

# High stakes safety: don't panic – you've got this!

What we will cover  
Today's safety standards in perspective  
Basic tenants of infection control & prevention  
Rules: minimum standards  
Guidelines & best practices  
Resources  
What works best? Hierarchy of safety protocol  
Respiratory protection update

Safety in perspective

## **Chain of Infection**

Standard Precautions  
Minimum Standards for All Patients  
Review & optimize:  
Hand hygiene  
PPE  
Respiratory hygiene / cough etiquette  
Sharps safety  
Safe injections  
Instrument, device sterilization  
Environmental asepsis cleaning, disinfection, barriers

## **Standard precautions**

Proven effective for controlling

**Bloodborne diseases**

**Contact diseases**

**Droplet diseases**

Not effective for airborne diseases

**SARS-CoV-2 has changed dental safety standards**

**Consider everyone infectious for ALL types of diseases, including aerosol-transmitted diseases**

Cannot rely on screening

**Plan for safer buildings, more air management**

**Upgrade traditional PPE**

**Exposure response**

**Apply today's lessons to your healthy future!**

Infectious diseases

Bloodborne diseases are critical, but....

80% of common infections (colds, flu, diarrhea) – spread by contact, air, water, food, fomites

Now: COVID-19, respiratory syncytial virus (RSV), flu, norovirus

Stay informed: CDC.gov, OSHA.gov, OSAP.org, CDA.org

IC 101

Treat everyone as if infectious: (bloodborne, droplet, contact & airborne diseases)

Isolate & separate

Clean before disinfect / sterilize

How do microbes die?

Heat (how hot?)

Chemicals (Which ones? What concentrations? What contact time? How toxic?)

Is resistance likely?

Are your systems working?

How do you know?

Evolving rules, recommendations:

OSHA (COVID) Healthcare ETS expired (Fed OSHA)

Continue to follow CDC's updated HEALTHCARE Recommendations based on risk

Use local community Transmission Levels to determine IC protocol

Assume higher risk during flu season (Oct. – Apr.)

Recommendations change & evolve

Laws take time to reflect research

Healthcare is excluded from CDC rec's for public

Hierarchy of Rules

OSHA: Occupational Safety & Health Administration laws

Based on CDC, NIOSH, ANSI recs

State Board laws

Include CDC & OSHA & ADA standards

Civil & Health Dept.... laws

FDA, EPA laws

Instructions for use

CDC Recommendations

Based on research

Set standards, not "laws" unless by reference

Consensus standards

NIOSH, ANSI used to determine "appropriate" to meet OSHA general industry safety standards

Expert statements, State Associations, ADA, OSAP (compliance = common, voluntary)

Competition, marketing, reputation

Must Post In Office:

*Appendix 3*

*Dental Board of California*

*Infection Control Regulations*

California Code of Regulations Title 16 Section §1005

Minimum Standards for Infection Control

**All DHCP must comply with & follow OSHA laws**

**(b) (1-3)**

OSHA Reg's

Bloodborne Pathogen standard

(29 CFR 1910.1030)

(BBP does not address respiratory secretions)  
Personal Protective Equipment  
(29 CFR 1910.132 & 133)  
Respiratory Protection standards  
(29 CFR 1910.134)  
Recordkeeping  
(29 CFR 1904)

OSHA incorporates CDC, ANSI, NIOSH rules by reference

**Cal/OSHA – CCR Title 8 regulations**

§ 5193. Bloodborne Pathogens.

<https://www.dir.ca.gov/title8/5193.html>

§5144. Respiratory Protection.

<https://www.dir.ca.gov/title8/5144.html>

§5199. Aerosol Transmissible Diseases: “The ATD standard”

<https://www.dir.ca.gov/title8/5199.html>

Must screen and exclude ATDs to be exempt

§3205. COVID-19 Prevention. Feb 3, 2023

<https://www.dir.ca.gov/title8/3205.html>

New IAQ standards, allows choices for PPE & policy based on risk

CA Dept. of Pub. Health: Guidance for The Use Of Facemasks Apr. 3, 2023

<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/COVID-19/Guidance-for-Face-Coverings.aspx>

Replaces “mandated” masking with “recommended” in healthcare

**CAL/OSHA COVID-19 Prevention**

Non-Emergency Reg’s

(2-year law, expires Feb. 2025)

Written COVID-19 prevention plan with IIPP

Recognize COVID as hazard, implement safety steps

CDA has updated COVID addendum to IIPP

New definitions (may change, following CDPH rules):

