Items to Consider for Treatment of COVID-19 Emergency Patients

Updated 4-14-2020

If you believed you could breathe in and/or touch virus particles that could kill you—*would you do the following*?

Personal protection

- **Hair/head covering**
- **Eye covering fitted**
- **Face mask NIOSH N95 rated**
- **Disposable gown with high neck, long sleeves, full-body covering, pants (wash, sterilize, or toss)**
- **Shoe covering**
- **Gloves**

At front door to office

- **Prior to patient arrival, arrange with the patient to leave all accessory items (phone, wallet, purse, etc.) in car (arrange for payment over phone)**
- **Ask that the patient arrive alone, unless the patient needs special assistance/support**
- **Cover entry door handles with barrier, both inside & outside**
- **Take patient temperature & put mask on patient to wear until seated in operatory**
- **Disinfect patient hands & have patient glove. Ask patient to remain gloved throughout treatment in operatory. (Make sure patient does not have a latex allergy. Stock non-latex gloves!!)**

Bring immediately into operatory (no wait) with operatory prepared as following

- **Chair fully plastic barrier covered & chair handles fully covered**
- **Plastic barrier cover all surfaces possible**
- **Plastic barrier cover x-ray head & arm, control button, & computer**
- **Have operatory stripped of all items not essential for each specific treatment**

Treat as simply as possible

- **DDS & Assistant to treat patient plus one additional person that avoids patient contact & acts as a runner to get any items not laid out in operatory**
- **All clinicians wear eye protection, N95 face mask, operating gloves, protective clothing**
- **Antibiotic (to get patient out of pain)**
- **Endodontic procedure, only to point where you can stop (ie: antibiotic, incise & drain)**
- **Extraction if necessary (make sure high velocity suction tip is very close to treatment site)**
- **IRM or other fast, easy interim restorative**
- **Following treatment put mask on patient, before they leave the operatory**
- **Have lined garbage can located conveniently beside operatory chair**

OVER

Out the door

- **Have patient leave office with mask & gloves on. Patient can decide if they want to take them off once out of office. (Have a plastic lined trash can located conveniently outside of office for patient to deposit mask &/or gloves, if they choose)**

Disinfect operatory

- **Remove mask & gloves aseptically (touch mask at unused edges only – remove gloves inside out touching edge of cuff only). Deposit in orange hazardous waste bag**
- **Apply BioSURF or Lysol on hands (paying special attention to fingertips and around & under fingernails) until dripping wet and wait until it has evaporated (40+ seconds)**
- **Put on new gloves & mask**
- **Remove barriers from operatory and radiographic equipment**
- **Apply generous layer of BioSURF on ALL surfaces & stay in the operatory and monitor surfaces to keep wet for 3 minutes. Scrub surfaces with the BioSURF to clean. Reapply BioSURF for 3 minutes, then wipe with new, clean paper towel to remove any streaking and excess.**

Disinfect self

- **Remove mask & gloves aseptically (touch mask at unused edges only – remove gloves inside out touching edge of cuff only). Deposit in orange hazardous waste bag**
- **Apply BioSURF or Lysol on hands and fingertips until dripping wet and wait until it has evaporated (40+ seconds)**
- **Put on new mask and gloves**
- **Remove all your protective clothing aseptically & deposit in plastic bag for laundering in hot Clorox wash or deposit in hazardous waste bag if disposable**
- **Remove mask & gloves aseptically (touch mask at unused edges only – remove gloves inside out touching edge of cuff only). Deposit in orange hazardous waste bag**
- **Apply BioSURF or Lysol on hands and fingertips until dripping wet and wait until it has evaporated (40+ seconds)**

Influenza (Flu)

Similarities and Differences between Flu and COVID-19

What is the difference between influenza (Flu) and COVID-19?

