

Implementation of a Program to Tackle Dental Caries in Schoolchildren in the State of São Paulo through Continuing Education

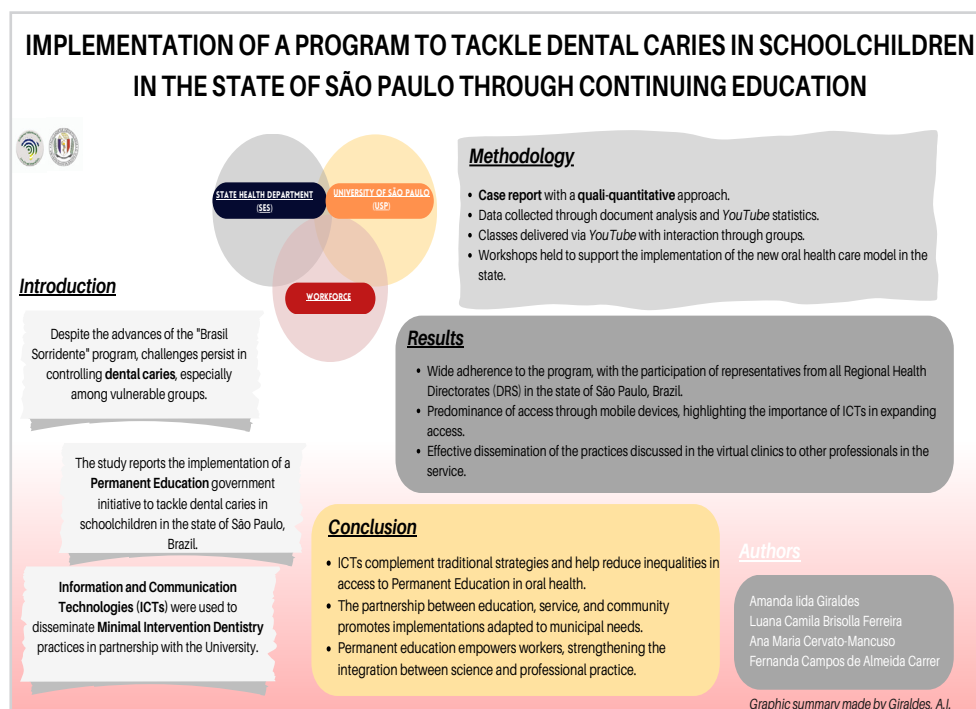
Amanda Iida Giraldes¹  Luana Camila Brisolla Ferreira¹  Ana Maria Cervato-Mancuso¹  Fernanda Campos de Almeida Carrer¹ 

¹Departamento de Odontologia Social, Faculdade de Odontologia, Universidade de São Paulo – ODS/FOUSP. São Paulo/SP, Brasil.
E-mail: amanda.giraldes@usp.br

Graphical Abstract

Highlights

- Empower oral health teams to combat dental caries in São Paulo schoolchildren through Minimal Intervention Dentistry.
- Use of ICTs for Continuing Education, document analysis, YouTube statistics, and evaluations during the first 7 months.
- Broad engagement of the Regional Health Departments, predominantly mobile access, and dissemination of practices to other professionals.
- Virtual clinics and ICTs reduce inequalities, promote training, and integrate science into professional practice.



Abstract

Despite the advances of the National Oral Health Policy (*Brasil Sorridente* Program) in reducing the prevalence of caries, challenges persist, especially among more vulnerable groups. This study aimed to describe and analyze the process of the first seven months of implementing a government program of Continuing Education to tackle dental caries in schoolchildren in the state of São Paulo, using Information and Communication Technologies (ICTs) to disseminate Minimal Intervention Dentistry practices in partnership with the University. This is a case report with a qualitative-quantitative approach. Data sources included document analysis and statistics produced by YouTube. Classes were conducted via the YouTube platform, with interaction through WhatsApp groups and Google Classroom. Workshops were developed to support the implementation process of the new oral health care model in the state. The experience reported in this study highlights the effectiveness of using ICTs, as a considerable audience was reached, with at least one representative from each Regional Health Department (DRS) present. There was a higher prevalence of access via mobile devices, underscoring the potential of technologies to complement traditional strategies and help reduce inequalities in access. Collaboration between teaching, service, and the community allowed for implementation aligned with the specificities of each municipality, highlighting the role of science in professional practice. Furthermore, it is noteworthy that Continuing Education empowered workers, as information from professionals who participated in virtual clinics was disseminated to service professionals.

Keywords: Professional Practice. Primary Health Care. Oral Health. Implementation Science. Continuing Education.

Associate Editor: Edison Barbieri
Mundo Saúde. 2025,49:e16882024
O Mundo da Saúde, São Paulo, SP, Brasil.
<https://revistamundodasaude.emnuvens.com.br>

Received: 24 november 2024.
Accepted: 18 february 2025.
Published: 21 march 2025.

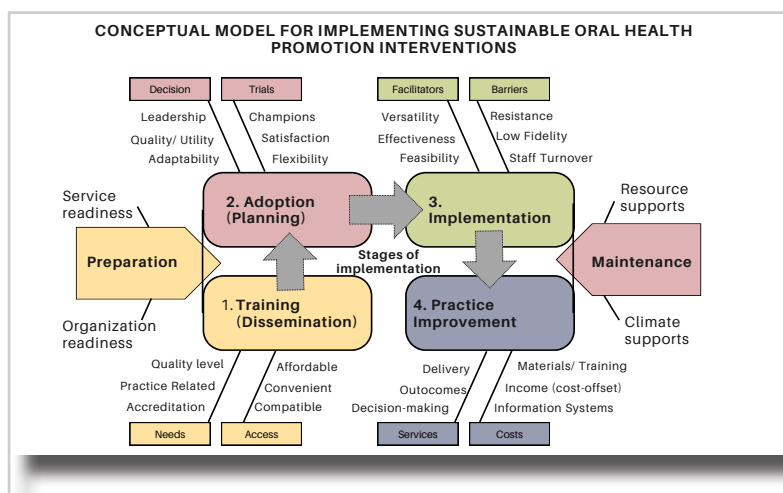
INTRODUCTION

Continuing Education is a political-pedagogical approach that provides workers with the opportunity to learn continuously and integrated into their practice¹. This modality is a fundamental strategy for promoting changes in the health sector, aiming to make it an environment where professionals can act critically, reflectively, proactively, committedly, and technically competently². The qualification of professionals should occur based on the demand of workers and aim to improve the quality of the work process³.

In recent years, advances in Information and Communication Technologies (ICTs) have enabled more accessible knowledge exchange through the creation of non-face-to-face teaching and learning spaces that bring learners and educators closer⁴.

