A comparative policy analysis of oral health policies in Latin America to respond to the COVID-19 pandemic

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Abstract

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in Latin America to Respond to the COVID-19 Pandemic

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Background: Oral diseases continue to be a global public health problem, with more than 3·5 billion people affected. With the COVID-19 pandemic declaration, dental services have been severely disrupted. This unprecedented situation has forced organizations such as the World Health Organization (WHO), American Dental Association (ADA), and Centers for Disease Control and prevention (CDC) to develop protocols and guidelines[8] to improve and ensure the reduction of risks for dental health care personnel (DHCP) and to protect the patients in need of emergency treatment or urgent dental care. [8-10]. Ministries of Health and local dental organizations have also created policies for reopening dental services. [14] In Latin America, dental health professionals face new challenges to provide treatment and care.

This study aims to describe and compare the policies from Latin America providing guidelines to dental services during COVID-19. The aims of the analysis were to 1) describe and compare the policies to manage the reopening of dental services; 2) identify specific differences in the

policies to respond during the COVID-19 pandemic in countries with a high incidence of COVID-19 in Latin America, and 3) identify which international guidelines or pre-existing policies influenced the development of policies in the countries described.

Methods: We conducted the comparative and descriptive policy analysis of dental policies for the reopening of dental settings during the COVID-19 pandemic, including online searches of dental policies in countries with a high incidence of COVID-19 cases in Latin America, published from March 1st to July 31st of 2020, with free online access. The countries included in this research were: Brazil, Peru, Chile, Colombia, and Argentina. We used the WHO's interim guidance *Considerations for the provision of essential oral health services in the context of COVID-19* to develop a policy taxonomy for COVID-19 prevention policies for dental services comprising seven components.

Results: Findings from the research showed some key similarities and differences between the five countries' policies from South America. Overall, these policies provide appropriate guidance to reduce infection risk to DHCP and to protect the patients in need of emergency services. More research to assess the implementation and effectiveness of these dental polices is necessary.

Keywords: COVID-19, Dental policies, Dental health care personnel, Latin America.

Introduction

On December 31st, 2019, the China Health Authority alerted the World Health Organization (WHO) about the presence of several cases of unknown pneumonia in Wuhan, China. In January, the causative agent of this syndrome was denominated Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV-2) and the syndrome was named "Corona Virus Disease (COVID-19)". [1-3]

The WHO, on January 30th, 2020, declared the COVID-19 outbreak as a public health emergency of international scale. Early coronavirus reports describe person-to-person transmission occurring through coughing, sneezing, and inhalation of droplets containing the virus. It also showed the highest risk of transmission through oral, nasal, and eye mucous membranes. [1-4]

The WHO declared a pandemic on March 11th, 2020. Meanwhile China, Taiwan, and Hong Kong quickly had implemented measures, such as travel restrictions to reduce the arrival of new cases, quarantines to prevent transmission in the local population, and self-isolation, social distancing and encouraged heightened levels of hygiene. These measures were quickly replicated in the rest of the world at different levels. [5]

On March 16th , the spread of COVID-19 led the American Dental Association (ADA), the leading dental professional association in the U.S, to issue a urgent call encouraging all dental offices to close for regular services and treatments and provide only urgent dental care and emergency procedures, while using strict personal protection measures and procedures to reduce and avoid the production of droplets and aerosols. Most of the recommendations issued at this point were based on knowledge obtained during with the SARS outbreak in 2003. [5-7]

Our knowledge of SARS CoV-2 and the disease it causes has been constantly evolving, with data showing a high risk of transmission of COVID-19 through airborne during aerosol-generating procedures. [2] The day-to-day practice of dentistry includes procedures like dental fillings using the high-speed hand piece, or teeth cleaning using ultrasonic scalers, equipment used in both procedures generates aerosols. These procedures, in addition to close patient contact, put dental health care personnel (DHCP) at high risk of COVID-19 infection. [12, 13]

Due to the common occurrence of aerosol-generating procedures, dental health providers are already familiar with the principle of universal precautions for infection control, biosafety and prevention protocols. Currently, dental health providers are being encouraged to adhere to even more rigorous infection control protocols. [4-6]

From April to July, Ministries of Health and local dental organizations in most of the countries in South America had developed policies for the management of dental emergencies and the reopening of dental services. [14] Across South America dental health professionals are facing new challenges to provide treatment and care due to COVID-19. A series of innovative approaches include the use of technology and the delay of in-person treatments for non-urgent dental care.

Organizations such as the WHO, ADA, and CDC have also developed protocols and guidelines[8] to improve and ensure the reduction of this risk for DHCP and to protect the patients in need of emergency treatment or urgent dental care. [8-10]

On February 26th, Brazil reported the first case of coronavirus in Latin America. Since then, the number of cases steadily increased and severely affected other countries in Latin America. By August 10th, outbreaks in Peru, Chile, and Mexico had grown into some of the worst in the world, with each country being in the top ten globally in cumulative confirmed cases. [11]

Meanwhile, oral diseases continue to be a global public health problem. South American countries also present a high prevalence of oral diseases like dental caries and periodontitis; and high necessity and demand for treatment. [17, 18] Over 3.5 billion people around have oral diseases that are chronic and progressive, starting in early childhood and progressing throughout their later life; these numbers continuously raise the prevalence of oral diseases in many Low-middle income countries (LMICs). South America is the region with the highest prevalence of dental caries, periodontitis and untreated cavitated dental caries. [17] (Figure 3)

This pandemic has resulted in a severe disruption of dental services and access to care. Additionally, lockdowns and lack of easy access to healthy and fresh food has led to an increase in unhealthy eating behaviors. Oral diseases disproportionally affect more impoverished and marginalized groups in society and are closely linked to socioeconomic status and broader social and commercial determinants, but these themes are still poorly studied. [14, 16].

The future of dentistry and the approach to oral diseases after the pandemic is still unclear and will need the partnership with organizations and multidisciplinary approach. [12]

The unprecedented situation created by the COVID-19 pandemic has forced countries to develop their own guidelines and policies in a short time to provide recommendations according to their local epidemiological status, resources, and needs (Figure 2). These policies will need to consider previous experiences and protocols to prevent exposure to other infectious diseases.

