

PPE conservation in difficult times
Shared Practices from WA Pediatric Providers
 Update: 3/27/2020

Resources about PPE unique to COVID-19 in addition to resources about PPE conservation given current PPE scarcity.

Question	Comments
<p>Is droplet protection sufficient for NP and care in general?</p> <p>CDC recommendation update:¹ <i>SARS-CoV-2, which causes coronavirus disease 2019 (COVID-19), is spread primarily via respiratory droplets. When entering a patient’s room, health care personnel can use a face mask if an N95 respirator isn’t available, according to the CDC. However, N95 or higher-level respirators should be used during aerosol-generating procedures, such as sputum induction or open suctioning of airways. They also should be worn when collecting respiratory specimens, although face masks are acceptable during this procedure if necessary.</i></p> <p>WHO:² Data do not exist to quantify the relative efficacy of surgical masks versus respirators in preventing influenza infections in exposed persons, but surgical masks should protect against large droplets, believed to be the major mode of transmission.³</p> <p>What about the AAP recommendation for using N95s which we don’t have?</p> <p>What about the NEJM article suggesting that the virus can survive for time in an aerosolized form?</p> <p>Are we being asked to use “droplet protection” as a conservation measure when it is less safe?</p>	<p>Consensus opinion is that SARS is transmitted like influenza by droplets (UW policy). Aerosolizing procedures (eg intubation, high flow oxygen) can lead to aerosol generation which requires a higher level of precautions.</p> <p>CDC, WHO and UW recommend, at minimum, droplet protection with face mask or reusable goggles, gown (or equivalent) and gloves in ambulatory settings.¹</p> <p>When available, N95 masks may offer additional protection against the risk of airborne transmission. There was evidence of some airborne transmission with prior SARS Coronavirus and experimental COVID-19⁴⁻⁷ – remains a concern.</p> <p>CDC recommendation prefers N95 or higher (PAPR) for hospital care for suspected or known Coronavirus. Different than UW policy noted above, CDC notes N95 is recommended for collecting respiratory specimens, though face masks are “acceptable....if necessary”.</p> <p>More guidance on swabs and innovative testing is coming out regularly – stay posted. Some procedures (such as middle-turbinate swabs) may have lower risk for generating aerosolizing particles.</p>
<p>How long can one surgical mask be worn?</p>	<p>Surgical masks are intended for single use. CDC is issuing new guidance about re-use and extended use due to shortages; extended use is preferred. Any mask must be discarded if soiled or damaged.</p> <p><i>Respirators (N-95 and N-100; both commercially available) are masks designed to shield the wearer from inhalational hazards, as opposed to surgical masks, which are designed to protect others from contaminants generated by the wearer.</i>⁸</p>

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<p>How long can a N95 be re-used by ONE person?</p>	<p>There is degradation of mask protection after hours of use. Not adequately studied.^{8,9} Extended use is preferred to re-use. UW policy permits “8 hours” in conditions where prolonged use is needed. Seattle Children’s guidance is to discard if soiled or damaged.</p> <p>Additional concern is cross-contamination. Suggest that the mask be protected with a shield if possible, especially if plan is to re-use rather than extended wear. If there is any need to touch the mask, must clean hands before and after.</p> <p>Fit is also a significant issue as often leakage.</p>
<p>We don’t have any purple masks and no face shields</p>	<p>May purchase reusable safety goggles and clean between patients using safety protocols (review doffing process for goggles carefully)</p> <p>There is risk of conjunctival spread;⁸ Providers must be using eye protection; eye glasses don’t count. Best to have seal with face or face shield⁹</p>
<p>Are there ways to sterilize and reuse N95 masks?</p> <p>What about UV sterilization?¹⁰</p> <p>What about using hand gel on my mask?</p>	<p>There are CDC and NIOSH policies for reusing N95 masks for single individual use under conditions of scarcity. REF: UW policy states (for COVID positive patients):</p> <ul style="list-style-type: none"> • <i>PAPR Hoods/Machines preferred over the use of N95 masks.</i> • <i>N95 Reuse can only be considered for 1860 or 1860s</i> • <i>Essential to diligently follow steps to safely re-use an N95 mask and avoid contamination.</i> • <i>Each N95 mask only to be used by a single user</i> • <i>Perform hand hygiene before and after touching respirator</i> • <i>Discard N95 if:</i> • <i>Mask used max 5 times or 8 hours continuously</i> <i>[allowed use times have been extended significantly longer on the East Coast]</i> • <i>Mask visibly contaminated with blood, resp secretions or other bodily fluids; poor fit, damage</i> <p>Some recommend face shield or surgical mask on top of N95; a surgical mask on top of the N95 is only recommended for the reuse protocol.</p> <p>Some data on UV sterilization prolonging use; eventually degrades structural mask integrity.¹¹ Nebraska using UV for sterilization. Some concerns about altering built-in electrostatic charge which blocks many of the smallest particles and contributes substantially to mask protection.</p>

