

International Journal of Health Science

EPIDEMIOLOGICAL SURVEY ON ORAL HEALTH IN THE SCHOOL ENVIRONMENT IN TIMES OF COVID-19

Luis Fernando Dahmer Peruchini

Institution: Universidade do Oeste de Santa
Catarina – Dentistry course
Joaçaba – Santa Catarina
<https://orcid.org/0000-0003-0575-2407>

Flório, Flávia Martão

Faculdade São Leopoldo Mandic
Campinas – São Paulo
<https://orcid.org/0000-0001-7742-0255>

All content in this magazine is licensed under a Creative Commons Attribution License. Attribution-Non-Commercial-Non-Derivatives 4.0 International (CC BY-NC-ND 4.0).



Abstract: Oral health programs have data collection and dissemination of information among their fundamental pillars. At the end of 2019, a new epidemic caused by a respiratory virus began to spread rapidly in China, reaching Brazil in early 2020, it was the SARS-CoV-2 virus, the etiological agent of Covid-19, a disease that has a high transfer rate. After the declaration of the World Health Organization classifying it as a pandemic, a series of actions were adopted by governments around the world. In Brazil, one of the actions was the closure of schools and the interruption of health promotion and disease prevention actions at a collective level. Despite the relaxation of the rules of social interaction, the world began to worry about possible new epidemics caused by airborne viruses. With that in mind, an attempt was made to reorganize the World Health Organization epidemiological survey elaboration tool, taking into consideration, this possible reality. A search was carried out among scientific articles and government documents with the primary objective of determining the health rules for the school environment that had scientific support. In a second moment, a parallel was drawn between the tool for carrying out epidemiological surveys of the WHO and what in it could cause the spread of the virus. Finally, a new booklet of rules was prepared for carrying out epidemiological surveys with a minimum risk of contagion by the virus, both for the collection team and for the individuals examined.

Key words: Covid-19. Oral health. Pandemic. Health education. Dentistry.

INTRODUCTION

The evolution in oral health indices in Brazil and in the world are directly related to the advancement of evidence-based prevention practices. However, epidemiology, for a long time, had little relevance in the

scenario of public policies in the country, with epidemiological surveys having assumed a role in ordering public health planning only in recent decades (Roncalli, 1998).

Epidemiological surveys are essential tools for the correct planning of health actions. In addition to the benefits within the planning, they allow us to properly assess the actions taken and thus correct any errors, as well as infer the quality and effectiveness of the services created.

Even in times of great apprehension with diseases caused by viruses, we must keep in mind how essential epidemiological studies are for the advancement of health care actions, as they establish characteristics of action of oral diseases within populations, which include changes in behavior according to age, location and social group (Gomes and Carvalho, 2019).

It is necessary to plan and monitor the existing oral health services to ensure the maintenance of the population's quality of life and for this it is essential to know not only the individual clinical evaluation, but the evolution of conditions in the population and their self-assessment (Torppa- Saarinen et al. 2018).

The World Health Organization, in 2016, reminded us of the close relationship between oral health and a person's general health, even emphasizing that some systemic diseases are caused by non-treatment and the aggravation of oral diseases. Haque et al. (2016) point out that a healthy mouth allows the individual to speak, eat and socialize without going through the experience of discomfort and shame that the active disease causes.

It is known that poor oral health can also lead to nutritional deficiency (Wu et al. 2017), loss of hours of work or study, as well as increase the health costs of a person or a community (Shahrbabaki, Tabibi and Fallahi, 2015). This way, the importance of obtaining effective

and continuous methods of promoting oral health among the population is justified, in the form of oral health education programs, active search with families, organization of restricted events to promote oral health with communities, always attentive to the new health situation. (Wang et al. 2015).

Regardless of age, oral health actions increase individual protection factors, expanding knowledge, attitudes and behaviors that benefit the individual's health, such as brushing teeth, flossing and going to the dentist.

However, the reality in which we have been living since the beginning of 2020 imposes some barriers in health promotion actions that need to be overcome with the deepening of knowledge about the Covid-19 disease and an ability to innovate in actions already employed until now. Then. The closure of schools for a period may have caused damage to the creation of habits and the transfer of knowledge, as well as the complete stop of health education activities carried out by the Family Health Teams with pregnant women, groups of hypertensive and diabetic patients (Hiperdia groups) and elderly groups.

In order to better understand why we need to adapt our health promotion activities, it is necessary to understand the manifestations of Covid-19. This disease is caused by the SARS-CoV-2 virus, which has a high transmission between humans, through close contact with infected individuals, through fluids from the respiratory tract and oral cavity. Contagion occurs when the infected person coughs, sneezes, or transmits airway secretions in a manner very similar to influenza and other respiratory pathogens.