We are not aware of any studies comparing the content of dental services policies or the development and availability of guidelines for dental services during the COVID-19 pandemic in Latin America. The aims of the analysis were to: 1) describe and compare the policies to manage the reopening of dental services; 2) identify specific differences in the policies to respond during the COVID-19 pandemic in countries with a high incidence of COVID-19 in

Latin America; and 3) identify which international guidelines or pre-existing policies influenced the development of policies in the countries described.

Study Design and Methods

In order to conduct the comparative and descriptive policy analysis of dental policies for the reopening of dental settings during the COVID-19 pandemic, we conducted online searches for applicable policies using keywords: Oral health, dentistry, COVID-19, guidelines and protocols in Google search engine. Additionally, we searched online libraries from 3 organizations: (1) Global Evidence Ecosystem for Oral Health (GEEOH), Cochrane Oral Health Section, (2) FDI (Federation Dentaire Internationale) World Dental Federation - COVID-19 Resource Library, and (3) Ibero-American Observatory of Public Policies in Oral Health. Finally, we search in official web pages from Ministries of Health looking for dental policies in Latin American countries, published from March 1st to July 31st of 2020, with free online access. The sources identified through this initial searching are summarized in Table 1.

Table 1. Summary of Policies Meeting Initial Screening Criteria

Source	Description
Ministries of Health (MOH)	Guidelines issued by MOH in Argentina, Brazil, Ecuador, Chile, Colombia, Costa Rica, Mexico, Dominican Republic, Peru, Uruguay and Paraguay.
Local Dental federation/association	Guidelines issues by entities in Argentina, Brazil, Bolivia, Colombia, Costa Rica, Dominican Republic, Guatemala, Honduras, Peru, Uruguay and Paraguay.

We then selected five countries for inclusion in this analysis based on the following criteria: number of cumulative COVID-19 cases per country and availability of policies from Ministries of

health that will guide the actions of public and private dental health sectors in each country. Based on these country selection criteria, the following five countries were selected for inclusion in this analysis: Argentina, Brazil, Chile, Colombia and Peru.

Initially the policies were compared with the CDC Interim guideline for Dental updated on June 17th. We decided to change the analysis and use the 'WHO Interim Guidance: Considerations for the provision of essential oral health services in the context of COVID-19' released on August 3rd, as we considered this document more appropriate for a global view.

The WHO document offered a better scope and universal description of important considerations to continue with the reopening of dental settings in different countries and served as a model to analyze the policies selected.[2, 10]

The *Interim guidance: Considerations for the provision of essential oral health services in the context of COVID-19* from WHO was used to develop a policy taxonomy for COVID-19 prevention policies for dental services comprising seven components. The components from the WHO document were: screening and triaging of patients, infection prevention and control pre-treatment in oral health care settings, ventilation in oral health care settings, protection of oral health care personnel and patients during treatment, cleaning and disinfection procedures in between patients. We added two additional components to the framework to describe the authorship and collaborations to create the policies and background related to etiology, transmission and risk of exposure to COVID-19. (Table 3). Excerpts relevant to each component were extracted from relevant policies and entered into an Excel sheet. Additional fields with contextual information, such as the number of cases of COVID-19 per country, were also included in the Excel sheet.

Table 3. Policy Components Evaluated

Component	Description
Characteristics of the Policy	Authors and stakeholder who create the Policy. Clarity of the objectives and application of scope. Date of publication of the document to the Dental community.
Introduction and Background about COVID-19	Information about current the situation, disease the transmission and the risk of the patients and dental healthcare providers.
Screening and Triaging of patients	Methodology and steps to follow new approaches as teledentistry, and follow-up phone calls to patients. Assessment of patients to define their necessity of treatment, their risks, and current health status. Considerations during the welcoming of patients and environment modification to reduce the risk of transmission.
Infection prevention and control pre- treatment in oral health care settings	Considerations to improve the services and reduce the risk of transmission. Reinforcement of hand washing technique and disinfection in patients and DHCP and supplies to be provided. Recommendations to prevent the transmission as wear of masks and develop a toothbrushing before the dental appointment.
Ventilation in oral care settings	Considerations in the dental office to reduce the transmission of the virus.
Protection of oral health care personnel and patients during treatment	Appropriate PPE (Personal Protective Equipment) for patients and DHCP. Training to proper use of the PPE before and after the treatment. PPE recommended for specific dental treatments. Considerations to reduce the aerosol generation.
Cleaning and disinfection procedures in between patients	Protocols and supplies used to disinfect and clean dental rooms and administrative areas. Physical barriers in dental equipment and dental office

Results

We review dental policies from the Ministries of health of Brazil, Chile, Peru, Colombia, and Argentina. Brazil and Chile were the first countries in our sample to publish their policies on March 20th and April 9th, respectively. After 3 months, these policies were updated and to include more details and resources. Colombia and Peru published their policies on May 15th and 16th, respectively. These policies also included information to be shared with DHCP and patients in dental settings. Figure 1 illustrates the timeline for adoption of these policies compared to outbreak progression in each country.

Argentina was the last country to publish its dental policy on June 10th. This dental policy is the only that includes recommendations for dental settings and dental schools.

