

GLOBAL HEALTH STARTER KIT FOR DENTAL EDUCATION

Module 7 COVID-19: Global Lessons for a Global Profession

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Hello and welcome to Module 7 of the Global Health Starter Kit: “COVID-19, Global Lessons for a Global Profession.” This module introduces concepts such as COVID-19’s links with oral health and systemic health, syndemics, problems within a fractured healthcare system, COVID-19’s impact on provision of dental care, and digital oral health. While there are numerous resources and references available about these topics, for the purpose of this module, we have curated a small sample of high-quality resources to support the learning outcomes. We encourage learners (and educators) to explore the literature further, beyond what is contained in this module.

This module is intended to be presented in 30 minutes, but to extend the learning experience, optional in-class activities and questions have been inserted along the way, which allow for one additional hour of active learning during the module.

All images in this module were originated by the authors via Canva or Piktochart, or utilized open-access images, unless otherwise noted.



Competencies:

1.2.3. Identify and describe reciprocal links among oral diseases, systemic diseases, and general health.

3.1.2. Recognize the different roles and responsibilities of medical and non-medical professionals in oral health promotion, disease prevention, and, if applicable, treatment, care, and referral.

2.3.2. Identify and advocate to address specific oral health needs and reduce inequities and health care system deficits.

This module is related to the three competencies from the Global Oral Health Competency Matrix. While these competencies cannot be met through a single teaching module, this module is working toward competency-based best practices in global health for dental education.

From:

Benzian, H., Greenspan, J.S., Barrow, J., Hutter, J.W., Loomer, P.M., Stauf, N. and Perry, D.A., 2015. A competency matrix for global oral health. Journal of dental education, 79(4), pp.353-361

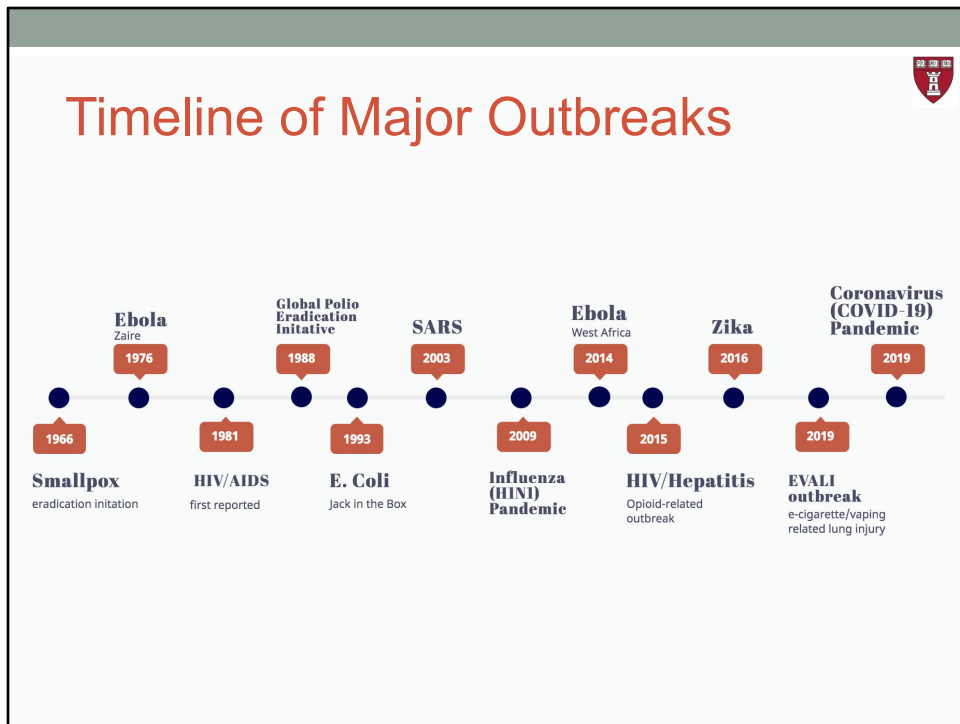
Seymour B, Shick E, Chaffee B, Benzian H. Going global: toward competency-based best practices for global health in dental education. J. Dent. Educ. 2017;18(6):707-15.



Learning Objectives

By the end of this module, students should be able to do the following:

- **Describe** the reciprocal links between oral health and COVID-19 risk and severity
- **Evaluate** the impacts of the pandemic on the dental workforce and global oral health.
- **Identify** shortcomings within the oral healthcare system and opportunities for growth highlighted by COVID-19.

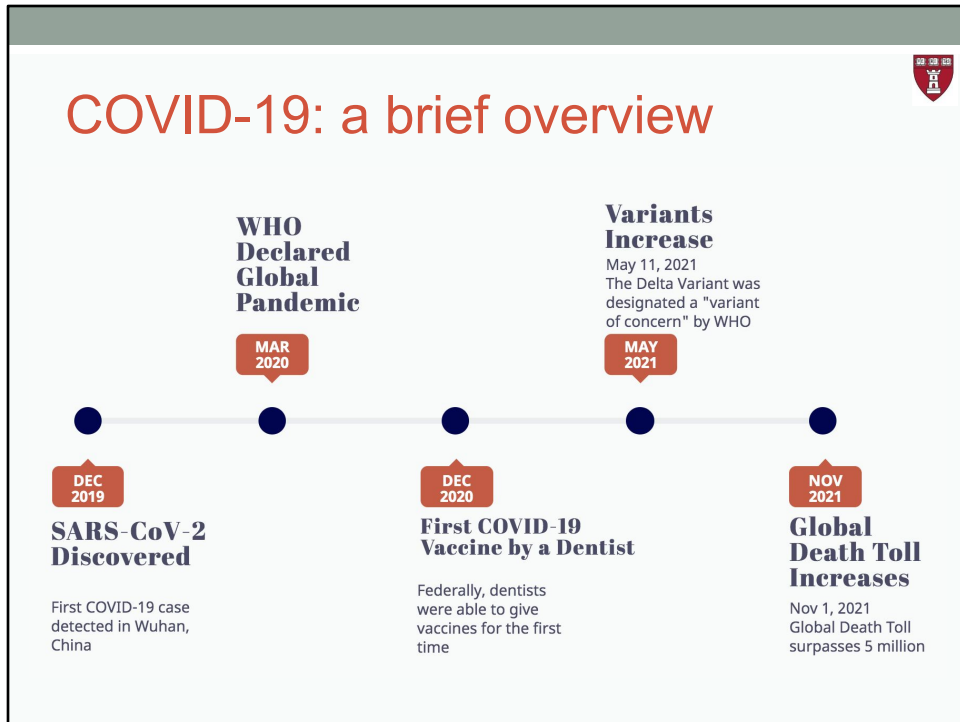


To understand COVID-19 in context of our history, a timeline of major pandemics and disease outbreaks is offered. This timeline, informed by data from the CDC, is used to highlight that the next pandemic may happen at any time. Have students think about how these timelines have offered opportunities for scientific advancement and why. Consider how tragedy can shed light on opportunities for innovation and change.

Graphic Reference:

Centers for Disease Control and Prevention. A History of Success: Investigating and Responding to Public Health Threats Since 1951.

Available at: <https://www.cdc.gov/eis/about/history.html>. Accessed 11.22.2021




Now we zoom in a timeline of major COVID-19 events. Try to have students think about how broad concepts such as travel restrictions, work-at-home orders, school closures, economic downturn, medical equipment shortages, and distribution inequalities may impact population oral health and the field of dentistry.

References:


World Health Organization. (n.d.). Tracking sars-COV-2 variants. World Health Organization. Available at: <https://www.who.int/en/activities/tracking-SARS-CoV-2-variants/>. Accessed 2021-09-16.