Thus, it becomes crucial to leverage the advantages of technologies to promote the education and training of professionals at a distance, and consequently establish a closer relationship between Academia (evidence producers) and services (evidence consumers).

Simpson, in 2011, proposed a theoretical model for implementing oral health actions and programs, which considers training as the first step in the process to make an intervention sustainable (Figure 1). According to the authors, training is based on two pillars: the first is “need,” which includes quality, its link to practice, and the certification of learners. The second pillar is access, meaning that training must necessarily be accessible, convenient, and compatible⁵.



Source: Simpson, 2011.

Figure 1 - Conceptual Model for implementing sustainable oral health promotion interventions.

In Brazil, there are many challenges related to oral health, with a focus on dental caries, which remains the most prevalent condition. However, this is not a national problem, as the World Health Organization (WHO) estimates that this condition affects more than two billion adults, resulting in the loss of permanent teeth, and more than 560 million children, leading to the loss of deciduous teeth.

Since the early years of implementing the National Oral Health Policy (known as Brazil Smiling - *Brasil Sorridente* Program), the prevalence of dental caries has decreased significantly⁶. No entanto, a doença ainda apresenta uma distribuição desigual, sendo mais prevalente em grupos sociais vulneráveis. However, the disease still shows an unequal distribution, being more prevalent among vulnerable social groups. In the state of São Paulo, in particular, data from the State

Oral Health Survey SBSP2015⁷ reveal that poorer individuals use dental services less and, when they do seek care, it is not primarily for preventive reasons, resulting in a worse prognosis⁸. Minimal Intervention Dentistry (MID) has been pointed out as an alternative for treating dental caries, with positive cost-effectiveness and longevity of restorations. Given these new evidences, it is imperative to rethink the oral health care offered to the population, with the need for a more qualified workforce using innovative Continuing Education processes that result in practice change.

This study aimed to describe and analyze an experience of qualifying oral health teams to tackle dental caries in schoolchildren in the state of São Paulo, based on the implementation of Minimal Intervention Dentistry and the teaching-service-community relationship.

CASE DESCRIPTION

This is a case report, considering that the phenomenon studied is in a current context. According to Prodanov and Freitas⁹, for a case study, the researcher must also be prepared to use multiple sources of evidence. In this sense, document analysis, statistics produced by *YouTube*, and qualitative and quantitative evaluations of activities carried out during the first seven months of the oral health team qualification project were used as sources of evidence. In addition to these sources, the participation of the authors of this article as active agents in the implementation process of the experience will be considered. This project was approved by the Ethics Committee of the School of Dentistry of the University of São Paulo (CEP/FOUSP) under opinion no. 7,067,561 (Appendix 01).

Context of the qualification project

São Paulo is the largest and richest state in Brazil, with a total area of 248,222.362 km² and about 44 million inhabitants. If it were an independent country, its nominal GDP could be ranked among the top 20 in the world (IBGE, 2022).

The State Health Secretariat (SES) has a technical area for oral health, which aims to promote the oral health of the population, prevent diseases, and daily support municipalities and induce oral health policies and programs. In 2021, São Paulo had 1,700 Oral Health Teams (ESB), distributed across its 645 municipalities, in 17 Health Regions.

O The state has several public universities, including the University of São Paulo (USP), which has a dentistry course recognized nationally and internationally¹⁰, and, historically, develops projects in partnership with SES.

SES and USP, through its Evidence and Economic Analysis Center, used technological tools to develop Continuing Education strategies to facilitate decision-making and the reorganization of work processes in the oral health area throughout the state of São Paulo¹¹.

The state of São Paulo has shown a decrease in the prevalence of caries, which is positive and reflects the work of the state's oral health teams. However, the same data reveal that the pattern of disease polarization persists, with vulnerable groups deeply affected, which poses a challenge for oral health teams and has strained the relationship between users and the local health system¹² (DataSUS, 2024).

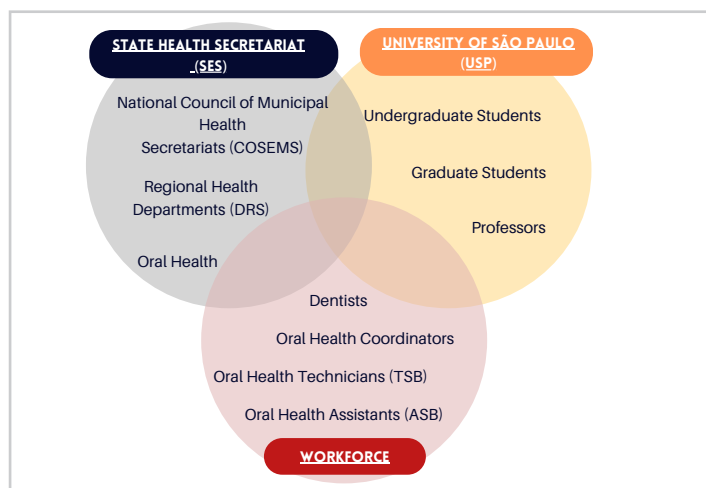
The intervention proposal in the oral health of the state of São Paulo

Every year, municipalities in the state of São Paulo, through the School Health Program (PSE)¹³, conduct risk assessment and referral of schoolchildren in need of individual treatment. However, previous studies have warned that only 11.8% of these schoolchildren attend the Basic Health Units (UBS), where the oral health teams are located¹⁴.

Given the need to care for these schoolchildren, a community intervention model applied in the school environment was proposed. This model addresses the issue of dental caries from a collective perspective, based on Minimal Intervention Dentistry, considering advances in scientific evidence, dental materials, and operative techniques¹⁵. The Atraumatic Restorative Treatment (ART) was created based on scientific evidence to promote health in an innovative, ethical, and humanistic way. This minimally invasive technique consists of two phases: the educational and preventive phase, which includes guidance on oral hygiene and diet, and the restorative phase, intended only for children who need intervention. The intervention is based on the selective removal of dentin tissue and the restoration of the cavity with adhesive material using manual instruments, without the need for dental equipment such as an electric motor¹⁶.

The qualification process of the state's oral health team began with the synthesis of evidence on available options for tackling dental caries¹⁷, resulting from research by USP graduate students, which culminated in the development of a customized project for the state of São Paulo. Developed by the Evidence and Economic Analysis Center of USP in partnership with the technical area of oral health of SES/SP, it was presented and approved by different decision-making instances at the state level (State Councils of Municipal Health Secretaries - COSEMS), regional (coordinators of the Regional Health Departments - DRS), and local (oral health articulators of the Regional Health Departments - DRS).

Figure 2 shows the participation of various actors in the project implementation process. The involvement of different professional categories is highlighted, in addition to the predominance of those involved in dental issues, including researchers, managers, consultants, and technicians.



