When Will Infection Control “Get Real”?  

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Do you recall receiving a booklet in the mail several months ago from the Centers for Disease Control and Prevention (CDC) entitled “Guidelines for Infection Control in Dental Health-Care Settings —2003”? What? You didn’t sit right down and read it? You haven’t implemented the recommendations yet? Why not?

You say it’s 66 pages and not fun to read—and you couldn’t find an executive summary anywhere? Well, it’s really only about 10 pages of actual recommendations. The other 56 pages are introduction, background, and review of some of the science related to infection control. Just because this comes first in the booklet doesn’t mean you can’t flip to page 39 and read the actual recommendations first.

The multiple acronyms bugged you? There’s the PPE to help avoid the need for the PEP, and the OPIM that could contain HAV, HBV, HCV, HDV, and HIV that threaten the DHCP. Don’t worry, after a while you remember what most of them mean.

You know, Doc, you can’t escape it. Putting off reading this booklet is like putting off a confirmatory diagnosis of a dreaded disease. Whether or not you acknowledge it, you have it. Subconsciously you are wondering, does this replace OSHA requirements or add to them? (You already know it doesn’t simplify or subtract from them.) Are you trying to think of a staff person who could figure it out for you, without morphing into Godzilla?

There are at least four major reasons you should not delegate infection control. Instead, appoint a staff person as your administrative assistant to help produce results, but retain the administrative lead yourself. Why?

1. Work related threats to patients and staff are clearly your responsibility.
2. Staff members come and go; the programs delegated to them come and go with them.
3. Infection control costs are substantial, in both time and dollars, and you need to know these costs well to determine your fees and to determine which third-party plans you can and cannot support. (As you know, many third-party plans provide only token reimbursement for infection control, and your infection control costs can exceed the reimbursement for some procedures.)
4. Only you, the owner dentist, have the authority to make final decisions and enforce controversial decisions.

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Unfortunately, once again, dentistry has been handed an infection control document with thousands of words dictating procedures and techniques in amazing detail, but giving virtually no information on the relative merits of the many products that make control of infectious microbes possible. There is no use trying to fool ourselves—infection control is a product-dependent discipline. Good techniques and procedures cannot overcome the consequences of facemasks and operating gloves that leak profusely, or disinfectants and antiseptics that have weak kill of bacteria and no kill of viruses. Unfortunately, clinicians cannot use price, visual appearance or company appeal as guides to products that effectively kill or block contaminating microbes, or those products that bolster your immune system to the point it can kill or block invading microbes.

The CDC’s implication that procedures and techniques can do the job without absolutely efficacious products is like sending a soldier into battle with an unloaded weapon. He looks like a soldier, acts like a soldier, but he lacks the firepower to be a soldier. Unfortunately, when deadly strains of microorganisms are encountered by clinicians, consequences can be rapid, deadly, and widespread due to failure of infected people to isolate themselves—as witnessed most recently in the Severe Acute Respiratory Syndrome (SARS) epidemic. After exposure and onset of symptoms, it is too late to worry about why you weren’t more careful.

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Let’s “get real” here. The reasons the official documents overflow with lists of procedures and techniques, and ignore the quality level of the necessary products that make infection control happen, are that:

1. None of the groups issuing guidelines, recommendations, and laws performs actual efficacy testing of products, so they have no first-hand data they can trust enough to defend legally, if the need arises. This includes CDC, OSHA, FDA, EPA, ADA, OSAP, and many other respected groups in medicine, nursing, and hospital administration.

2. All of these groups are hopelessly bound by a variety of entanglements that prevent candid reporting of full data on product efficacy—even if they were to test.

3. Infection control product efficacy testing is time consuming, expensive, and often difficult and thankless work that, of necessity, must not be funded or influenced in any way by industry.

So, you can probably see critical information on infection control product efficacy is not likely to be forthcoming from the sources that should be addressing the issue as they write your “guidelines”. Only Clinical Research Associates’ (CRA) non-profit microbiology lab tests the efficacy of all types of infection control products from all over the world, and reports candidly the full data. Sorry to say this folks, but it is true. You can write or call CRA to receive a listing of the few infection control products, of the hundreds tested by CRA, which have demonstrated efficacy and met manufacturer’s claims.

Now that you are aware of a very important and fundamental lack in the CDC document, let’s discuss some notable ways the CDC Recommendations compare with OSHA’s Bloodborne Pathogen document:

1. The CDC Guidelines are recommendations, not law. The OSHA Bloodborne Pathogen document is federal law. However, since these new recommendations come from the CDC and are written specifically to dentistry, they are likely to become the standard of care in legal challenges. So this is a fifth reason, Doc, that you should not delegate the reading of this document to a staff person, and forget it yourself.

