


REVIEW

The Development of School Oral Health Programs in Qatar

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ABSTRACT

Background: The existence of a single school oral health program specifically targeting only 6 and 9 years old, for over 25 years was inadequate to address the oral health problems among the steadily increasing proportion of school children in Qatar. Paucity of remodeling the program to match the growing needs of children in Qatar had resulted in an increased prevalence of dental caries among schoolchildren.

Aims: This paper's primary goal is to present the history of the school oral health program in the State of Qatar. Another overarching goal of this article is to present the development and implementation of a new Asnani (My Teeth) school-based program, which was designed to reach Kindergarten and public primary schools, to reduce the high prevalence of dental caries among school children, and a proposal for National School Oral Health Program plan, that will bring together public and private schools under one umbrella.

Recommendation: With the increasing number of KGs and primary school children experiencing dental caries, a new, integrated, and comprehensive school oral health program should be adopted. The program should assist in reducing dental caries rates among school children in Qatar. Since the treatment of oral diseases is costly, Qatar should focus on oral health promotion and preventive measures that will reduce the need for curative procedures and minimize the financial expenses on dental treatment. In addition, it is necessary to have a department for the National School Oral Health Program to continually monitor public and private schools under one umbrella to reach the ultimate goal of reducing dental caries among school children.

KEYWORDS: School oral health program, Qatar, program, oral health

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INTRODUCTION

Oral health is a fundamental part of general health and well-being and significantly contributes to the development of a healthy child. Oral disease is a significant global health burden. Various measures have been put in place to promote oral health. Oral health measures related to quality of life offer crucial information when evaluating treatment needs, examining interventions, programs, and services, and when making clinical decisions [1].

Although dental caries is a preventable bacterial disease, it is the most common chronic disease among children globally [2-4]. Specifically, Qatar's oral epidemiological data confirms the high prevalence and severity of tooth decay among children and young adolescents in their primary and permanent teeth well above the WHO goal for 12-year old in 2000 [5]. If left untreated, poor oral health may have adverse effects on children as well as their families. Effects of poor oral health include increased

dental care cost, sleep deprivation, nutritional problems, infections, and poor general health [6].

Oral disease treatment is costly, resource-intensive, and places the child into a lifelong cycle of continuous maintenance dental treatment, which requires more complex interventions. There is, therefore, an increased need to keep a strong focus on oral health promotion and preventive measures. This may include developing comprehensive oral health programs that cover prevention, oral health promotion, and timely referral for treatment, and is capable of being systematically delivered to all children.

The ideal settings to reach children and provide oral health promotion and preventive services are schools. Since children are receptive to new information, establishing healthy oral and dietary habits among children early in life will increase the likelihood of maintaining healthy oral health attitudes and behaviors in adulthood. Besides, schools provide a suitable environment for reinforcing oral

health messages and regular preventive dental care. As such, establishing a National School Oral Health Program (NSOHP) with oral health education, treatment referral, and prevention services will facilitate the provision of optimal oral health for children, which will, in turn, improve their quality of life.

HISTORY OF SCHOOL ORAL HEALTH PROGRAM IN QATAR

Lack of substantial evidence of the past school oral health programs in health records or published literature had rendered its implementation, monitoring and evaluation unaccountable. Consequently, this has led to minimal information concerning oral health knowledge behavior and practices among school children [7]. Narratives of oral health personnel who were engaged in this program state that the SOHP had been existent more than 30 years ago. The best way to understand the history of the previous school oral health program is by using scarce school health records and by interviewing dental staff who initially worked with that Department. In 1960, Ministry of Education reformed curative and preventive services for ploy clinics that comprised several specialties for dentists and physicians who took care of primary school children. The School Health Department (SHD) was established in 1979 by the Ministry of Education and Higher Education (MEHE) and included roughly 15 units in Qatar.

