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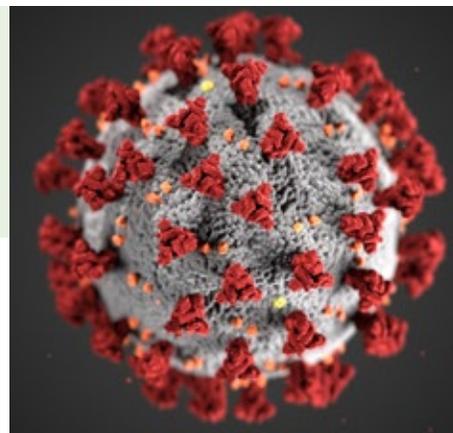
The final version of “COVID-19: Updated and Latest Dental Implications and Solutions” is published in the May 2020 CLINICIANS REPORT! NEW is:

- What Can You Do To Survive Office Down Time?
- How to Treat Suspected/Known COVID-19 EMERGENCY Dental Patient—DANGEROUS!
- What Essential Armor Do You Need for the COVID-19 Battle?

To purchase the full issue and support CR’s independent research, go to: [May 2020 Clinicians Report](#)

COVID-19: Updated and Latest Dental Implications and Solutions

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 COVID-19 pandemic respiratory virus has thrown the world into an economic and healthcare anxiety tail spin. There are well over one million cases globally and more than 70,000 deaths. This virus is unique because of its pre-symptom communicability, asymptomatic carriers, age group predilection, surface viability of virus, no immediate vaccine available, and no proven treatment (*positive early anecdotal*). Many states have mandated cessation of elective dental and surgical procedures. Supply chains have been disrupted; supplies are limited.

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

► **COVID-19 Dental Office Implications: *The best protection is to delay all elective treatment until the ban is lifted!***

- When the ban is lifted, community COVID-19 (*although reduced*) will still be present. Practical adherence to OSHA’s Bloodborne Pathogen Protocol is essential .
- Stay informed: www.cdc.gov/COVID-19; www.ada.org/coronavirus
- Educate staff on COVID-19 communicability. 99% of disease transmission can be prevented by following these rules:
 1. Be aware of where you place your hands (*hand rails, door knobs, etc.*); sanitize immediately after touching
 2. DO NOT TOUCH FACE, MOUTH, NOSE, OR EYES!
 3. Shrink your social circle to immediate family or 4–6 people who commit to the same circle
 4. Use “social distancing” when out and about; keep 6 ft. distance
- **Cross-contamination control essential per OSHA!**
- Personal protective equipment (*PPE*): masks (*N95, high filtration mask*), face shields, gowns, eye protection, exam gloves, caps, etc.
- Mask change with each patient, if available

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COVID-19: Updated and Latest Dental Implications and Solutions *(Continued from page 1)*

Prevention—Practical Do's and Don'ts

► COVID-19 Dental Office Implications: *The best protection is to delay all elective treatment until the ban is lifted! (continued)*

- Staff stay home if ill; consider paying sick leave
- Greetings: No physical contact, no-touch fake elbow bump or nod
- Daily take temperature of staff and each patient (*use non-touch infra-red medical grade thermometer; \$92–\$300 Amazon*)
- Respiratory droplet awareness: 6 ft. social distance minimum; separate waiting room chairs 6 ft.
- Hand hygiene vigorously: frequent soap/water for at least 20 sec.
- Hand sanitizer for patients and staff throughout office: at least 60% ethanol by volume.
- Scheduling:
 - Ask, “Do you now have or 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 on phone recorded message and add your own message about taking COVID-19 seriously, disinfection precautions, etc.
 - Place notice on front door “If you have had respiratory symptoms within the past 14 days, please reschedule.”
 - Consider having patients wait in parking lot and cell contact when ready to seat
 - If questionable symptoms: staff member meet at car for temp.
 - Any hospital elective cases: postpone
- Provide multiple disposable tissues/plastic lined receptacles
- Remove magazines, TV remotes, etc., from waiting room
- Have patients rinse for 1 minute (*two 30 sec. rinses best*) with 1% hydrogen peroxide (*virucidal*). Chlorhexidine is ineffective.
- Disinfection: Understand that 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 (*see JADA 1989;119:493-505*).
 - Use BioSURF disinfectant. If unavailable, use Lysol Brand III.
 - Understand the importance of minimizing “bio-load” (*blood, saliva*).
 - Disinfection principle: clean with disinfectant multiple times then disinfect again with separate cloth.
 - Chlorhexidine and benzalkonium are 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, etc. (*change aseptically 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
 - Handpieces: sterilized after each patient. Acceptable methods: steam under pressure (*autoclave*), 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

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
- 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
- Alcohol hand rub sanitizers.
- No hand shakes; no-touch fake elbow bump or nod
- 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.

