



IC//2011

infection control and hygiene guide

INDEX

PERSONAL PROTECTION

Gloves	
Latex Powder-Free	2
Latex Powdered	4
Nitrile Powdered and Powder-Free	5
Vinyl Powdered and Powder-Free	9
Chloroprene Powdered and Powder-Free	10
Specialty	11
Dispensers and accessories	11
Masks	
Earloop	12
Tie-On	15
Molded	15
Shields	16
Eyewear	
Eyewear	17
Accessories	18
Protective Garments	
Uniforms	19
Slippers	19
Rubber Dam	
Rubber Dam	20
Hand Care	
Soaps	22
Lotions	24
Soap and Lotion Dispensers	24
Hand Towels	25

HARDWARE PROTECTION

Barriers	
Camera Sheaths	26
Chair Sleeves	26
Curing Light Sleeves	26
Handpiece and Tube Sleeves	27
Light Sleeves	27
Syringe Sleeves	28
Tray Sleeves	29
Universal Cover Sheets	29
X-Ray Sleeves	30
Miscellaneous	32
Sharps	
Disposal	34
Surfaces	
Disinfectants	36
Dispensers	37

STERILIZATION

Instruments	
Sterilants and Disinfectants	38
Sterilization Trays	39
Ultrasonic Cleaning Solutions	40
Ultrasonic Cleaning Powder and Tablets	41
Units and Accessories	43
Handpieces	
Disinfection/Cleaning	46
Sterilization	
Cassettes	47
Film, Tape and Tubing	49
Pouches and Bags	51
Monitors	52
Miscellaneous	54
Disinfectors	55
Sterilizers	55
Cabinetry	58

EQUIPMENT ASEPSIS

Waterlines	
Cleaner and Disinfectants	60
Vacuum Cleaning	
Evacuation Cleaners	61
Evacuation Traps	64
Oral Cups/Liners	64

EQUIPMENT

Technologies	
Dental Grade Monitor, Operator Keyboard, Hands-Free Perio Charting	65
Equipment	
A-dec Chair and System	66
Triangle Innovative Design	67



Dear Customer,

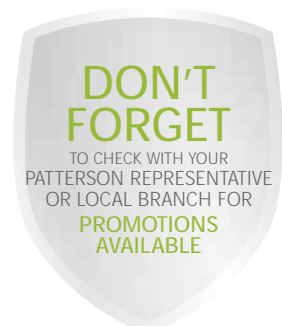
At Patterson we are very proud of a long history of firsts in the Infection Control business. Patterson Canada, Triangle Furniture Systems (now part of the Planmeca Group) and the National Planning Team designed and installed the first commercially available Steri-Centres in the world.

The evolution of the Steri-Centre has changed how Dentists world-wide process their soiled instruments. The "new work flow" has made the sterilization process faster, safer and more effective for the dental team. Today there are many major equipment companies who manufacture their own versions of the "Steri-Centre" and virtually every new office in North America contains some version of the Steri-Centre. The Steri-Centre is a fundamental element in the infection control process and we invite you to discover how Patterson Dental can help you create the ideal sterilization environment.

In this guide we feature a wide range of infection control products including merchandise, equipment and services. Your Patterson Dental Sales and Customer Service Representatives are available to assist you with promotions, product selection, samples or an in office demonstration.

We thank you for taking the time to read this guide and we greatly value your business.

Ross McCallum
National Marketing Director
Patterson Dental Canada, Inc.





SIMPLIFY THE INFECTION CONTROL PROTOCOL WITH COLOURS!

Patterson Dental has developed an exclusive way to coordinate infection control recommendations and procedures with the related products in this Guide. We created five groups that are critical and important in the infection control of a dental practice:

- Patient safety highlights;
- Staff safety highlights (personal protective equipment);
- Cleaning, disinfection and sterilization;
- Office cleaning, housekeeping and management of waste;
- Equipment asepsis.

The elements in these categories have been colour-coded to be matched to the respective products found in the guide.

Thus, each product is colour-coded as a reminder of the recommendations. Some products may have multiple colour codes meaning that those products are recommended for multiple use in the practice.

CLEANING AND DECONTAMINATION
CLINICAL CONTACT SURFACES
PROTECTIVE CLOTHING
GLOVES



UTILITY GLOVES – PATTERSON PRIVATE LABEL

Autoclavable

For use in sterilization area and for operator disinfection. Puncture-abrasion resistant nitrile rubber. Flock-lined. Mold embossed for improved tactile feel and handling of instruments. Non-sterile.



