

## Frequently Asked Questions:

Oral Infection Control Webinar  
Presented by Karen Sheffler, MS, CCC-SLP, BCS-S

### **How can our facility provide oral care if we don't have access to the equipment you discuss? How can we optimize patients' oral care, if no suction is available?**

Most healthcare facilities would at least have suction machines (or built-in suction units on the wall) and basic suction tubing to extend to the patient, as well as the thin/flexible catheters for deep suctioning and the Yankauer suction tool for oral suctioning. If you do not have the SAGE or Medline oral care kits, then you could use a regular toothbrush (soft bristles and electric toothbrush is best), and the Yankauer suction at the same time. This is best accomplished as two-handed simultaneous task. The simultaneous suction is handy to catch and clear any debris and liquid. Same thing with sweeping out the mouth by "rinsing" with mouthwash after brushing when using a swab -- just have the oral suction tube handy to simultaneously clear away material that is loosened. Don't forget to scrub the tongue and hard palate. This simultaneous suctioning is really the same thing as the kits, it is just not built in and you have to be a little more ambidextrous with the use of two hands at once (one with toothbrush and one with suction).

Best practice: soft bristled Electric toothbrush, floss, mouthwash rinse/spit, and good/safe positioning when performing oral cleaning.

If high aspiration risk: Use small amount of water on toothbrush only. Even if the person is at risk for aspiration AND because they are at risk for aspiration, the benefit of oral infection control is so great. A head tilted forward or leaning over a basin or sink can prevent/reduce liquid from sliding back into the throat and airway.

Ask dentist to provide tips as well. I had a dentist contact me in the past after I wrote about aspiration pneumonia prevention (Sheffler, 2018: <https://doi.org/10.1044/leader.FTR1.23052018.50>), and he recommended: *Xylitol* containing toothpastes, which can inhibit cavities well. He also noted that flossing at least 1x/day is so important to get the bacteria that hides along and under the gum line. *Stannos Flouride* has antibacterial properties, per this dentist's recommendation, to attack the dense bacteria that forms the biofilm. I want to reiterate that I am not a medical doctor or a dentist, so please ask your dentist and medical team what is best for you.

### **How often should oral care be prescribed for patients when NPO?**

Depending on how bad their oral cavity is, but at least 3 times a day, and may need up to 6-8 times a day. If newly NPO, suffering with dry mouth, and asking for water a lot - we recommend every 2 hours providing at least a brief cleaning and applying moisturizer.

If they have really good oral hygiene, such as if they are doing it themselves, then the SLP could evaluate the potential for having ice chips or sips of clear water for comfort and to exercise the swallowing muscles. Providing oral intake of clear water is called the Frazier Free Water Protocol, and one could look up literature on that further, but providing free water needs to be considered on a case-by-case basis by the SLP collaboration with the person and the rest of the medical team. In addition to oral infection control, the team may ask: how is the person's immune response, how is their respiratory drive and pulmonary clearance, are they mobile and able to get out of bed? This is similar to the issues I presented in the beginning of the talk from Drs. Langmore and Ashford. Giving free water to someone who is NPO due to severe dysphagia would not be a good idea if there is poor oral health, bedridden, dependence, immunocompromised, and many chronic pulmonary complications.

**Working in acute care, what common medications cause xerostomia that we should pay most attention to?**

As I mentioned briefly in the talk, lasix (diuretics), antidepressants, anticholinergics, antipsychotics, and even some medications for Parkinson's Disease (Sinemet) may have dry mouth as a side-effect. It is a highly common side-effect. See Resource at end of the talk from [SwallowStudy.com](http://SwallowStudy.com). Here they are again: pdf of medications: <https://swallowstudy.com/wp-content/uploads/Medications-Side-effects-Chart.pdf>. Blog: <https://swallowstudy.com/abas-drug-induced-dysphagia/>

**What are your thoughts on commercially available mouthwash? It is worth it?**

It is important to rinse away the loosened-up debris. Make sure the mouthwash does not contain alcohol to avoid irritation and drying effect. It is important to have some kind of rinse solution, per research that I have read and listened to at the Dysphagia Research Society (where we often hear from Japanese dental researchers). When we brush - and Floss, we are loosening the plaque and debris. Then where does it go? We have to rinse it out. You may not require a prescription of Chlorhexidine, but some kind of mouthwash solution without alcohol (and sensitive enough if you have mouth pain) is better than nothing. For people with mucositis, you can make baking soda solutions to rinse with. So, if the person cannot rinse and spit, that is when those suction swab kits are helpful to apply mouthwash while sucking out the debris.