Source: Design produced in Canva, 2024.

Figure 2 - Relationship of SES in partnership with USP and the workforce of the oral health service in the Project “Task Force to Tackle Caries in Schoolchildren in the State of São Paulo - Brazil”.

To implement this new care model, the “Task Force to Tackle Dental Caries in the State of São Paulo” was proposed, based on Continuing Education and the training of the oral health workforce through two distinct strategies. The first was knowledge translation¹⁸, called “virtual clinics,” in the format of lives via *YouTube*, divided into modules and taught by ex-

perts on the topics. The second strategy was based on theoretical models of implementation science¹⁹ and scaling science²⁰ and was characterized by synchronous workshops (in-person and online) mediated by tutors. These strategies were carried out in two modules developed at different periods but close to each other without discontinuity (Figure 3).

Module	Activity	Theme	Link
Module 01	01 VIRTUAL CLINIC 1	Project Presentation	https://www.youtube.com/watch?v=NvKyChHSDsk
	01 VIRTUAL CLINICA 2	Successful Experiences	https://www.youtube.com/watch?v=TaC82ZXbsL0
	01 WORKSHOP 1	SWOT Matrix	Online Meeting to Understand the Professional Scenario
	01 WORKSHOP 2	Idea Development	In-person Meeting to Develop and Discuss Possible Solutions to Problems in Health Services
Module 02	02 VIRTUAL CLINIC 3	Planning, Logistics, and Organization	https://youtube.com/live/FgMdSehUml4
	02 VIRTUAL CLINIC 4	Dental Caries Diagnosis	https://www.youtube.com/watch?v=f3Hxdl0K_IY
	02 VIRTUAL CLINIC 5	ART and Sealants	https://www.youtube.com/watch?v=Fw568iyVqD8
	02 VIRTUAL CLINIC 6	Professional Fluoride Application, Cariostatic, and Other Materials	https://www.youtube.com/watch?v=hRnM9QW5H98
	02 VIRTUAL CLINIC 7	Questions Related to ART, Sealants, Fluoride, and Cariostatic	https://youtube.com/live/PG6NkwjirAg
	02 VIRTUAL CLINIC 8	Less is More: An Inspirational Class	https://www.youtube.com/watch?v=1MYrOnV4NTk

Source: Design produced in Canva, 2024.

Figure 3 - Link and themes of the contents of Module 01 and 02 of the Project “Task Force to Tackle Caries in Schoolchildren in the State of São Paulo - Brazil”.

Module 1 aimed to launch the proposal to managers and oral health workers in the municipalities and sensitize the various actors to the presented proposal, in November and December 2023 and January 2024. Two virtual clinics were presented, and two workshops were developed to enable co-creation between state management, researchers, oral health articulators from the regions (DRS), and municipal oral health coordinators.

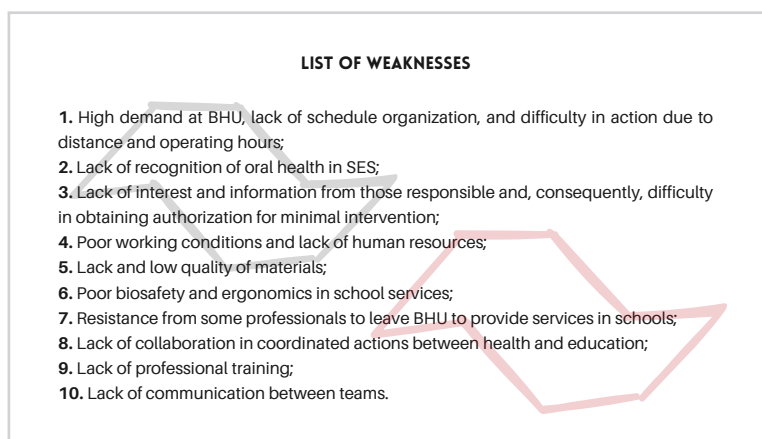
Module 2, on the other hand, aimed to continue the knowledge translation process through virtual clinics, informed by the best scientific evidence, for managers and oral health workers in the municipalities, presenting Minimal Intervention Dentistry techniques, in March, April, and May 2024.

The first module

The two virtual clinics of the first module consisted of the presentation of the project and reports of successful experiences with the execution

of ART in schools.

The implementation and scaling strategy resulted in the existence of two workshops. The first was held virtually in December 2023 with the creation of nine rooms on *Google Meet*. There were 250 participants, where coordinators were divided into each room based on their Regional Health Departments (DRS). In each of the nine meeting rooms, in addition to oral health coordinators, there were university professors, researchers, graduate students, and undergraduate research students. In this first workshop, the SWOT Matrix²¹, was presented, a tool used to understand the professional scenario. This activity allowed, based on the reports of the professionals themselves, to reveal a list of weaknesses, strengths, threats, and opportunities perceived by the actors at the beginning of the implementation. The list of weaknesses was obtained using *Google Jamboard* and *Google Forms* (Figure 4).



Source: Design produced using *Canva* from *Google Jamboard* and *Google Forms*, 2024 by the authors.

Figure 4 - List of the 10 most prevalent weaknesses found by oral health service workers in the state of São Paulo.

Given this, with the listing of the 10 main weaknesses, it was possible to discuss and reflect on them during the second workshop held in person in January 2024 at the headquarters of the São Paulo Association of Dental Surgeons (APCD). On that day, 298 professionals were present and divided into 20 groups. Each group was given an Idea Development (Policy Lab Toolkit) (Supplement 1), a methodology inspired by Design Thinking, used to explore ideas and compose solutions that best solve the existing problem in the most effective way. With this tool, oral health coordinators and their workers sought solutions to one of the ten problems listed in the first workshop. In addition to the proposed solutions, a space for reflection on the difficulties experienced and the perspectives of resolutions and referrals was pro-

vided, aiming to improve the results of the program to tackle dental caries in the state.

The evaluation of these workshops was conducted via *Google Forms* with the question: “How was your experience in the workshop on January 23rd, 2024?”. The alternative “positive, I am looking forward to the next ones” was marked by the majority of respondents (88.8%), while the alternative “Neutral” had 10.4%. The alternative that responded that the experience had been “negative, I was not interested in the subject” was marked by only two respondents (0.8% of the total of 214 respondents). The result of this evaluation contributed to maintaining and improving the Virtual Clinics conducted later.

The activities carried out in this first module were essential to sensitize health service profes-

sionals and awaken interest in Atraumatic Restorative Treatment (ART). Given the feedback obtained in the first module, the virtual clinics were approved, and the execution of the second module was confirmed.