Influenza (Flu) and COVID-19 are both contagious respiratory illnesses, but they are caused by different viruses. COVID-19 is caused by infection with a new coronavirus (called SARS-CoV-2) and flu is caused by infection with influenza viruses. Because some of the symptoms of flu and COVID-19 are similar, it may be hard to tell the difference between them based on symptoms alone, and testing may be needed to help confirm a diagnosis. Flu and COVID-19 share many characteristics, but there are some key differences between the two.

While more is learned every day, there is still a lot that is unknown about COVID-19 and the virus that causes it. This table compares COVID-19 and flu, given the best available information to date.

To learn more about COVID-19, visit Coronavirus (COVID019). To learn more about flu, visit Influenza (Flu).

	Similarities	Differences
Signs and symptoms	Both COVID-19 and flu can have varying degrees of signs and symptoms, ranging from no symptoms (asymptomatic) to severe symptoms. Common symptoms of COVID-19 and flu include: • Fever or feeling feverish/chills • Cough • Shortness of breath or difficulty breathing • Fatigue (tiredness) • Sore throat • Runny or stuffy nose • Muscle pain or body aches • Headache • Some people may have vomiting and diarrhea, though this is more common in children than adults	Other signs and symptoms of COVID-19 may include change in or loss of taste or smell.
How long symptoms appear after exposure and infection	For both COVID-19 and flu, 1 or more days can pass between a person becoming infected and when he or she starts to experience illness symptoms.	**If a person has COVID-19, it could take them longer to develop symptoms than if they had flu.** **COVID-19** • Typically, a person develops symptoms 5 days after being infected, but symptoms can appear as early as 2 days after infection or as late as 14 days after infection, and the time range can vary. **Flu** • Typically, a person develops symptoms anywhere from 1 to 4 days after infection.

	Similarities	Differences
How long someone can spread the virus	For both COVID-19 and flu, it's possible to spread the virus for at least 1 day before experiencing any symptoms.	**If a person has COVID-19, they may be contagious for a longer period of time than if they had flu.** **COVID-19** • How long someone can spread the virus is still under investigation. It's possible for people to spread the virus for about 2 days before experiencing signs or symptoms and remain contagious for at least 10 days after signs or symptoms first appeared. • If someone is asymptomatic or their symptoms go away, it's possible to remain contagious for at least 10 days after testing positive for COVID-19. **Flu** • Most people are contagious for about 1 day before they show symptoms. Older children and adults with flu appear to be most contagious during the initial 3-4 days of their illness but many remain contagious for about 7 days. Infants and people with weakened immune systems can be contagious for even longer.
How it spreads	• Both COVID-19 and flu can spread from person-to-person, between people who are in close contact with one another (within about 6 feet). • Both are spread mainly by droplets made when people with the illness (COVID-19 or flu) cough, sneeze, or talk. • These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs. • It may be possible that a person can get infected by physical human contact (e.g. shaking hands) or by touching a surface or object that has virus on it and then touching his or her own mouth, nose, or eyes. • Both flu virus and SARS-CoV-2 may be spread to others by people before they begin showing symptoms, with very mild symptoms or who never developed symptoms (asymptomatic).	While COVID-19 and flu viruses are thought to spread in similar ways, COVID-19 is more contagious among certain populations and age groups than flu. Also, COVID-19 has been observed to have more superspreading events than flu. This means the virus that causes COVID-19 can quickly and easily spread to a lot of people and result in continuous spreading among people as time progresses.

	Similarities	Differences
People at high-risk for severe illness	Both COVID-19 and flu illness can result in severe illness and complications. Those at highest risk include: • Older adults • People with certain underlying medical conditions • Pregnant people	**COVID-19** • School-aged children infected with COVID-19 are at higher risk of Multisystem Inflammatory Syndrome in Children (MIS-C), a rare but severe complication of COVID-19. **Flu** • Young children* ***The risk of complications for healthy children is higher for flu compared to COVID-19. However, infants and children with underlying medical conditions are at increased risk for both flu and COVID-19.
Complications	Both COVID-19 and flu can result in complications, including: • Pneumonia • Respiratory failure • Acute respiratory distress syndrome (i.e. fluid in lungs) • Sepsis • Cardiac injury (e.g. heart attacks and stroke) • Multiple organ failure (respiratory failure, kidney failure, shock) • Worsening of chronic medical conditions (involving the lungs, heart, nervous system or diabetes) • Inflammation of the heart, brain, or muscle tissues • Secondary bacterial infections (i.e. infections that occur in people who have already been infected with flu or COVID-19)	Additional complications associated with COVID-19 can include: • Blood clots in the veins and arteries of the lungs, heart, legs or brain (Multisystem Inflammatory Syndrome in Children)

