Infection Control
are we safe "enough"?
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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
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!
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

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
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
- Arrythmias, 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
Tele-dentistry (inform, assess, pre-screen, treat pts – phone) prior to appt & on arrival
Isolate, discharge, refer all symptomatic pts & HCWs
Discontinue close gathering in reception area
Remove fomites: magazines, TV remote, pens….
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 = 100.0ºF
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: 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, C02, 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

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)

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

Shoulder Shrugs
Keep both arms at sides
Shrug shoulders toward ears
Hold 3 sec
Roll & lower shoulders backwards
Keep elbows straight throughout exercise
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
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 - *Mycobacteruim 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)
Clean & Disinfect – 2 Steps!

Cleaning Disinfection
Spray Wipe Spray

"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 <u>all sharp items</u> in puncture resistant containers

Dispose of pharmaceutical waste as per EPA

Dispose of contaminated solid waste as per EPA

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

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
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)
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
Sterilizer Reminders
Ink, graphite & handpiece oil attracts moisture
Use purest water possible – eliminate build-up
Inexpensive wrap / pouches create lint

Collects in filters, on chamber walls
(may prevent vacuum, clog venting)
Clean filters (daily?)

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 ≥ 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 <u>essential</u> 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, ≤ 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°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 ≥ 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 unsoiled 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

infection control
are we safe "enough"?