

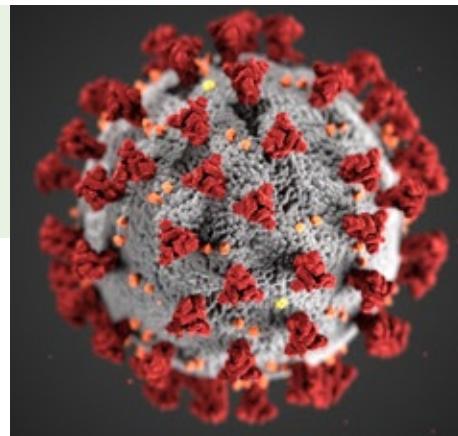


UPDATED MARCH 23, 2020

This is an emerging, rapidly evolving situation. Please watch for updates.

COVID-19: Hype? Hazard? Dental Office Implications?

Gordon’s Clinical Observations: You have been hearing about the Coronavirus every day from many sources, some of them contradictory. The press has confounded the information to the degree that it is near impossible to determine what to do. When carefully observing the current knowledge available on this subject, what can be done to protect your patients, you, and your family? What pragmatic procedures should be implemented into your office as this virus continues to spread and new knowledge emerges? *CR clinical and scientific staff members have compiled the latest information for you, related it to dentistry, and made suggestions for your practice.*



The news outlets are replete with reports of the global pandemic novel respiratory corona virus (COVID-19). In perspective, the CDC estimates for the USA 2019–2020 flu season that there have been at least 36 million flu illnesses, 370,000 hospitalizations and 22,000 deaths (0.06%). The fear is that COVID-19 with its rising 2–3.4% mortality rate and no drugs or vaccines in sight, the disease will have a crippling effect on the world economy as well as the population. **What can you do now for you, your family, and practice to mitigate this crisis? Read on.**

Become Informed

- CDC Resources: <https://www.cdc.gov/coronavirus/2019-ncov/index.html>
- WHO Information and Guidance: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
- Transmission routes of 2019-nCoV and controls in dental practice: <https://www.nature.com/articles/s41368-020-0075-9>
- Johns Hopkins University (*latest global case numbers*): <https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>
- ACS Recommendations for Management of Elective Surgical Procedures: <https://www.facs.org/about-acs/covid-19/information-for-surgeons>
- Dentistry: ada.org
- Resources for Hospitals and Healthcare Professionals Preparing for Patients with Suspected or Confirmed COVID-19: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/preparedness-checklists.html>

Prevention—Practical Do’s and Don’ts

► Dental Office Implications—if emergency treatment is required

The best prevention is to suspend all elective procedures.

- Educate staff on COVID-19 communicability, hygiene, do not touch face/mouth/eyes; impress seriousness of disease protocols
- Cross contamination control essential
- Protective barriers: masks (*N95, high filtration mask*), face shields, gowns, goggles, exam gloves, caps
- Mask changes with each patient
- Staff stay home if ill. Consider paying sick leave.
- Greetings: No physical contact
- Daily take temperature of staff and each patient (*use non-touch infra-red medical grade thermometer; \$92–\$300 Amazon*)
- Resp. droplet awareness: 6 ft. social distance minimum.
- Hand hygiene preferred: frequent soap/water 20 sec.
- Hand sanitizer throughout office: at least 60% vol. alcohol
- Provide multiple disposable tissues/plastic lined receptacles.
- Remove magazines and non-disposable literature
- Scheduling:
 - Ask, “Have you or an immediate family member been exposed to anyone with a fever, cough, cold, flu-like aches, or fatigue in the last 14 days?” If yes, reschedule.
 - Place notice on front door “If you have had respiratory symptoms within the past 14 days, please reschedule.”
 - If questionable symptoms: staff member meet at car for temperature
 - Any hospital elective cases: postpone
- Emergency treatment of suspected flu patient: give face mask, isolate in confined, separate room. Maintain 6 ft. non-treatment personnel distance. Total room disinfection: gown/mask disposal, gloves, double glove during disinfection and treatment.

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Prevention—Practical Do's and Don'ts

► Dental Office Implications—if emergency treatment is required *(continued)*

• Disinfection:

For a significantly more thorough disinfection when body fluids such as saliva, nasal excretions, blood, etc. are present in aerosols, smears, and splatter, see the referenced research information from Clinicians Report TRAC Research.