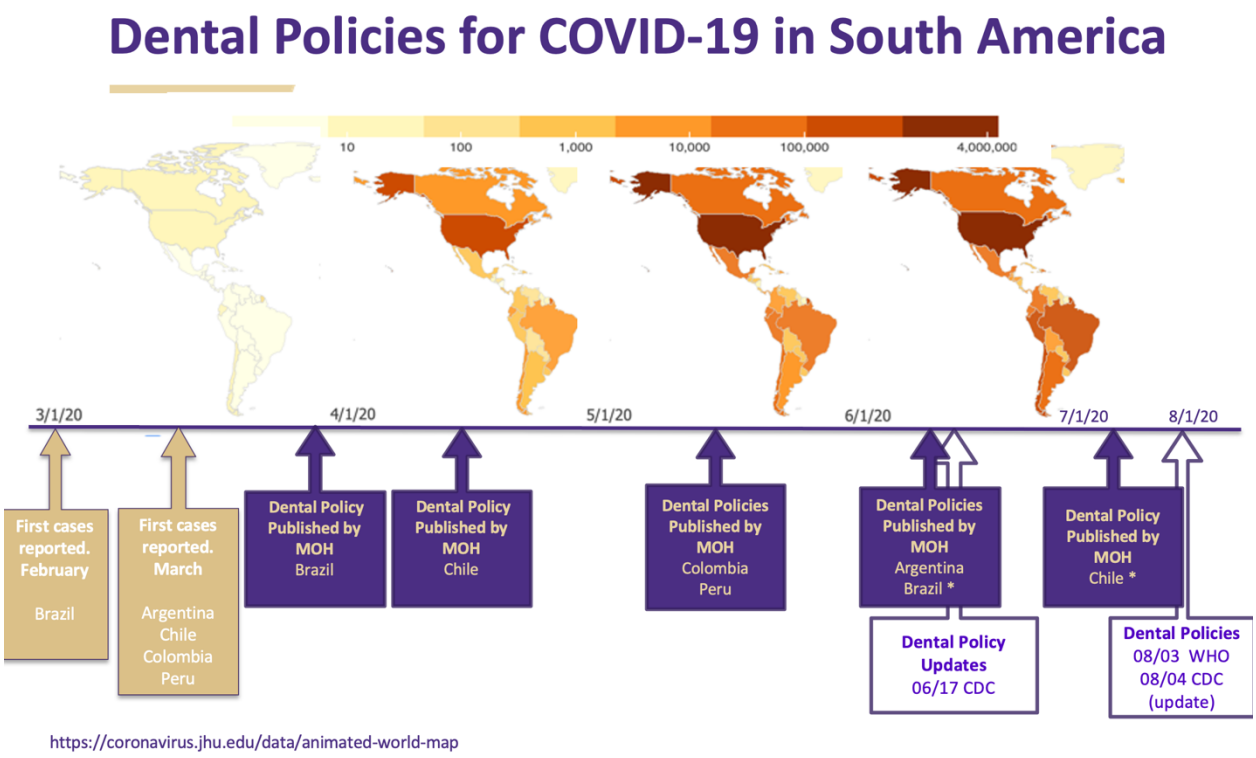
Critical aspects as the date of publication and authors from each of these policies are summarized in Table 2. This information gave us a timeline of developing policies to respond to the pandemic in these countries.

Table 2. Dental Policies from Latin America

Country	Policy Title	Date of publication	Language	Authors
Brazil	Covid-19 and dental care in universal health services. Covid-19 and dental care at sus	March 20th, 2020 Updated: June 17th, 2020	Portuguese	Federal Council of Dentistry and General Coordination of Oral Health of the Ministry of Health
Chile	Guidance for dental care in phase IV covid-19. Guidelines for the reduction of transmission and risks in the gradual return of dental care settings in the COVID-19 pandemic context.	April 9th, 2020 Updated: July 21st, 2020	Spanish	Oral Health Department in the Public Health Division of Disease Prevention and Control
Peru	Management of Stomatological Care in the context of the COVID-19 pandemic.	May 15th, 2020	Spanish	Oral Health Directorate in the Ministry of Health.

Colombia	Biosafety guideline for the provision of services related to oral health care during the period of the sars-cov-2 (covid-19) pandemic.	May 16th, 2020	Spanish	Sub directorate for Noncommunicable Diseases Ministry of Health and Social Protection, Group Integrated Management of Cardiovascular Health, Oral, Cancer and Other Chronic Conditions. Sub directorate for Noncommunicable Diseases Ministry of Health and Social Protection, Directorate of Promotion and Prevention Ministry of Health and Social Protection
Argentina	Covid-19 recommendations for dentistry.	June 10th, 2020	Spanish	Oral Health Directorates of the Ministry of Health of the provinces from: Córdoba, Tucumán, Santiago del Estero, Río Negro, Tierra del Fuego and Buenos Aires. National University of La Rioja, National University of Córdoba, National University of Buenos Aires, National University of Mendoza, National University of Río Negro, National University of the Northeast, Catholic University of La Plata, Adventist University of Mar del Plata, Inter-American Open University, Kennedy University, Fraternity of Santo Tomás de Aquino (FASTA), Dental Confederation of the Argentine Republic (CORA), Argentine Odontological Association (AOA).

Figure 1: Dental policies for COVID-19 in South America.



Component 1: Policy Characteristics.

Dental health policies provided guidance and recommendation to health services to respond during the COVID-19 pandemic.

The first component of policy characteristics revealed some similarities and differences between policies. Dental Policies from Ministries of health in Latin America had the power to provide guidance and recommendation to the private and public sectors to ensure a proper and homogenous health services approach. The policies included information from established and evolving evidence.

All five countries stated that recommendations could be changing and updating with more recent information available.

All policies prioritize services for dental emergencies and urgencies. Each policy also allows for providing dental services to populations at risk to present serious complications from oral diseases in a short time-lapse. The main objective of the policies was to provide biosafety guidance to reduce the risk of transmission and infection of COVID-19 during the reopening of dental settings in the public and private sector.

Argentina, Brazil, Chile, Colombia and Peru described that their dental policies were developed with teams including specialists and experts from oral health sections in the MOH, dental federations, dental associations, or dental schools. As a result, the policies with a more multisector team developed more detailed protocols.

Component 2: Introduction and background about COVID-19

The COVID-19 pandemic created an unprecedented situation promoting the necessity to provide precise and current information.

The Colombia policy included an introduction and background that looked to inform about the current pandemic to DHCP, providing current and up-to-date information about the COVID-19 pandemic.

The policies reviewed described general information related to the evolution of COVID-19, epidemiologic status or specific conditions in the country, references to policies, and ministerial orders created to face the COVID-19 pandemic effects. This information is a crucial source of knowledge for the dental health care professional.

The five countries' dental policies describe the risk of exposure to COVID-19 during dental practice, and the importance of adequate training and access to appropriate PPE by the DHCP.