“Close contact” calculated based on size of space: <400,000 cu.ft – “sharing same space” 15 min in 24 hrs

>400,000 cu.ft – “w/n 6’ 15 min in 24 hrs

“Exposed group” = those in close contact

“Infectious period” – 5 days w/ (-) test & no fever

**CAL/OSHA COVID-19 Prevention**

Non-Emergency Reg’s

(2-year law, expires Feb. 2025)

Must track cases & report to Cal/OSHA: major outbreak

> 20 employee cases w/n 14 days

Provide free COVID-19 testing after work exposure

Notify employees of COVID exposure to (+) case

Exclude (+) cases: screen, send home, test all exposed

Notify in writing exposed workers w/n 1 business day

Investigate exposure, correct errors

<https://www.dir.ca.gov/DOSH/Coronavirus/Covid-19-NE-Reg-FAQs.html#definitions>

CAL/OSHA COVID-19 Prevention

Non-Emergency Reg's

(2-year law, expires Feb. 2025)

Must provide face coverings & ensure they are worn as ordered by CDPH

CDPH recommends everyone to wear masks in healthcare settings

Respirators & CCR Title 8, sect. 5144 Appendix D must be provided (for voluntary N95 use)

Employee must use certified mask designed for appropriate filtration CORRECTLY  
**Improper mask, used incorrectly creates risk**

<https://www.dir.ca.gov/title8/5144d.html>

CAL/OSHA COVID-19 Prevention

Non-Emergency Reg's (2-year law, expires Feb. 2025)

Ventilation

**Review CDPH "Interim Guidance** for Ventilation, Filtration, and Air Quality in Indoor Environments"

**Evaluate ventilation** for COVID-19 transmission risk

Implement changes as necessary: with other strategies;

**Maximize outside air** unless EPA Air Quality Index >100 for ANY pollutant or unsafe temperatures

U.S. Pub. Health: AQI of 101 requires N95

**Operate HVAC continuously:** MERV-13 or highest level compatible  
**HEPA filtration units** as recommended, where ventilation is inadequate

CAL/OSHA COVID-19 Prevention

Non-Emergency Reg's (2-year law, expires Feb. 2025)

Aerosolizing procedures: employer evaluate need for transmission-based precautions (respirators) & implement

<https://www.dir.ca.gov/oshsb/COVID-19-Prevention-Non-Emergency.html>

- **GENERAL INDUSTRY SAFETY ORDERS,**  
New Sections 3205, 3205.1, 3205.2, and 3205.3

Cal guidance on facemasks in high risk settings (dentistry)

April 3, 2023

<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/COVID-19/Guidance-for-Face-Coverings.aspx>

Masks not required to enter office (patients, visitors, workers), but highly recommended: NOTIFY ALL

Offices set own policy based on community activity & individual vulnerability

Must screen for COVID-19

Follow Cal/OSHA & dental board IC regs

N95 for aerosolizing procedures

Employers must supply respirators & masks

OSHA's general duty clause

All employers will furnish a place free from RECOGNIZED hazards that cause or are likely to cause death or serious physical harm

“recognized”: by industry, employer, or common sense

Ex: encourage employees to be vaccinated, use PPE, safe practices (recognized by OSHA as best precautions)

MUST comply with all OSHA standards

Each employee shall comply with OSHA standards and all rules, regulations related to their own actions

<https://www.osha.gov/coronavirus/safework>

Update & Edit your IC plan

Add addendum to Injury & Illness Prevention Program

Written COVID-19 prevention & resp. Protection plans

Employee risk categories include ATD exposure

**ATD screening & plan (Aerosol Transmitted Diseases)**

CDC updates & IC recommendations

OSHA General Safety / Preparedness

How Ready Are We?

OSHA Programs

Written emergency plan (> 11 employees)

Fire prevention & response

Sprinklers, hoses, extinguishers?

Compressed gas tanks?

Smoke is black & deadly

Drop to the floor

Close doors to contain it & flames

Fire

Fire rated doors: time it takes fire to burn through

Close to keep halls safe

Alarms: Sirens & Lights

Manual & auto

Smoke detectors

Change batteries / with clocks

Replace units @ 10-12 years

Assume alarms = real!

GO!

Fire Sprinklers

Activated by heat

Flush or hanging

Need minimum of 18" clearance to work

Water is contaminated!

Fire Drills

Practice!