	Similarities	Differences
Approved Treatments	People at high-risk of complications or who have been hospitalized for COVID-19 or flu should receive supportive medical care to help relieve symptoms and complications.	**COVID-19** • The National Institutes of Health (NIH) has developed guidance on treatment, which will be regularly updated as new evidence on treatment options emerge. • While remdesivir is an antiviral agent that is being explored as a treatment for COVID-19 and is available under an Emergency Use Authorization (EUA), there are currently no drugs or other therapeutics approved by the Food and Drug Administration (FDA) to prevent or treat COVID-19. Studies are in progress to learn more. **FLU** • Prescription influenza antiviral drugs are FDA-approved to treat flu. People who are hospitalized with flu or at high-risk of flu complications with flu symptoms are recommended to be treated with antiviral drugs as soon as possible
Vaccines	Vaccines for COVID-19 and flu must be approved or authorized for emergency use (EUA) by the FDA.	**COVID-19** • Currently there is no vaccine to prevent COVID-19. Vaccine developers and other researchers and manufacturers are expediting the development of a vaccine to prevent COVID-19. **FLU** • There are multiple FDA-licensed influenza vaccines produced annually to protect against the 3 or 4 flu viruses that scientists anticipate will circulate each year.

ZIRCONIA –
WHAT YOU NEED TO KNOW

TRAC RESEARCH

ZIRCONIA 2020

Critical Facts Clinicians Need When Helping Patients Make Choices

Definition of Terms	Mol % Yttria Content *	Weight % Yttria Content *	% Tetragonal Phase Present	% Cubic Phase Present	Source Company's Claimed Strengths ● Flexural Strength	Source Company's Claimed Strengths ● Fracture Toughness	Some Example Brand Names & Company Source
3Y zirconia	Contains 3 mol % yttria *	Contains 4.5—6.0% yttria *	100% tetragonal phase present	0% cubic phase present	≥1,100 MPa (Megapascals)	≥5.0 MPa$\sqrt{m}$ (K1C)	• BruxZir Original 2009 (Glidewell) • BruxZir HT (Glidewell) • ZirCAD LT (Ivoclar) • ZirCAD Prime Core (Ivoclar) • Zirlux 16+ (Zahn Dental)
4Y zirconia	Contains ≥4 mol % yttria *	Contains 6.0—8.0% yttria *	~ 75% tetragonal phase present	~ 25% cubic phase present	≥800 MPa (Megapascals)	≥3.5 MPa$\sqrt{m}$ (K1C)	• 3M Chairside Zirconia (3M) • ArgenZ HT+ (Argen) • Lava Esthetic (3M) • ZirCAD MT (Ivoclar)
5Y zirconia	Contains ≥5 mol % yttria *	Contains 9.05—10.0% yttria *	~ 50% tetragonal phase present	~ 50% cubic phase present	≥650 MPa (Megapascals)	≥2.1 MPa$\sqrt{m}$ (K1C)	• BruxZir Anterior (Glidewell) • BruxZir Esthetic (Glidewell) • CubeX^2 (Dental Direkt) • Katana Block (Kuraray Noritake) • Katana STML (Kuraray Noritake) • ZirCAD Prime Incisal (Ivoclar)

* **Yttria** = a rare earth element commonly added originally to zirconium oxide to stabilize the molecular structure in its strongest tetragonal configuration; the same rare earth recently increased to change refractive index & give zirconia more translucence, but results in significant strength reductions (See above).