PATIENT SAFETY HIGHLIGHTS

Health Canada uses the term “routine practices” to describe basic standards of infection prevention and control that are required for safe patient care. There are four principles that are inherent in routine practices:



RISK ASSESSMENT

- Perform a risk assessment before each interaction with the patient in order to determine the interventions that are required to prevent the transmission of infection.



HAND HYGIENE

- Antimicrobial soap
- Alcohol-based hand rub



USE OF PERSONAL PROTECTIVE EQUIPMENT

- Protective eyewear
- Protective draping
- Rubber dam and HV suction



SAFE HANDLING AND DISPOSAL OF SHARPS

- Handling and disposal of sharps



Routine handwash (15 seconds) Water and nonantimicrobial soap (e.g., plain soap) : Remove soil and transient microorganisms
Antiseptic handwash (30-60 seconds) Water and antimicrobial: Remove or destroy transient microorganisms and reduce resident flora
Surgical antiseptic (2-6 minutes) Water and antimicrobial soap (e.g., chlorhexidine, iodine and iodophors, chloroxylenol [PCMX], triclosan) or Water and non-antimicrobial soap (e.g. plain soap) followed by an alcohol-based surgical hand-scrub product with persistent activity: Remove or destroy transient microorganisms and reduce resident flora (persistent effect). Follow manufacturer instructions for surgical hand-scrub product with persistent activity



STAFF SAFETY HIGHLIGHTS: PERSONAL PROTECTIVE EQUIPMENT

GLOVES

- Gloves are worn to protect the hands from contamination.
- Gloves must be removed and discarded immediately after the activity for which they were used, and hand hygiene must be performed.
- Gloves should not be worn outside any room or area where they are required for personal protection.
- Gloves must not be washed and reused.
- Gloves must be replaced if pierced or torn.

PROTECTIVE EYEWEAR

- They should be cleaned and disinfected between patients and whenever it becomes noticeably contaminated.
- Must be worn during the procedure.

MASKS

- It is to prevent or limit the transmission of the infectious agent.
- The mask should be changed whenever it becomes contaminated or wet.
- Must be worn during the procedure.

PROTECTIVE CLOTHING

- Wear long-sleeved protective clothing whenever spatter or spray is anticipated during dental procedures.

CLEANING, DISINFECTION AND STERILIZATION

CLEANING AND DECONTAMINATION

- Ultrasonic cleaner
The solutions should be changed daily or more frequently if they become visibly soiled.
- Washer/Disinfectant
- Pre-soaking. This can be done if cleaning cannot be performed immediately to avoid injury from sharp instruments.
- Wear puncture-resistant, heavy-duty utility gloves when handling or manually cleaning contaminated instruments.
- Use a strainer-type basket to hold instruments, as well as forceps to remove them.
- Wear personal protective equipment (PPE).

PREPARATION AND PACKAGING

- Packaging materials include wrapped perforated instrument cassettes, peel pouches of plastic or paper, and woven or non-woven sterilization wraps.
- Packaging materials should be designed for the type of sterilization process being used.

STERILIZATION

- All instruments must be properly cleaned, rinsed and dried prior to either disinfection or sterilization.
- Patient care items are categorized as critical, semi-critical or non-critical, depending on the potential risk for infection associated with their intended use.

STORAGE

- Sterile and single-use disposable items should be stored in an enclosed space, such as closed or covered cabinets.
- They should not be stored under sinks or in other locations where they might become wet and contaminated.

CATEGORY

Critical Items

Semi-Critical Items

Non-critical Items

DEFINITION

Penetrate soft tissue or contact Bone (e.g. All surgical instruments, periodontal scalers, etc.)

Contact mucous membranes or Non-intact skin (e.g. Mouth mirrors, amalgam condensers, reusable impression trays, handpieces, etc.)

