

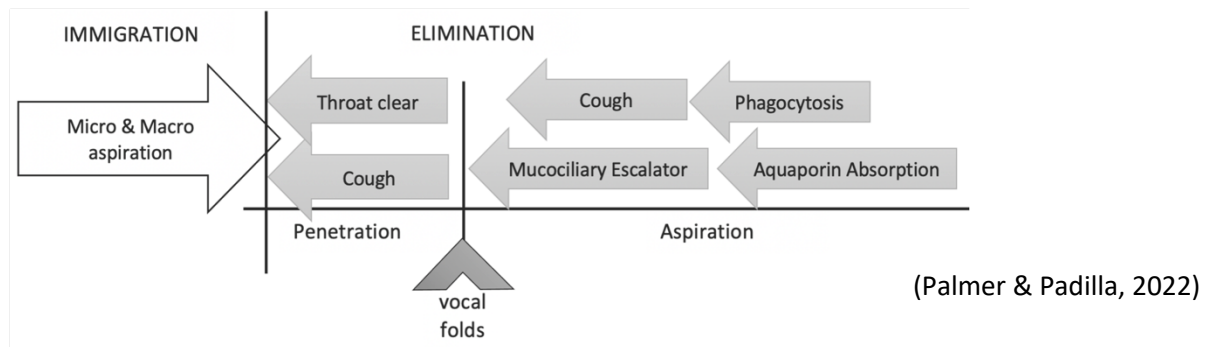
Aspiration and the Pulmonary Biome

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Concern: Consequences of aspiration differ across individuals.

For homeostasis, when immigration into the lung occurs it must approximate elimination.



Framework to aid clinicians in determining risk associated with aspiration.

Palmer, P.M. & Padilla, A.H. (2021, November). <i>Aspiration Pneumonia and the Pulmonary Biome</i> . Presented at ASHA Convention, Washington, DC.	B Bolus Variables	<ul style="list-style-type: none"> Is my patient aspirating thick or dense materials? Is my patient aspirating acidic material? Is aspiration frequent and large?
	O Oral Health & Oral Care	<ul style="list-style-type: none"> Is there evidence of oral neglect or poor oral infection control? Does my patient have inadequate oral hygiene routines? Does my patient have reduced saliva?
	L Lifestyle & Level of Activity	<ul style="list-style-type: none"> Does my patient have limited mobility? Is my patient frail or deconditioned? Is my patient dependent for feeding and oral hygiene?
	U Unintended/Iatrogenic Risks	<ul style="list-style-type: none"> Does my patient have tubes? Is my patient ventilated? Is my patient taking medication(s) that impact alertness?
	S System Status/General Health	<ul style="list-style-type: none"> Is my patient in poor general health? Does my patient have respiratory disease or GI disease? Does my patient have limited cognition? Does my patient have compromised immune?