● **Claimed Strengths** = Use of different test methods & manipulation techniques cause important variations in strength numbers produced by laboratory tests in various test facilities. Clinical performance over time in a wide variety of situations is the only truly reliable test of durability.

Definition of symbols = ≥ means "greater than or equal to"; ≤ means "less than or equal to".

TRAC RESEARCH

Esthetic Monolithic Crown Materials in TRAC Research Long-Term Clinical Study – 2020

KEY: Zirconia Ceramic | Glass Ceramic | Polymer Containing | Zr Substructure + Veneer Ceramic

			Source Company's Claimed Values in 2019		
	Brand (Alphabetical by Company)	**Source Company**	**Flexural Strength (MPa)**	**Fracture Toughness (MPa$\sqrt{m}$)**	**Zirconia Mol% yttria**
1.	3M Chairside Zr	3M	1000	>6.4	4Y
2.	Alien HT	Alien Milling	1200	?	3Y
3.	Alien Multi-Layer	Alien Milling	1100	?	3Y
4.	ArgenZ HT+	Argen	1250	3.5	4Y
5.	BruxZir Anterior	Glidewell	650	2.1	5.5Y
6.	BruxZir Esthetic	Glidewell	870	2.7—3.1	4.7—4.9Y
7.	BruxZir NOW	Glidewell	800	5.0	3Y
8.	BruxZir original 2009	Glidewell	1100+	5.0	3Y
9.	BruxZir Shaded	Glidewell	1100+	5.0	3Y
10.	cubeX^2	Dental Direkt	720	4.8	5Y
11.	Katana Block	Kuraray Noritake	----	----	5—5.5Y
12.	Katana STML	Kuraray Noritake	748	3.2	5—5.5Y
13.	Lava Esthetic	3M	800	>4.0	4Y
14.	Pavati Z40.1	CCRI / Sirona	1100	5.0	3Y
15.	ZirCAD LT	Ivoclar Vivadent	1243	5.1	3Y
16.	ZirCAD MT	Ivoclar Vivadent	850	3.6	4Y
17.	ZirCAD Prime (contains 2 Zr formulations)	Ivoclar Vivadent	1200 = 3Y (core) ? = 5Y (incisal)	5.1 = core ? = incisal	3Y core 5Y incisal
18.	Zirlux 16+	Zahn	1200+	5.0+	3Y

Update 2020 – 8-4-2020

SEE OVER

KEY: Zirconia Ceramic | Glass Ceramic | Polymer Containing | Zr Substructure + Veneer Ceramic

			Source Company's Claimed Values in 2019		
	Brand (Alphabetical by Company)	**Source Company**	**Flexural Strength (MPa)**	**Fracture Toughness (MPa$\sqrt{m}$)**	**Material Category**
19.	Celtra DUO	Dentsply	210 polished only 370 with firing	?	Glass ceramic 10% Zr & lithium silicate
20.	e.maxCAD	Ivoclar Vivadent	>400	2.25—2.5	Glass ceramic Lithium disilicate
21.	Camouflage NOW	Glidewell	192.62	?	Polymer containing
22.	CeraSmart	GC America	270	?	Polymer containing
23.	Enamic	Vita	150-160	1.5	*Unique* Polymer containing (86% ceramic scaffold)
24.	Lava Ultimate	3M	200	2.0	Polymer containing
25.	PressCeram veneer ceramic over Metoxit 3Y Zirconia	Swiss NF – Canada	≥1,000=substructure ≤100=veneer ceramic	≥5.0=substructure ≤1.0=veneer ceramic	Veneer ceramic over Zr substructure