In 1990, the School Health Administration was transferred from the MEHE to Primary Health Care Department under the MOPH, and this Department handled all the specializations that were previously undertaken by the SHD at the MEHE. This decision was enacted as of 01/17/1990 and published in the Official Gazette [8]. Later, the Primary Health Department was transferred to Primary Health Care Corporation (PHCC) upon the Emiri Resolution No. (15) of 2012 [9]. The SOHP continued to be a part of SHD with polyclinics of different specialties under the PHCC working in one building called outpatient department (OPD annex) for Hamad Medical Corporation (HMC).

In 2012, the SHD polyclinics were rescinded; physicians were distributed into different health centers, and the dental staffs of the school oral health program were distributed into 3 Health Centres (HCs), i.e. AbuBaker HC (Western Region), AlDayan HC (Northern Region), and Mesiamer HC (Central Region). SHD stopped having polyclinics of a full package of different physicians and dentists at one building to provide prevention and curative treatment to school students who visited, required emergency, or had a dental appointment.

The school oral health program continued with nine Dentists and ten Dental Assistants running the program in 3 HCs. There were five clinics in the 3 HCs with nine dentists working in two shifts. Initially, the morning shift was specifically targeted to deliver oral health education, dental screening, prevention and dental treatment to children aged 6 and 9 years only (grades 1 and 4 respectively) studying in public primary schools. These children would visit the three HCs, leaving schools at 7:00

am and return back to school at 11:00 am. Later evening shifts for dental treatment appointments were also introduced at the three HCs.

During the morning shift Oral Health education was delivered to the children utilizing audio visual aids, and every five pupils were examined by a dentist for dental screening, and one or two pupils were chosen for fluoride application. The students with dental caries were referred to take dentist appointments for the evening shift. Later, morning slots for dental treatment were also made available. All school oral health programs were suspended during holidays, and dentists were redistributed to work as a general dental practitioner (GDP) in other HCs.

Hence, the dental treatment facilities at SOHP HCs were unavailable to students during school holidays as SOHP dental team were unreachable in the SOHP HC dental clinics. The SOHP continued likewise for over 25 years without optimization of the services at HCs or amendments to meet the growing needs of the school children.

In 2016, the author started restructuring the School Oral Health Program in response to several studies that showed a high prevalence of dental caries among pupils in Qatar [7]. Thus, there was a need to develop a new school oral health program with a strategy that differed from the previous program to reduce dental caries among primary public-school students. Notably, it had revealed that dental caries prevalence among school children was very high (85%) [5]. To overcome this challenge, the authors emphasized the need for community-oriented preventive programs with oral health education as an integral part of these programs [7].

THE NEW ASNANI SCHOOL ORAL HEALTH PROGRAM DESIGN (ASOHP)

Research has revealed that schools setting provides the best avenue for promoting oral health among children [10]. The primary goal of establishing school based oral health programs is to overcome the challenges faced by children and families in accessing dental services and to eliminate inequalities in oral health between children from different backgrounds [1]. These programs improve oral health through providing children with oral health education, prevention, and treatment strategies [10].

The restructured programme seeks to minimize the burden of oral disease, increase parents' and children's' awareness of the importance of oral health prevention, improve access to dental services, and create ideal oral health initiatives. In 2017, the new School Oral Health Program (SOHP) proposal was approved by the PHCC's Executive Board. The SOHP was given a unique name 'Asnani' School Oral Health Program (ASOHP), and its structure is presented in figure 1 [11]. Asnani is an Arabic word that means 'my teeth.' ASOHP targeted Kindergarten and all grades of primary public schools. The comprehensive ASOHP covered prevention, intervention, and promotion of oral health in schools and created unique oral health activities in the community that sought to increase awareness around children, parents, and school staff members.