James Darwin N Lagman, Vaccine nationalism: a predicament in ending the COVID-19 pandemic, *Journal of Public Health*, Volume 43, Issue 2, June 2021, Pages e375–e376. Available at <https://doi.org/10.1093/pubmed/fdab088>. Accessed 2021-09-16.

Koumoue, Christelle. (2020). Historic moment: Oregon dentist first dentist in the US to administer COVID-19 vaccine. KGW8. <https://www.kgw.com/article/news/health/coronavirus/oregon-is-the-only-state-in-the-nation-where-your-dentist-is-authorized-to-give-you-a-vaccine-other-than-a-flu-shot/283-26f77398-740f-4932-9acd-0e342c79eaa>. Accessed 2021-11-22.



Transmission and Symptoms



Transmission

Via infected secretions
(respiratory and saliva droplets)

- Think **aerosols** in dental practices

We next transition into transmission and symptoms of COVID-19, both of which are relevant to the field of dentistry, especially since dental professionals are in a position to detect COVID-19 by identifying symptoms such as loss of taste and smell. One important point to emphasize is how the main cause of mortality for COVID-19, hospital-acquired pneumonia, is connected to oral health.

References:

Nathalie Botros, Parvati Iyer, David M. Ojcius, Is there an association between oral health and severity of COVID-19 complications?,

Biomedical Journal, Volume 43, Issue 4, 2020, Pages 325-327, ISSN 2319-4170.

Available at <https://doi.org/10.1016/j.bj.2020.05.016>. Accessed 2021-09-16.

Ren YF, Rasubala L, Malmstrom H, Eliav E. Dental Care and Oral Health under the Clouds of COVID-19. JDR Clinical & Translational Research. 2020;5(3):202-210.

Available at <https://doi.org/10.1177%2F2380084420924385>. Accessed 2021-09-16.



Transmission and Symptoms



Transmission

Via infected secretions
(respiratory and saliva
droplets)

- Think **aerosols** in dental
practices



Symptoms

Fever, chills, dry cough,
fatigue, shortness of breath,
muscle pain and diarrhea

Ageusia: loss of taste + smell
→ implications of oral mucosa



Transmission and Symptoms



Transmission

Via infected secretions
(respiratory and saliva
droplets)

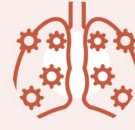
- Think **aerosols** in dental
practices



Symptoms

Fever, chills, dry cough,
fatigue, shortness of breath,
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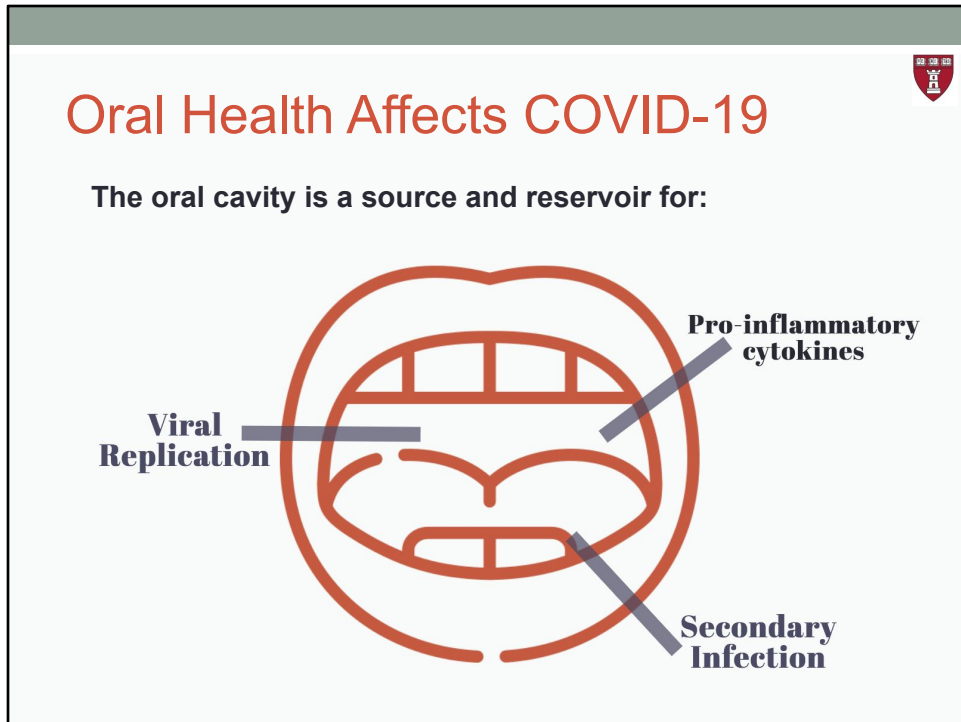
Ageusia: loss of taste + smell
→ implications of oral mucosa



Mortality

Severe pneumonia and
acute respiratory distress
syndrome (ARDS)

Linked with **cytokine storm**



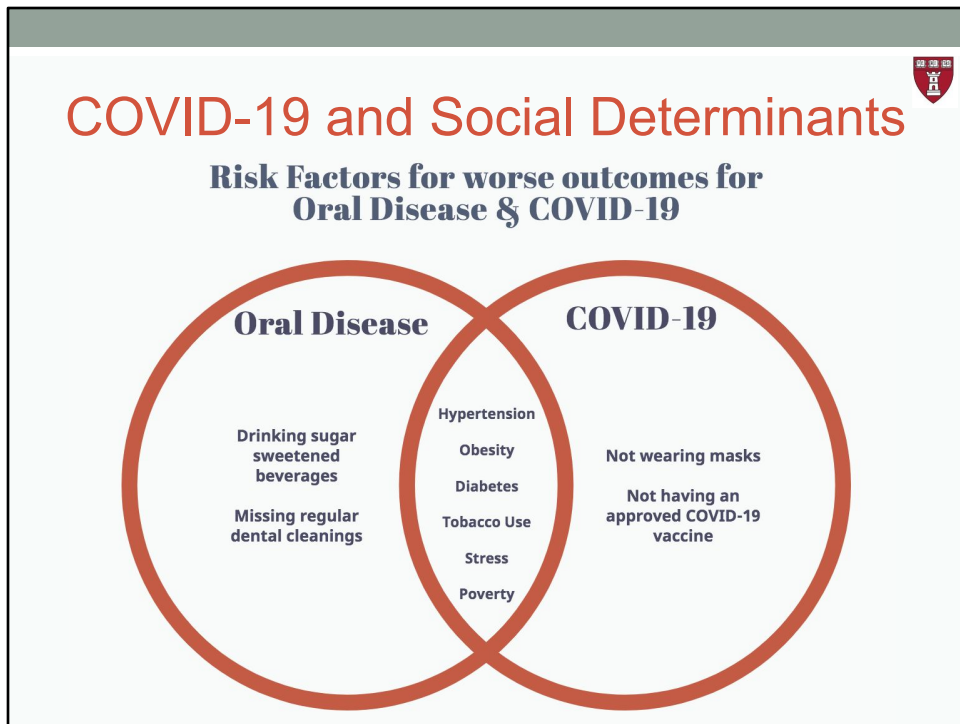
This slide covers COVID-19 and the Oral Systemic Link. Emphasize how the mouth is not only a COVID-19 entryway but also a key player for the body's overall health. Improving oral health can improve COVID-19 outcomes and reduce severity.

References:

Nathalie Botros, Parvati Iyer, David M. Ojcius, Is there an association between oral health and severity of COVID-19 complications?,
 Biomedical Journal, Volume 43, Issue 4, 2020, Pages 325-327, ISSN 2319-4170.
 Available at <https://doi.org/10.1016/j.bj.2020.05.016>. Accessed 2021-09-20.