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COVID-19: Updated and Latest Dental Implications and Solutions *(Continued from page 2)*

Prevention—Practical Do's and Don'ts

► Self Protection *(continued)*

- 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

Things You Should Know About COVID-19

► What is COVID-19?

- **COVID-19 is a severe potentially lethal pandemic pulmonary disease beginning with the pulmonary alveoli progressing to ARDS (*Acute Respiratory Disease Syndrome*), multi-organ failure, toxic shock, and death.**
- **Currently, the disease is in 203 countries and all continents except Antarctica. For current case/death data, see www.worldmeters.info**
- 80% of cases are “mild” ranging from asymptomatic carriers to mild pneumonia
- Mortality rate: Age dependent (*confirmed cases; most likely lower: undiagnosed/unreported cases*)

Age	0–19	20–44	45–54	55–64	65–74	75–84	85+
Hospitalization	1.6%	14.3%	21.2%	20.5%	28.6%	30.5%	31.3%
ICU Admission	0%	2.0%	5.4%	4.7%	8.1%	10.5%	6.3%
Case Fatality	0%	0.5%	0.5%	1.4%	2.7%	4.3%	10.4%

Associated diseases (hypertension, diabetes, heart disease, etc.) worsen prognosis

• Communicability *(how you get it):*

- Person to person: direct contact or proximity
- Respiratory droplets/aerosols from speaking, sneezing, coughing; can travel 6 ft. and remain airborne 3 hrs.
- Surface contact: virus viable (*surface and temperature dependent*) up to 3–9 days
- Incubation: 5–24 days
- CDC: Infected can infect 2–3 people/exponential spread; compared with measles: 12–18 persons
- Contagious 1–2 days **prior** to symptom onset; also asymptomatic carriers
- Fecal to oral contamination (*virus can be viable 30 days*): close lid when flushing, wash hands immediately

► Symptoms

A. Early symptoms: fever 98%; cough 76%; aches, fatigue 41%. Differs from community influenza: rarely begins with sore throat, begins with cough/fever.

B. Later Symptoms: cough, fever, sore throat, **shortness of breath**, aches, nausea, vomiting, and diarrhea. Recovered SARS patients developed pulmonary fibrosis. Dry cough, no runny nose.

► Pathophysiology

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

► Diagnosis

1. Recent foreign travel/contact with infected patient
2. Real Time Reverse Transcriptase Polymerase Chain Reaction (*RT-PCR, measures viral RNA*). Rapid antibody and other tests now FDA approved.
3. CT Chest x-ray: “ground glass” areas, subpleural plaques
4. Many areas: tests available for hospitalized patients only.
Goal: “drive-by” physician ordered; home antibody tests
5. Nasal, pharyngeal swabs

► Treatment

- a. No known drugs or vaccine
- b. Many drug studies:
 - i. Chloroquine (*malaria and rheumatoid arthritis drug*)
 - ii. hydroxychloroquine with azithromycin (*anecdotal beneficial cases*)
 - iii. Remdesivir (*Ebola meds*) shows some promise
 - iv. Plasma from convalescent COVID-19 patients (*for dire patients only, unproven*)
 - v. HIV Drugs have proven non-effective
- c. Isolation
- d. Symptomatic including potentially intubated mechanical respiratory therapy; paralysis, low tidal volume, prone position 17–18 hours per day

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

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 worldwide pandemic consequences economically and concern for world health. Constant monitoring of the CDC, WHO, and ADA websites is mandatory for healthcare providers. Deaths will rise particularly in countries with inadequate healthcare 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. Productive use of this forced professional hiatus with opportunities of continuing education, family time, or upgrading your facility will help ease the emotional pain of this crisis. This too will pass, as have similar past disasters.