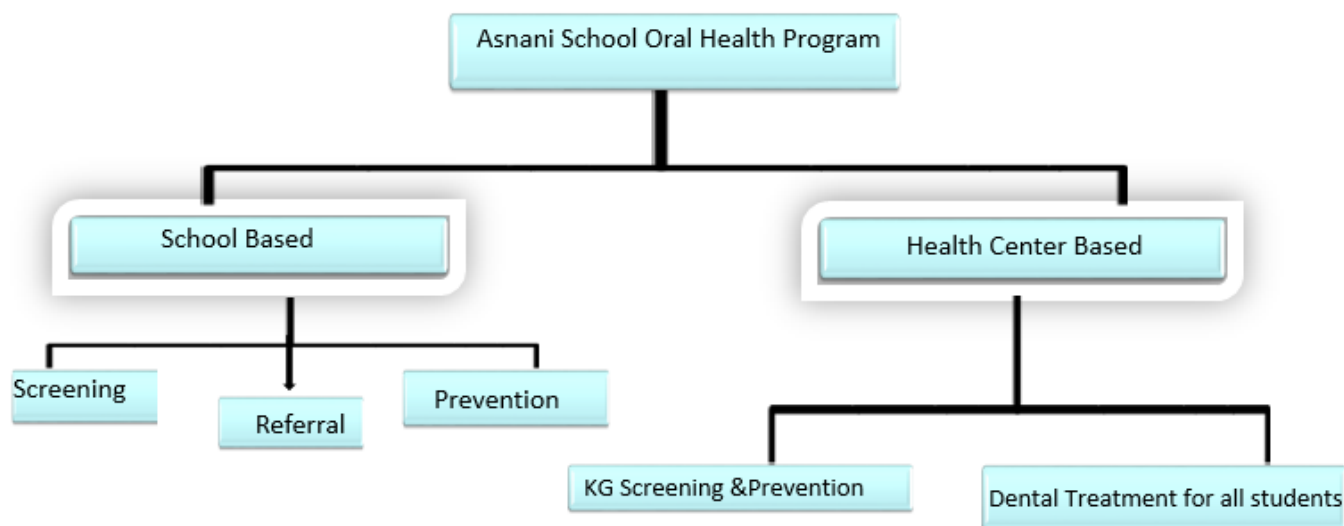


Figure 1: Asnani School Oral Health Program (ASOHP) PHCC's structure.

The Asnani SOHP was designed to reach the goal of reducing dental caries among school children. The new Asnani SOHP seeks to increase community awareness concerning the importance of oral health prevention and improve access to dental service [11]. Furthermore, it integrates educational and health care institutions to ensure that it delivers high standard and effective preventative dental service, where oral health prevention, treatment, and education minimize the oral disease burden among school children [11]. The ASOHP program was divided into two. The first arm of the ASOHP was operational at the HCs. The ASOHP team received kindergarten (KG) students in an oral hygiene room, which was designed and prepared for this purpose. Oral hygiene instructions were delivered, and children were engaged in educational and recreational activities. Preventive treatment of fluoride varnish application was performed and those children requiring dental treatment were given referral appointments. The second arm of the program comprised of Asnani team visiting the primary school premises, equipped with Mobile Dental Unit and the necessary dental instruments and materials. The Asnani school coordinator's role was to prepare the academic year schedule for school visits, obtain the list of students, arrange transportation, dispatch and collect parents informed consent form. The dental team of ASOHP were efficiently trained to work effectively with Mobile Dental Unit following infection control protocols and adhering to Clinical guidelines for dental screening and treatments.

This newly designed ASOHP was pilot tested on 2300 children from on two randomly selected public schools for primary boys, primary girls and Kindergarten. from February 4 to March 31, 2018. MEHE permission was obtained and formal letters was sent to school principals to seek approval to conduct the pilot study of the ASOHP at their schools. Consent forms seeking parents' permission were sent directly to schools via the ASOHP coordinator.

The pilot program used three MDUs manned by three school oral health dentists and three dental assistants. Both the KGs and primary public-school students received oral health presentation, oral hygiene instructions, leaflets, full mouth screening, and preventive dental treatment that include topical fluoride & fissure sealants. Oral health status information sheets were also given to the parents. A

certificate of appreciation for participation in the program was given to all the children.