Kamel, A., Basuoni, A., Salem, Z. et al. The impact of oral health status on COVID-19 severity, recovery period and C-reactive protein values. Br Dent J (2021).
 Available at <https://doi.org/10.1038/s41415-021-2656-1>. Accessed 2021-09-16.

Molayem S, Pontes C. The Mouth-COVID Connection: Il-6 Levels in Periodontal Disease — Potential Role in COVID-19 -Related Respiratory Complications. *CDA Journal - October 2020: Dentistry and COVID-19*. September 2020.
 Available at https://issuu.com/cdapublications/docs/cdapubs_journal_2020_october/s/11067174.
 Accessed 2021-09-16.



This Social Determinants slide transitions us from how oral health affects COVID-19 into how COVID-19 affects population oral health. We present a Venn diagram showing how risk factors for oral disease and COVID-19 overlap. Because Module 4 of the Global Health Starter Kit already covers social determinants, students should be encouraged to revisit Module 4 for more details.

References:

Nathalie Botros, Parvati Iyer, David M. Ojcius Is there an association between oral health and severity of COVID-19 complications?,

Biomedical Journal, Volume 43, Issue 4, 2020, Pages 325-327, ISSN 2319-4170.

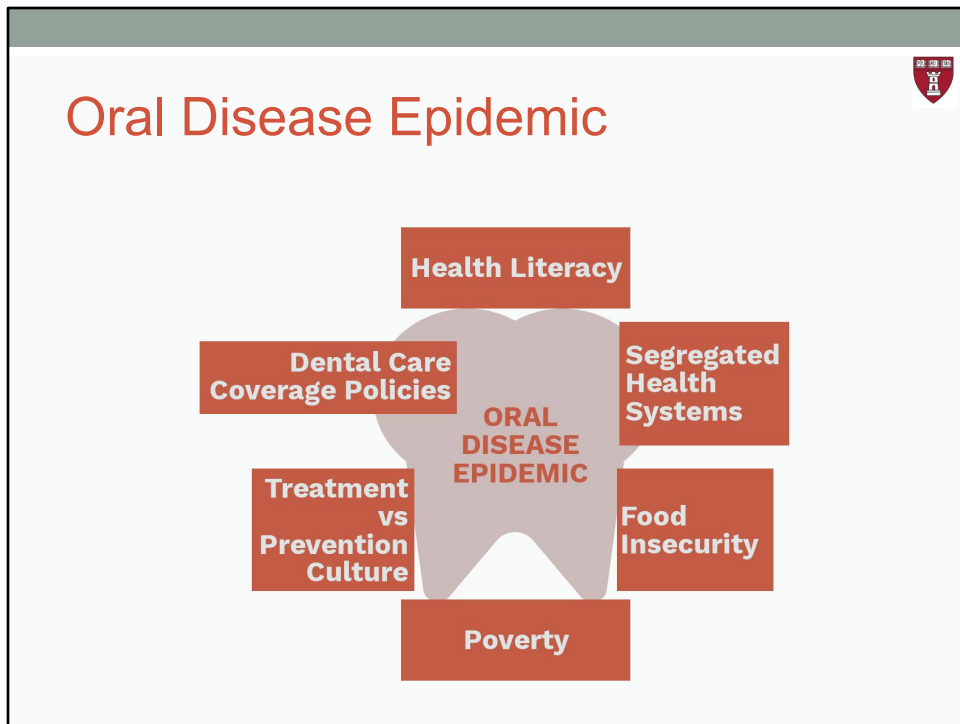
Available at <https://doi.org/10.1016/j.bj.2020.05.016>. Accessed 2021-09-20.

Singh S. Public Oral Health Care During COVID-19: Time for Reflection and Action. Front Med (Lausanne). 2021;8:610450. Published 2021 Mar 17.

Available at <https://doi.org/10.3389/fmed.2021.610450>. Accessed 2021-09-26.

Brian Z, Weintraub JA. Oral Health and COVID-19: Increasing the Need for Prevention and Access. [Erratum appears in Prev Chronic Dis 2020;17. http://www.cdc.gov/pcd/issues/2020/20_0266e.htm.] Prev Chronic Dis 2020;17:200266.

Available at: <http://dx.doi.org/10.5888/pcd17.200266> Accessed 2021-09-16.



Now, let us zoom out to the epidemic of oral disease and the influencers of oral disease at the population level. This slide builds from the previous topic on social determinants to highlight the structural factors that influence oral health and ultimately, oral disease.

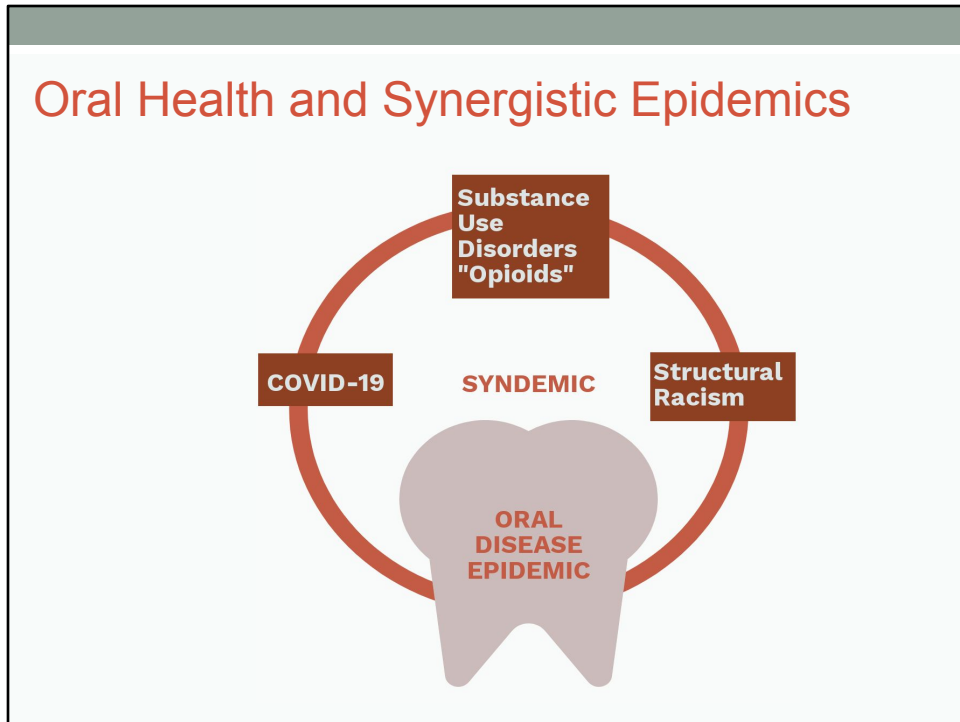
References:

Guo, Y., Logan, H., Dodd, V. Health Literacy: A pathway to better oral health. American Journal of Public Health. Available at: [10.2105/AJPH.2014.301930](https://doi.org/10.2105/AJPH.2014.301930). Accessed January 16, 2022.

Peres, M., Macpherson, L., Weyant, R., Daly, B. Oral Diseases: A global public health challenge. Lancet. Available at: [10.1016/S0140-6736\(19\)31146-8](https://doi.org/10.1016/S0140-6736(19)31146-8). Accessed January 16, 2022.

Simon, L. Overcoming Historical Separation between Oral and General Health Care: Interprofessional Collaboration for Promoting Health Equity. AMA Journal of Ethics. Available at: <https://journalofethics.ama-assn.org/article/overcoming-historical-separation-between-oral-and-general-health-care-interprofessional/2016-09>. Accessed January 16, 2022.

Nalliah, R.P., Allareddy, V. Dentists in the US should be Integrated into the hospital team. British Dental Journal. Available at: <https://doi.org/10.1038/sj.bdj.2014.245>. Accessed January 16, 2022.