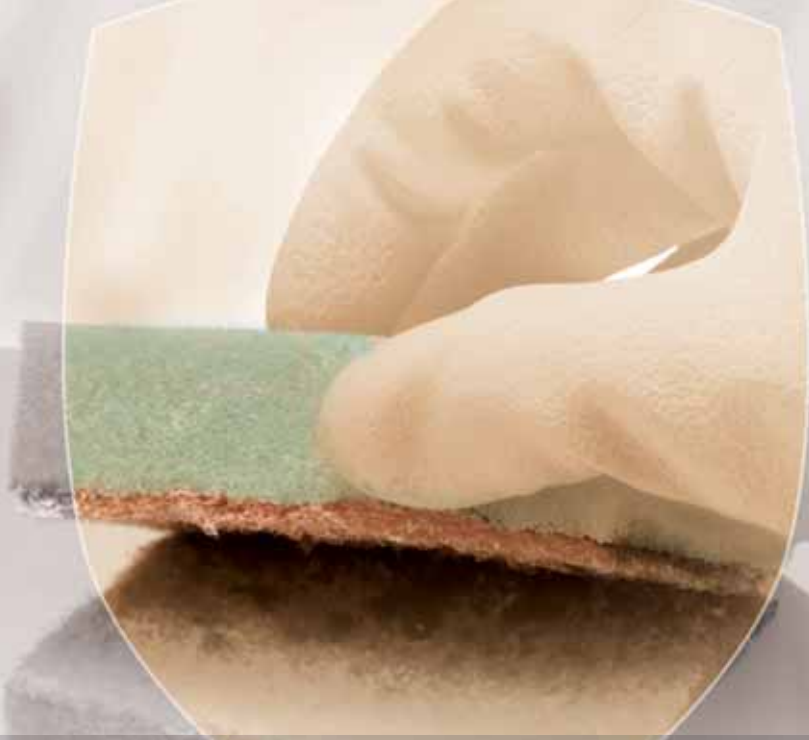
Contact intact skin, but non mucous membranes, or do not directly contact the patient (e.g. Radiograph head/cone, blood pressure cuff, facebow, pulse oximeter, etc.)

PROCESSING

Cleaning followed by sterilization

Cleaning followed by sterilization

Cleaning followed by low-level disinfection



OFFICE CLEANING, HOUSEKEEPING AND MANAGEMENT OF WASTE

Transmission usually occurs through hand contact or by touching the surface with a contaminated instrument. Environmental surfaces are divided into clinical contact surfaces and housekeeping surfaces.

CLINICAL CONTACT SURFACES

- Surfaces should be cleaned and disinfected between patients and at the end of the workday using an appropriate low-level disinfectant.
- Alternatively, clinical contact surfaces and equipment can be protected from contamination by the use of barriers.
- Barriers are particularly effective for those surfaces that are difficult to clean and disinfect, due to their shape, surface or material characteristics.
- Since barriers can become contaminated during dental procedures, they should be removed and discarded between patients using gloves. A new barrier should be used for a new patient.

HOUSEKEEPING SURFACES

- Housekeeping surfaces, such as floors and walls, have a limited risk of disease transmission.
- Fresh cleaning solutions should be made each day.
- Cleaning tools should be dried between uses.
- Carpeting and cloth furnishings are difficult to clean and cannot be reliably disinfected. They should not be used in patient treatment or instrument preparation areas.

BIOMEDICAL WASTE

- Biomedical waste is classified as hazardous waste and must not be disposed with regular garbage.
- It must be handled safely to protect human health and the environment.
- All biomedical waste must be stored in colour-coded containers that are marked with the universal biohazard symbol and released to an approved biomedical waste carrier for disposal.
- Biomedical waste can be further divided into anatomical (i.e. human tissue) and non-anatomical waste (i.e. sharps and blood-soaked materials)

GENERAL OFFICE WASTE

- Ensure all garbage containers are waterproof and have tight-fitting lids, preferably operated by a foot pedal. Open wastebaskets might be dangerous.
- Use plastic bags to line the garbage containers.
- Do not overfill garbage containers.
- Do not place sharp, hard or heavy objects into plastic bags that could cause them to burst.



EQUIPMENT ASEPSIS

DENTAL UNIT WATERLINES

● All waterlines should be purged at the beginning of each workday by flushing them thoroughly with water for at least 2 to 3 minutes. Before purging is carried out, handpieces, air/water syringe tips and ultrasonic tips should be removed from the waterlines.

DENTAL HANDPIECES AND INTRAORAL DEVICES

● Devices such as high and low-speed handpieces; prophylaxis angles; ultrasonic and sonic instruments; air abrasion devices; air/water syringe tips should be activated to discharge air and water for a minimum of 20 to 30 seconds after each patient use.

SINGLE-USE DEVICES

● Single-use devices such as syringe needles, prophylaxis cups and brushes, and certain orthodontic brackets, are usually not tolerant to heat and cannot be reliably cleaned or disinfected. Therefore, single-use devices should be disposed of appropriately after use.

DENTAL EQUIPMENT

● Manufacturer's instructions should be followed regarding the use of appropriate barriers, and recommended sterilization and disinfection procedures for these devices.