The pilot study's findings revealed that majority (82.4%) of the students had dental caries. Primary school girls had the highest mean (6.2), followed by the primary school boys with a mean of (5.5). Kindergarten boys had mean dmft of 5.4.

Overall, it was concluded from the pilot study's findings that the prevalence of dental caries among children was significantly high. Parents survey revealed that most parents claimed that it is not necessary to have their children's teeth checked regularly. Furthermore, the pilot study findings elucidated that most parents claimed that oral hygiene knowledge that their children had received earlier in schools was not satisfactory.

ASNANI SCHOOL ORAL HEALTH PROGRAM IMPLEMENTATION

The implementation of ASOHP began on a working schedule prepared for the eight ASOHP teams. Three of the teams received KGs in their HCs' oral hygiene rooms, while the remaining five Asnani SOHP teams visited the public primary schools with MDU and necessary instrument kits. On November 6, 2018, primary public schools started receiving the ASOHP team in their schools until May 29, 2019, while assigned HCs for KGs received students on January 19, 2019, until April 4, 2019. The total number of the school visited during that period deducting examination days, holidays, and unexpected delayed were 88 schools with a total number of 15,860 students who were consented to participate in the program.

On September 1, 2019, ASOHP started its program for both KGs and primary public schools for the second year. The programme stopped on February 27, 2020, because of school exams and holidays, and was later adjourned due to the coronavirus pandemic. The total number of KGs & primary public schools covered by then were 106. Besides, more than 66,184 students were benefited from the ASOHP in 18 months.

ASOHP dental team met regularly with the ASOHP management team to discuss the operational challenges, difficulties, and provide their suggestions for the improvement of the program. ASOHP dental team was directed on means to intercept and overcome challenges, such as material unavailability and settling minor conflicts

with school staff or school nurses, and documentation of incidents reporting.

Evaluation of the ASOHP program after one year and four months of its implementation, reveals that has been effective in providing oral health education, prevention and referral to a large number of school children. Besides conducting children’s screening in school and receiving KGs in assigned HCs, the ASOHP team also took part in various activities, including participating in Qatar National Day, Disability Week, Qatar Sports day, National Oral Month, Doha Health Week-World Innovation Summit for Health (WISH), and PHCC’s Oral Health Month. Due to these activities and screening at schools, various research articles were published. Special oral health education material for disabled children designed in braille and sign language, were also developed for the first time in Qatar. Success of ASOHP at public primary schools triggered the need to expand its coverage and include all private schools

to the plan It was proposed to integrate ASOHP to the contemplated National School Oral Health Program to maximize the benefit of this program to all public and private school children in Qatar.

NATIONAL SCHOOL ORAL HEALTH PROGRAM (NSOHP)

The main aim of NSOHP is to develop a National school-based program that addresses children's oral health needs to assist in preventing and controlling oral diseases among school children. It also ensures that every primary and Kindergarten school child in Qatar accesses NSOHP. The program seeks to integrate with the existing Asnani SOHP initiated in PHCC, which is currently being delivered to all public-school children and extend the program to private schools in a joint venture partnership between HMC, MOPH, PHCC, and private dental sector (see figure 2).