2. The CDC Recommendations give very specific instructions on topics OSHA touches only by inference, or not at all. Take a moment to scan the three columns in Table 1 to see some interesting parts of the CDC Recommendations that are the same as OSHA’s Bloodborne Pathogen (BBP) document; similar to OSHA’s BBP, but expanded; and new and not covered in OSHA’s BBP document. This table is not comprehensive. It simply lists some items I found interesting or noteworthy. An upcoming issue of the CRA Newsletter will provide you with a comprehensive listing of the similarities and differences between OSHA’s and CDC’s content.
There are three problems with the CDC recommendations, which will be very misleading to clinicians—misleading to the point of being dangerous.

1. Inaccurate information on disinfectants. Clinicians are lead to believe that a TB kill claim assures kill of all other pathogens, including viruses, but not spores. This is untrue. The information presented in the figure on page 64 in Appendix A of the guidelines is simply not accurate. Tests performed by CRA in triplicate on over 140 different disinfectants from around the world using EPA’s quantitative tuberculocidal (TB) test* show there is not a reliable correlation between TB and virus kill. Yet this CDC document, and CDC and EPA classifications of disinfectants, seem to be based entirely on TB kill capability, and assumes virus kill will occur if TB is killed.

Below is a partial list of current disinfectant brands where CRA data show adequate kill of the TB bacteria, but not of a commonly used nonlipid test virus (poliovirus)**, as long as no bioburden is present:

- Amcide
- Aseptiphene 128
- Asepti-phrase RTU
- Bi-Arrest
- Bi-Arrest II
- Biocide
- Coe Spray
- Coe Spray “The Pump”
- Discide Ultra Wipes
- Ectru
- FD 320
- FD 322
- Formal Spray
- Generic Isopropyl Alcohol
- Lysol I.C. Ready to Use Cleaner
- Viralex with T36
- Iodovine
- Iodophore
- Lysol I.C. Cleaner
- Miacide-FD
- Procide Spray
- Professional Amphyll (1:200)
- Professional Amphyll (3:100)
- Sporicidin
- Sporicidin Wipes
- Super Sani Cloth
- Virguard Towelettes
- Virahol
- Vital Defense-D
- Wescodyne
- Bio-Arrest II
- Bio-Arrest
- Aseptiphene RTU
- Aseptiphene 128
- Bi-Clorex
- Biosurf
- Birex SE
- Cabricide
- Citrace
- Citrex
- Clorox Disinfecting Spray
- Clorox 1:2
- Clorox 1:5
- Clorox 1:10
- Clorox 1:100

Then, there are the products that have the opposite incomplete kill profile—where they do not kill TB, but they do kill the poliovirus. Current brand names include:

- BBJ Disinfectant
- Lysol I.C. Foaming Cleaner
- Lysol Brand II Sprays, Germxtra (available in Canada), and Glen 20 (available in Australia). All three have high ethyl alcohol formulations.

B. Exspor, plus Clorox mixed 1:2 (one part Clorox with one part water) up to Clorox mixed 1:5 to dilute its odor, bleaching and damaging potentials. All of these disinfectants have chlorine-based formulations.

But CDC tells you none of this. In fact they say, “The choice of specific cleaning or disinfecting agents is largely a matter of judgment, guided by product label claims and instructions and government regulations.” The problem here is label information is not necessarily correct, and often not even clinically doable.

Example, how do you maintain liquid disinfectant on vertical surfaces in your operatory for ten minutes? What about basing your judgment on the reason you buy and use a disinfectant in the first place—its proven ability to kill microbes? Where do you secure kill data that are reliable, rather than driven by marketing? The truth is, if strictly honest kill data were actually provided to you, most companies that sell disinfectants would go out of business or be forced to find or develop new potent formulations. As it is, from a number of sources, you are led to believe disinfectants have similar kill. Based on this misinformation, you search for those that smell pleasant, don’t disturb your surfaces, and have nice salespeople, instead of seeking the products that have fast, broad-spectrum kill in the presence of bioburden. So, if a virulent virus, like the SARS virus, emerges suddenly and comes your way, you will be caught unprepared.