The information contained in patient records is confidential and must not be released to anyone without the consent of the patient, or his/her authorized representative, or as required or allowed by law. Therefore, it is important to remember that patient records should be stored securely and not left unattended or in public areas of the office.

Ask your Patterson Representative about Patterson EagleSoft and the features relevant to patient record.

TYPE N AND TYPE B STERILIZERS:

HOW TO CHOOSE?



Jean Barbeau, Ph.D.
Microbiologist,
Faculty of dentistry,
Université de Montréal

For more than a century high pressure steam at temperature above ebullition point has been a reliable and relatively simple means to achieve the destruction of microorganisms (virus and bacteria). Starting with the steam cooker the Papin (1679), Chamberlain (1879) made improvements and finally came up with the early version of the modern autoclave.

The principle of action is quite simple and has not changed since the end of the 17th century; the rise of the boiling temperature of water above 100°C (which is the temperature for pasteurization). Under atmospheric pressure, water cannot be hotter than 100°C. By increasing pressure, water can start to boil at 121°C or 132°C instead of 100°C. The hotter the temperature of the steam, the more severe the damage on the microorganisms will be and the faster they will kill microbes. For example at 121°C, the sterilization time is 12 minutes; at 132°C one will only have to wait 3 minutes to achieve the same sterilizing result; a four-fold time reduction for an increment of only 11°C! It is thus, in theory at least, possible to obtain a faster turnover of the instrumentation by sterilizing at higher temperature. If sterilization times are respected, sterilization at 121°C is as effective and reliable as at 132°C. There is however a physical limit to the speed of action of steam, and it is inherent in the operating mode of an autoclave.



[...] type N sterilizers, and type B are both excellent apparatuses of sterilization if they are used in the respect of the guiding principles of sterilization [...]

One should not lose sight of the fact that mechanical controls of the autoclave measure the average temperature of the sterilizing chamber and that the actual sterilization step starts only when the right temperature is reached. The more a sterilizer is loaded with instruments (which absorb heat) the longer the entire sterilization cycle will be. There is another physical limitation which one often forgets. In order for steam to have access to a large volume of materials that do not conduct heat, it may be necessary to allocate more time for the sterilization cycle. The biological indicators (bacterial spores) which are placed in your sterilizer are thin paper strips or small vials containing a small volume of liquid. At 132°C for 3 minutes, these strips and these vials are subjected to the sterilizing temperature during a time sufficient to destroy the 1 million bacterial spores in them and to indicate a success. Solid metal instruments (non porous, no lumens), being conductive of heat, reach the sterilizing temperature also quickly and heat distributes on all their surfaces. On the other hand it may be more critical that surfaces of items that do not conduct heat (plastic, fabrics, sponges, etc) must come directly in contact with the hot steam. Thus, a load which contains only items made of fabric (2 X 2, cotton rolls) would take more time to allow steam to have access to the whole of surfaces and the mesh of the textile. With a very short time, like 3 minutes at 132°C, the chances for that are decreased. For these loads, there will be more chances of success with a choice of a lower temperature (121°C) during 15 minutes or, if using a 132°C cycle, to push sterilization beyond 3 minutes. For example, in a microbiology laboratory, the decontamination of waste material (mostly plastics, fabrics and liquids) is carried out at 121°C during 20 to 30 minutes depending on the load.

To be effective, all the cold air of the sterilizer and the air trapped in and between the items of the load must be completely evacuated. If cold air pockets persist, the steam will not have access and the conditions of sterilization will be seriously impaired. Type N sterilizers (traditional autoclaves), which are currently the most common type in dental clinics nowadays, function by gravity displacement: cold air is evacuated at the bottom (or at the top for some models) of the sterilizer when it is kicked out by the steam. The problem is that the steam can push the cold air out only if it is accessible. Full metal instruments do not cause a problem, even when they are enclosed in a bag. However, porous items or instruments with hollow parts resist the gravity displacement of the cold air. A stack of 2X2, cotton rolls and endodontic sponges are sterilized with difficulty in type N autoclaves; sterilization time must thus be prolonged. Unfortunately, there is no simple rule to calculate the time necessary for the sterilization of this type of load. In theory, the handpieces, which are instruments with hollow tubing, are also more resistant to the displacement of the air which is trapped in the small bore air and water tubing. However, the small size of handpieces, coupled with the fact that they, being mostly metallic, are heat conductors, probably circumvents the problem. It is not the case with non-conducting porous loads.