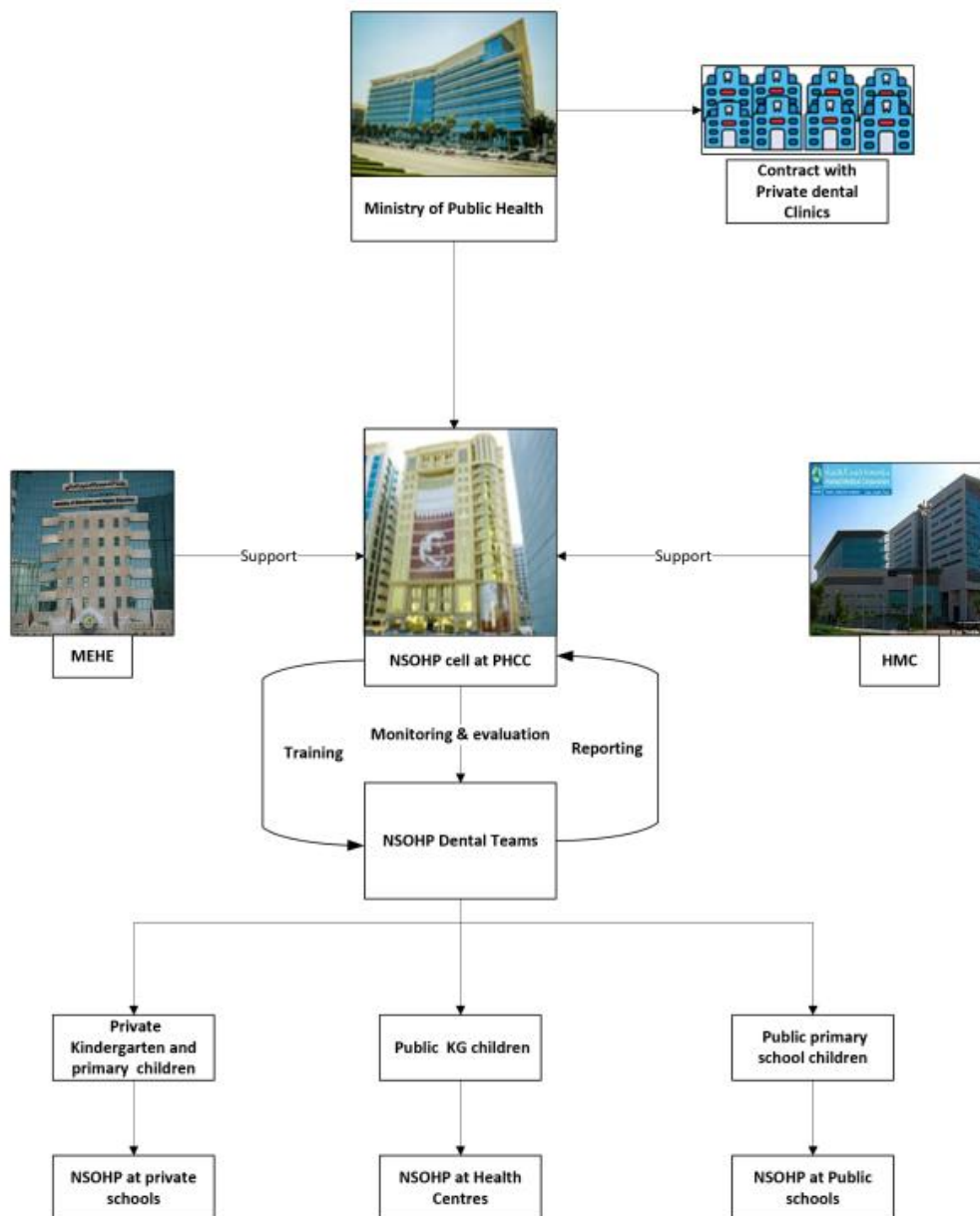


Figure 2: National School Oral Health Program (NSOHP) structure.

OBJECTIVES OF THE NSOHP

The following are the main objectives of the NSOHP.

- 1) To launch the Oral health Promotion and disease prevention program for the school children
- 2) To evaluate kindergarten and primary school children's oral health status and create a national database and an oral health surveillance system.
- 3) To offer timely referral for students in need of dental treatment.
- 4) To encourage children community engagement for Oral health promotion activities.
- 5) To integrate oral health with the general health programs for children at the national level.
- 6) To strengthen the collaboration of HMC, MOPH, and PHCC private dental sector and MEHE with NSOHP.
- 7) To create awareness of the Oral Health information and improve oral health literacy among school personnel, children, and their families at schools.