- Use disinfectant to wipe debris, then disinfect again. Use disposable gloves and effective wipes/sprays. CDC suggested disinfectant: hypochlorite 0.1% for one minute (*mix 1 part bleach to 9 parts water*).
- 0.5% hydrogen peroxide for one minute
- Benzalkonium has “mixed” efficacy with COVID-19
- Chlorhexidine is ineffective (*see TRAC Research at right*)
- Have patients rinse for 1 minute (*two 30 sec. rinses best*) with 1% hydrogen peroxide (*viracidal*). Chlorhexidine is ineffective.
- Office disinfection: door knobs, handles, phones, computer key boards, light switches, chair arms, head rests, toilet handles, faucets, counter tops, hand rails, elevator buttons, etc.
- Barrier plastic wrap: x-ray, light handles, chair switches, other (*change with each patient*)
- Sterilizing/disinfecting instruments (*CDC/ADA*)
 - Required sterilization: surgical instruments that penetrate mucosa/bone (*e.g., surgical burs, bone chisels, forceps, scalpel, scalers*) and those classified as “critical devices” should be sterilized or disinfected.
 - Handpieces: sterilized after each patient. Acceptable methods: steam under pressure (*autoclave*), formaldehyde vapor, dry heat (*320 degree x 2 hrs.*)
 - Semi-critical instruments (*e.g., amalgam pluggers, air/water syringes*) if heat tolerant: sterilized otherwise high level disinfection.
 - High level disinfectants for SARS virus was sodium hypochlorite 1,000ppm and 5,000ppm for 1 minute (*because of availability*)

TRAC Research

Body proteins such as saliva, nasal excretions, blood, etc. cause **all** disinfectants to undergo different levels of neutralization of their kill potential, varying from becoming less effective to totally non-effective. The items below provide the evidence behind this statement.

1. [How to Choose and Use Environmental Surface Disinfectants](#)
2. [Surface Disinfection BioSURF Disinfectant Outperforms All Current Competitors](#)
3. [Antimicrobial Activity of Environmental Surface Disinfectants in the Absence of Presence of Bioburden](#)
4. [Disassociation of Alcohol-Treated Bioburden](#)
5. [Disinfectants: Do They Work Equally Well](#)

► Self Protection

- Frequently check CDC websites per above
- Bolster your immune system: sleep 8 hrs, nutrition, hydration, rest, minimize stress
- If ill, stay home. COVID-19 symptoms: cough, fever, aches, fatigue, shortness of breath. If shortness of breath, seek immediate medical attention.
- Wear mask; advise physician's office of symptoms prior to coming
- Check local testing protocols
- Use barrier protection per above
- Use face mask N95 (*high filtration mask*) when around infected individuals
- Hand hygiene (*per above*) use soap/water/sanitizer after degloving
- Avoid touching face, eyes, nose, mouth
- Cough etiquette: into disposable tissue; unable? bent elbow (*virus can live in clothing 9 days*). Dispose of waste immediately (*see ADA treatise*).
- Frequent hand washing; soap and water for 20 seconds (*birthday song twice*)
- Alcohol hand rub sanitizers.
- No hand shakes; use nod or fake air elbow acknowledgment
- Open crash doors/swinging doors with hip or closed fist or elbow
- Turn light switches on/off with tissue
- Avoid large gatherings
- Gas handles/other handles: grasp with paper towel; dispose immediately
- If infected use zinc lozenges: Zycam, Cold-Eeze. Lie on back and dissolve into pharynx.
 - Gargle with warm salt water.
- Virus is heat sensitive: virus surface life shortens above 80 degree
- Be aware of travel restrictions per CDC
- Airplane: window seats/less droplet exposure. Most contaminated: head rests, seat pockets, magazines, armrests, tray tables, buckles, restroom handles, faucets, air vents/air, video screens
- CDC advises against stockpiling masks, use one time only/contaminated; reminders to not touch face
- Get supply of nitrile gloves
- Use effective disinfectants (*see above TRAC Research*) anywhere surfaces have multiple contacts with others
- Keep exam gloves in your car

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COVID-19: Hype? Hazard? Dental Office Implications? *(Continued from page 2)*

Things You Should Know About COVID-19

► What is COVID-19 SARS?