Component 3: Screening and Triaging of Patients

With the COVID-19 pandemic, DHCP had to provide new ways to communicate and issue guidance to patients to reduce the risk of an in-person appointment. The incorporation of teledentistry and implementation of follow-up phone calls are measures suggested to respond to the necessity of dental assistance.

The policies in the five countries described DHCP's role as responders, and how to readapt their responsibilities to fulfill the population's necessities without putting high risk personnel in the group at risk for complications by COVID-19.

The recommendation to implement protocols and incorporate teledentistry in their activities was present in all five countries' dental policies. Peru recommended the designation of personnel at high risk of complications COVID-19 to be trained and become responsible for screening, triage, and follow-up of patients by teledentistry, reducing their exposure.

Colombia included additional recommendations to protect the DHCP, establishing protocols on designing activities to personnel in the group of risk to develop COVID-19 complications. It also includes protocols in case of accidental exposure to patients with suspected or confirmed diagnosis of COVID-19.

All five countries had developed questionnaires to screen for COVID-19 systemic symptoms and dental oral manifestations. These processes facilitate the diagnostic and report of possible COVID-19 cases to receive medical treatment and follow-up. These measures also reduce the risk of exposure to COVID-19 for DHCP and patients.

The polices described that once the patient assessment was completed, the designation or not for an in-person appointment followed other recommendations regarding the classification of treatment, age of the patient, and population of risk.

Component 4: Infection Prevention and Pre-treatment Control in Oral Health Settings

COVID-19 pandemic response incorporated new measures to ensure access to dental services preventing the spread of the virus in between DHCP and patients that need access to dental services reducing the time and number of people in the dental setting.

The WHO recommendation includes to space schedule appointments to reduce the number of patients in the dental settings, especially in waiting room.

The five policies reviewed included, as infection prevention measure, the reduction of number of patients treated per day and the number of DHCP in the dental health service to ensure proper control, and implementation of disinfection and ventilation protocols to comply with the restrictions and considerations to reduce the risk of transmission of COVID-19.

The installation of physical barriers in dental settings without the 6 feet in between or with multiple dental units and plastic or glass barriers for the front desk complement the modification of dental settings recommended in the dental policies.

The five countries' policies recommended limiting the accompaniment of patients, allowing this only to children and patients that require assistance.

The use of masks ensures patients and personnel's security from dental settings, and the dental service should provide one in case patients or personnel do not have one. Only the patient could remove it once the DHCP indicates it in the dental office.

The policies call for these preventive and protective measures to be published in accessible places to inform and guide patients and DHCP to accomplish their application. The

reinforcement of the handwashing technique is one of the most detailed dental settings recommendations for patients and DHCP. The WHO recommends the "5 moments for handwashing" for health care personnel: before touching a patient, before clean/aseptic procedures, after body fluid exposure/risk, after touching a patient, and after touching patient surroundings. This protocol is similar to those indicated on the dental policies reviewed, and dental settings have to ensure supplies.

For the patients, the recommendation is to practice the handwashing when arrived at the dental service and after receiving treatment. The use of alcohol gel if also recommended and must be available in all the settings.

An additional recommendation that Chile considered is related to personal hygiene, promoting toothbrushing at home. This practice could reduce the risk of contaminating the restrooms' sink.

Component 5: Ventilation in Oral Care Settings

Adequate ventilation reduces the risk of transmission of COVID-19 in closed settings. The WHO recommends considering carefully the modifications related to the ventilation in dental settings. It is essential to consider the cost, design, maintenance, and impact of the facilities' airflow.

Considering the WHO recommendation, the five countries included the importance of avoiding the use of air conditioning, fans, or systems that recirculate air from different rooms in the dental settings. Argentina was the only country considering the installation and use of High Efficiency Particulate Air (HEPA) filters, which WHO also considers. In case the type of ventilation is

natural, all policies call for increasing the flow of air by opening windows 6 to 12 times per hour for air exchange.

The time suggested in between patients varies from 30 minutes to 1 hour before the next patient can access to the dental office, especially if an aerosol generating procedure was performed.

Component 6: Protection of Oral Health Care Personnel and Patients During Treatment.

A crucial subject since the beginning of the pandemic was the access and appropriate use of PPE in health care workers. The PPE shortage and the lack of proper training for donning and doffing increased the risk of infection to health providers and patients. The WHO and other organizations had prioritized the information about the characteristics and proper donning and doffing of masks (surgical masks) or respirators (N95 or FFP2), goggles, face shields, caps, gowns or protective clothing, and gloves.

Argentina, Chile, Colombia, and Peru extensively detailed the correct use of PPE, providing additional infographics about each step for donning and doffing, and equipment. Argentina detailed the type of PPE to use in accordance to the type of dental treatment, considering the aerosol generation.

Brazil did not include information in the dental policy about PPE but refers to other policies to guide all health providers. This feature could limit access to information and proper diffusion of knowledge and training.

In the matter of patient protection, the five countries' dental policies recommended using mandatory masks until the moment of dental treatment. The patients need to use protective goggles during the procedures.

For specific dental procedures, the five countries recommended using mouth rinse before dental procedures with substances as 1% hydrogen peroxide or similar antimicrobial substance. During the performance of treatments, it is recommended to work using the four-handed dentistry methods combined with the use of rubber dam isolation and manual instruments to reduce aerosol generation.

The recommendation to use manual instruments and manual techniques with the rubber dam isolation will reduce the generation of aerosol. In cases where a high-speed handpiece is necessary, the high-speed suction is mandatory in every procedure to reduce aerosol exposure. Only Colombia, Brazil and Chile dental policies include recommendations to disinfect and manage appliances to the dental laboratory.

Component 7: Cleaning and Disinfection procedures in between patients

The WHO recommended specific solution of Sodium hypochlorite at 0.1% (1000 ppm) to disinfect surfaces, the five countries followed this recommendation, to be applied in areas with high risk of contamination with saliva and blood. The use of this solution must be frequent to ensure the effectiveness of disinfection.