**Can SAGE-type products be used by patients at home? e.g.: with ALS--seems like the suction is mandatory?**

YES, these oral care products can be purchased online. I have no financial relationships to disclose in referring to these companies.

SAGE: <https://sageproducts.com> - you can select a country at the top of the website. Non-ventilator needs: <https://sageproducts.com/oral-hygiene-for-non-ventilated-patients/>.

MEDLINE: <https://www.medline.com/search/product?Ntt=ORAL%20CARE> - they have adult and pediatric sizes. You can purchase Yankauer suction separately. Unfortunately, though, their website does not highlight the Oral Care category of products well, so use the search line.

### **You can brush teeth of orally intubated patients?**

YES, you have to brush the teeth of people who are intubated to prevent ventilator acquired pneumonia (VAP). That was the first big push in hospitals in oral infection control when they realized that they could prevent VAP by improving oral health. Here is a bit about VAP and Hospital Acquired Pneumonia (HAP, aka, HCAP for healthcare associated pneumonia):

<https://sageproducts.com/clinical-information-reducing-vaphap-risk-factors/>

PRODUCTS: <https://sageproducts.com/oral-hygiene-for-non-ventilated-patients/>

### **Is Chapstick a part of oral/lip care?**

YES, we talked at the end about taking care of the lips. Intubation, as well as just dry healthcare rooms can do a number on the lips. Chapstick is fine for protection and prevention, but it contains petrolatum (petroleum byproduct), which acts to hold in moisture. However, I question if it really heals skin that is already cracked, cut, and infected with bacteria and yeast. For prevention, I would personally use more natural lip care products with vitamin E, for example, that could really penetrate and heal. However, if there is a wound or infection, that would need direct medical attention by the doctor (nurse practitioner or physician's assistant) and wound care nurse specialists. The registered dietitian could also be involved, as they can increase other nutrients for skin healing (like zinc and Vitamin D) and make sure that the person is not dehydrated and/or malnourished.

### **Can you comment on long term use of atropine to manage difficulty swallowing secretions?**

For any medication questions, I have to first say that I am not a doctor and all medications should be discussed with your doctor and your pharmacist. Don't forget the use of pharmacists, as they often are under-utilized in hospitals. Side-note: Adverse drug reactions have been reduced when hospitals use root-cause analysis in addition to having pharmacists as active members of the team (Anderson, J. G., & Abrahamson, K. (2017). Your Health Care May Kill You: Medical Errors. *Studies in health technology and informatics*, 234, 13–17.)

The pharmacists may know more about the ins/outs of medications and medication combinations than your primary care physician. Many people are on many medications, and the effects of polypharmacy (taking more than 5 prescription medications) needs to be reviewed with your medical team. Some medications can increase or decrease the effectiveness or side effects of other medications. You cannot look at one medication in isolation if you are taking many.

Atropine is an example of the use of a medication to capitalize on its side-effects of dry mouth. It is an *anticholinergic* drug with *antimuscarinic* side-effects, BUT it may have other side-effects common in anticholinergics (like confusion or heart racing). It is often used to dry up excessive

secretions. There is even a low dose version (actually eye drops) that can be taken under the tongue, which is good for those who have difficulty swallowing pills (called sublingual - or under the tongue). This tends to be used in palliative care and hospice. I don't know of specific studies in long-term use, but have seen that the anticholinergic more dangerous side-effects are more common when people are taking larger amounts than the under the tongue doses. Please review this with your healthcare team. Also, as I mentioned in my talk, we need to make sure that the mouth is very clean so that any excessive saliva does not fall down into the throat and become aspirated along with the bad bacteria from the mouth. Additionally, we need to see if behavioral intervention by a swallowing specialist (speech-language pathologist who works with swallowing) could address the person's attention to their saliva swallowing frequency. Some neurologists have recommended sugar-free gum to chew throughout the day, as this reminds one to swallow often and manage the saliva better. We swallow 1 quart of saliva a day, so that requires a lot of attention and swallowing that we take for granted if we have typically functioning neurological systems.