The second module

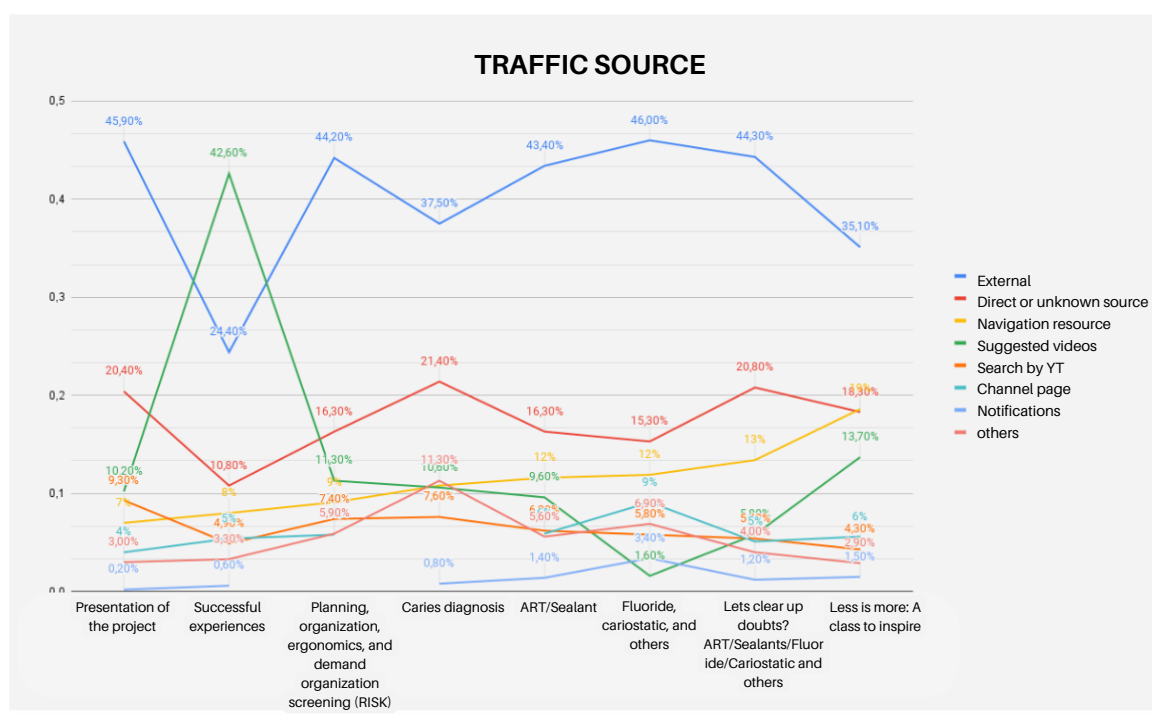
The second module consisted of planning and developing minimally invasive procedures. In this module, six virtual clinics with didactic content were held: 1. Planning, logistics, and organization; 2. Caries diagnosis; 3. ART and sealants; 4. Professional fluoride application, cariostatic, and other materials; 5. Class on the doubts raised by professionals about ART, sealants, fluoride, and cariostatic; and to close the module: 6. Inspirational class: Less is more.

The classes were produced based on scientific evidence made available synchronously on the

YouTube channel of EvipOralHealth on Fridays, lasting 1 hour and 30 minutes for all workers. The videos were saved for later access and had a total of 5,169 views (data generated by the YouTube platform on May 22nd, 2024).

Analyses and products of the two modules

The knowledge translation strategy (modules 1 and 2) generated 14,049 views (data collected on September 6th, 2024), in 8 virtual clinics held. The audience was predominantly female (83.03%), and the average age of viewers was 45 to 54 years, representing 36.52% of the views. In addition, most accesses were made via mobile devices (64.37%), followed by computers (31.71%). The main traffic sources (Figure 5) were external, meaning they accessed the virtual clinic directly through the link sent by the coordination team (39.57%) and direct/unknown (17.27%).

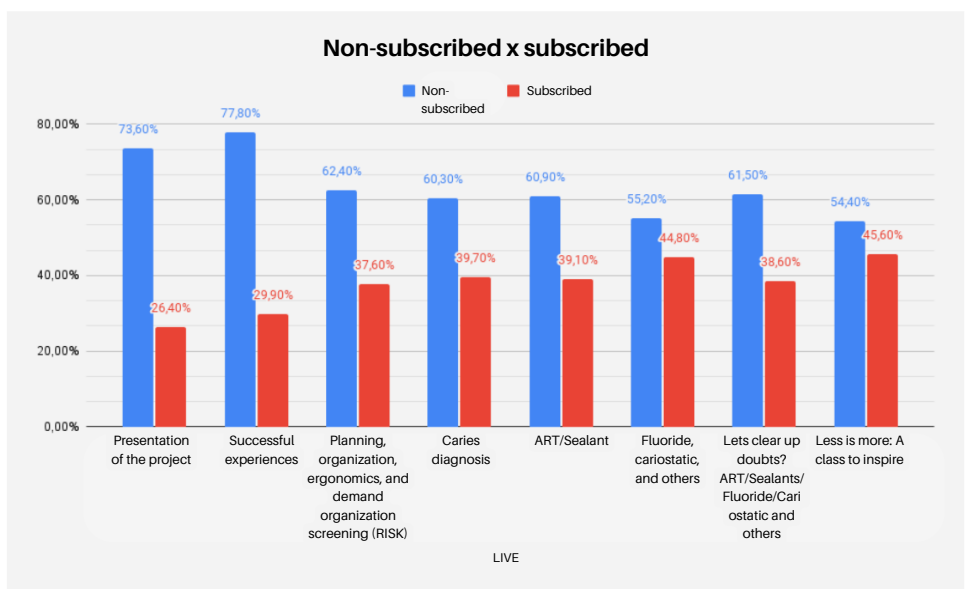


Source: Data extracted from Google Analytics on 06/09/2024.

Figure 5 - Graph of the traffic origin of the virtual clinics made available on the YouTube platform of the Evidence-Based Oral Health Center - FOU SP EvipOralHealth account.

It is observed that the navigation resource increased over time, which can be explained by the gradual increase in subscribers to the @EvipOralHealth channel and that during the virtual clinics, the teams were in-

structed to subscribe to receive notifications of the next classes (Figure 6). This resource has been pointed out as a tool that provides a positive user experience and facilitates interaction with the content.



Source: Data extracted from Google Analytics on 06/09/2024 by the authors.

Figure 6 - Graph of the number of subscribed and unsubscribed users of the virtual clinics made available on the YouTube platform of the Evidence-Based Oral Health Center - FOU SP EviPOralHealth account.