References

B

- Bock, J. M., Varadarajan, V., Brawley, M. C., & Blumin, J. H. (2017). Evaluation of the natural history of patients who aspirate. *The Laryngoscope*, 127, S1-S10. <https://doi.org/10.1002/lary.26854>
- Logeman, J. A., Gensler, G., Robbins, J., Lindblad, A. S., Brandt, D., Hind, J. A., Kosek, S., Dikeman, K., Kazandjian, M., Gramigna, G. D., Lundy, D., McGarvey-Toler, S., & Miller Gardner, P. J. (2008). A randomized study of three interventions for aspiration of thin liquids in patients with dementia or parkinson's disease. *Journal of Speech, Language, and Hearing Research*, 51(1), 173-183. [https://doi.org/10.1044/1092-4388\(2008/013\)](https://doi.org/10.1044/1092-4388(2008/013)).
- Marik, P. E. (2001). Aspiration pneumonitis and aspiration pneumonia. *The New England Journal of Medicine*, 344(9), 665-671. <https://doi.org/10.3810/hp.2010.02.276>
- Nativ-Zeltzer, N., Kuhn, M. A., Imai, D. M., Traslavina, R. P., Domer, A. S., Litts, J. K., Adams, B., & Belafsky, P. C. (2018). The effects of aspirated thickened water on survival and pulmonary injury in a rabbit model. *The Laryngoscope*, 128(2), 327-331. <https://doi.org/10.1002/lary.26698>
- Nativ-Zeltzer, N., Ueha, R., Nachalon, Y., Ma, B., Pastenkos, G., Swackhamer, C., Bornhorst, G. M., Lefton-Greif, M. A., Anderson, J. D., & Belafsky, P. C. (2020). Inflammatory effects of thickened water on the lungs in a murine model of recurrent aspiration. *The Laryngoscope*. <https://doi.org/10.1002/lary.28948>
- Robbins, J., Gensler, G., Hind, J., Logemann, J. A., Lindblad, A. S., Brandt, D., Baum, H., Lilienfeld, D., Kosek, S., Lundy, D., Dikeman, K., Kazandjian, M., Gramigna, G. D., McGarvey-Toler, S., & Miller Gardner, P. J. (2008). Comparison of 2 interventions for liquid aspiration on pneumonia incidence: A randomized trial. *Annals of Internal Medicine*, 148(7), 509-518. <https://doi.org/10.7326/0003-4819-148-7-200804010-00007>
- Bock, J. M., Varadarajan, V., Brawley, M. C., & Blumin, J. H. (2017). Evaluation of the natural history of patients who aspirate. *The Laryngoscope*, 127, S1-S10. <https://doi.org/10.1002/lary.26854>

O

- El-Solh, A. A., Pietrantonio, C., Bhat, A., Okada, M., Zambon, J., Aquilina, A., & Berbari, E. (2004). Colonization of dental plaques: A reservoir of respiratory pathogens for hospital-acquired pneumonia in institutionalized elders. *Chest*, 126(5), 1575-1582. [https://doi.org/10.1016/S0012-3692\(15\)31374-X](https://doi.org/10.1016/S0012-3692(15)31374-X)
- Kageyama, S., Takeshita, T., Asakawa, M., Shibata, Y., Takeuchi, K., Yamanaka, W., & Yamashita, Y. (2017). Relative abundance of total subgingival plaque-specific bacteria in salivary microbiota reflects the overall periodontal condition in patients with periodontitis. *PLoS One*, 12(4), e0174782. <https://doi.org/10.1371/journal.pone.0174782>
- Langmore, S. E., Terpenning, M. S., Schork, A., Chen, Y., Murray, J. T., Lopatin, D., & Loesche, W. J. (1998). Predictors of aspiration pneumonia: How important is dysphagia? *Dysphagia*, 13(2), 69-81. <https://doi.org/10.1007/PL00009559>
- Langmore, S. E., Skarupski, K. A., Park, P. S., & Fries, B. E. (2002). Predictors of aspiration pneumonia in nursing home residents. *Dysphagia*, 17(4), 298-307. <https://doi.org/10.1007/s00455-002-0072-5>
- Palmer, P.M. & Padilla, A.H. (2021). Aspiration and the Pulmonary Biome. An oral presentation at the ASHA Convention, Washington DC.

L

- Abe, T., Suzuki, T., Yoshida, H., Shimada, H., & Inoue, N. (2011). The relationship between pulmonary function and physical function and mobility in community-dwelling elderly women aged 75 years or older. *Journal of Physical Therapy Science*, 23(3), 443-449. <https://doi.org/10.1589/jpts.23.443>
- Hathaway, B., Vaezi, A., Egloff, A. M., Smith, L., Wasserman-Wincko, T., & Johnson, J. T. (2014). Frailty measurements and dysphagia in the outpatient setting. *Annals of Otolaryngology, Rhinology & Laryngology*, 123(9), 629-635. <https://doi.org/10.1177/0003489414528669>
- Langmore, S. E., Skarupski, K. A., Park, P. S., & Fries, B. E. (2002). Predictors of aspiration pneumonia in nursing home residents. *Dysphagia*, 17(4), 298-307. <https://doi.org/10.1007/s00455-002-0072-5>
- Wang, T. H., Wu, C. P., & Wang, L. Y. (2018). Chest physiotherapy with early mobilization may improve extubation outcome in critically ill patients in the intensive care units. *The clinical respiratory journal*, 12(11), 2613-2621. <https://doi.org/10.1111/crj.12965>