Covid-19 is a disease that is characterized by an acute respiratory syndrome, which can present with mild flu conditions in about 80% of cases, or severe respiratory failure that can lead to death (Li et al., 2020)

According to Xu et al. (2020), the oral cavity is the main route of infection, which directly impacts the activity of the dental surgeon. During an evaluation of the concentration of the virus in different tissues of the human body, it was discovered that the viral expression in the minor salivary glands was twice that of the lungs and that its presence was detected in the saliva before the appearance of pulmonary lesions, which explains the infections. asymptomatic and the importance of care in the school and health environment, even without the presence of clinically ill individuals (Xu et al. 2020).

With the evolution and improvement of rates and especially the decrease in the contagion rate, the states began to analyze the return of school activities in mid-September 2020. With mass vaccination starting in 2021, the number of occupied beds and deaths plummeted, showing the effectiveness of the action. However, the lack of organization by society and governments in the face of a health crisis of this magnitude and the understanding that the organization of non-pharmacological norms and measures to prevent transmission, such as the reorganization of spaces, creation of protocols of hygiene, ventilation of environments and reduction of the number of individuals inside classrooms and common use environments at school, thus ensuring adequate distancing (``Fundação Oswaldo Cruz'', 2020). may be needed again in the near future.

METHODOLOGY

For the reorganization of the tool for preparing epidemiological surveys, a bibliographic survey was initially carried out on what is known about viruses transmitted by air, in particular SARS-CoV-2, from its forms of transmission to knowledge in-depth study of the natural history of the disease caused by it.

In a second moment, the health policies adopted to prevent the proliferation of the virus during the return to school, even at a time of high transmissibility, were raised with the governmental bodies of countries in Europe, America and Asia. To corroborate these official documents, scientific information on virus prevention was raised, as well as the knowledge that was added by studying it further.

From this point on, we created a parallel between the proposal of the World Health Organization to carry out epidemiological surveys and the possible breaches of biosecurity for the transmission of airborne viruses.

Numerous points were detected where this breach of health protocol would occur if the surveys were to return, during the epidemic, following the World Health Organization manual. Thus, based on the determinations of dozens of countries, the guide was prepared as described below.

RESULTS

The first point to be noted is the failure to carry out tests on individuals who present or report flu syndromes and respiratory symptoms, or even who have come into contact with infected or symptomatic people. This rule accompanies the post-return to school basic norm of not allowing children under these conditions to enter a school environment.

The team that will carry out the epidemiological survey must prepare before carrying out the same, leaving at home any accessories and ornaments such as rings, bracelets, etc. Always remember to keep your hair tied back, nails short, not wearing makeup and shaving, the latter are recommended as they impair the marginal sealing of N95 or PFF2 respirators.

Upon arriving at the survey site, leave all

personal material in a remote location or pack it in a sealed plastic bag. Drink liquids and go to the bathroom before starting, thus avoiding undressing between patients. Wash your hands and arms well with soap and water and keep your distance between the people who are there. We must remember that the World Health Organization recommendation is 1 meter between individuals.

As for the environment selected for carrying out the survey, when it occurs in the school environment, preference must be given to an external space with plenty of natural light, as already recommended. However, if it is impossible to carry out the tests in an external environment, it is necessary to guarantee the correct ventilation of the same. This ventilation can be done naturally, opening windows and doors, or mechanically with the use of fans. Attention to the recommendation of ABNT technical standard number 14679.

The attire previously recommended was limited to a lab coat and mask, with a change of glove only if it touched the examined individual, and is now replaced by a more elaborate set of personal protective equipment (PPE). For the team member who will not come into contact with the examined individuals, keeping a distance of about 2 meters, they must be dressed in a disposable cap or cap, waterproof, made of TNT with a weight of 30g/m²; face shield; Triple disposable surgical mask (to be changed every 4 hours); disposable apron with the same weight as the hat and closed shoes.

The professional who will perform the exam will need a higher degree of protection. You must wear a disposable cap or cap, waterproof, made of TNT with a weight of 30g/m²; goggles with side sealing, N95 or PFF2 respirator, face shield; disposable apron with the same weight as the hat; closed shoes and gloves that must be changed for each patient.

As it is a respiratory infection, transmission by droplets from speech, coughing or sneezing (size of 5 micrometers, can reach a radius of up to 1 meter) away from the source, and may remain suspended in the air for a few seconds (VAN DOREMALEN, 2020). This way, the distance between the individuals must be respected, from the annotator and the monitor in relation to the examiner and the individual to be examined, as shown in the image below.

An important point that must be observed by the team is the inclusion in the Consent Form sent to the parents, of the risks that the test can cause in view of the current epidemic, as well as the actions taken to minimize these risks. We understand that information is necessary for the organization of the health system and its effective action in the prevention and recovery of oral diseases among the population, however it is necessary to recognize that the exam can cause apprehension to parents or guardians and therefore all information must be well written in a clear and understandable way for the lay population on the subject.