Who are your evacuation leaders?

Herd mentality

The hidlers

How Ready Are We?

OSHA Programs should include:

Emergency med. eval. & response

Escape routes

Audible & visible alarm

Accountability, roles, duties

How to report emergency

Who to contact for info

Chemical storage

Electrical safety

Clear exits

Emergency equipment

Earthquake Reminders

Bolt & brace water heaters & gas appliances to wall studs

Bolt tall furniture (bookcases, china cabinets) to wall studs

Do not hang heavy items (mirrors, etc) over beds, work areas

Brace overhead light fixtures

Install strong latches / bolts on cabinets (with wrench)

Know your building: utilities, exits...

Earthquake Response

If You're Inside...

Drop, cover, hold on. Stay still.

If in bed, stay there, curl up, hold on. Protect head.

Stay inside until shaking stops.

Avoid elevators. Use stairs only!

Avoid windows (glass shatters, may be delayed)

Sprinklers & fire alarms may go off

Earthquake Response

If You're Outside...

Go to a clear spot, drop to the ground until shaking stops

Avoid buildings, power lines, trees, streetlights

If in a vehicle, pull over, stop. Stay in seatbelt.

Avoid bridges, overpasses, power lines

Drive if safe, after shaking stops

If power line falls on car, DO NOT GET OUT. Wait for help.

Watch for landslides, expect traffic light outages

Occupational Exposure to

Infectious materials

First aid for exposure

Skin:

Wash thoroughly – running water & antimicrobial soap

Avoid abrading skin

If no water, use approved antiseptic hand cleanser, wash when possible

Eye:

Thoroughly rinse using eye wash station

Mucous membrane

Thoroughly rinse using antimicrobial

Orally: antiseptic mouthwash  
Occupational Exposure to Infectious materials  
First aid for exposure

Perenteral –

Control excessive bleeding

With limited bleeding: “milk” wound to flush

Thoroughly wash wound & adjacent tissue – antimicrobial soap & running water  
ASAP

If no water: approved antiseptic skin cleanser

Airborne –

Prevent exposure with masks NIOSH approved N95 masks for known airborne diseases unless immune (measles, chicken pox)

Susceptible workers stay out of room

Workplace Readiness

Spill kits, SDS's

Caustic chemicals in fireproof cabinet

Compressed gas tanks secured

Emergency kits, meds

PPE

Trained dental team

Site inspection ~yearly

Hazard communication

Pictogram +

Single word warning

(located on SDS)

Hazard communication

more than labels!

Posters & signs

Monitoring & communicating risks

Physical

Chemical

Radiological

Infection risks

Requires education, information & two-way communication

**Measuring Risk: Dosimeters**

X-ray dosimeters – fixed equipment

Dosimeters not required with mounted units, BUT:

Must prove each employee has  $\leq 10\%$  of 5 rems annual exposure.

Use dosimeters periodically (1 year on, 2 years off...)

Monitor with ANY NEW equipment

Pregnant employees must wear dosimeters - entire pregnancy

**X-ray dosimeters – portable equipment**

**Are dosimeters required when using portable x-ray systems?**

**X-ray dosimeters – portable equipment – required?**

CODE OF **FEDERAL REGULATIONS**, NUCLEAR REGULATORY COMMISSION, 10 CFR 20

(Incorporated by reference in Section 30253, California Code of Regulations (CCR), Title 17.) **REQUIRES:**

Dosimeters, evaluated monthly

Records must be available to Dept. of Public Health

Must use FDA approved device following IFUs

Backscatter shield permanently attached, unbroken

Training and records

**EXEMPTION:** dosimeters NOT required for Dexcowin DX3000, KaVo Nomad Pro2, Aribex Nomad, Aribex Nomad Pro, Nomad Pro2, Aribex Nomad eXaminer, and Nomad 75kV

### California requires x-ray shields

Title 17 of the California Code of Regulations (CCR)

Covid concerns

New variants – evade immunity

Current surge (detected in wastewater)

Long COVID???? (1 month after illness) ~10% of U.S. cases

Fatigue, respiratory, cardiac, neuropsychiatric and GI dysfunctions....

Immunocompromised, diabetes, heart, lung, kidney diseases...