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	No info on wiping mask with hand gel. Probably a bad idea
Are cloth masks effective? Would a cloth mask over a surgical mask provide a washable barrier which could be reused so that we could continue to use the same surgical mask?	Probably not. ¹² It is possible that using a cloth mask over a surgical mask may extend the life of the surgical mask, although data are lacking. One potential option is to use cloth masks in non-Covid19 patients, freeing up disposable supplies. <i>Available evidence suggest that cloth masks may provide some protection, it is assumed to be considerable less when compared to the use of surgical masks and respirators [85]. However, it is theorized that some types of cloth fabric may provide better protection [86]. In a report by the National Institute of Health's (NIH) Committee on the development of reusable facemasks for use during an influenza pandemic, the members were hesitant to discourage the use of cloth masks, but suggested caution around their use as they were not likely to be as protective as surgical masks or respirators [72].</i> ⁹
We are out of masks. What shall we do?	Contact local health jurisdiction to appeal for PPE Consider telehealth options, and/or visualizing the patient in the car to determine if child needs to be referred to urgent care or emergency care.
Since kids (and adults) are infectious prior to symptoms, shouldn't we use masks with everyone? Aren't carriage rates high in nasal fluid even without symptoms? Paper in Pediatrics (analysis of Chinese pediatric cases) discusses diagnostic criteria for pediatric COVID which may present with GI/flu symptoms. ¹³ Wouldn't this patient still be contagious even without coughing?	CDC recommending masks for patients and caregivers with respiratory symptoms. Consider screening all patients and caregivers verbally; may also consider temperature screen Kids have earlier shedding and prolonged shedding in other respiratory infections ^{3,5}
Are there ways to safely sterilize N95?	There are reported protocols for UV light sterilization developed for pandemic use. Eventually weakens the material. (see above) Confer with hospital ID and supply experts
Should we be testing kids who are symptomatic but can still be managed at home.	Consider not testing for symptomatic children who can be safely managed at home. Many clinics are not testing, given little change to management, PPE shortage, shortage of swabs and media, and potential risk to health care provider.

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	If enhanced availability of drive through sites or point-of-care tests which can be done at home, algorithm likely to change.
Should we be testing asymptomatic patients.	No.
Can PAPR hoods be reused and cleaned	Yes , with exceptions; following NIOSH and CDC recommendations
What should I do if we don't have PAPR/CAPR or N95+face shield + gown + gloves and a patient needs to be intubated?	Provide other respiratory support and call 911
We don't have gowns	Can buy 1\$ rain ponchos on Amazon. Or smocks.
Is it safe to return home in my street clothes?	Might be reasonable to have a launderable outer layer. No data for present epidemic
We don't have viral media.	FDA came out with guidance for using saline. If so, want short processing time for testing. Treat for flu or strep A based on algorithm for risk/benefit.
We are out of swabs. Will the flu swabs work?	Metal handle swabs can be used; still need viral media (or saline in a pinch, as above).
Am I safe if I stand at the door and talk? What about the "6 foot rule?)"	Not good evidence for a "safe" distance.⁸ Use PPE. Risk of transmission from 6 feet away is likely greatly reduced. Consider every option for phone/telemed visits to avoid putting health care providers at risk.

Resources:

Check public health guidance

<https://www.kingcounty.gov/depts/health/communicable-diseases/disease-control/novel-coronavirus.aspx>

- * If you have confirmed or suspected COVID-19
- * If you were potentially exposed to someone with confirmed COVID-19
- * If you have symptoms of COVID-19 and have not been around anyone who has been diagnosed with COVID-19

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