### **Do/Can SLPs write dysphagia goals specifically related to oral care?**

You could write a goal that the patient (or caregiver) will demonstrate independence (or modified independence as needed) to perform necessary oral infection control 3-4 times a day to prevent negative health sequelae (such as HCAP, rehospitalization, fever, need for antibiotics, etc.). You could use a quality of life scale as a measurement as well.

### **Is there a particular brand of bottled water that helps keep the saliva at the proper pH?**

I have heard people recommending alkaline water for all sorts of claims, including to reduce acid reflux. However, I am not aware of specific good medical evidence to show that it helps in reducing acid reflux or keeping the saliva at a proper pH. There are a lot of claims out there on the internet that may not have good scientific evidence. *Alkaline water* needs more research. In general drinking regular tap or filtered water is better than drinking sodas, juice and coffee all day, which are all very acidic.

### **Can you talk about if pills get stuck in the throat when trying to swallow them?**

Pill dysphagia, or difficulty swallowing pills would require a whole other webinar. Great topic. You can work with a speech-language pathologist to evaluate this issue. It has a big impact on health/quality of life. You can evaluate this quality of life impact with the rating scale, PILL-5 (link in blog below). The SLP can evaluate pills with video x-ray or scope to see where the problem is. Is the hesitancy a fear of sending the pill out of the mouth? Does it get stuck in the throat? Or does it get hung up in the esophagus? A video swallow study with an SLP could give you a pill with water vs a pill in applesauce and scan from the mouth through the esophagus to the stomach to see where the problem is and HOW to fix it. You can also put the pill in a pill swallowing gel product and watch to see if it goes down better. I have worked with a company Phazix (<https://www.Phazix.com>; note: Phazix - brand for individuals / Assure Slide - brand for

healthcare institutions) who made a gel-based product that really helps pills slide down. I use it even for my huge vitamin. Please see this blog that I wrote for the company (disclosure: financial stipend received for the blog post): <https://swallowstudy.com/trouble-swallowing-pills-what-to-do-for-pill-dysphagia/>. I am also working with them to make webinars about the product, for which I receive honorariums, but I do not make a commission on the sale of the product. They have just paid for my time in writing and creating webinars.

If you don't have a product like this, then try to embed the pill one at a time in applesauce. You can crush a medication in applesauce also, IF THE MEDICATION CAN BE CRUSHED OR OPENED (YOU MUST CHECK WITH YOUR PHARMACIST). You can get a list of medications that cannot be crushed. Use a real food item (yogurt, pudding, smooth jam), and DO NOT crush a medication into a thickened liquid, as that take away the bioavailability of the medication itself.

### **Can you talk about what to do if a Modified Barium Swallow Study shows some pooling/residue in the back of the tongue?**

This is also a topic that would require a whole webinar, but let me give just a quick answer. One that is related to this webinar is that we want to make sure the person does not have dry mouth. A moist mouth with normal saliva (which has "mucin" in it that gives you that slippery coating) helps a lot. Try an artificial saliva substitute, slippery foods and chewing up the food well can help a lot.

Otherwise, the SLP will have to assess if the issue is one of timing/coordination or strength. Not all residue is due to a weakness, but if it is, there are good tongue exercises and throat squeezing exercises to try to improve the force that the back of the tongue and the throat muscles exert on the ball of food to strip it down fully. There are also strategies that need to be tested with the assistance of an SLP under the guidance of an instrumental exam (VFSS/MBSS or FEES). For example, we need to see if the "effortful swallow" - pushing with your tongue and squeezing with your throat is helpful. The use of biofeedback during the exam (you watching yourself swallow) can help you see and feel what works to move the food and liquid down more efficiently and safely. Ask the therapist to bring the camera in front of you. Don't be squeamish about seeing inside - it is cool. I have seen lots of people create the strategy that works for them.

### **One of the nurses at my hospital said hydrogen peroxide should not be used on teeth, is that true?**

Hydrogen peroxide is a debriding tool to bubble and lift off the caked-on debris. The concentration that is used in our oral care kits is *not the high concentration* that people are using to create those super white smiles. High concentrations can harm enamel and make teeth sensitive.