Autoantibodies

Covid concerns

SARS-CoV-2 linked to newly diagnosed diabetes & heart damage & attacks, arrhythmias, strokes, clots

≥ 30 days after infection

All ages! (Not just <18)

Post-COVID (even mild); screen for:

Frequent urination, increased thirst & hunger, weight loss, fatigue, stomach pain, nausea, vomiting

Arrhythmias, heart attack & stroke symptoms

Ask patients & be self-aware

### Airborne Transmission of SARS-CoV-2

Criteria for determining risk

is it safe????

Disease activity locally

Specific pathogen features (mode of transmission, transmissibility, severity)

Mitigation strategies in place

Eliminate/reduce contact & exposure

Tele-dentistry, distancing, barriers

Engineered safety devices / technology



Suction, HVAC, **Air filtration & changes**  
Rules, protocol, management (screening, source control...)

**PPE**

Vaccination status + immune profile

Aerosol generating procedures

AGP: aerosol generating procedure or people!

Elimination & substitution

Electronic (distant) communication: (inform, assess, pre-screen, treat pts – phone)  
prior to appt & on arrival

**Isolate, discharge, refer all symptomatic pts & HCWs**

Reception area: isolate & separate people

**Remove fomites: magazines, TV remote, pens....**

Reduce / reduce aerosolization

**Hand instrumentation, low spray, high suction**

Still Screen for

Covid-19

Typically mild cases have runny nose, headache, malaise, fever?, sore throat,  
cough...

Do NOT treat active (COVID) patients

COVID-19 & other ATD Screening

Check:

**Temperature!**

**Blood oxygen**

Dental Worker covid-19 screening

HCW's self-assess temp. daily even if asymptomatic (100.0°F!) Symptomatic workers  
must be evaluated promptly

If ill, mask & dismiss

Follow return-to-work guidance

Tuberculosis Policy

MDR TB = worldwide risk

Develop TB program appropriate to risk

Screen patients:

**History of TB?**

**Look for active cases of TB**

Dental workers: Tuberculin skin (TST) or blood (IGRA) test when hired & per risk

Other Airborne Diseases

Primarily aerosol – transmitted:

Measles

Varicella (including disseminated zoster)

Tuberculosis

Aerosol & droplet transmitted:

Flu, SARS, Pertussis, mumps, meningitis

Do NOT treat without special precautions

Screen for all atd's  
TB, Flu & Other ATD's  
TB

**Fever, cough....**

Flu

**Fever?  
Body aches?  
Runny nose?  
Sore throat?  
Headache?  
Nausea?  
Vomiting or diarrhea?**

Fever = 100.0°F

If yes, re-appoint, refer

Pertussis, measles, mumps, rubella, chicken pox, meningitis

**Fever, respiratory symptoms +  
Severe coughing spasms  
Painful, swollen glands  
Skin rash, blisters  
Stiff neck, mental changes**

Chronic Respiratory Diseases

(NOT ATD's, no fever)

Asthma

Allergies

Chronic upper airway cough syndrome "postnasal drip"

Gastroesophageal reflux disease (GERD)

Chronic obstructive pulmonary disease (COPD)

Emphysema

Bronchitis

Dry cough from ACE inhibitors

norovirus

Most common cause - acute gastroenteritis in U.S.

Symptoms: extreme vomiting & diarrhea

Most common Nov. to April (but year around)

Ingestion: food, water, hand-to-mouth (restaurants), recreational & drinking water

Infective dose: <100 virions. Ill people shed billions even >2 weeks after symptoms resolve

No vaccine, hand sanitizers not effective

Mpx

Mpox

infectious until lesions totally resolved - new skin formed

polio

1980's – eradicated in U.S.

July/August, 2022: 1 w/ paralysis

Tip of the iceberg

Don't forget iron lungs

Fecal-oral transmission

Vaccine - preventable

Unvaccinated children!

Surface disinfection, x-contamination, PPE

### **How Do We Combat**

#### **Fear & dis-information?**

With science & logic

Vaccine basics:

All vaccines: ~5-10% of vaccinated may not respond (or weakly)

Vaccines assist immunity,

**Build antibodies ~ 2 weeks**

Host's immune system determines the strength of both recovered (convalescent) & vaccine immunity

**Immunocompromised likely to have less & shorter immunity**

Make Sure You Are Protected!

HBV

HAV

Influenza

Measles

Mumps

Rubella

Varicella-Zoster

Polio

COVID-19

[www.CDC.gov](http://www.CDC.gov): new adult vaccine recs

OSHA policies:

**New hires & employees**

Tetanus, diphtheria

Pertussis

Pneumonia

Meningitis

HPV

Smallpox??