The arrival of type B sterilizers on the market could solve these problems. Type B sterilizers are autoclaves as well as are traditional type N sterilizers: the steam is the active ingredient, and the parameters of pressure/temperature are exactly the same in both cases: 132°C/3 minutes and 121°C/12 minutes. So, one may ask, what is the advantage of the type B sterilizers? Well, instead of leaving with the vapour, the burden to push cold air out, a type B pumps it out by active vacuum. And the vacuum process is repeated several times. Nature abhors a vacuum. When the steam is injected into the sterilizer chamber, it is literally sucked in by this vacuum, wherever it may hide. To give an idea of the effectiveness of the process, imagine a stack of 500 tightly packed 4 X 4 in. paper sheets. A type B sterilizer will drive the steam between each sheet, tracking the microorganisms in their last hide-out! Type N sterilizers will find a serious obstacle there. They are not optimized for the porous or hollow loads.

The following table will give an overview of the differences between type N and type B sterilizers according to the type of load.

Sterilizer	Load	Temperature/time
Gravity (N)	Non porous. Metal no lumens	132°C, 3 minutes
Gravity (N)	Porous. Metal with lumens	132°C, 10 minutes
Type B	Non-porous. Metal no lumens	132°C, 3 minutes
Type B	Porous. Metal with lumens	132°C, 4 minutes

It thus seems, with a quick estimate, that type B sterilizers are faster and more advantageous than types N. It is not however necessarily the case. Type B sterilizers, as they must go through a series of pulsed vacuum steps, can take more time before reaching the point where sterilization can start. Thus, there is no automatic substantial saving of time compared to the traditional types N.

However, types B sterilizers show a significant advantage to the types N: in the drying of the sterile packages. The sterilization "laws" dictate that the packages must be dry before being handled or being stored. It is thus necessary to add a drying time to the complete cycle of the type N sterilizers. For the type N, drying takes place by gradual cooling and evaporation of the water of the packages. It is thus necessary to estimate this time which will vary depending on the load and take a note of that time to repeat it on the next similar load. Alternatively, you can program the sterilizer to add a specified time (or preprogrammed) drying step. Type B sterilizers, proceed to additional vacuum steps at the end of the cycle, thus actively eliminating the steam and the water wherever it is in the chamber. At the end of a cycle, the load is completely dry, and you do not have any calculation to make.



The sterilizers of the type B are thus advantageous in several aspects. However, it is also necessary to weight the following elements in the balance to make an enlightened choice.

ONE

All the sterilizers must be checked with chemical indicators and biological indicators: the type N and the type B as well. However, the type B must undergo another mandatory control: class 2 indicators. Class 2 indicators check the capacity of the sterilizer to achieve the vacuum needed. The Bowie-Dick test (or the Helix test) must be done once per week in addition to the others. These tests represent costs which you will have to add to the operational cost of your sterilizer. The type N sterilizers do not have to pass these tests.

TWO

Type B sterilizers will work in an optimal way only if the pump intended to make the vacuum functions adequately. Additional mechanical components must thus be well maintained and checked; if the pump or the filters are blocked by small debris (the use of cotton envelopes can generate lint) produced during the cycles of sterilization, they will cease their task and the sterilizer could be damaged. The procedure and the calendar of maintenance of your sterilizers must thus be adjusted consequently. It is also necessary to calculate sufficient space so that the exchanges of air are done freely around the sterilizer. Thus, take time to get all the specification so you can arrange the place which is appropriate for this type of apparatus.

THREE

There is at the present time no standard in North America which compels any clinic to use type B sterilizers. The European standard EN 13060 does not apply in our country (yet, must I add).

The more a sterilizer is loaded with instruments (which absorb heat) the longer the entire sterilization cycle will be.

In conclusion, type N sterilizers, and type B are both excellent apparatuses of sterilization if they are used in the respect of the guiding principles of sterilization and according to the type of load to be sterilized: volume of the load, type of items to be sterilized (metal with or without lumens, 2 X 2, cotton rolls, endodontic sponges etc). Although sterilizers on the market are almost entirely automated, judgment must always prevail: a failure of a sterilization cycle is under the responsibility of the operator and not of the machine. You must thus take all the time needed to weigh the advantages and the disadvantages associated with each type of sterilizers and to make an accurate evaluation of your needs. Your sales representatives are well placed and knowledgeable to guide you in your decision. In addition, independent sources are also available in continuing education courses, articles and with the help of infection control specialists who will be glad to answer your questions.

Have a nice sterilization