Now, let us zoom out even further by thinking about Synergistic Epidemics, or “Syndemics”. Have students think about the underlying public health crisis of the “COR” Syndemic and how they exacerbate systemic barriers. Encourage students to think about other systems of inequity that could impact oral health accessibility and disease prevention.

References:

Leibowitz-Lord, S. The COR Syndemic: The overlap of COVID-19, Opioids, and Systemic Racism in Healthcare. Available at:

<https://alcoholstudies.rutgers.edu/the-cor-syndemic-the-overlap-of-covid-19-opioids-and-systemic-racism-in-healthcare/>. Accessed December 12, 2021.

Hien, D. Bauer, A. Franklin, L. Lalwani, T. Pean, K. Conceptualizing the COVID-19, Opioid Use, and Racism Syndemic and Its Associations With Traumatic Stress. Available at:

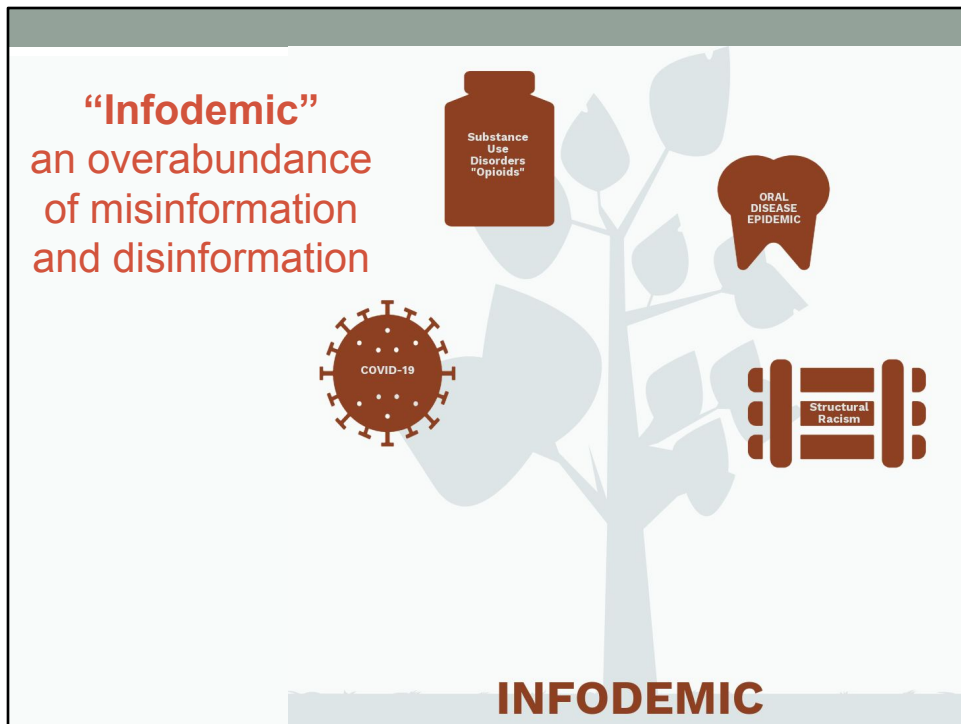
<https://ps.psychiatryonline.org/doi/abs/10.1176/appi.ps.202100070>. Accessed December 12, 2021

Kline, N., There’s nowhere I can go to get help, and I have tooth pain right now: The oral health syndemic among migrant farmworkers in Florida. *Annals of Anthropological Practice*. Available at:

https://anthrosource.onlinelibrary.wiley.com/doi/abs/10.1111/napa.12010?casa_token=puumO9jEHoWAAAAA:cTik1UAkwHC86IT0kHT7Ut19RBA0fpSx1XdifDbEKZo2frpkWDo2U7rdnxuezzFvo1IM6H6_9row

Accessed December 5, 2021

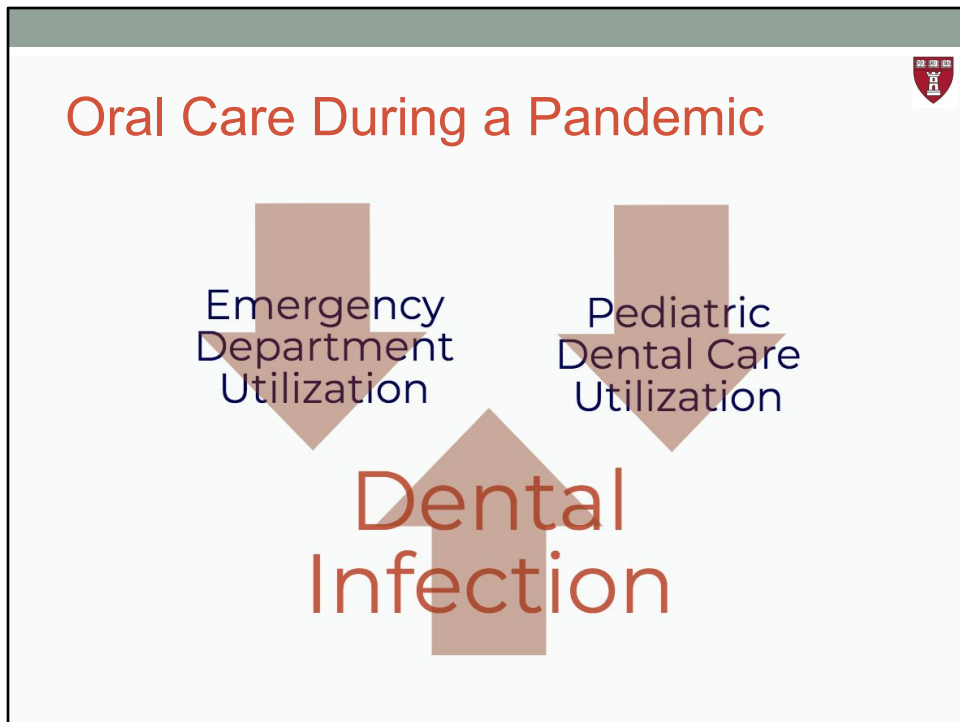
Jamieson, L., Peres, M., Guarnizo-Herreno, C., Bastos, J. Racism and oral health inequities; An overview. *EClinical Medicine*. Available at: <https://doi.org/10.1016/j.eclinm.2021.100827>. Accessed January 16, 2022.



This slide introduces the concept of “Infodemics”. Understanding the root of public influence is a context public health professionals should have. Oral health is adversely impacted by the infodemic because it increases hesitancy to engage with oral disease prevention.

WHO, Managing the COVID-19 infodemic: Promoting healthy behaviours and mitigating the harm from misinformation and disinformation. Available at: <https://www.who.int/news/item/23-09-2020-managing-the-covid-19-infodemic-promoting-healthy-behaviours-and-mitigating-the-harm-from-misinformation-and-disinformation> Accessed December 12, 2021

Chi DL. Caregivers who refuse preventive care for their children: the relationship between immunization and topical fluoride refusal. *Am J Public Health*. 2014;104(7):1327-1333. doi:10.2105/AJPH.2014.301927 Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4056200/>. Accessed 2022-01-16.



Now that students have been introduced to different “demic” models, we transition into COVID-19 pandemic’s specific impacts on dental care. The key point to emphasize is that while dental care utilization decreased, population dental infection increased.

References

Dental disaster: One year after first lockdowns dentists around the world confront the consequences of the COVID-19 pandemic on people’s oral health. Published March 18, 2021.

Available at:

<https://www.fdiworlddental.org/dental-disaster-one-year-after-first-lockdowns-dentists-around-world-confr-ont-consequences-covid-19>. Accessed 2021-09-27.