SES sent an invitation to all municipalities in the state of São Paulo. Although not all 645 municipalities participated, the presence of 485 municipalities (75.19%) was observed. The DRS that engaged the most was DRS 1,

and at least one municipality from each DRS was present (Figure 7), with the most engaged cities (which had the highest number of participants throughout the clinics) being São Paulo, Guarulhos, and Campinas.



Source: Word cloud created in Infogram.

Figure 7 - Word cloud produced from the attendance form of the virtual clinics of the Project “Task Force to Tackle Caries in Schoolchildren in the State of São Paulo-Brazil” defining which were the total municipalities and the most participating ones.

The two modules were enriched by the exchange of experiences between academia and health service professionals, facilitated by the use of the virtual clinic chat (live on *YouTube*) and also through the *WhatsApp* group and *Google Classroom*. In addition, contact was available via email to clarify doubts. This communication channel opened a dialogue between the project coordination and the oral health teams, managers, and technicians from the municipalities, where they could present their doubts, make suggestions, and demonstrate commitment, highlighting the protagonism of the municipality in the process.

Some messages from the chat in the virtual clinic and the *WhatsApp* group stand out, where some teams watched the classes in groups at the health service and reported that this time allowed for team meetings. Some oral health teams, on the other hand, sent photos of how they were gathered to watch the live clinics. During the process, some testimonials also appeared, such as the use of mobile devices for individual use since the computers available at the health service did not work properly.

Some additional knowledge translation products were developed, created, and made available to the oral health team, with emphasis on:

- contents in Pocket Class format, some related to the practice of ART (Available at: <https://www.youtube.com/@nucleodeevidencias-fouspev1644/videos>) and another on the importance of

the dentist in the school (Available at: https://www.youtube.com/watch?v=n18SaM3x_68&t=69s);

- documents such as authorization to be delivered to parents and/or guardians of children/adolescents from schools;

- video to communicate to education secretaries about the activities to be carried out in schools (Available at: <https://www.youtube.com/watch?v=lwpjpRfXXYc>);

- Step-by-Step ART document (list of materials and practical guide to the atraumatic technique (Available at: <https://laoha.org/materiais/protocolo-clinico-tratamento-restaurador-atraumatico.pdf?authuser=0>);

- informative materials for dissemination on social networks, such as Instagram, produced by undergraduate students enrolled in the Expanded Clinic of Health Promotion course at the School of Dentistry of the University of São Paulo (FOUSP);

- digital e-Book (Available at: https://laoha.org/ebooks/Ebook_Guia_Trad%20Conhecimento_Final.pdf); and

- knowledge translation website - <https://laoha.org/>.

The development of these products was carried out by the teams based on the needs and experiences of the municipalities themselves, pointed out during the virtual clinics and workshops. The final products were customized by the municipalities, SES, and academia, as they were in an open format.

DISCUSSION

This case occurred in the largest state of the federation, in partnership with SES and USP through the Evidence and Economic Analysis Center, which imposes a detailed analysis of the strategies and results found.

The high prevalence of dental caries among children and adolescents in conditions of social vulnerability highlights the need for dental treatments and the implementation of social policies that serve these populations²². Factors such as urban infrastructure, access to health services, and socioeconomic conditions are critical determinants of oral health²³. Clearly, these factors were observed and reported by professionals during the application of the SWOT Matrix. It is interesting to note that dental caries not only affects the physical health of children but also has significant psychological and emotional implications, such as pain, difficulty eating, and self-esteem issues, which can impact their

development²⁴.

The interest of the oral health teams in the project is notable, as in addition to the number of engaged municipalities and all DRS being represented, the workers themselves mobilized to watch the virtual clinics on these techniques, in groups or individually. The topics covered by the virtual clinics prioritize PSE actions, such as health education activities, brushing techniques, and access to appropriate dental treatments, to reduce the incidence of the disease and improve the quality of life of affected children. This project aligns with the new ordinance of the Ministry of Health, which, like the state of São Paulo, has recognized MID as the most cost-effective and socially sustainable strategy to tackle dental caries in the SUS (Ordinance GM/MS No. 3,493).

Through the PSE, municipalities in the state of São Paulo conduct risk assessment and referral of

schoolchildren in need of treatment to UBS, but less than $\frac{1}{3}$ of these students attend scheduled appointments¹⁴. This may be related both to the characteristics of the children and to the low adherence of families to dental care related to the organization of the service offered²⁵. It is worth noting that this non-adherence can be explained, among other factors, by the current changes in family arrangements. A recent study reveals that the number of female-headed households has increased by 1.7 million, and these women take on the upbringing and, still, the support of their families. In this context, it is an overload to decide between missing work or not attending and accompanying their children to health services²⁶.

Given the need to care for schoolchildren and the existing situation in health services, the community intervention model applied in the school environment becomes a fundamental approach to integrate care and promote health. MID shows good results in controlling dental caries²⁷ and proves to be an effective and minimally invasive alternative for children and adolescents, especially in places with difficult access²⁸.

The implementation of this care model was based on Continuing Education (CE) and the training of the oral health workforce, using ICTs. The use of these technologies has proven to be important for CE in health in the SUS, as they allow new interactions and the creation of spaces favorable to the teaching-learning process²⁹, as with their use, professionals can update themselves continuously, overcoming geographical and time barriers³⁰.

Transformations in Continuing Education have been present in public policies for some decades. The main attempts are related to the implementation of processes and not just content, but also addressing how professionals participate in these processes. In the field of health, deficiencies and challenges are still present for the regulation of Continuing Education initiatives³¹.

The experience reported here innovates this debate by highlighting the possibilities of this process happening in the work environment itself, integrated between different teams in their territories and the program managers, in addition to counting on tools that bring scientific evidence closer to the needs of the service.

Researchers have pointed out the need for connections between a policy to be implemented and the events produced in the daily work³². Not recognizing this movement can imply low participation of workers. In this sense, the experience highlights that the motivation and interest of the teams in terms of numbers and geographical distribution were strongly positive and with rapid adherence to

the process.

Human resources researcher Dussault M. emphasizes that any health system crucially depends on its workforce³³. Health services cannot be provided, regardless of how well-designed the policies are or how many financial resources are available. Therefore, the need to empower and train workers is perceived, as efficient health systems depend on the workers who compose them.

According to Colin *et al.* (2011), learning obtained in the workplace is perceived by workers as a practical need³⁴. However, this learning can be obtained through interventions such as internal training, experience-based learning opportunities, and training through mentorships and continuous learning³⁵. In this way, Academia assumes the position of facilitator and mediator of this continuous learning process, contributing to the professional development of workers, ensuring that they can acquire and apply new skills in a practical and efficient way in the work environment. This approach not only improves individual performance but also promotes innovation and adaptation within services.