2. Illogical sequence recommending cleaning before disinfecting. For years, CRA has been trying to warn clinicians that cleaning before disinfection and sterilization is dangerous and not scientifically sound. One of the major principles of infection control is DO NOT TOUCH CONTAMINATED ITEMS. Yet the CDC document repeatedly recommends cleaning first, which encourages clinicians to handle items...
immediately following patient treatment, when infectious organisms are most likely to be viable. Getting stuck by a contaminated instrument introduces another person’s bodily fluids directly into your bloodstream. Think about this. I am appalled that experts in infection control continue to recommend the “clean before you disinfect” sequence.

Clinicians, TURN IT AROUND—disinfect before you clean. The unsound practice of clean first then disinfect has been recommended for years to try to overcome the inability of most disinfectants and sterilization processes to penetrate bioburden and kill the organisms within it. Today there are better ways. We have high ethyl alcohol disinfectants that kill in the presence of bioburden and should be spread liberally to lower microbe counts before cleanup begins. We have washer-disinfector machines that can be loaded using tongs, thus avoiding all contact between the cleanup person and contaminated instruments. Sterilization follows treatment in the washer-disinfector.

3. Low and high performing concepts are mixed indiscriminately, implying equal performance. Hand hygiene recommendations include “non-antimicrobial soap, antimicrobial soap, and alcohol-based hand rubs”. CRA studies using the glove juice test*** show statistical differences in microbe reduction on hands treated in these three different ways. In addition, the type, concentration, and amount of alcohol rub dispensed onto the hands make a substantial difference in numbers and types of microbes affected. High ethyl alcohol preparations have had significantly better performance than isopropyl alcohol formulations, and they kill viruses which isopropyl alcohol fails to inactivate. So the “alcohol-based” products do not perform equally well. Gel carrying agents and the density of foam-dispensed preparations have also been significant factors in performance. If the CDC’s recommendations were to be truly helpful to clinicians, the options suggested need to be ranked in order of antimicrobial potential, along with a listing of the pros and cons of each product. But CDC cannot do this because they do not test. They say this vital area of product efficacy is “beyond the scope” of their document. The same problems exist as their document discusses facemasks versus face shields, antimicrobial active ingredients, and many other products.

I do not know if the CDC staff that prepared the recommendations is aware of the problems mentioned above. I can see a lot of time, effort, and money have been expended to produce these guidelines and mail them to clinicians throughout the U.S. I believe the omission of product efficacy information and the three problems listed above represent serious lacks in this important document of which clinicians need to be aware.

Clinicians need a government owned and well supported testing lab where all products used in infection control are tested, ranked, and categorized so clinicians know exactly what they are buying. The present system protects the infection control industry instead of the clinicians and their patients!

Let’s “get real”! One of these days a new virus strain will engulf the earth, and we will be caught unprepared, wishing we had been more focused on practical essentials and less concerned with politics.

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She is a member of the Academy of Esthetic Dentistry, the International and American Associations for Dental Research, and the American Society of Microbiology. As a non-dentist, she has been inducted into the Academy of General Dentistry as an Honorary Fellow, and into both the Academy of Dentistry International as an Honorary Member, and the International College of Dentists.
TABLE 1: Comparison of some of the new CDC recommendations with OSHA’s Bloodborne Pathogen (BBP) law. (The information in this table is not comprehensive, instead I have listed items I found most interesting. Besides, if I listed everything here, you might find another reason not to read the CDC document!)

**CDC Recommendations same as OSHA BBP**

1. Training of all personnel to occur a minimum of annually.
2. Need for written policies, procedures, and guidelines specifically for your practice.
3. Maintenance of confidential health records for all employees, including innoculations, exposure incidents, etc.
4. Removal of barriers and protective clothing before leaving the work area.

With any other CDC recommendations are the same as OSHA’s BBP. The above are just a few that dentists have had trouble fulfilling since set forth in 1991.

**Similar, but CDC expanded OSHA BBP**

1. Written Materials
   A. Postexposure protocol is greatly expanded.
   B. Work restriction policy is advised to be very detailed.
2. Hand Hygiene
   A. Specifics regarding handwashing are enumerated.
   B. Use of “alcohol-based handscrubs with persistent activity” following handwashing is now listed as one of several options before surgical procedures. OSHA said to use these only when soap and water were unavailable.
3. Gloves
   A. “Medical gloves” are recommended when contact with blood, saliva, mucous membrane, or other potentially infectious materials is probable.
4. Importance of face mask is mentioned.
5. Protective clothing should cover forearms.