### **Is O-CAT a free resource that can be used at other hospitals?**

You can also use the O-HAT - which has been around for a long time, and is readily available online at the references provided.

For the O-CAT: Please see the citation provided. Wagner, C., Marchina, S. Deveau, J.A., Frayne, C. Sulmonte, K. & Kumar, S. (2016). Risk of stroke-associated pneumonia and oral hygiene. *Cerebrovascular Diseases*, 41, 35039. DOI: 10.1159/000440733

**Have you read: Efficacy of chlorhexidine and green tea mouthwashes in the management of dental plaque-induced gingivitis- a comparative clinical study, by B Meena Priya, V. Anitha et al.?**

Thank you for this reference. I briefly reviewed the study you mentioned and want to put the citation: Priya, B.M., et al., 2015, Efficiency of chlorhexidine and green tea mouthwash in the management of dental plaque-induced gingivitis: A comparative clinical study. *Contemp Clin Dent*, 6(4), 505-9.

**What do you think of dipping toothbrush with just mouthwash to brush patients' teeth instead of with toothpaste? Especially for patients with severe oral and pharyngeal dysphagia and suctioning is not readily available? - from an acute and rehab SLP working in a hospital**

Patient specific. Toothpaste seems helpful for the removal of plaque; however, see that study described in my webinar about how people had reduced ventilator acquired pneumonia even when just toothbrushes plus saline were used (without toothpaste or mouthwash)! It is the mechanical debridement action that seems key. Amazing.

Maybe if you just dip a toothbrush in mouthwash, it could generate too much fluid pooling in the mouth. A small amount of mouthwash with a small amount of toothpaste, plus suction (built in or with simultaneous Yankauer suction) should be adequate.

If no suction and if person is not able to swish and spit: Before brushing, you can use sponges to remove anything that is loose. After toothbrushing and mouthwash on swab, I have used a dry sponge or even a thin dry washcloth or gauze to scrub the tongue, gums, palate and to clear out the debris that is now removed off surfaces. Then apply moisturizer agent and lip balm.

**What is the best plan of care for someone without natural teeth? I work with a lot of head and neck cancer patients without teeth and with dry mouth. Use a toothbrush? Mouthwash? What about a mouth with breakdown due to mucositis?**

Just a few tips for survivors of head and neck cancer who have mucositis:

<https://swallowstudy.com/tips-survivors-head-neck-cancer/> Also, research has found that thorough oral infection control is important for people who are edentulous (no teeth) also (Yoneyama, et al, 2002, JAGS). Scrub surfaces and rinse. There are dry mouth toothpaste and mouthwash brands also to reduce irritation.

Here are a lot of other mucositis references:

- <https://swallowstudy.com/hpv-changing-face-head-neck-cancer/>
- <https://oralcancerfoundation.org/complications/mucositis>

Re Mucositis & Gabapentin for dysphagia with chemo/radiation-induced dysphagia & odynophagia:

- Milazzo-Kiedaisch, C. A., Itano, J., & Dutta, P. R. (2016). Role of Gabapentin in Managing Mucositis Pain in Patients Undergoing Radiation Therapy to the Head and Neck. *Clinical journal of oncology nursing*, 20(6), 623–628. doi:10.1188/16.CJON.623-628
- Murphy, B.A., Ghiam, M., Niermann, K.J., Cmelak, A., Gibson, M.K., Gilbert, J. & Smith, D. (2019). Prophylactic gabapentin decreases fatigue and swallowing difficulty in patients undergoing concurrent chemo-radiation (CCR) for head and neck cancer (HNC): Interim results from a randomized controlled trial. *Journal of Clinical Oncology*, 37:15\_suppl, 6059-6059. [https://ascopubs.org/doi/abs/10.1200/JCO.2019.37.15\\_suppl.6059](https://ascopubs.org/doi/abs/10.1200/JCO.2019.37.15_suppl.6059)
- Starmer, H.M., Yang, W., Raval, R., Gourin, C.G, Richarson, M., Kumar, R., et al. (2014). Effect of gabapentin on swallowing during and after chemoradiation for oropharyngeal squamous cell cancer. *Dysphagia*, 29, 396–402.
- Starmer, H.M., Yang, W., Gourin, C.G., Kumar, R., Jones, B., McNutt, T., Cheng, S. & Quon, H. (2017). One-year swallowing outcomes in patients treated with prophylactic Gabapentin during radiation-based treatment for oropharyngeal cancer. *Dysphagia*, 32, 437-442.
- Yang, W., McNutt, T.R., Dudley, S., Kumar, R., Starmer, H.M., Gourin, C.G., et al. (2016). Predictive factors for prophylactic Percutaneous Endoscopic Gastrostomy (PEG) tube placement and use in head and neck patients following intensity-modulated radiation therapy (IMRT) treatment: Concordance, discrepancies, and the role of gabapentin. *Dysphagia*, 31(2), 206–13.