Building safety Standards

IAQ matters (healthy vs. Sick buildings)

**Airborne diseases**

Legionella, viruses, molds

Indoor chemical pollutants – high during operating hours  
VOCs, CO<sub>2</sub>, particulates

Odors affect experience  
Allergies, illness

U.S. medical settings must meet healthcare building codes  
Air changes / hour (ACH) – set for medical hospitals  
(Dental???)

Dental is under business codes currently. Changing....

How many ACH's are recommended?

**"ACH" = air changes/hour**

New ashrae standard 241 to control indoor airborne pathogens

Defines "normal" & high infection risk times

Requires Infection Risk Management Mode (IRMM): ventilation levels - apply during times of higher infection risk

IRMM for a space – based on # of occupants

Can be met by outside, filtered recirculated, or disinfected air

Provides calculation models for IAQ monitoring

Requires more testing of filters, mechanical systems

American Society of Heating, Refrigerating and Air-Conditioning Engineers, ASHRAE Standard 241-2023, Control of Infectious Aerosols. ISSN 1041-2336B [ashrae.org/241](http://ashrae.org/241)

Engineering controls

Built-in solutions for room air management

Motors, ducts, filters

Optimize building HVAC fresh air changes, cycles, filtration

**MERV 13**

**Install HEPA filters only if HVAC = designed for HEPA filtration (HEPA = MERV 17)**

Building maintenance (ducts, filters)

Filters may impede airflow

Fit matters! Bypass airflow is not filtered

Engineering controls

Separate HEPA air cleaners

Goals:

> circulation, air movement

Controlling airflow direction

Filtration

Source capture (external suction)

Consider moist aerosols

HEPA filtration units can recycle or exhaust air (creating (-) pressure)

Validate equipment claims

Hepa filter unit considerations

Air movement capacity: CFM (cubic feet per minute)

Certified & clinically tested: meet CDC ACH standards

Noise level

Replaceable filters

Location, air-flow direction

Source Capture Equipment

GOAL: Contain aerosols as much as possible, as close to the source as possible

Saliva ejectors remove fluids, not aerosols

- High Volume Evacuation (HVE)
  - More effective on larger droplets than aerosols – but remove some air
  - Rebalance system: hygiene HVE = operative HVE power
- Extraoral suction
  - More effective on aerosols

**room air control: physical modifications?**

Space dividers, walls, screens, windows, curtains (must tolerate disinfection & NOT stagnate air flow)

Killing airborne germs

Ultraviolet germicidal irradiation (uvgi)

Targets air & surfaces

Directional (shadows)

Must vacate room at higher doses

Efficacy requires specific dosage, airflow, time

MUST consider ozone emissions

Fans & Air movement

Place in windows, doors on exhaust mode

Roof fans: exhaust to outside

Defeat auto efficiency settings: run fans 24/7

Open windows (even slightly)

New HEPA filters can minimize air resistance

Air direction: dirty-to-clean, away from operator

Consult industrial hygienist, HVAC or structural engineer

Interim covid-19 dental recommendations **recap**

**Maximize:**

**Ventilation & air movement**

Outside air intake

Air filtration

HVAC

HEPA filtration units  
Air disinfection  
UV

HVE required!  
saliva ejectors = inadequate  
Dental study: viral reduction  
IADR study: sampled droplets & suspended virus  
Electric handpieces – significantly reduced aerosols

**No DUWL**

Rubber dams, HVE, HVAC also provided significant reduction  
External suction less important than electric handpieces  
Pre-procedural rinses – limited, transitory:  
Repeat rinses

1-1.5% hydrogen peroxide  
0.2% povidone  
Dilute bleach (corrosive)

SARS CoV-2 = sensitive to oxidizing products  
Chlorhexidine (CHX)?  
Administrative controls

Rules, training, consensus  
Respiratory hygiene / cough etiquette, hand hygiene  
Scheduling: isolate & separate patients in time & space  
Appropriate source control – face coverings  
Infection control coordinator  
Respiratory protection program

**ADA, OSHA**

Masks & sanitizer for patients  
Infection control coordinator  
Assign a person

**Safety Manager**  
Must be a leader  
Qualified, trained, empowered  
Any of us might qualify!

Get certified: Dental Infection Prevention and Control (CDIPC)  
DANB.org, osap.org  
<https://www.osap.org/page/RoleofICPC?> – OSAP initiative

**Organization for Safety, Asepsis, and Prevention**

**Why join?**

“Go to” source for all infection prevention and patient safety questions.