In the policies reviewed, the DHCP will practice cleaning protocols established in pre-pandemic policies for daily cleaning and disinfection. The new feature during COVID-19 pandemic is the increase in frequency and the designation of personnel with proper PPE to perform, control and ensure cleaning supplies to achieve the strict measures. These protocols include updated

recommended disinfecting supplies and specific protocols to follow during the reopening of dental settings.

Other recommendations include the use of plastic protectors and covers on equipment and furniture exposed to aerosols. It is required to use only the equipment necessary to reduce contaminated surfaces by droplets or aerosol. The five countries recommended the use of 70% ethyl alcohol to disinfect small surfaces and equipment between uses, and this includes surfaces in waiting rooms, front desk, and the dental office.

Each country described and recommended the use of policies or protocols used before COVID-19 pandemic.

After we assessed the dental policies of the five countries, we found details and considerations important to highlight because of particular approach in each country, see Table 4.

Table 4. Highlights of Dental Policies per Country

Component	**Brazil**	**Peru**	**Colombia**	**Chile**	**Argentina**
Characteristics of the Policy	Updated on June 17th MOH in partnership with Dental Federation of Sao Paulo. Public and private sector.	Includes a Legal base with policies and legal documents to support the recommendations. Indicates the necessity to report the cases to the integrated system for COVID-19.	Published two dental policies that provides recommendations for reopening of dental services during the pandemic and Recommendation to treat dental emergencies during COVID-19 pandemic.	Updated in June in partnership with the Federation of Dental Specialties Societies of Chile, Chilean Society of Oral Public Health, Chilean College of Dental Surgeon	Considers the changing scenario and the necessity to adjust the recommendations to local and specific situations.
Introduction and Background	Complete description of population of	Provides definitions and concepts of	Ensures the alignments to protect the	Recommends only treating dental	Indicates that private and public health

about COVID-19	risk and symptoms and manifestations of COVID-19.	subjects related to COVID-19. Refers to supplement information in other policies and infographics.	Healthcare workers, DHCP and patients. Defines the risk of the DHCP and stablishes recommendations to ensure their wellness.	emergencies and urgencies with no more additional background information.	services will be available to ensure the access to health services. Recommends consider local epidemiological situation to open and offer health services.
Screening and Triaging of patients	Recommends Teledentistry and in-person screening. Dental emergencies and dental urgencies will be treated in primary care services. Dentists can order tests and provide testing for COVID-19.	Personnel in the risk group to practice dentistry during the COVID-19 pandemic will run the Teledentistry service. Includes an occupational risk for COVID-19 classification	Encourages the implementations of Teledentistry for triaging, follow-ups, and other administrative procedures.	Classifies patients in no suspect case, suspect case, probable case, and confirmed case of COVID-19. Implements Teledentistry for screening, guidance, and follow up.	The local epidemiological situation, based on case increase in community, could limit treatments to dental emergencies and urgencies. The screening and triaging must be by phone and prioritizes patients at risk of complications.
Infection prevention and control pre- treatment in oral health care settings	Recommends using dental primary care centers in health services to treat dental emergencies and urgencies. Limits the number of patients in the waiting room with at least 1 meter of distance between seats.	Recommends the practice of protocols previously published and the ones created for COVID-19. Includes supplementary infographics and information about elements to be used. Includes recommendations to consider during other types of dental treatments,	Encourages the use of physical barriers in between dental units if there are not 2 meters apart. Recommends the 2-meter distance between all workers and patients. Includes infographics to post in	Includes recommendations from policies and protocols pre COVID-19 pandemic. Recommends classifying patients in the waiting room by treatment, age, and risk.	Recommends to schedule appointments to the elderly, pregnant, and health compromised patients at the beginning of the day to reduce their risk of exposure to COVID-19 Includes a list of available treatments and considerations

	Includes guidance for Dental Laboratory procedures.	not limited to emergencies or urgencies.	dental services. Provides recommendations for dental laboratory personnel and equipment.		as aerosol generation and PPE recommended. Provide specific recommendations for dental settings with educational objectives.
Ventilation in oral care settings	Recommends the use of natural ventilation. Does not specify times or limitations.	Recommends the use of natural ventilation and circulation of air.	Recommends constant ventilation. Does not specify times or limitations.	Recommends natural ventilation for 15-30 min in between patients, depending on the aerosol production during the procedures.	Recommends ventilation time in between patients of 1 hour after treatments.
Protection of oral health care personnel and patients during treatment	Recommends to consider the use of mouth rinses with 1% hydrogen peroxide, based on risk for mucosal lesions. This procedure must be done under supervision.	Includes infographics and detailed sequence of PPE elements, and technique for donning and doffing. They considered all patients as possible cases.	Includes protocols for PPE donning and doffing, and protocols if DHCP had an accidental exposure to a COVID-19 patient.	Recommends the use of respirators and the use of overall protecting clothing in aerosol generating procedures.	Defines the re-utilization and prolonged usage of respirators. Includes a list of dental procedures and the type of PPE recommended.
Cleaning and disinfection procedures in between patients	Protocols used in regular circumstances with a reinforcement on frequency. Includes dental laboratory procedures and how to disinfect appliances.	Recommends the use of physical protectors for dental equipment and limits the number of instruments and equipment available. Disinfection protocols remain the same (before COVID-19) with an increment in frequency.	Uses protocols published and used before COVID-19 with an increment in frequency. Includes cleaning and disinfection in settings as dental laboratories.	First policy version describes protocol for disinfection after patients.	Includes protocols and use of supplies from previous policies to control of infections.

Discussion

Dental policies in South America included previous preventive protocols and ongoing recommendations available. These policies will need regular updating in the coming months to increase the possibility of performing more dental treatments.

Brazil and Chile's dental policies were the first ones available with limited information in their first versions. The updated version of policies from these two countries and the other policies from Colombia, Peru, and Argentina included more updated information providing useful recommendations during the pandemic and could be applied when the epidemiological status improves the provision of more dental services.

With the declaration of COVID-19 pandemic, the screening and triage of patients had to change and adapt to the new circumstances. The use of the telephone or video calls became a key tool to provide orientation and prioritize the access of services to those patients with a dental emergency, urgency, or at risk for dental complications in a short period of time.