Huaqiu Guo, Yin Zhou, Xiaoqiang Liu, Jianguo Tan, The impact of the COVID-19 epidemic on the utilization of emergency dental services,

Journal of Dental Sciences, Volume 15, Issue 4, 2020, Pages 564-567, ISSN 1991-7902, <https://doi.org/10.1016/j.jds.2020.02.002>.

Available at: <https://www.sciencedirect.com/science/article/pii/S1991790220300209>

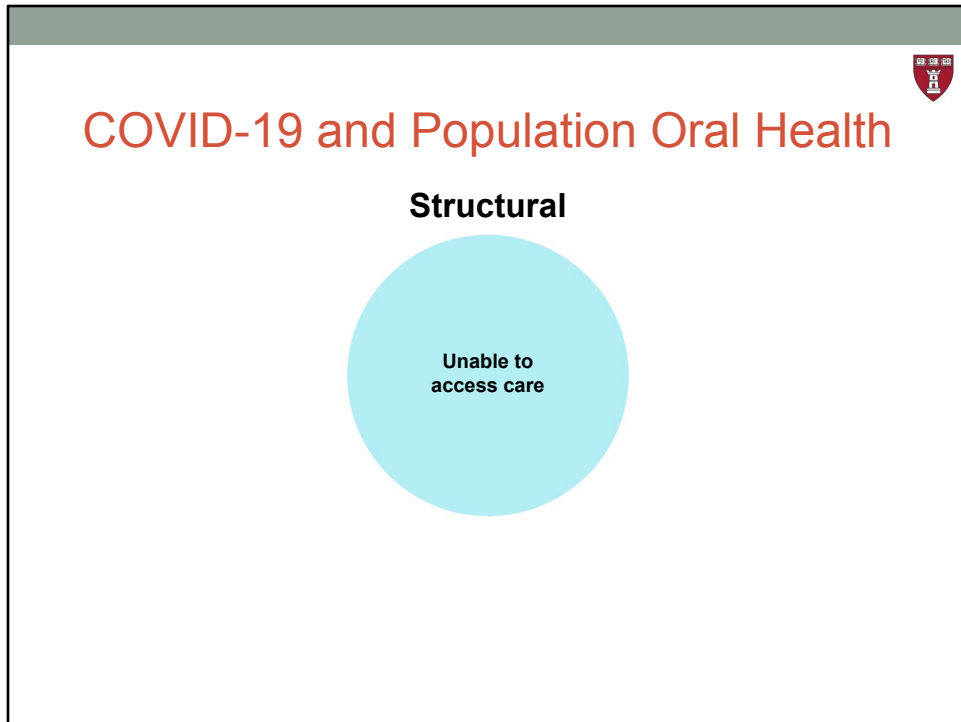
Accessed 2021-11-28.

Luzzi, V.; Ierardo, G.; Bossù, M.; Polimeni, A. COVID-19: Pediatric Oral Health During and After the Pandemics. Preprints 2020, 2020040002 (doi: 10.20944/preprints202004.0002.v1

Available at:

https://www.researchgate.net/profile/Maurizio-Bossu/publication/340381747_COVID-19_Pediatric_Oral_Health_During_and_After_the_Pandemics/links/5e9f024092851c2f52b6d73b/COVID-19-Pediatric-Oral-Health-During-and-After-the-Pandemics.pdf

Accessed 2021-11-28.



The next three slides on Population Oral Health provide an optional in-class activity for students to consider why and how population oral health was worsened by COVID-19. Encourage learners to think about the different intersections of social, structural, and economic barriers.

References:

Daly J, Black EAM. The impact of COVID-19 on population oral health. *Community Dent Health*. 2020 Nov 30;37(4):236-238. PMID: 33269826.

Available at: <https://pubmed.ncbi.nlm.nih.gov/33269826/>. Accessed 2021-09-16.

Schwendicke F, Krois J, Gomez J. Impact of SARS-CoV2 (Covid-19) on dental practices: Economic analysis. *J Dent*. 2020 Aug;99:103387. doi: 10.1016/j.jdent.2020.103387. Epub 2020 May 27. PMID: 32473182; PMCID: PMC7255191.

Available at <https://pubmed.ncbi.nlm.nih.gov/32473182/>. Accessed 2021-09-16.

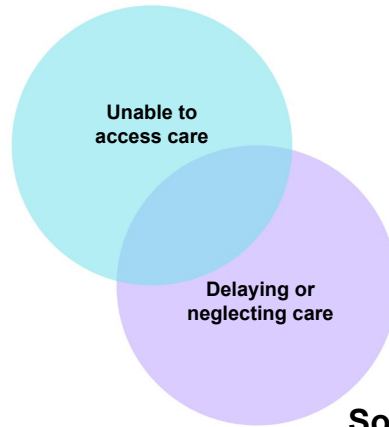
Abdelrahman, H., Atteya, S., Ihab, M. et al. Dental practice closure during the first wave of COVID-19 and associated professional, practice and structural determinants: a multi-country survey. *BMC Oral Health* 21, 243 (2021).

Available at <https://doi.org/10.1186/s12903-021-01601-4> Accessed 2021-10-01.



COVID-19 and Population Oral Health

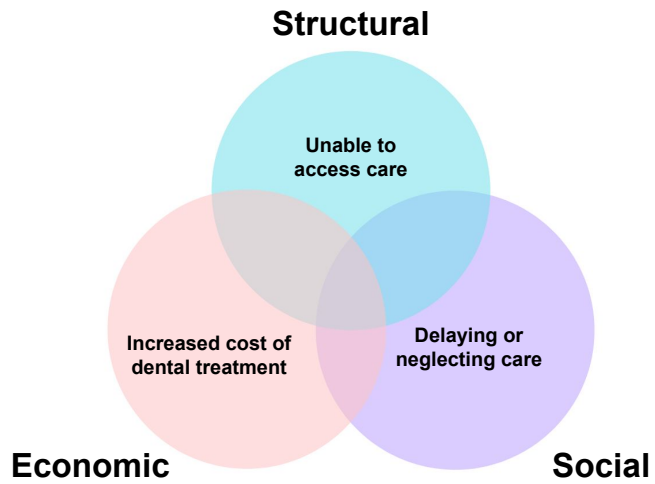
Structural

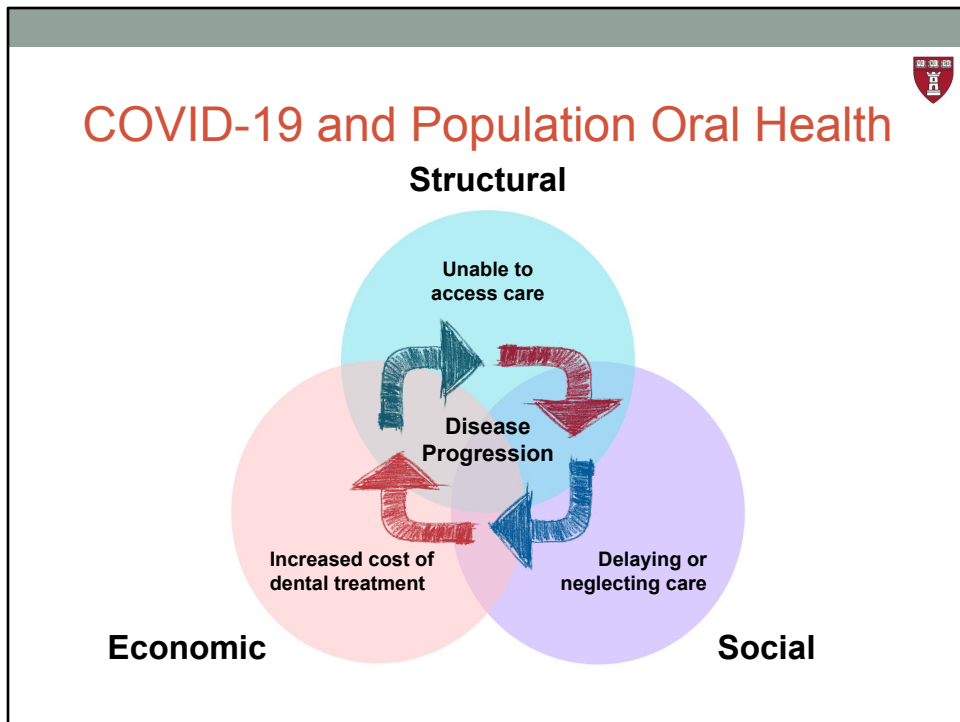


Social



COVID-19 and Population Oral Health





You can describe the impact of COVID-19 on population oral health as a Snowball Effect that builds upon itself, becoming larger and more dangerous. The concept of a “vicious cycle” has already been introduced in relation to risk factors, oral health, overall health, and COVID-19 exacerbating each other in a biological loop. Encourage students to consider how this biological cycle fits in with larger cycles. Ask them to revisit what “access to care” means.