NEW “HOT TOPIC” – THERAPEUTIC RESTORATIVE MATERIALS

TRAC RESEARCH

2020 Therapeutic Materials that *Remain in the Oral Cavity Indefinitely* in TRAC Research Study

TRAC's Material Category	Brand	Company	Product Description	Time in TRAC Studies
Antibacterial	● **Infinix**	Nobio	Antimicrobial resin-based composite for universal use.	Starts Spring 2020
Buffer Capacity	----------	----------	----------	----------
Calcium & Phosphate Ion Releasing	● **Activa**	Pulpdent	Claims to release fluoride, calcium, & phosphate ions to stimulate apatite formation & remineralization at the material-tooth interface. (TRAC Research could not confirm these claims *in vivo* or *in vitro*.)	3.5 years
	● **Predicta Bulk** (HV & LV viscosities)	Parkell	Claims to release fluoride, calcium, & phosphate ions to stimulate apatite formation & remineralization at the material-tooth interface. (TRAC Research working on validation now.)	Less than 1 year
High Fluoride Ion Releasing	● **Equia Forte Fil**	GC	Conventional glass ionomer releases fluoride ion in high amounts and over long period of time (years) & seals at material-tooth interface for at least 3 years. (TRAC Research has validated above both *in vivo* and *in vitro.*)	3.5 years
	● **Equia Forte HT Fil**	GC	Same as Equia Forte above, but translucency and strength improved. (TRAC Research working on validation now.)	Less than 1 year
	● **Fuji Automix LC**	GC	Resin-modified glass ionomer releases fluoride ion in high amounts and over long period of time (years), and does not require triturator for mixing. (TRAC Research working on validation now.)	Less than 1 year
	● **Ketac Universal**	3M	Conventional glass ionomer using nanotechnology releases fluoride ion in high amounts and over long period of time (years) & seals at material-tooth interface for at least 3 years. (TRAC Research has validated above both *in vivo* and *in vitro.*)	3.5 years
	● **Smart Advantage**	Elevate	Conventional glass ionomer with opaquing added to minimize dark stain of silver diamine fluoride (SDF) when it is applied first to "arrest" caries. Releases fluoride ion. (TRAC Research working on validation now.)	Less than 1 year

DENTAL CARIES
NEW INSIGHTS

TRAC RESEARCH

Are you at risk for type 2 diabetes?

1. **How old are you?** .....
   Less than 40 years (0 points)
   40-49 years (1 point)
   50-59 years (2 points)
   60 years or older (3 points)

2. **Are you a man or a woman?** .....
   Man (1 point) Woman (0 points)

3. **Do you have a mother, father, sister or brother with diabetes?** .....
   Yes (1 point) No (0 points)

4. **Do you have high blood pressure or are you on medication for high blood pressure?** ....
   Yes (1 point) No (0 points)

5. **Are you physically active?** .....
   Yes (0 points) No (1 point)

6. **Are you overweight?** *See chart on reverse side* .....
   Not overweight or obese (0 points) Overweight (1 point)
   Obese (2 points) Extremely obese (3 points)