New, robust website includes best practices, tool kits, and member forums allowing you to network with global infection prevention leaders.

**OSAP.org**  
join today!

## OSAP newsletter

### Indoor Air Quality Control

Sharps Exposures

Sterilization

Respiratory Protection

Culture of Safety

Infection Control Coordinator Role

Patients' Perspectives

Operatory Asepsis

2 choices:

cover it or disinfect it

Use FDA cleared medical grade barriers

(tested for viral & bacterial penetration)

Environmental asepsis

(unseen droplets)

EPA intermediate level disinfectant - operatories

Extend frequent disinfection protocol - all touch / transfer surfaces

EPA list of SARS CoV-2 disinfectants

Weekly deep cleaning – remove chemicals, dry biofilms

Chemical cleaning & disinfection

Follow Label Directions

Clean (surfactant) before disinfecting

High alcohol fixes proteins to surfaces

Proteins neutralize disinfectants

Wear Utility gloves

Microbial resistance to killing

Prions

Bacterial endospores

Fungal spores

Mycobacteria - *Mycobacterium tuberculosis*

Nonlipid or small viruses (Non enveloped) - *Polio virus, enteroviruses*

Fungi - *Trichophyton spp.*

Vegetative bacteria - *Pseudomonas aeruginosa, Staphylococcus aureus*

Lipid (enveloped) or medium-sized viruses - *Herpes simplex virus, hepatitis A, B & C virus, HIV,*

*Ebola, SARS CoV-2* (CDC), §1005 (b) (14)

"Single-step cleaner-disinfectant"

Leave For Stated Time

Don't mix chemicals

Bloodborne Diseases

(blood & fluids = infectious)

Examples: HIV, hepatitis

Most Likely Dental Exposures

Percutaneous

**Needles**

**Burs**

**Instruments, files**

Compromised skin

Mucosal exposure

HBV = efficiently transmitted directly & indirectly (survives on surfaces – 7 days)

Other pathogens (ex: HCV) can remain infectious on surfaces – 1 month

Safe re-capping

Only recap needles using:

**Scoop technique**

**Mechanical devices**

**designed to**

**hold needle sheath**

**eliminate need for 2 handed capping**

§1005 (b) (9)

Sharps & Waste

Follow OSHA rules

Dispose of all sharp items in puncture resistant containers

Dispose of pharmaceutical waste as per EPA

Dispose of contaminated solid waste as per EPA

Cal OSHA

CAUTION!

If you are stuck by a needle or other sharp or get blood or other potentially infectious materials in your eyes, nose, mouth, or on broken skin, immediately flood the exposed area with water and clean any wound with soap and water or a skin disinfectant if available. Report this immediately to your employer and seek immediate medical attention.

Bloodborne Pathogens Standard (29 CFR 1910.1030)

"the source individual's blood shall be tested as soon as feasible" after an exposure incident and after consent is obtained [29 CFR 1910.1030(f)(3)(ii)(A)]

an employer's failure to use rapid HIV antibody testing when testing as required by paragraph 1910.1030(f)(3)(ii)(A) would usually be considered a violation of that provision.

Exposure packets

Post Exposure management

Know your immune status: HBV booster needed???



Exposure packet

Phone numbers, forms, driving directions, payment arrangements

Direct MD re: testing, disclosure

Rapid HIV, HCV testing – SOURCE PERSON

Response windows for maximum PEP effect:

HIV - ART – 2 hours

HBV – 24 hours

PEP follow-up: after exposure test 3-6 weeks, 3-6 months, 9 months

Counseling

Hepatitis B CDC 2023 Updates

Screen all >18 years at least once – **triple panel test**

- HBsAg = chronic or acute infection (or recent vaccine, temporarily)
- Antibody to HBsAg (Anti-HBs) – indicates infection recovery, indicates immunity in never infected vaccinated
- Total antibody to core antigen (anti-HBc) indicates HBV infection, lasts for life

Chronic infection: total anti-HBc & HBsAg (+)

HBV DNA measures viral load

HBeAg indicates viral replication, high infectivity

Hepatitis B CDC 2023 Updates

Screen all pregnant, each pregnancy for HBsAg

Regardless of history of tests or vaccine

Risk-based testing for:

**Incarcerated**

**Multiple sex partners**

**HCV (+)**

Test anyone who asks for test

[https://www.cdc.gov/mmwr/volumes/72/rr/rr7201a1.htm?s\\_cid=rr7201a1\\_w](https://www.cdc.gov/mmwr/volumes/72/rr/rr7201a1.htm?s_cid=rr7201a1_w)

2 Standards for Water Safety

Sterile - for surgery, (cutting bone, normally sterile tissue)

**0 CFU/mL of heterotrophic water bacteria**

Potable - for non-surgical procedures -

**500 CFU/mL of heterotrophic water bacteria (meets EPA safe drinking water standards)**

**CDC, OSAP, EPA, Dental Board**

For Potable Water

Your office should:

Shock dental unit – start with clean system

Add high quality source water

**FRESH drinking water**

Flush lines in AM for 2 min./line (handpieces off)

Flush lines between patients for 20 sec.

**(Flushing does not remove attached biofilm)**

Add antimicrobial product to patient treatment water

Shock periodically – remove attached biofilm  
Follow Manufacturer’s directions for use (dental equipment & DUW product)  
Monitor water (test)

Waterline Treatment Options

Chemical “Shock” - removes biofilm temporarily

Liquid Ultra, (bleach not approved)

Caustic, may injure tissue. Rinse !

Continuous chemical “maintenance” - lowers biofilm, keeps CFU’s low.

DentaPure 1 /year (dry bottle at night)

BluTube 1/6 months

BluTab (Silver ions) – ProEdge (keep bottle on)

Vista Tab – HuFriedy

Requires access to DUWL

How Do You Know Your Waterlines Are Safe?

Commercial testing

ProEdge Waterline Testing

**1-day results**

Test quarterly, rotating lines (empiric evidence, not regulated)

QuickPass™ In-Office Water Test

Specific to DENTAL water

48-72 Hour Incubation

Neutralization formula within the paddle

Colonies easier to see & count

Treat, Shock, and Test ALL waterlines

Instrument Processing:

Highest Level of Asepsis

Pre-Cleaning & Holding/soaking:

avoid scrubbing later

Enzyme prevents debris adherence

Ppe & be careful!

Only scrub if debris remains after cleaning....

UNDER WATER, CORRECT PPE

ultrasonic cleaning:

allow bubbles to work

Instrument Washers & cassettes



Safer – less handling of sharps



More efficient:

- **Saves ~ 1 hour / 9 pt. Set-ups**

- **Space management:**

- **Less space needed for instrument cleaning, sorting, ultrasonic, drying**



Software sends error messages to dealer & office

- 40 min. Cycle (dry)
- Waste water safely disposed; reduces aerosols

Common cleaning errors

Ultrasonic

Insufficient time

Detergent concentration

Ineffective cavitation

Inappropriate temperature

Overloading

Washer-Disinfector

Wrong cycle ("rinse-hold")

Inadequate water spray: spray impingement

Clogged spray arms

Pump/line clog or malfunction

Overloading

Check ultrasonics or washers with wash-checks

Sterilizer Monitoring

Indicators: per package

**Heat**

Type 5 indicators: per load or pack

**Time, temperature, pressure**

Biological Monitors: weekly

**Non - pathogenic spores**

**Keep written reports**

**§1005 (b) (17)**

chemical indicators

Type 5

Type 4

Are these still sterile???

Event-related storage: "sterile" until an event:

**Water, oil, tear / puncture**

**Packaged opened**

Time-related storage

**Facility protocol**

**Product instructions**

**Time range = 6 months – 2 yrs**

Label & document

2 Sterilization logs

1: Log of each cycle for each sterilizer

**Type 5 Indicator strip results**

**Sterilizer**

**Date**

**Indicator pass/fail**

**Initial**

## Machine print-out

2: Biological test results

Safety: perception & reality

Keep packaged until used

**If unwrapped for (flash) sterilization, use immediately**

Store covered, away from "splash zone"

Prevent cross-contamination

"Present" sterile packs to patient

## If You Don't Clean It

- You can't disinfect it

- You can't sterilize it

Dental Advisor Study

J. A. Molinari, P. Nelson (Dental Advisor, 2012)

~10% of used & sterilized metal tips showed microbial contamination

Visual debris was found

masks regs & options

MUST: Masks while in office appropriate to exposure

**FDA / NIOSH-approved PPE**

BEST: based on risk

**Respirators for aerosols**

**Respirators (or masks & face shield ?)** for non-aerosol pt. Care

PPE: Surgical Masks

Masks are bi-directional physical barriers

Mostly keep germs in – protect others!