References:

Daly J, Black EAM. The impact of COVID-19 on population oral health. *Community Dent Health*. 2020 Nov 30;37(4):236-238. PMID: 33269826.

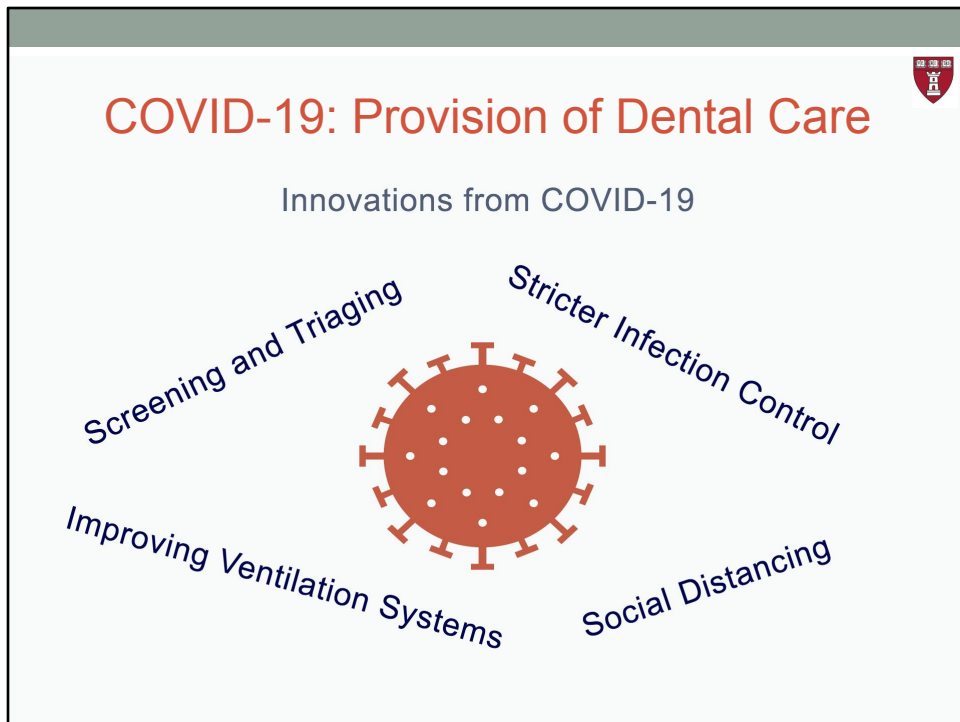
Available at: <https://pubmed.ncbi.nlm.nih.gov/33269826/>. Accessed 2021-09-16.

Schwendicke F, Krois J, Gomez J. Impact of SARS-CoV2 (Covid-19) on dental practices: Economic analysis. *J Dent*. 2020 Aug;99:103387. doi: 10.1016/j.jdent.2020.103387. Epub 2020 May 27. PMID: 32473182; PMCID: PMC7255191.

Available at <https://pubmed.ncbi.nlm.nih.gov/32473182/>. Accessed 2021-09-16.

Abdelrahman, H., Atteya, S., Ihab, M. et al. Dental practice closure during the first wave of COVID-19 and associated professional, practice and structural determinants: a multi-country survey. *BMC Oral Health* 21, 243 (2021).

Available at <https://doi.org/10.1186/s12903-021-01601-4> Accessed 2021-10-01.



Beyond focusing on population oral health, it's important for students to consider how COVID-19 fundamentally impacts the way dentistry is practiced and delivered, which shines light upon the economic barriers mentioned earlier. A key takeaway is that these guidelines resulted in higher dental costs, decreased patient capacity, and delayed preventative care.

Reference:

Jiang, C. M., Duangthip, D., Auychai, P., Chiba, M., Folayan, M. O., Hamama, H. H., Kamnoedboon, P., Lyons, K., Matangkasombut, O., Mathu-Muju, K. R., Mathur, V. P., Mei, M. L., Morgan, M., Poolthong, S., Rahul, M., Srinivasan, M., Takahashi, T., Yaklai, S., Zhang, S., ... Lo, E. C. (2021). Changes in oral health policies and guidelines during the covid-19 pandemic. *Frontiers in Oral Health*, 2. Available at: <https://doi.org/10.3389/froh.2021.668444> Accessed 2021-09-16.

A Case Study of Canada vs Nigeria



	Canada	Nigeria
Universal Healthcare	Provides treatment for health care (dental) providers exposed to COVID-19	No UHC
Governing Body for guidelines	Canadian Dental Association (non-regulatory authority)	Federal Ministry of Health of Nigeria
Reopening Process	Reopened early May, when curve was flattened	Reopened May, 4 2020 when cases were increasing (forced by socioeconomic issues)
Routine Dental Care	Recommended that routine dental visits should not be delayed	Recommended that all non-emergency visits (routine dental) should be postponed
HVAC (Heating, ventilation, and air conditioning)	Guidelines set by Canadian Standards Association. Dentists encouraged to consult HVAC specialist	No guidelines

Comparing and contrasting is important in the field of global health when examining countries varying in policies, social conditions, economic independence, and healthcare systems. We provide a case study of Canada vs Nigeria as a walkthrough example, but you are welcome to develop your own. Furthermore, you should encourage students to compare/contrast two different countries that you have not covered. While in this example, we address Universal Healthcare, Dental Governing Bodies, Reopening Process, Routine Dental Care, and Air Ventilation Systems, your students may find other themes or topics to address.

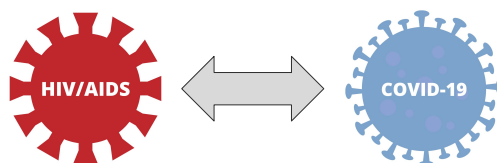
References:

Jiang, C. M., Duangthip, D., Auychai, P., Chiba, M., Folayan, M. O., Hamama, H. H., Kamnoedboon, P., Lyons, K., Matangkasombut, O., Mathu-Muju, K. R., Mathur, V. P., Mei, M. L., Morgan, M., Poolthong, S., Rahul, M., Srinivasan, M., Takahashi, T., Yaklai, S., Zhang, S., ... Lo, E. C. (2021). Changes in oral health policies and guidelines during the covid-19 pandemic. *Frontiers in Oral Health*, 2. Available at: <https://doi.org/10.3389/froh.2021.668444> Accessed 2021-09-16.