### **When drooling is an issue, does the mouth still need to be moisturized?**

Protection may still be needed, especially at the lips, where they can get irritated from constant fluids dripping past them. Also, the *quantity* of the saliva is **not the same** as the *quality* of the saliva. The saliva may be thick, stringy in someone who aspirates often. The saliva may not contain adequate mucin to help form a slippery ball of food to swallow, as it may be very watery. To read more about the quality of saliva, see this article:

<https://swallowstudy.com/saliva-puzzle-saliva-production-swallowing/>. Nicole Rogus-Pulia - researcher from University of Wisconsin-Madison - has done and is doing terrific research on saliva.

### **Can you please provide a reference source for your assertion that there is some evidence to suggest that periodontal disease may lead to Alzheimer's Disease?**

I had mentioned that my communication with the researcher from Canada, Dr. Rebecca Affoo. (See @Rebecca\_affoo on twitter). Dr Affoo noted: there is "preliminary evidence to suggest that periodontal disease may be linked to Alzheimer's disease development." I don't have those citations for you, but a PubMed search may uncover those.

## **Who in the hospital is regularly responsible for implementing the oral care protocol? Nurses?**

The actual performing of oral infection control would be by the nurses and CNAs (certified nursing assistants), but the creation of a policy, protocol and guidelines requires a multidisciplinary effort. The oral infection control champion may need to do some research to get administration buy-in. Review hospital data on hospital acquired infections/hospital acquired pneumonia and readmissions after pneumonia admission. Do a root cause analysis of potential causes, and work with the patient safety team at the hospital. That would be a retrospective way of getting buy-in.

## **Would SLPs be able to get intubated patients onto our caseload early on and provide oral care to assist nursing staff and if so, is this something the SLP could charge for.**

At this time, we do not yet have good evidence for treating and charging for people who are still intubated. However, the ICU at John's Hopkins has been looking at this "early mobilization" idea for SLPs, as they have for Physical Therapists/PTs, in people who are on ventilators. PTs have seen terrific results from early therapy with people while still intubated and vented. Dr. Martin Brodsky is an SLP there looking into this. Once good evidence, maybe we could charge for early mobilization and oral stimulation that would include aggressive oral infection control interventions. Follow Johns Hopkins on Twitter: @rehabhopkins, @MBBrodskyPhD, @DrDaleNeedham, #ICUrehab

## **You mentioned that oral swabs are "wimpy." Would you say the same thing for suction swabs? In our hospital, nursing uses suction oral care kits. In the kit there are strips of suction products - 1 suction toothbrush along with 5 or 6 suction swabs. I suspect that perhaps 1 whole strip is supposed to be used across one day, but it is not uncommon for one strip to be used across days meaning most of the time the oral care is provided by suction swab not toothbrush. Should I advocate for a different product bundle?**

One kit per day ideally. More suction toothbrushes in those kits could be helpful, but they could disinfect/wash and use same toothbrush throughout that one day, keeping it in its package. The suction swabs are at least better than regular swabs, as you are scrubbing and removing debris rather than just swabbing it all around without removal. The brushes on the suction swabs are a little stronger than the little pink or green toothette swab sponges. Nothing beats a good mechanical brushing though, per research and our experience. Look into who stocks these kits and their supply. Maybe also spend energy advocating for dental hygienists on consult as needed. Seek out the dental department connected to the hospital, they may be consultants, as for some do pre-op clearance for cardiac surgeries. A hospital in Michigan is working with dentists for a grant to increase oral infection control with dental hygienists too! Inspiring!