This approach demonstrates the importance of the integration between teaching, service, and community, highlighting the need for knowledge translation and the creation of exchange spaces for the effective implementation of practices, programs, and oral health policies³⁶.

Experiences in the service allow workers to develop essential practical skills and strengthen decision-making capacity. Active listening allows for a better understanding of the perspectives and experiences obtained during the workers' experiences in health services, leading to decisions that meet the real needs of the team³⁷. This active listening can be worked on in workshops as a strategy for active learning and allows participants to feel more engaged and valued³⁸. Professionals often face difficulties in using evidence due to lack of time and complexity in searching for assets³⁹. Practical experience in bringing evidence to professionals facilitates access, and users cease to be mere consumers of evidence and become access mediators.

The analysis of the SWOT Matrix (weaknesses, strengths, opportunities, and threats) in the health context allows for a comprehensive view of the factors that influence the effectiveness of the services provided. By identifying and working on these factors, managers were able to develop strategies that improve the quality of the service offered. Recognizing the existing weaknesses in the service was important to reflect on areas that need improvement. The Design Thinking method is fundamental for innovation and problem-solving, as it allows for

the generation of creative solutions that may not be evident in a homogeneous group⁴⁰.

Design Thinking (DT) is an iterative process, where learnings can influence actions in others. The application of DT in the development of digital products brings benefits such as user focus, continuous innovation, and effective solutions. The digital products developed and disseminated to the oral health teams can be essential to create solutions that provide meaningful experiences for users.

CONCLUSION

The Continuing Education experience reported here, considering the theoretical model of implementing oral health actions and programs, responds to the pillars proposed by the model: it was based on needs and became accessible to oral health teams in their various work environments.

First, it details an innovative model that integrates communication technologies to create an accessible training approach. The use of virtual clinics makes it possible to reach oral health professionals throughout the state of São Paulo with educational content in a flexible and interactive way. This promotes initial engagement and mobilizes workers, making learning more inclusive and closer to the real needs of the team.

In addition, the project exemplifies how scientific evidence can be transformed into accessible and customized practices for each municipality. The approach allows each region to receive the type of educational support appropriate to its specificities, promoting more effective training aligned with local needs. The collaboration between the University of São Paulo and the State Health Secretariat was fun-

Virtual clinics or educational live streaming have gained great importance in the current context, especially in Continuing Education and the dissemination of health information. These clinics allow access, flexibility, interaction, knowledge dissemination, continuous training, updating, and autonomy. However, the excess of available information can be both an enriching and exhausting phenomenon, as the ease of access can lead to a state of mental fatigue and overload.

damental for the implementation of this strategy, facilitating the integration between academia and professional practice.

However, the project also presents limitations. The absence of formal certification for participants and the lack of stricter control over the *YouTube* platform may limit the formalization and recognition of learning. Additionally, the career plan of professionals in the municipalities is not directly addressed by the project, which may impact the continuity of engagement and the practical application of the knowledge acquired.

Thus, actions such as the development of a certification system, the creation of stricter control ensuring content updates, integration with career plans that align training with workers' perspectives, and initiatives that value the reporting of experience are suggested. In addition, other research that has the experience as a result should be conducted and disseminated, as they can complement and contribute to scientific knowledge, especially in the field of health practices.

CRediT author statement

Conceptualization: Giraldes, AI; Carrer, FCA; Mancuso, AMC. Methodology: Giraldes, AI; Carrer, FCA. Validation: Carrer, FCA; Mancuso, AMC. Statistical analysis: Ferreira, LCB. Formal analysis: Giraldes, AI; Carrer, FCA; Mancuso, AMC; Ferreira, LCB. Research: Giraldes, AI; Carrer, FCA; Mancuso, AMC. Writing - preparation of original draft: Giraldes, AI; Carrer, FCA; Mancuso, AMC. Writing - proofreading and editing: Giraldes, AI; Carrer, FCA; Mancuso, AMC; Ferreira, LCB. Visualization: Giraldes, AI; Carrer, FCA; Mancuso, AMC; Ferreira, LCB. Supervision: Carrer, FCA; Mancuso, AMC. Project management: Giraldes, AI; Carrer, FCA.

All authors have read and agreed to the published version of the manuscript.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