COVID-19 and HIV: Lessons Learned

	HIV/AIDS	COVID-19
Infection Control	Barehanded dentistry → Introduction of PPE and UP	Additional PPE & disinfection, staggered scheduling, triaging, teledentistry
Education and Awareness	Improved understanding of bloodborne transmission	Improved understanding of aerosol + droplet transmission
Lockdowns	No global collapse/lockdown	Global lockdown → teledentistry (virtual evaluations)
Social Unrest	Blaming gay men	Blaming Chinese community (anti-Asian sentiment)



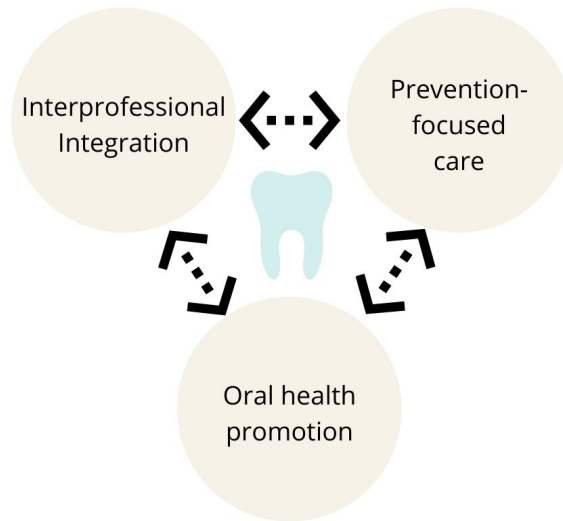
This slide investigates the longitudinal and cross-sectional relationship between COVID-19 and HIV/AIDS. There is not enough time to assess long-term impacts of COVID-19, but given the lessons we've learned from HIV/AIDS and other disease outbreaks, you should encourage students to imagine how dentistry may be practiced 10, 20, or even 50 years later. This is also a perfect time for students to reflect on syndemic interactions between COVID-19, HIV/AIDS, the global burden of oral disease, and how power dynamics between high-resource and low-resource countries intersect with this public health crisis.

References:

Brondani M, Donnelly L. The HIV and SARS-CoV-2 Parallel in Dentistry from the Perspectives of the Oral Health Care Team. *JDR Clin Trans Res.* 2021;6(1):40-46. doi:10.1177/2380084420961089 Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7502681/>. Accessed 2021-09-16.

Msoni, N., Lessells, R., Mlisana, K., & de Oliveira, T. (2021). Africa: Tackle HIV and covid-19 together. *Nature*, 600(7887), 33–36. Available at: <https://www.nature.com/articles/d41586-021-03546-8>. Accessed 2022-01-08.

COVID-19: Opportunities for Growth



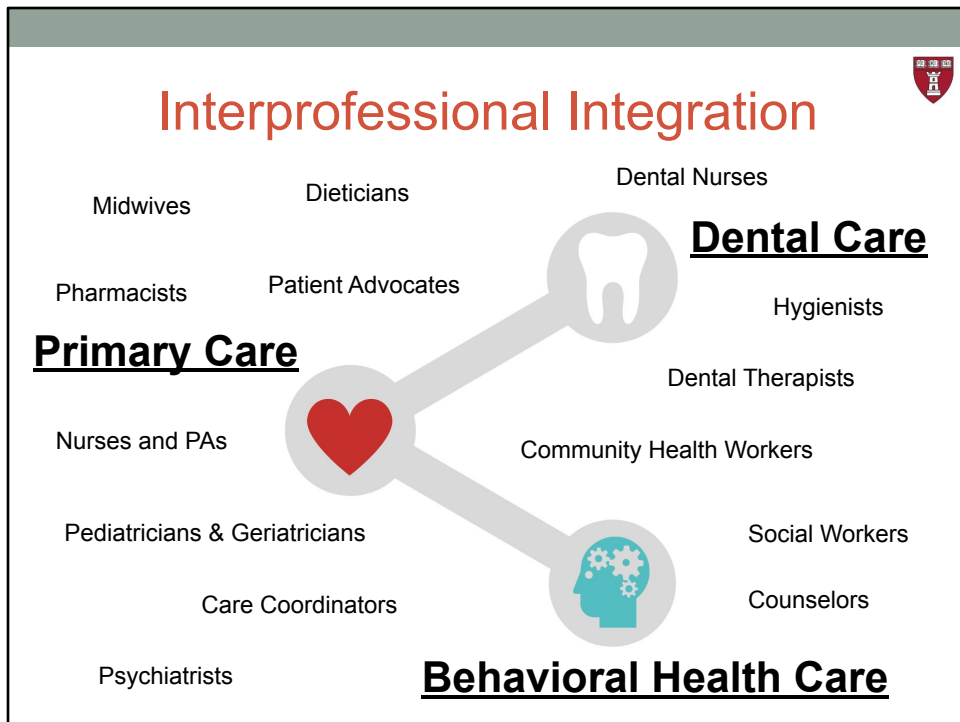
Now, we transition to the next section of our module: opportunities for growth. This slide introduces three main concepts: integration, prevention, and promotion. For each bubble, we will discuss the changes sparked by COVID-19, the steps moving forward, and how to capitalize on these opportunities.

References:

Singh S. Public Oral Health Care During COVID-19: Time for Reflection and Action. *Front Med (Lausanne)*. 2021;8:610450. Published 2021 Mar 17.
Available at <https://doi.org/10.3389/fmed.2021.610450>. Accessed 2021-09-26.

Brian Z, Weintraub JA. Oral Health and COVID-19: Increasing the Need for Prevention and Access. [Erratum appears in *Prev Chronic Dis* 2020;17. http://www.cdc.gov/pcd/issues/2020/20_0266e.htm.] *Prev Chronic Dis* 2020;17:200266.

Available at: <http://dx.doi.org/10.5888/pcd17.200266> Accessed 2021-09-16.



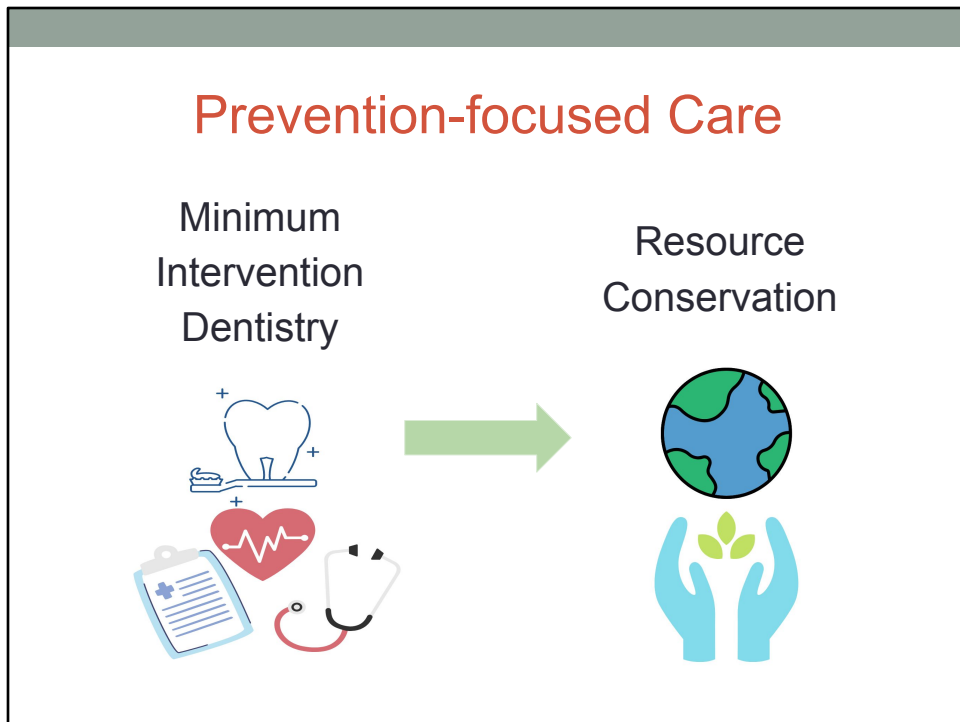
The first concept we will cover is Oral Health Integration. Encourage students to imagine their role not just as dental professionals but as oral health physicians and team players within the broader medical infrastructure. Students should brainstorm how they can collaborate with other disciplines beyond the ones mentioned in the slide. What are the first steps to establishing integrated systems? How do we maintain them?