In order to optimize time and avoid cross-contamination, each individual on the team must be familiar with their role at the time of the epidemiological survey. The examiner will remain at the examination site, avoiding unnecessary travel and will only handle the examination instruments (World Health Organization Probe, mirror, tongue depressor and gauze). The annotator will write down the indexes dictated by the examiner, staying at a safe distance and will handle only the exam sheets, clipboard and pen. The monitor is the circulator and who organizes the flow within the examination site. It is up to him to fetch the children from the classroom, guide the spacing between them and prevent crowding of individuals to be examined. After the exam, the monitor will lead the individual back to the classroom.

We may still need a fourth participant in the collection team: the assistant. The assistant's role is to hold those children who are still unable to stand still on the table or sit down for the assessment. He must have the same personal protective equipment as the examiner.

Prior to the exams, the environment must be properly prepared with the asepsis of the place, using 70% alcohol rubbed on chairs and auxiliary desks (GRAZIANO, 2013). On the evaluation table, only the material necessary for the examination at that moment must be kept, the other instruments must be kept outside the contamination radius and must be reached by the monitor to the examiner.

When the child arrives in the exam room, he/she must wash his hands with 70% alcohol and immediately after removing the mask, touching only the elastic band. The mask is kept in a plastic bag and the child uses a mouthwash for 1 minute with 5 mL of 0.12% chlorhexidine. The liquid is returned to the cup and then discarded in the contaminated waste bag (This step must only be performed on children over 7 years of age). If the student uses a retainer or any removable orthodontic appliance, he/she must be immersed in chlorhexidine 0.12% during the exam time. At the end, the child sanitizes their hands again with 70% alcohol and puts the mask back on.

For the success of epidemiological surveys in oral health during periods of epidemics such as Covid, we must remember to avoid unnecessarily touching the child or any of the workmates, never adjusting the mask or respirator without sanitizing the hands before and after and always change gloves after each patient, avoiding touching their external part.

All waste generated is classified as contaminated due to the potential for transmission of these viruses, such as SARS, MERS and Influenza. Therefore, at the end, we must wash our hands well, properly clean

the environment from the least critical point to the most critical and finally undress and pack all disposable clothing in the trash and disinfect the reusable items.

DISCUSSION

When we think about the oral health of the population during periods of a pandemic like the one we are experiencing, do we enter into a serious discussion about exposing ourselves and exposing the population by continuing with prevention and treatment actions, or do we close our eyes for a while to the oral health condition of the population? population to focus our efforts on controlling the pandemic?

As stated by Xu et al. (2020), the oral cavity is the main route of infection, which puts the oral health team at risk of becoming contaminated and spreading the virus. However, it is clear that the decrease in the supply of care and actions to prevent dental caries had an impact on the oral health of children and adolescents (RIBEIRO et al. 2021).

The importance of observing these issues even when apparently the pandemic is a subject of the step, is described in the work of Black and Armstrong (2006). The authors state that influenza pandemics occur three to four times per century. The last one before the work of the authors had occurred 40 years ago, however in 2009 we had an influenza pandemic and already in 2019 that of Covid, which behaves in a similar way.

Matos (2018) stated that the viruses that can be transmitted by saliva, especially those that affect the respiratory tract, have the historical characteristic of causing major epidemiological events and, consequently, changing the lifestyle of the human being. prepared to achieve a more effective response than we had in the Covid-19 pandemic.

An important observation to be noted is that despite differences in how to ensure schoolchildren return to school, all countries

agree in requiring distance between children, reducing the number of students in classrooms and the use of masks. In Brazil, despite the great political involvement regarding the use of masks, they were considered mandatory, along with the ban on the use of collective drinking fountains, frequent cleaning of contact surfaces, such as doorknobs and tables, measurement of body temperature, scheduling of hours of arrival and departure of students and frequent hand hygiene (BRASIL, 2020).

ABENO - ``Associação Brasileira de Ensino Odontológico`` played a fundamental role in helping to formulate clinical care protocols for patients during the pandemic, serving as a guide for numerous educational institutions to be able to return to community care, thus resuming control of the progression of the disease, mainly among the poorest populations (ABENO, 2020).

CONCLUSION

Based on the evidence that viral pandemics are cyclical in our history and that we must be ready for the next one, it becomes evident that we build protocols that allow us to maintain prevention activities and information collection together with the community, in particular the schools.

It is feasible to carry out epidemiological surveys in a school environment during epidemics caused by viruses that affect the respiratory tract when we adapt and follow the norms that guarantee the non-transmission of this virus.

It is expected that in an eventual new event of this magnitude, we can guarantee the continuity of public services, especially the actions of planning and promoting oral health with schoolchildren.