Limited protection for user

Single-use

Know Mask limits

Level 3 filters most bacteria - No viral claims

Mask degrades from;

**Perspiration**

**Talking**

**Sneezing**

**Length of time mask is worn**

**Dust, spray**

Shield may lengthen use-life

20 min - 1 hour! (normal conditions)

Respirators (vs. Masks)

Only respirators protect against airborne chemicals, fumes, vapors, infectious pathogens

N-95 masks filter  $\geq 95\%$  particles

Look for label on outside

Effectiveness = highly dependent on fit & use

N95 masks capture particles with electrical charge  
Wet, damp masks lose charge  
Poor fit: weakest link

respiratory protection program

Fit-tested respirators

- N-95, N-100, elastomeric Half-Mask and Full Facepiece
- Powered Air-Purifying Respirators (PAPR)
- R & P-95 to 100 respirators

Initial fit test required (qualitative)

Health screening questionnaire (determine safety for user)

Training

Facial hair & respirator seal

KN95 respirators

KN95 = Chinese designation of filtration (N95 = U.S.)

Same filtration

KN95 – earloops, slightly more (8%) seal leakage

MUST be NIOSH approved

NOT acceptable by OSHA if N95 is required

Respirators & masks with exhalation valves

Do not provide source control

Breath can contaminate surgical site

Cover with surgical mask if used

User seal check – each time

Eye Hazards

Dental drilling generates debris @ 50 MPH

- Blood & oral fluids: pathogens

- Tooth material

- Calculus

- Pumice

- Broken dental burs

- Restorative material pieces

- Aerosols not addressed by previous regs

Look Out!

Protect your eyes!

2 issues: particulate injury & infectious fluids

Is this ok?

Bottom gap

**eyewear**

**Eyewear is essential for aerosolizing procedures**

**Eyewear must have side protection, fit closely**

**Remove, reprocess eye/face shields when soiled**

Discard disposable eyewear, face shield after use

**Treat as contaminated (touch precautions)**

**Leave pt care area to remove eye/face shields**

Laser Respiratory Protection

Correct wavelength eyewear, close-fitting  
Plume extends far beyond "safe" beam distance  
Surgical N95 / N100 respirators  
Facial fit = vital  
Wide HVE,  $\leq 2$ " from source  
External suction  
Clinic Attire  
Protective attire  
PPE = barrier  
Comply with OSHA regs  
Change / pt.  
SARS viable on uniforms  
    **Polyester ~72 hours**  
    **Cotton/poly ~ 48 hrs**  
    **Cotton ~ 24 hrs**  
Hot water & detergent!

shoes  
Shoes shown to carry infective SARS CoV-2 virus  
Isolation / separation & disinfection recommended  
Washing:  $>140^{\circ}\text{F}$ , soap, water bleach (UK NHS)  
70% alcohol & water (CDC)  
Surface disinfectant wipes?  
Do not take work shoes home  
Touch & storage precautions  
Hair covering  
Bonnets protect absorbent hair  
HAND HYGIENE  $\geq 20$  SECONDS OF LATHERING  
Focus on.....

Fingernails  
Cuticles  
Webs  
Thickened skin  
Damaged skin  
Thumbs  
Wrists  
Most Recommended:  
Combined Protocol  
Plain soap – routine handwashing  
Antimicrobial / alcohol hand rub on soiled hands  
No triclosan!  
How Long Should The Alcohol Sanitizer Stay Wet on Your Hands?  
5 seconds  
8 seconds  
 $>15$  seconds  
60 seconds

Is Waterless Hand-Rub effective?

Should have ethanol, not isopropyl alcohol

**Less drying to skin**

**More effective vs. Viruses**

Must have enough emollients for heavy clinical use

FDA cleared for medical use

**“Safe and effective”**

**Must have > 60% ETOH**

Contact time: >15 sec.

Common Mistakes

(That harbor organisms &  
may damage gloves)

False nails, Nail polish & applications

Un-manicured nails

Jewelry

Petroleum-based products

Respect Glove Limits!

What destroys gloves?

Soap & water

Oils – all types

Petroleum, lanolin, mineral, palm & coconut oils

**Emollients in products**

**Make-up**

Sweat, dental materials

Stretching, donning, removing

Use!!!-

4% have pin-holes

CDC MMWR 2003

Choices Within reach but aerosol-protected

**High stakes safety:**

**don't panic – you've got this!**