## **Do water picks work?**



I think they are effective to use after brushing. They are used at the dentist office. You could ask your dentist also to make sure that your water pick is effectively getting along and under the gum line well. Ask the dentist if home water picks are as effective as flossing?

This makes me want to share from my dental experiences: When I am at the dentist and laying back in the chair, I have to have the suction in my hand to control and suction all the rush of water from their powerful water picks, since I am acutely aware of how much water is too much for my own airway protection. This brings up the point that people with dysphagia have to advocate for themselves at the dentist. Some dentists may not think about a person with dysphagia who may not be able to protect their airway from aspiration while laying back in the chair. Make sure to talk with hygienist and dentist ahead of time to make adjustments for your safety.

### **Are there any handouts for how to perform oral cleaning?**

See this blog for starters: <https://swallowstudy.com/perform-effective-oral-care/>

[Here is the pdf from that blog:](#)

## **Oral Care Procedures for the Dependent Patient**

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*Perform every shift (before/after meals as needed)*

**Tools:** toothbrush (on suction if available), swabs (on suction if available), extra toothettes/swabs to apply mouthwash and moisturizer, Yankauer-oral suction, mouthwash, oral moisturizer, water-based lip moisturizer, gloves, and Chlorhexidine\* measured out in medicine cup if prescribed by doctor.

1. **Sit the patient fully upright** or in an elevated side-lying position to prevent aspiration during mouth cleaning.
2. **Inspect** the patient's mouth:
  - Check lips, teeth, gums, inside cheeks, tongue, and mucosa of floor of mouth and palate.
  - Note any food, coating, bleeding, dryness, edema, redness, or other debris.
  - Note degree of saliva pooling (excessive secretions?).
3. **Remove loose material (debris):**
  - Use Yankauer suction to remove excessive secretions and loose debris.
  - Use Suction Swab (or toothette if Suction Swab not available) to remove as much debris

as possible. Scrub tongue and hard palate, especially when patient is NPO.

- Use Perox-A-Mint Solution (1.5% Hydrogen Peroxide) on the swabs if mechanical

action is needed to assist in debridement. Avoid Hydrogen Peroxide if oral thrush and/or

oral lesions. Instead try a baking soda solution (1 tsp of baking soda in 8 oz of water).

4. **Brush the teeth** with a Suction Toothbrush (or soft toothbrush) with toothpaste.

- If dentures, remove, brush and rinse. Soak dentures overnight.
- Gently brush teeth in circular motions at a 45 degree angle to the gum line.
- Brush for 1-2 minutes to remove plaque build-up.
- Some bleeding is okay, unless contraindicated (i.e., low platelet count/bleeding risk).

Mild bleeding indicates the need for consistent and improved oral care.

- Brush the tongue.

5. **Rinse the mouth** with Suction Swab or clean-moist toothette & Yankauer suction.

6. **Mouthwash\***: dip toothette into a standard oral rinse. Most mouthwashes contain

0.05% Cetylpyridinium Chloride (anti-fungal and anti-bacterial) to reduce the risk of infection and to remove plaque.

- Swab along teeth, gums, tongue, roof of mouth.
- Suction to remove excess.

7. **Mouth and lip moisturizer**: apply moisturizer inside the mouth with a toothette

(i.e., artificial saliva substitute, like *Biotene* or *Mouth Moisturizer* from SAGE

kits). Apply water-based moisturizer to lips with gloved finger (avoid petroleum).

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8. **\*If indicated and prescribed, use 0.12% Chlorhexidine Gluconate (CHG):** for treatment of gingivitis (i.e., redness, swelling and bleeding of gums), for a strong anti-microbial, if the patient is intubated, and to reduce pneumonia risk.

- Apply after breakfast and before bed, after oral care steps #1-5.
- DO NOT use mouth moisturizer in step #7 if CHG indicated. Apply mouth moisturizer at another time in the day as needed.
- DO NOT rinse mouth, eat or drink for 30 minutes after using CHG.
- DO NOT swallow: Swab around mouth completely and suction excess.