**New—Not in OSHA BBP**

1. Baseline tuberculin skin test (TST) is recommended; “regardless of the risk classification of the setting”. (Good idea!)  
2. Specifics in management of latex sensitivity are listed. (Good information.)
3. Specifics concerning the hepatitis vaccine are listed, such as:
   A. After receiving the hepatitis B vaccine 3-dose series, test 1-2 months later for anti-hepatitis B surface antigen levels.
   B. Non-responders to the hepatitis B vaccine are advised to receive a second 3-dose series and again be tested for anti-hepatitis B levels. (This type of specific information on this subject has been needed.)
4. Adding soap or lotion to partially filled containers is prohibited. (Gotchah!)  
5. Use of lotions to prevent skin dryness is recommended. (Watch it—some of the “fun” cosmetic lotions are loaded with bacteria. However, the “un-fun” medical lotions often have been treated so they are not colonized.)
6. Checking compatibility of hand hygiene products with your glove brand is recommended to assure no adverse interactions. (This requires a few phone calls, but is good advice.)
7. Short, smoothly filed fingernails, and no artificial nails or extenders are recommended. (Strangely, use of nail polish is not mentioned anywhere.)
8. Hand and nail jewelry are prohibited. (This, of course, leaves you open to flirtatious patients who assume you are single!)  
9. Screening of all patients for latex allergy and providing a “latex-safe environment” are recommended. (You’d be surprised how many common items contain latex. Is there latex in this pencil eraser?)
10. Emergency kits using latex-free products are recommended. (You’d be surprised how many common items contain latex. Is there latex in this pencil eraser?)
11. Separate sections are written with detailed information on sterilization and disinfection, design and use of instrument processing areas, processing of wrapped and unwrapped instruments, sterilization monitoring with specific steps in the event of positive spore tests, and storage of sterilized instruments. Most notable are the following recommendations:
   A. Use of an internal chemical indicator within each package of wrapped instruments and each load of unwrapped instruments. (What is a chemical indicator? You better get to an infection control course soon.)
   B. Use of only FDA cleared instrument wraps. (No more rolling instruments in paper towels and Kleenex!)  
   C. Use of wraps on all critical instruments (those that penetrate mucous membrane and skin) which you plan to store. (So if you are not seeing patients 24 hours a day, seven days a week, this means you need to wrap all critical instruments.)
   D. Use of biological monitors “at least weekly”. (ADA has said this for years, but some dental clinicians have interpreted “weekly” to mean whenever a staff member fusses! Folks, sterilizers malfunction, humans commit errors, and biological monitors have expiration dates. Anyone of these compromise the word “STERILE”.
   So you really do need to monitor at least weekly. Hospitals must use biological monitors with every load!
12. Avoidance of carpeting and cloth-upholstered items in operators, labs, and instrument processing areas is recommended. (Well—there go the hard-to-down dental hygiene operator furnishings!)  
13. Dental unit waterline minimum heterotrophic bacteria allowable was raised form ADA’s 200 cfu/milliliter to EPA’s drinking water standard of 500 cfu/milliliter. (This change is, of course, strictly esoteric since you can’t see microbes in the water, dental clinicians don’t know what a cfu is, and a milliliter is a measurement used everywhere except here in the U.S.)
14. Handpiece heat sterilization is directed after each patient use, and use of disinfectants and chemical sterilants (including ethylene oxide) are prohibited. The same is directed for “other instruments that can be removed from air and water lines of dental units”—whatever that means. (Have you ever tried to heat-sterilize your quick disconnect air-water syringe after each patient? Good luck! Maybe that’s why they left the wording so vague!)  
15. Advising patients to close their lips around the saliva ejector tip to assist intraoral fluid evacuation is prohibited (Wow! The people writing this stuff are really onto us!)  
16. Dental laboratories are to use personal protection (mask, gloves, eye protection, protective clothing) when handling items sent in from dental offices (impressions, dies, etc.) They are to clean, disinfect, or heat sterilize items like face bow forks and metal impression trays, and other items used in the oral cavity. They are to sterilize or disinfect items that become contaminated but do not contact patients such as rag wheels, polishing points, case pans, etc. (Life in the dental lab is about to increase in complexity!)  
17. Surgical smoke from lasers and electrosurgery units was discussed, but no recommendations made since the issue was categorized as “unresolved”. (I have read reports of aerosolized viruses resulting from the use of lasers. I would refrain from laser soft tissue lesions such as “cold sores”.) …and many more new procedures and techniques are detailed out in CDC’s recommendations. An upcoming issue of the JADA will give you the comprehensive list you need.

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