REFERENCES

1. Garcia RM, Baptista R. Educação a distância para a qualificação dos profissionais do SUS: perspectivas e desafios. *Rev Baiana Saúde Pública* [Internet]. 2007 Jun [citado em 2024 Nov 10];31 Suppl 1:70s-78s. Disponível em: <https://doi.org/10.22278/2318-2660.2007.v31.n0.a1428> doi: 10.22278/2318-2660.2007.v31.n0.a1428
2. Ceccim RB. Educação Permanente em Saúde: descentralização e disseminação de capacidade pedagógica na saúde. *Ciênc Saúde Coletiva* [Internet]. 2005 Out [citado em 2024 Nov 10];10(4):975-986. Disponível em: <https://doi.org/10.1590/S1413-81232005000400020>
3. Falkenberg MB, Mendes TPL, Moraes EP, Souza EM. Educação em saúde e educação na saúde: conceitos e implicações para a saúde coletiva. *Ciênc saúde coletiva* [Internet]. 2014 Mar [citado em 2024 Nov 10];19(3):847-852. Disponível em: <https://doi.org/10.1590/1413-81232014193.01572013>
4. Aureliano Febs, Queiroz Ded. As Tecnologias Digitais Como Recursos Pedagógicos No Ensino Remoto: Implicações Na Formação Continuada E Nas Práticas Docentes. *Educ rev* [Internet]. 2023;39:e39080. Available from: <https://doi.org/10.1590/0102-469839080>
5. Simpson DD. A Framework for Implementing Sustainable Oral Health Promotion Interventions. *J Public Health Dent* [Internet]. 2011 Mar [citado em 2024 Nov 10];71 Suppl 1:84s-94s. Disponível em: <https://doi.org/10.1111/j.1752-7325.2011.00234.x> doi:10.1111/j.1752-7325.2011.00234.x
6. Cayetano MH, Carrer FCA, Gabriel M, Martins FC, Pucca Jr. GA. Política Nacional de Saúde Bucal Brasileira (Brasil Sorridente): Um resgate da história, aprendizados e futuro. *Univ Odontol* [Internet]. 2019 Abr [citado em 2024 Nov 10];38(80). Disponível em: <https://doi.org/10.11144/javeriana.uo38-80.pnsb>
7. Frias AC, Pereira AC, Vieira V. Pesquisa estadual de saúde bucal: relatório final [Internet]. 2016. Disponível em: https://www.saude.sp.gov.br/resources/ses/perfil/profissional-da-saude/areas-tecnicas-da-ses/e_book_relatorio_sb_sp_2015.pdf
8. Fonseca EP, Frias AC, Mialhe FL, Pereira AC, Meneghim MC. Factors associated with last dental visit or not to visit the dentist by Brazilian adolescents: A population-based study. *PLoS One* [Internet]. 2017 Ago [citado em 2024 Nov 10];12(8):e0183310. Disponível em: <https://doi.org/10.1371/journal.pone.0183310> doi: 10.1371/journal.pone.0183310
9. Prodanov CC, Freitas EC. Metodologia do trabalho científico: métodos e técnicas da pesquisa e do trabalho acadêmico [Internet]. 2a ed. Novo Hamburgo: Feevale, 2013 [citado em 2024 Nov 10]. Disponível em: <https://www.feevale.br/Comum/midias/0163c988-1f5d-496f-b118-a6e009a7a2f9/E-book%20Metodologia%20do%20Trabalho%20Cientifico.pdf>
10. Universidade de São Paulo. USP é a 50ª melhor universidade do mundo em ranking espanhol [Internet]. São Paulo: Universidade de São Paulo; 2023 [atualizada em 2023; citado em 10 de nov. de 2024]. *Jornal da USP*; [aprox. 2 telas]. Disponível em: <https://jornal.usp.br/institucional/usp-e-a-50a-melhor-universidade-do-mundo-em-ranking-espanhol/>
11. Carrer FCA, Martins FC, Pedra RC, Galante ML, Galeazzi JB, Araújo ME, Macedo MCS. O processo de trabalho em saúde bucal coletiva em tempos de pandemia: a contribuição da teleeducação com a teleodontologia. *Bol Inst Saúde* [Internet]. 2022 [citado em 2024 Nov 10];23(2):153-163.
12. Guerreiro E, Botelho J, Machado V, Proença L, Mendes JJ, Manso AC. Caries experience before and after covid-19 restrictions: an observational study. *J Clin Med* [Internet]. 2024 Feb [citado em 2024 Nov 10];13(4):e1164. Disponível em: <https://doi.org/10.3390/jcm13041164> doi: 10.3390/jcm13041164
13. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Passo a passo PSE : Programa Saúde na Escola : tecendo caminhos da intersectorialidade. Brasília (DF): Ministério da Saúde; 2011.46 p. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/passo_a_passo_programa_saude_escola.pdf
14. Gomes LACC. Fatores sociodemográficos de brasileiros e a não procura pela atenção primária à saúde bucal no SUS [dissertação na Internet]. Belo Horizonte: Faculdade de Odontologia, Universidade Federal de Minas Gerais; 2020 [citado em 2024 Nov 10]. Disponível em: <https://repositorio.ufmg.br/bitstream/1843/36198/1/LIS%20ANETE%20CORN%20c3%89LIA%20CAMPOS%20GOMES%20.pdf>
15. Menegaz AM, Silva AER, Cascaes AM. Educational interventions in health services and oral health: systematic review. *Rev Saúde Pública* [Internet]. 2018 Ago [citado em 2024 Nov 10];52:52. Disponível em: <https://www.scielo.br/j/rsp/a/GwQJsrc68j9gr8DQyKNWWGM/?lang=en#>
16. Frencken JE, Leal SC, Navarro MF. Twenty-five-year atraumatic restorative treatment (ART) approach: a comprehensive overview. *Clin Oral Invest* [Internet]. 2012 Jul [citado em 2024 Nov 10];16:1337-1346. Disponível em: <https://doi.org/10.1007/s00784-012-0783-4> doi: 10.1007/s00784-012-0783-4
17. Costa SM, Abreu MHNG, Vasconcelos M, Lima RCGS, Verdi M, Ferreira EF. Desigualdades na distribuição da cárie dentária no Brasil: uma abordagem bioética. *Ciênc Saúde Coletiva* [Internet]. 2013 Feb [citado em 2024 Nov 10];18(2):461-470. Disponível em: <https://doi.org/10.1590/S1413-81232013000200017>
18. Andrade KRC, Pereira MG. Tradução do conhecimento na realidade da saúde pública brasileira. *Rev Saúde Pública*. 2020 [citado em 2024 Nov 10];54:72. Disponível em: <https://doi.org/10.11606/s1518-8787.2020054002073>
19. Eccles MP, Mittman BS. Welcome to implementation science. *Implementation Sci* [Internet]. 2006 Fev [citado em 2024 Nov 10];1(1):e1. Disponível em: <https://doi.org/10.1186/1748-5908-1-1> doi:10.1186/1748-5908-1-1
20. Zubaran C, Persch K, Tarso D, Ioppi AE, Mezzich J. The portuguese version of the personal health scale: a validation study in southern Brazil. *Clinics* [Internet]. 2007 Ago [citado em 2024 Nov 10];62(4):419-426. Disponível em: <https://doi.org/10.1590/S1807-59322007000400008>
21. SUS e-Planifica. Orientações para realização de análise FOFA [Internet]. Planificasus.com.br. 2023. Disponível em: https://planificasus.com.br/arquivo-download.php?hash=80cf3961bf78af5b7b19ffea72b3d4b141f86bd&t=1696107457&type=bi_biblioteca
22. Tsuzuki FM, Silva JC, Ishizu L, Calazans CM, Silva MC, Rocha NB. Prevalência e severidade da cárie dentária em um município em condição de vulnerabilidade social no Estado do Paraná. *Arch Health Invest* [Internet]. 2018 Abr [citado em 2024 Nov 10];7(4):129-133. Disponível em: <https://doi.org/10.21270/archi.v7i4.2983>
23. Sousa FS, Lopes BC, Costa EM, Alves CMC, Queiroz RC de S, Tonello AS, et al. Persistem iniquidades sociais na distribuição da cárie dentária em adolescentes maranhenses? contribuições de um estudo de base populacional. *Ciênc Saúde Coletiva* [Internet]. 2021 Jul [citado em 2024 Nov 10];26(7):2625-2634. Disponível em: <https://doi.org/10.1590/1413-81232021267.08562021> doi: 10.1590/1413-81232021267.08562021
24. Buss MC, Silva CP, Proença JS, Scudeller LB, Sestário CS, Scaraboto TR, et al. Projeto integra - Ação Sorriso: Programa de Saúde Bucal em Grupos sociais vulneráveis. *Rev Conexão UEPG* [Internet]. 2018 [citado em 2024 Nov 10];14(1):140-147. Disponível em: <https://doi.org/10.5212/Rev.Conexao.v.14.i1.0018>
25. Pimentel BV, Carvalho BG, Domingos CM, Caldarelli P. A não adesão ao atendimento odontológico de crianças em situação de vulnerabilidade. *Cad Saúde Coletiva* [Internet]. 2021 Jul [citado em 2024 Nov 10];29(3):314-321. Disponível em: <https://doi.org/10.1590/1414-462X202129030111>
26. Fundação Getúlio Vargas. Mães solo no mercado de trabalho crescem 1,7 milhão em dez anos [Internet]. Rio de Janeiro: Fundação Getúlio Vargas; 2024 [citado em 10 nov. 2024]. *Portal FGV*; [aprox. 2 telas]. Disponível em: <https://portal.fgv.br/artigos/maes-solo-mercado-trabalho-crescem-17-milhao-dez-anos>
27. Pfeffer H, Salles GN, Monteiro M, Berti M, Luiz A, Lima DP. Tratamento restaurador atraumático no controle da cárie em escolares de um município do Oeste do Paraná. *REFACS* [Internet]. 2020 [citado em 2024 Nov 10];8(4):857-864. Disponível em: <https://doi.org/10.18554/refacs.v8i4.4348>
28. Navarro MFL, Leal SC, Molina GF, Villena RS. Tratamento restaurador atraumático: atualidades e perspectivas. *Rev Assoc Paul Cir Dent* [Internet]. 2015 [citado em 2024 Nov 10];69(3):289-301. Disponível em: http://revodonto.bvsalud.org/scielo.php?pid=S0004-52762015000200013&script=sci_arttext
29. Nunes LFSO, Valença CN, Silva MCB. Contribuições das tecnologias digitais na educação permanente dos enfermeiros. *Rev Cuba Enferm*. 2020 Jun [citado em 2024 Nov 10];36(2):e3275. Disponível em: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-03192020000200018&lng=es
30. Bender JD, Facchini LA, Lapão LMV, Tomasi E, Thumé E. O uso de Tecnologias de Informação e Comunicação em Saúde na Atenção Primária à Saúde no Brasil, de 2014 a 2018. *Ciênc saúde coletiva* [Internet]. 2024;29(1):e19882022. Available from: <https://doi.org/10.1590/1413-81232024291.19882022>