The dental policies in Argentina, Brazil, Chile, Colombia, and Peru incorporated teledentistry to reduce in-person appointments. The implementation of teledentistry is a helpful tool to perform screening, guidance, and follow-up to patients. This tool prioritizes face-to-face assistance to the population with the necessity of urgent care and a high risk for dental complications. It also supports and delays the in-person assistance on those patients most at-risk to COVID-19. Teledentistry does not substitute face-to-face consultation. [15]. It is crucial to complement these polices with training and resources to ensure the use of proper technologies in dental services. All countries refer to existing biosafety and disinfection protocols. The use and implementation of most of the measures used in dentistry are not new. Physical barriers as goggles, face shields,

caps, and gowns are regular PPE for dentists. The COVID-19 pandemic preventive measures improved the protection of airways to DHCP with the use of respirators (N95 or others), especially in cases of aerosol production, reducing the risk of infection by airborne contamination.

We still need more research to explain if the effect of this specific PPE by DHCP prevents and reduces the risk of COVID-19 infection.

We were able to find most of the policies using the libraries that the three international organizations offer (GEEOH - Cochrane Oral Health Section, FDI - COVID-19 Resource Library, and Ibero-American Observatory of Public Policies in Oral Health), and we corroborated them in the ministries of health web pages. The updated dental policies were more difficult to find because of the increasing number of multiple policies published per country during the pandemic. The access and availability of dental policies is crucial in delivering information to DHCP.

In Brazil, Chile, Colombia, Peru, and Argentina, the policies offer guidance to continue providing dental services to reduce dental complications and treat emergencies and urgencies. These five countries, especially those with updated policies, include recommendations to perform routine dental treatments with specific PPE in selected cases.

The dental policies developed in partnership with dental association and federations include a wider scope and accurate recommendations to offer guidance to perform dental procedures and manage situation not limited to dental emergencies and dental urgencies. These partnerships and collaborations should be considered as a regular activity to develop and improve the scope of policies and adherence to the recommendations in the practice.

The changing evidence guiding COVID-19 approaches to clinical management, infection prevention, and biosafety makes developing prevention protocols and programmatic decisions that balance safety with access to health services extremely difficult. Dentists suffer from a limited access to information and training, especially in LMICs. [16]

Limitations:

The absence of interviews and direct information from stakeholders in each country limited our understanding and knowledge of the creation, implementation, and effect of the dental policies' recommendations. To improve the limitations presented in this research, it is essential to continue developing studies that can improve the countries' knowledge of strategies to develop their dental policies and assess the recommendations' adherence and effectiveness. The current situation made it difficult to include all the ongoing information available, which continuously increased and changed regularly. More studies to assess and evaluate the evolution of recommendations could provide more resources to understand and establish policies after the pandemic.

Conclusion

The COVID-19 pandemic created an opportunity to improve and promote a more multidisciplinary and interdisciplinary response to ensure access to dental health services. The availability of policies with a complete scope could benefit countries with a high prevalence of oral diseases and address the necessity of dental services as the South American region requires.

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Appendix

Figure 2. Process for developing Dental policies during COVID-19 pandemic.

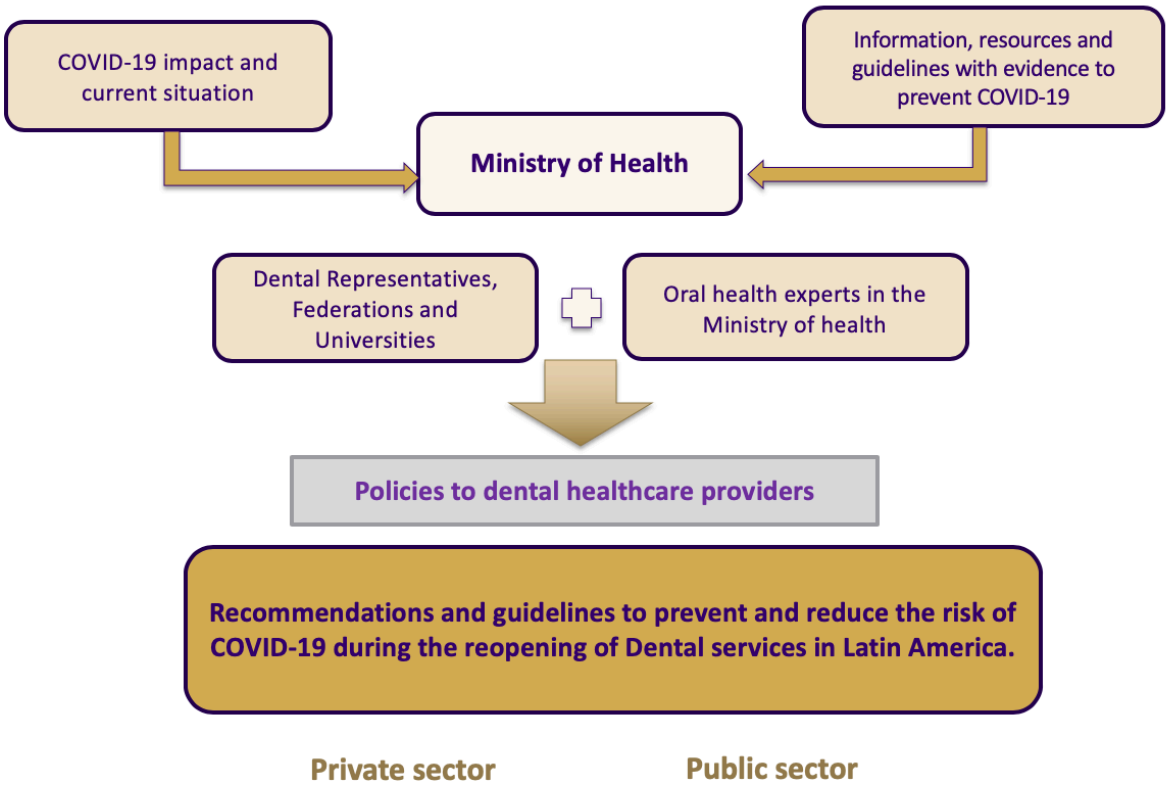
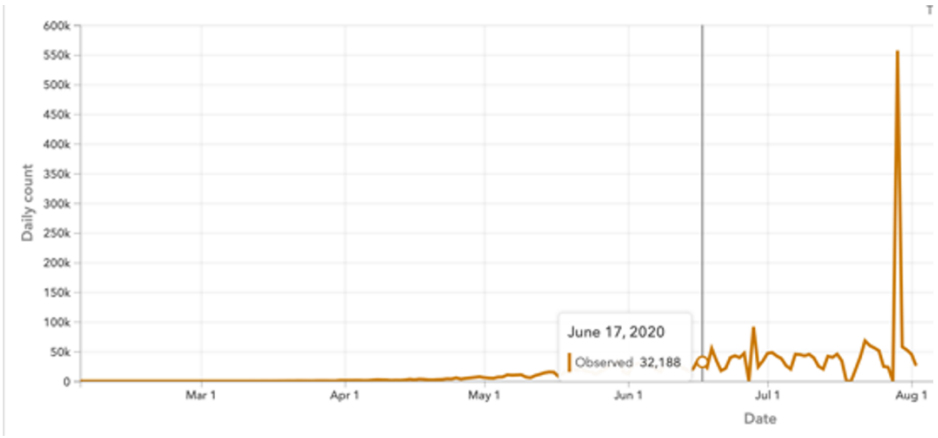