U

- Nativ-Zeltzer, N., Nachalon, Y., Kaufman, M. W., Seeni, I. C., Bastea, S., Aulakh, S. S., ... & Belafsky, P. C. (2021). Predictors of Aspiration Pneumonia and Mortality in Patients with Dysphagia. *The Laryngoscope*.
- Kurien, M., Andrews, R. E., Andrews, R. E., Tattersall, R., McAlindon, M. E., Wong, E. F., Johnston, A. J., Hoeroldt, B., Dear, K. L., & Sanders, D. S. (2017). Gastrostomies preserve but do not increase quality of life for patients and caregivers. *Clinical Gastroenterology and Hepatology*, 15(7), 1047- 1054. <https://doi.org/10.1016/j.cgh.2016.10.032>
- Park, J. W., Park, K. D., Kim, T. H., Lee, J. Y., Lim, O. K., Lee, J. K., & Choi, C. (2019). Comparison of tube feeding in stroke patients: Nasogastric tube feeding versus oroesophageal tube feeding-A pilot study. *Medicine*, 98(30), e16472. <https://doi.org/10.1097/MD.00000000000016472>
- Pisegna, J. M., & Langmore, S. E. (2018). The ice chip protocol: A description of the protocol and case reports. *Perspectives of the ASHA Special Interest Groups*, 3(13), 28-46. [doi: 10.1044/persp3.SIG13.28](https://doi.org/10.1044/persp3.SIG13.28)
- Takayama, K., Hirayama, K., Hirao, A., Kondo, K., Hayashi, H., Kadota, K., Asaba, H., Ishizu, H., Nakata, K., Kurisu, K., Oshima, E., Yokota, O., Yamada, N., & Terada, S. (2017). Survival times with and without tube feeding in patients with dementia or psychiatric diseases in Japan. *Psychogeriatrics*, 17(6), 453-459. <https://doi-org.libproxy.unm.edu/10.1111/psyg.12274>

S

- Bock, J. M., Varadarajan, V., Brawley, M. C., & Blumin, J. H. (2017). Evaluation of the natural history of patients who aspirate. *The Laryngoscope*, 127, S1-S10. <https://doi.org/10.1002/lary.26854>
- Easterling, C. S., & Robbins, E. (2008). Dementia and dysphagia. *Geriatric Nursing*, 29(4), 275-285. <https://doi.org/10.1016/j.gerinurse.2007.10.015>
- Nativ-Zeltzer, N., Nachalon, Y., Kaufman, M. W., Seeni, I. C., Bastea, S., Aulakh, S. S., ... & Belafsky, P. C. (2021). Predictors of Aspiration Pneumonia and Mortality in Patients with Dysphagia. *The Laryngoscope*.

Palmer, P.M. & Padilla, A.H. (2021). Aspiration and the Pulmonary Biome. An oral presentation at the ASHA Convention, Washington DC.

- Langmore, S. E., Terpenning, M. S., Schork, A., Chen, Y., Murray, J. T., Lopatin, D., & Loesche, W. J. (1998). Predictors of aspiration pneumonia: How important is dysphagia? *Dysphagia*, *13*(2), 69-81. <https://doi.org/10.1007/PL00009559>
- Langmore, S. E., Skarupski, K. A., Park, P. S., & Fries, B. E. (2002). Predictors of aspiration pneumonia in nursing home residents. *Dysphagia*, *17*(4), 298-307. <https://doi.org/10.1007/s00455-002-0072-5>
- Hutcheson, K. A., Barrow, M. P., Plowman, E. K., Lai, S. Y., Fuller, C. D., Barringer, D. A., Eapen, G., Wang, Y., Hubbard, R., Jimenez, S. K., Little, L. G., & Lewin, J. S. (2018). Expiratory muscle strength training for radiation-associated aspiration after head and neck cancer: A case series. *The Laryngoscope*, *128*(5), 1044-1051. <https://doi.org/10.1002/lary.26845>