-
31. Macêdo NB de, Albuquerque PC de, Medeiros KR de. O desafio da implementação da educação permanente na gestão da educação na saúde. *Trab educ saúde* [Internet]. 2014May;12(2):379-401. Disponível em: <https://doi.org/10.1590/S1981-77462014000200010>
 32. Carvalho MS, Merhy EE, Sousa MF. Repensando as políticas de saúde no Brasil: educação permanente em saúde centrada no encontro e no saber da experiência. *Interface (Botucatu)* [Internet]. 2019 [citado 2024 Nov 10]; 23:e190211. Disponível em: <https://doi.org/10.1590/Interface.190211>
 33. Dussault J. A gestão dos serviços públicos de saúde: características e exigências. *Rev Adm Pública* [Internet]. 1992 Mai [citado 2024 Nov 10]; 26(2):8-19. Disponível em: <https://periodicos.fgv.br/rap/article/view/8792/7531>
 34. Collin K, Sintonen T, Paloniemi S, Auvinen T. Work, power and learning in a risk filled occupation. *Management Learning* [Internet]. 2011 Mar [citado 2024 Nov 10];42(3):301-318. Disponível em: <https://doi.org/10.1177/135050761039411>
 35. Silverman M. Supporting workplace learning: a background paper for IES research network members. Reino Unido: The Institute for Employment Studies [Internet]. 2003 [citado 2024 Nov 10]. 22 p. Disponível em: <https://www.employment-studies.co.uk/system/files/resources/files/mp22.pdf>
 36. Carrer FCA, Galante ML, Gabriel M, Pedra RC, Martins FC, Galeazzi JB, et al. Rapid response model: Translation, transfer and exchange of knowledge as a strategy to inform rapid decision-making in the public health system of the state of São Paulo due to the COVID-19 pandemic - *EvipOralHealth/Brazil* [Internet]. São Paulo:Faculdade de Odontologia da USP; 2022 Abr [citado 2024 Nov 10]. 63 p. Disponível em: <http://repositorio.fo.usp.br:8013/jspui/handle/fousp/164>
 37. Associação Brasileira de Qualidade de Vida. 5ª JNQV – Escuta ativa é importante para criar soluções em saúde nas organizações [Internet]. São Paulo: ABQV; 2022 [citado em 10 nov 2024]. Disponível em: <https://abqv.org.br/5a-jnqv-escuta-ativa-e-importante-para-criar-solucoes-em-saude-nas-organizacoes/>
 38. Nascimento AKC, Baduy RS. Simulação, oficina e roda de conversa: estratégias de aprendizagem ativa na saúde. *Rev Educação em Debate* [Internet]. 2021 [citado 2024 Nov 43(84):152-167. Disponível em: https://repositorio.ufc.br/bitstream/riufc/59008/1/2021_art_akcnascimentorsbaduy.pdf
 39. Schneider LR, Pereira RPG, Ferraz L. Prática baseada em evidências e a análise sociocultural na atenção primária. *Physis* [Internet]. 2020 [citado 2024 Nov 10];30(2):e300232. Disponível em: <https://doi.org/10.1590/S0103-73312020300232>
 40. BROWN, Tim. *Design Thinking: uma metodologia poderosa para decretar o fim das velhas ideias*. Rio de Janeiro: Elsevier, 2010.

How to cite this article: Giraldes, A.I., Ferreira, L.C.B., Mancurso A.M.C., Carrer, F.C.A. (2025). Implementation of a Program to Tackle Dental Caries in Schoolchildren in the State of São Paulo through Continuing Education. *O Mundo Da Saúde*, 49. <https://doi.org/10.15343/0104-7809.202549e16882024> *Mundo Saúde*. 2025,49:e16882024.



SUPPLEMENTARY MATERIAL



Idea development



How will you further develop your idea?

How will you test your idea? (Let's think about the implementation.)

Who will help deliver/develop your idea?

What are the risks and barriers?

Actions to avoid:

- 1.
- 2.
- 3.

- 1.
- 2.
- 3.



Idea development



How will you further develop your idea?

How will you test your idea? (Let's think about the implementation.)

Who will help deliver/develop your idea?

What are the risks and barriers?

Actions to avoid:

- 1.
- 2.
- 3.

- 1.
- 2.
- 3.



Idea development



What are the previous experiences and evidence?

- 1.

- 2.

- 3.

- 4.

- 5.

What policy decision or change in the scenario will this idea provide (benefits)?

- 1.

- 2.

- 3.

- 4.

- 5.

What would you consider a success?

How do you plan to measure this success?

Who will love it? And who will hate it? Put them on the line.

Hate		↔Love
-------------	--	--------------