Figure 3. Burden of Oral Diseases: Dental Caries. Under 12 year and adults among 35-44 years.

Petersen, P. E., Bourgeois, D., Ogawa, H., Estupinan-Day, S., & Ndiaye, C. (2005). The global burden of oral diseases and risks to oral health. *Bulletin of the World Health Organization*, *83*(9), 661–669.

Figure 4. Country fact sheet: Brazil

Brazil



Characteristics of the Policy	Updated on June 17th MOH in partnership with Dental Federation of Sao Paulo. Public and private sector.
Introduction and Background about COVID-19	Complete description of population of risk and symptoms and manifestations of COVID-19.
Screening and Triaging of patients	Recommend Teledentistry and in-person screening. Dental emergencies and dental urgencies will be treated in primary care services. Dentists can order tests for COVID-19 and can provide testing for COVID-19.
Infection prevention and Control pre-treatment in oral health care settings	Recommends using dental primary care centers in health services to treat dental emergencies and urgencies. Limit the number of patients in the waiting room with at least 1 meter of distance between seats. Include guidance for Dental Laboratory procedures.
Ventilation in Oral care settings	Recommends the use of natural ventilation. Do not specify times or limitations.
Protection of oral health care personnel and patients during treatment	Recommend to evaluate the use of mouth rinses with 1% hydrogen peroxide. This procedure must be done under supervision.
Cleaning and disinfection procedures in between patients	Protocols used in regular circumstances with a reinforcement of frequency. Includes dental laboratory procedures and how to disinfect appliances.

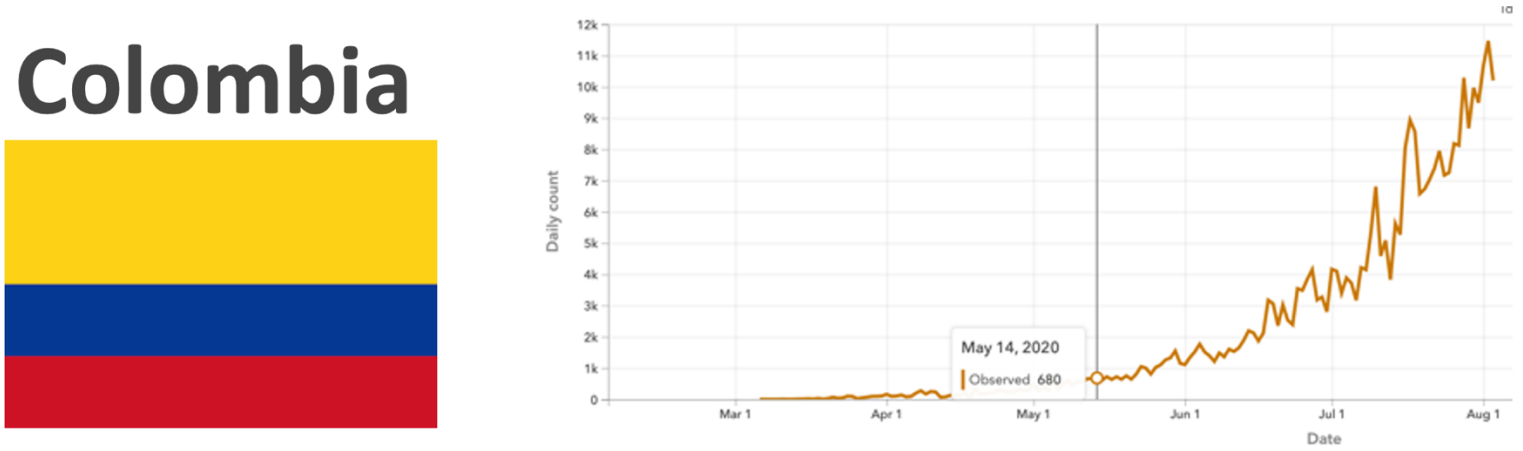
http://www.saude.ba.gov.br/wp-content/uploads/2020/06/NOTA-TÉCNICA-Nº-16-2020-CGSB-MS-COVID-E-ATENDIMENTO-ODONTOLOGICO-17-DEJUNHO-DE-2020.pdf (access July 15, 2020)