A. Novel respiratory disease virus previously unknown related to SARS (*Severe Acute Respiratory Syndrome, 10% mortality*) and MERS (*Middle East Respiratory Syndrome, 34% mortality*).

B. Originated in Wuhan China

1. Sudden rise in pneumonia-like illness clusters
2. Geographic Spread: 129 countries and all continents except Antarctica

C. Animal Vector: Unknown but pangolin (*animal like a cross between ant eater and armadillo*) suspected.

D. Currently (3/15/2020) >170,000 cases worldwide

1. >6,000 died
2. Mortality rate: 2–3.4%
3. More susceptible: older age and associated disease, e.g., diabetes, hypertension, pulmonary disease (*15% mortality*)
4. 47 USA states have reported COVID-1

E. Communicability:

1. Spread from person to person by direct skin contact
2. Droplets from speaking, sneezing, coughing (*droplets travel 1 meter*). Surface contamination (*virus can live 2–9 days*)
3. Suspected sewer/fecal factor
4. Incubation 5–24 days
5. CDC defines communicability as “R0” 2–3 (*R-naught*). The estimate of how many an infected person will infect “R0 2–3” will potentially infect 2–3 persons. Measles: R0 12–18 .

F. Disease progression: Range: mild lower respiratory infection - severe ARDS (*Acute Respiratory Distress Syndrome*), toxic shock, multiple organ failure, and death.

► Symptoms

A. Early symptoms:

1. Fever 98%
2. Cough 76%
3. Aches, fatigue 41%
4. Differs from community influenza: rarely begins with sore throat, begins with cough/fever.

B. Later Symptoms:

1. cough, fever, sore throat, shortness of breath, aches, nausea, vomiting, and diarrhea. Recovered SARS patients developed pulmonary fibrosis
2. Dry cough, no runny nose

C. Hospitalized patients:

1. 83–98% developed fever
2. 76–82% developed dry cough
3. 11–44% developed aches and fatigue
4. China Wuhan experience:
 - 81% had “mild” symptoms (*ranging from sniffles, cough, fever, mild pneumonia*), 16% seriously ill (*13.8% were severely ill, 4.7% were critically ill*)
 - Hospitalization at 7 days, shortness of breath at 8 days, 9–10 days acute respiratory distress.

► Pathophysiology

1. Generalized pneumonitis/pneumonia
2. Pulmonary alveolitis, pulmonary alveoli fluid retention, poor oxygenation
3. Neutropenia (*higher risk of bacterial infection*)
4. No known treatment other than symptomatic

► Diagnosis

1. Recent foreign travel/contact with infected patient
2. Reverse Transcriptase Polymerase Chain Reaction (*RT-PCR*) plus novel FDA tests
3. CT Chest x-ray “ground glass” subpleural plaques
4. Early shortage of test kits, now readily available
5. Nasal, pharyngeal swabs
6. Previous 14 day foreign travel?
7. Many new tests in current production

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COVID-19: Hype? Hazard? Dental Office Implications? *(Continued from page 3)*

Things You Should Know About COVID-19

► Treatment

- a. No known drugs or vaccine
- b. Many drug studies:
 - i. Chloroquine
 - ii. Ritonavir? (*AIDS meds*)
 - iii. Remdesivir (*Ebola meds*) shows some promise
- c. Isolation
- d. Symptomatic including potentially intubated respiratory therapy:
 - i. Paralysis
 - ii. Low tidal volume
 - iii. Prone position 17–18 hours per day

Travel Advisories/Notices

CDC advises against all unnecessary foreign travel

- <https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html>
- Search COVID-19 risk assessment for specific country

CR CONCLUSIONS: COVID-19 has serious world-wide pandemic consequences economically and concern for world health. Constant monitoring of the CDC, WHO, and ADA websites is mandatory for health care providers. Deaths will rise particularly in third-world countries where a pandemic could outpace anything seen in modern history. Constant vigilance of mitigation guidelines from local and federal agencies will provide the best deterrent to this rampaging disease, and time with further research will reduce this threat.