References:

Seneviratne, C. J., Lau, M. W., & Goh, B. T. (2020). The role of dentists in covid-19 is beyond dentistry: Voluntary Medical Engagements and future preparedness. *Frontiers in Medicine*, 7. Available at <https://doi.org/10.3389/fmed.2020.00566>. Accessed 2021-09-26.

Singh S. Public Oral Health Care During COVID-19: Time for Reflection and Action. *Front Med (Lausanne)*. 2021;8:610450. Published 2021 Mar 17. Available at <https://doi.org/10.3389/fmed.2021.610450>. Accessed 2021-09-26.

Brian Z, Weintraub JA. Oral Health and COVID-19: Increasing the Need for Prevention and Access. [Erratum appears in *Prev Chronic Dis* 2020;17. http://www.cdc.gov/pcd/issues/2020/20_0266e.htm.] *Prev Chronic Dis* 2020;17:200266. Available at: <http://dx.doi.org/10.5888/pcd17.200266> Accessed 2021-09-16.



Next, we move onto prevention-focused care. Guide students to consider how Minimum Intervention Dentistry can not only prevent tooth decay but also mitigate environmental problems. Students can discuss how they can practice and deliver Minimum Intervention Dentistry outside of traditional dental offices, such as through fluoridation, dietary education, and oral hygiene programs.

References:

Eden, E., Frencken, J., Gao, S. et al. Managing dental caries against the backdrop of COVID-19: approaches to reduce aerosol generation. *Br Dent J* 229, 411–416 (2020). Available at <https://doi.org/10.1038/s41415-020-2153-y>. Accessed 2021-09-29.

BaniHani, A., Gardener, C., Raggio, D. P., Santamaría, R. M., & Albadri, S. (2020). Could Covid-19 change the way we manage caries in primary teeth? current implications on paediatric dentistry. *International Journal of Paediatric Dentistry*, 30(5), 523–525. Available at <https://doi.org/10.1111/ipd.12690> Accessed 2021-09-29.

Walsh LJ, Brostek AM. Minimum intervention dentistry principles and objectives. *Aust Dent J*. 2013 Jun;58 Suppl 1:3-16. doi: 10.1111/adj.12045. PMID: 23721333. Available at <https://www.nature.com/articles/s41415-020-2055-z>. Accessed 2021-09-16

Bernabé, E., Marcenes, W. Can minimal intervention dentistry help in tackling the global burden of untreated dental caries?. *Br Dent J* 229, 487–491 (2020). Available at <https://doi.org/10.1038/s41415-020-2155-9>. Accessed 2021-09-15.

Ahmadifard, A. Unmasking the hidden pandemic: sustainability in the setting of the COVID-19 pandemic. *Br Dent J* 229, 343–345 (2020). Available at <https://doi.org/10.1038/s41415-020-2055-z>. Accessed 2021-09-26.



The last bubble is Oral Health Promotion, which should function on multiple levels and be happening simultaneously. The examples provided are not all-inclusive, but they can guide students to reimagine how they can disseminate oral health information on different magnitudes, and how these different levels may be more accessible for different audiences.

Reference:

Singh S. Public Oral Health Care During COVID-19: Time for Reflection and Action. *Front Med (Lausanne)*. 2021;8:610450. Published 2021 Mar 17.

Available at <https://doi.org/10.3389/fmed.2021.610450>. Accessed 2021-09-26.

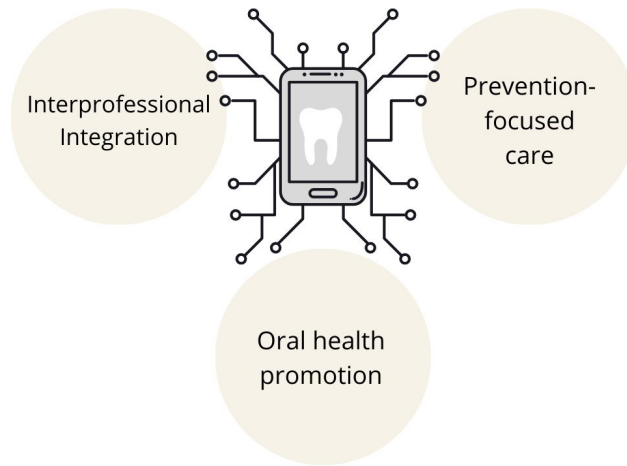
Kwan SY, Petersen PE, Pine CM, Borutta A. Health-promoting schools: an opportunity for oral health promotion. *Bull World Health Organ*. 2005 Sep;83(9):677-85. Epub 2005 Sep 30. PMID: 16211159; PMCID: PMC2626337.

Available at <https://pubmed.ncbi.nlm.nih.gov/16211159/> Accessed 2021-09-16.

COVID-19 and Digital Oral Health



Teledentistry



Teledentistry is introduced as a digital oral health concept that can connect all three bubbles. Students should assess teledentistry's barriers in order to anticipate and develop solutions that are equitable, safe, and sustainable, using the sample questions to generate their own questions.

Reference:

Giraudeau N, Varenne B. Advocacy for a Digital Oral Health That Leaves No One Behind [published online ahead of print, 2021 Jul 8]. *JDR Clin Trans Res*. 2021;23800844211026610. doi:10.1177/23800844211026610
Available at <https://journals.sagepub.com/doi/10.1177/23800844211026610>. Accessed 2021-09-05.

Ghai S. Teledentistry during COVID-19 pandemic. *Diabetes Metab Syndr*. 2020;14(5):933-935. doi:10.1016/j.dsx.2020.06.029
Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7297180/>. Accessed 2021-09-20.

Case Study: mOral Health



1

Literacy



2

Training



3

Early
Detection



4

Surveillance



mOralHealth is a case study that can be used to examine digital oral health deployment. It's important to remember that mOralHealth should be treated as an example, rather than "one right answer." Similarly to the previous slide, students should be encouraged to consider potential strengths and weaknesses of this program.

Reference:

Giraudeau N, Varenne B. Advocacy for a Digital Oral Health That Leaves No One Behind [published online ahead of print, 2021 Jul 8]. *JDR Clin Trans Res*. 2021;23800844211026610.

doi:10.1177/23800844211026610

Available at <https://journals.sagepub.com/doi/10.1177/23800844211026610>. Accessed 2021-09-05.

An Interconnected Future



Let us now reflect on population health and our current health systems. The metaphor of the “Elephant in the Dark” highlights how our fragmented healthcare system will ultimately harm individuals. Yet, innovations to foster connection, such as telehealth models, “turn on the light” and offer greater connection. Students should consider facets of oral health where the “light is off” (navigating in fragmentation), and when the “light is on” (connected care system).

Graphic Source:

Art owned by Tooka Zokaie- drawn by Hope Glastric Creative. Accessed December 5, 2021.



Takeaways and Reflection

Increase Partnerships
across Disciplines

Explore Digital Oral Health

What is *my*
role?

Connect with Community
Health Organizations

Reflect on Oral Health in
Syndemic Context



This last slide brings us back to the title of this module: “Global **Lessons** for a Global Profession,” serving as a space for students to digest, synthesize, and reflect on the concepts and ideas learned throughout the module. Beyond just going over the sample questions, you should encourage students to brainstorm collaboratively on how they can bring their lessons into the real world.