incoming contaminated items are still a problem for offsite labs. Be sure to check your infection control protocols as well as your communications with the offsite lab to avoid this problem.

**Additional Keywords:** Lab Asepsis

**print tag:** () Refer to original journal article.

# Good Infection Control Protects Patients, Staff

*Practical Infection Control in Dental Laboratories.*

Plummer KD, Wakefield CW:

*Gen Dent;* 42 (November-December): 545-548

Before shipping a dental prosthesis, the dental lab must properly disinfect and rinse it, handle it aseptically, and place it in a plastic bag to prevent contamination from shipping materials. Do not ship the item in disinfectant.

The authors provide a series of practical suggestions for establishing infection control in the dental lab.

**Types of Dental Labs:** To maintain good infection control, dental labs can be set up in 1 of 2 ways. The lab can be maintained as an isolated area with all incoming prostheses, impressions, and other items disinfected before being brought into the lab. Alternatively, a separate receiving area can be established where items are evaluated and decontaminated before coming into the lab. Regardless of the system used, communications must be clear regarding case submission and the necessary steps needed to properly disinfect materials coming into the lab and materials leaving the lab. Chemical disinfectants must be registered by the Environmental Protection Agency and must meet requirements of the American Dental Association.

**Receiving Area:** The receiving area should contain running water and handwashing facilities. All items coming into the lab should first come to this area for disinfection. The technician in this area should wear personal protective equipment such as gloves and a gown or coat that must remain in the contaminated work area. Appropriate eyewear with side shields or a face shield and a face mask should also be worn to protect the technician from splatter. Unless the receiving area is cleaned and disinfected first, it cannot be used as an area to pack and ship materials.

**Shipping:** An area can be designated for final inspection, possible disinfection, and shipping of materials leaving the lab. Dental prostheses fabricated in the lab are considered clean for handling but should be disinfected before being placed in the patient's mouth. Before shipping, the lab must properly disinfect and rinse the item, handle it aseptically, and place it in a plastic bag to prevent contamination from shipping materials. Prostheses should not be shipped in disinfectant. The accompanying paperwork must clearly be labeled as, "This case shipment has been properly disinfected."

**Universal Precautions for Lab Staff:** All lab staff members should be vaccinated for hepatitis B and should practice meticulous personal hygiene. They should wear appropriate eye protection while working in the lab, and they should also wear a face mask, gloves, and protective clothing when appropriate. All lab staff should be well trained in proper infection control measures in the receiving, distribution, and shipping areas. No eating, drinking, or smoking should be allowed in the dental lab.

**Reviewer's Comments:** The authors provide good, practical information regarding dental lab infection control. Designated shipping and receiving areas as well as good staff training help prevent the spread of contamination to your in-house lab.

**Additional Keywords:** Lab Asepsis

**print tag:** () Refer to original journal article.