REFERENCES

- Associação Brasileira de Ensino Odontológico. **Consenso ABENO: Biossegurança no Ensino Odontológico Pós Pandemia da Covid-19**. Porto Alegre, RS. 2020
- Black M, Armstrong P. **An introduction to avian and pandemic influenza**. N S W Public Health Bull. 2006;17(7-8):99-103.
- Brasil. Ministério da Saúde. **Protocolo de Manejo Clínico do Coronavírus (COVID-19) na Atenção Primária à Saúde**. Versão 9. Brasília – DF: 2020a
- Brasil. Diário Oficial da União. **Portaria 454 de março de 2020**. Declara, em todo o território nacional, o estado de transmissão comunitária do coronavírus (covid-19). Brasília (DF), 2020c. Disponível em: <http://www.in.gov.br/en/web/dou/-/portaria-n-454-de-20-de-marco-de-2020-249091587>
- Brasil.Presidência da República. **DECRETO Nº 10.282, DE 20 DE MARÇO DE 2020**. O PRESIDENTE DA REPÚBLICA, no uso da atribuição que lhe confere o art. 84, caput, inciso IV, da Constituição, e tendo em vista o disposto na Lei nº 13.979, de 6 de fevereiro de 2020. Brasília (DF), 2020d. Disponível em: http://www.planalto.gov.br/ccivil_03/_ato2019-2022/2020/decreto/D10282.htm
- Fundação Oswaldo Cruz. **Manual sobre biossegurança para reabertura de escolas no contexto da Covid-19**. Disponível em: <http://www.epsjv.fiocruz.br/publicacao/livro/manual-sobre-biosseguranca-para-reabertura-de-escolas-no-contexto-da-covid-19> Versão 1.0. Rio de Janeiro. 2020
- Graziano MU, Graziano KU, Pinto FM, Bruna CQ, de Souza RQ, Lascaia CA. **Effectiveness of disinfection with alcohol 70% (w/v) of contaminated surfaces not previously cleaned**. Rev Lat Am Enfermagem. 2013 Mar-Apr;21(2):618-23.
- Haque, S.E., Rahman, M., Itsuko, K. et al. **Effect of a school-based oral health education in preventing untreated dental caries and increasing knowledge, attitude, and practices among adolescents in Bangladesh**. BMC Oral Health 16, 44 (2016).
- Li Q, Guan X, Wu P, et al. **Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia**. N Engl J Med. 2020;382(13):1199-1207. doi:10.1056/NEJMoa2001316
- Matos H J. **A próxima pandemia: estamos preparados?**. Rev Pan-Amaz Saude [online]. 2018, vol.9, n.3.
- RIBEIRO, L. M. C. de A. V. et.al. **The impact of the COVID-19 pandemic on children's dental care in the Unique Health System of João Pessoa – PB**. Research, Society and Development, [S. l.], v. 10, n. 5, p. e17110515089, 2021. DOI: 10.33448/rsd-v10i5.15089.
- Roncalli A G. **Perfil Epidemiológico de Saúde Bucal no Brasil 1986-1996**. Natal, 1998.
- Shahrbabaki B N, Tabibi S J, Fallahi A. **Effect of Lodge on permanence indicator od rural family physicians in health care centers of Jiroft and Kerman Universities of medical sciences**. Health and Development Journal 4 (4), 349-358. 2015
- Torppa-Saarinen E, Tolvanen M, Suominen AL, Lahti S. **Changes in perceived oral health in a longitudinal population-based study**. Community Dent Oral Epidemiol. 2018 Dec;46(6):569-575.
- Van Doremalen N, Bushmaker T, Morris DH, et al. **Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1**. N Engl J Med. 2020;382(16):1564-1567. doi:10.1056/NEJMc2004973
- Xu X W, Wu X X, Jiang X G, Xu K J, Ying L J, Ma C L, et al. **Clinical findings in a group of patients infected with the 2019 novel coronavirus (SARS-Cov-2) outside of Wuhan, China: retrospective case series** *BMJ* 2020; 368:606
- Zhang W, Du RH, Li B, Zheng XS, Yang XL, Hu B, et al. **Molecular and serological investigation of 2019-nCoV infected patients: implication of multiple shedding routes**. Emerg Microbes Infect 2020; 9(1):386-9
- Wang TF, Huang CM, Chou C, Yu S. **Effect of oral health education programs for caregivers on oral hygiene of the elderly: A systemic review and meta-analysis**. Int J Nurs Stud. 2015 Jun;52(6):1090-6.
- Wu LL, Cheung KY, Lam PYP, Gao XL. **Oral Health Indicators for Risk of Malnutrition in Elders**. J Nutr Health Aging. 2018;22(2):254-261.