ADD UP YOUR SCORE

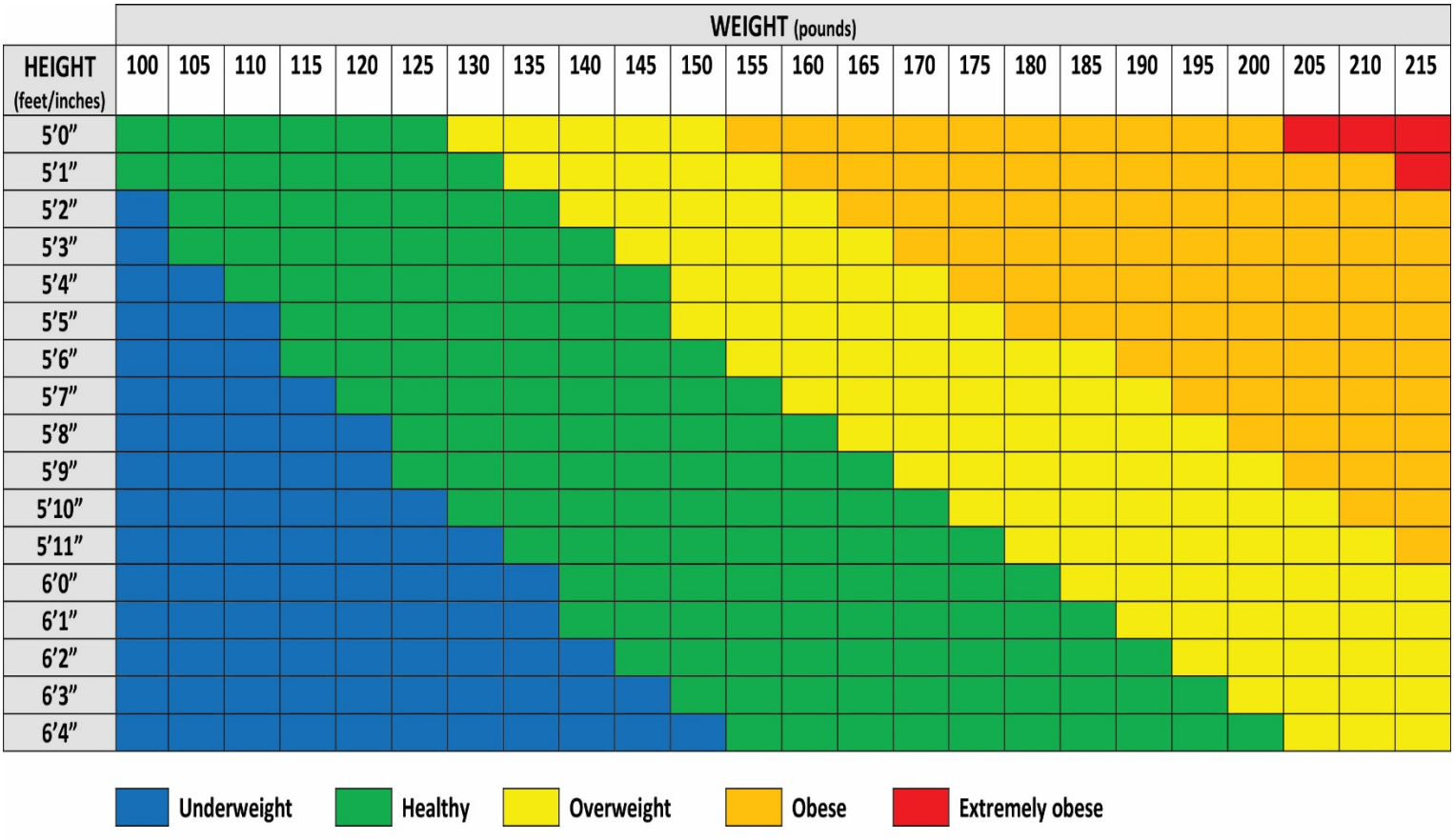
If you scored 5 or higher:

You are at increased risk for type 2 diabetes. However, only your doctor can tell for sure if you do have type 2 diabetes or prediabetes. Talk to your doctor.

Type 2 diabetes is more common in African Americans, Hispanics/Latinos, Native Americans, Native Hawaiians, Pacific Islanders, and Asian Americans. Although higher body weight increases diabetes risk for everyone, Asian Americans are at increased risk at lower body weight than the rest of the general public (about 15 pounds lower).

Adapted from Bang et al, Ann Intern Med 151:775-783, 2009
Original algorithm was validated without gestational diabetes as part of the model.

SEE OVER



Obesity definitions using Body Size defined by waist measurements:

Overweight ..... If waist 37 inches or more for Male; 31.5 inches or more for Female.
Obese ..... If waist 40 inches or more for Male; 35 inches or more for Female.
Extremely obese..... If waist 50 inches or more for Male; 49 inches or more for Female.

Adapted from Bang et al, Ann Intern Med 151:775-783, 2009
Original algorithm was validated without gestational diabetes as part of the model.