Figure 5. Country fact sheet: Peru

Characteristics of the Policy	Includes a Legal base with policies and legal documents to support the recommendations. Indicates the necessity to report the cases to the Integrated system for COVID-19.
Introduction and Background about COVID-19	Provides definitions and concepts of subjects related to COVID-19. Refers to supplement information in other policies and infographics.
Screening and Triaging of patients	Personnel in the risk group to practice dentistry during the COVID-19 pandemic will run the Teledentistry service. Includes an occupational risk for COVID-19 classification
Infection prevention and Control pre-treatment in oral health care settings	Recommends the practice of protocols previously published and the ones created for COVID-19. Includes supplementary infographics and information about elements to be used. Includes recommendations to consider during other types of dental treatments, not limited to emergencies or urgencies.
Ventilation in Oral care settings	Recommends the use of natural ventilation and circulation of air.
Protection of oral health care personnel and patients during treatment	Includes infographics and detailed sequence of PPE elements, and technique for donning and doffing. They considered all patients as possible cases.
Cleaning and disinfection procedures in between patients	Recommends the use of physical protectors for dental equipment and limit the number of instruments and equipment available. Disinfection protocols remain the same (before COVID-19) with an increment in frequency.

https://cdn.www.gob.pe/uploads/document/file/716209/DIRECTIVA_SANITARIA_N_100-MINSA-2020-DGIESP.pdf (access July 15, 2020)

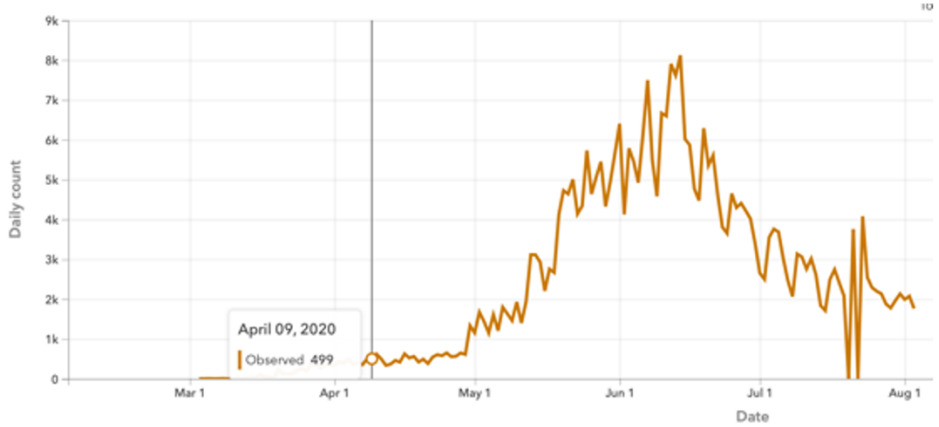
Figure 6. Country fact sheet: Colombia



Characteristics of the Policy	Published two dental policies that provides recommendations for reopening of dental services during the pandemic and Recommendation to treat dental emergencies during COVID-19 pandemic.
Introduction and Background about COVID-19	Ensures the alignments to protect the Healthcare workers, DHCP and patients. Defines the risk of the DHCP and stablished recommendations to ensure their wellness.
Screening and Triaging of patients	Encourages the implementations of Teledentistry for triaging, follow-ups, and other administrative procedures.
Infection prevention and Control pre-treatment in oral health care settings	Encourages the use of physical barriers in between dental units if they are not 2 meters apart. Recommends the 2-meter distance between all workers and patients. Includes infographics to post in dental services. Provide recommendations for dental laboratory personnel and equipment.
Ventilation in Oral care settings	Recommends constant ventilation. Do not specify times or limitations.
Protection of oral health care personnel and patients during treatment	Includes protocols for PPE donning and doffing, and protocols if DHCP had an accidental exposure to a COVID-19 patient.
Cleaning and disinfection procedures in between patients	Uses protocols published and used before COVID-19 with an increment in the frequency. Includes cleaning and disinfection in settings as dental laboratories.

https://www.minsalud.gov.co/Ministerio/Institucional/Procesos%20y%20procedimientos/GIPS31.pdf (access July 15, 2020)

Figure 6. Country fact sheet: Chile



Characteristics of the Policy	Updated in June in partnership with the Federation of Dental Specialties Societies of Chile, Chilean Society of Oral Public Health, Chilean College of Dental Surgeon
Introduction and Background about COVID-19	Recommends only treating dental emergencies and urgencies with no more additional background information.
Screening and Triaging of patients	Classify patients in no suspect case, suspect case, probable case, and confirmed case of COVID-19. Implement Teledentistry for screening, guidance, and follow up.
Infection prevention and Control pre-treatment in oral health care settings	Include recommendations from policies and protocols pre COVID-19 pandemic. Recommend classifying patients in the waiting room by treatment, age, and risk.
Ventilation in Oral care settings	Recommends natural ventilation for 15-30 min in between patients, depending on the aerosol production during the procedures.
Protection of oral health care personnel and patients during treatment	Recommends the use of respirators and the use of full overall protection in aerosol generation procedures.
Cleaning and disinfection procedures in between patients	Additional previously published policy describes protocol for disinfection after patients.

http://sociedad-iih.cl/COVID_19/Resolucion_Exenta_N156_abril2020.pdf (access July 22, 2020)

Figure 6. Country fact sheet: Argentina

Characteristics of the Policy	Considers the changing scenario and the necessity to adjust the recommendations to local and specific situations.
Introduction and Background about COVID-19	Indicates that private and public health services will be available to ensure to access to health services. Recommends consider local epidemiological situation to open and offer health services.
Screening and Triaging of patients	The local epidemiological situation could limit treatments to dental emergencies and urgencies, considering increasing cases in the community. The screening and triaging must be by phone and prioritizes patients at risk of complications.
Infection prevention and Control pre-treatment in oral health care settings	Recommend to schedule appointments to the elderly, pregnant, and health compromise patients at the beginning of the day to reduce their risk of exposure to COVID-19 Includes a list of available treatments and considerations as aerosol generation and PPE recommended. Provide specific recommendations for dental settings with educational objectives.
Ventilation in Oral care settings	The time ventilation in between patients is 1 hour after treatments.
Protection of oral health care personnel and patients during treatment	Define the re-utilization and prolonged usage of respirators. Include a list of dental procedures and the type of PPE recommended.
Cleaning and disinfection procedures in between patients	Practices and include protocols and use of supplies from previous policies to control of infections.

https://www.fdiworlddental.org/sites/default/files/media/documents/covid-19_recomendaciones_para_odontologia.pdf (access July 15, 2020)