The NSOHP targets children, who are vulnerable to oral diseases and considered to be in crucial need of oral disease prevention and oral health promotion, so that they can adopt and maintain healthy oral habits and behaviors throughout life. Specifically, it targets Kindergarten children between the ages of 3 to 5 and primary school children between the ages of 6 and 12. The total number of the targeted kindergarten school children in Qatar is 22,226, and the setting for implementation of NSOHP would be in HCs for public kindergartens and at schools premises for private KGs [12]. The program activities among this group include oral health promotion through education programs and oral disease prevention through screening, fissure sealants, and topical fluoride application.

On the other hand, the number of targeted primary school children is 160 646 [12], and the setting for the implementation of NSOHP for this group includes the private and public primary schools. Furthermore, this group's program activities in addition to the above mentioned for KG students also includes appropriate referrals and increasing oral health awareness through community engagement for children.

The program will focus on creating awareness through oral health promotion and education through promotional materials and messages to promote healthy eating, promote tooth-brushing activities in the school routine, develop and share oral health promotion materials, and promote oral health activities targeting the public to raise awareness about the program. Another pivotal activity will include oral disease prevention. This will be accomplished by the application of topical fluorides, fissure sealant, and oral health screening.

The estimated manpower needed to implement the NSOHP in schools (table 1) were calculated based on the number of students (table 2), and the academic days (table 3). These estimations are flexible and dynamic, amenable to adapt in accordance with the emerging situations. For instance, the required manpower will need to be revised as new schools are initiated by MEHE or increase of student's intake in the existing school. Secondly, when manpower for the public sector experiences shortage, the private sector would be required to cover for it.

Table 1: Estimation of manpower based on the academic days and students' number.

Examination time per child	Option 1 5 months/100 days NSOHP		Option 2 6 months/120 days NSOHP		Option 3 7 months/140 days NSOHP		Option 4 8 months/160 days NSOHP	
	No. of children examined per day	Dentist/DH capacity per year	Dentist/DH capacity per year	No. of Dentists/DH required	Dentist/DH capacity per year	No. of Dentists/DH required	Dentist/DH capacity per year	No. of Dentists/DH required
15 mins	24	2400	2880	3360	3840	Pu 20 (19.9) Pr 36 (36) Pr KG 6 (5.3)	Pu 17 (16.9) Pr 31 (30.8) Pr KG 5 (4.6)	Pu 15 (14.8) Pr 27 (27) Pr KG 4 (4)
		2000	2400	2800	3200	Pu 24 (23.7) Pr 44 (43.28) Pr KG 7 (6.4)	Pu 21 (20.3) Pr 37 (37) Pr KG 6 (5.5)	Pu 18 (17.7) Pr 33 (32.4) Pr KG 5 (4.8)
		1500	1800	2100	2400	Pu 32 (31.3) Pr 58 (57.6) Pr KG 9 (8.5)	Pu 27 (27) Pr 50 (49.4) Pr KG 8 (7.3)	Pu 24 (23.7) Pr 44 (43.2) Pr KG 7 (6.4)

There will be three phases of orientation for NSOHP. The first phase would engage the managers and owners of private dental clinics, the second phase for the school principals and school representatives for private and public

schools, and the last phase will be for the NSOHP dental team.

The working groups involved in evaluating NSOHP will comprised of representatives from the stakeholders. They will be able to monitor and evaluate NSOHP under the following domains: coverage of NSOHP, oral health education delivery in schools, compliance with the guidelines for control of infections of NSOHP, compliance with the protocols and policies for the preventive services of oral health, evaluation of fissure and pit sealant retention for children, measuring of KPIs and acceptability of the program by children, school administrations and parents.

It is expected that there will be a reduction in prevalence for oral health when the preventive health services for

dental care and the promotion of oral health to all primary schools and KGs using the NASOHP. The regular dental screening will help diagnose the oral diseases at an early stage and referred for dental treatment in time. There will be increased awareness among children and the community on the importance of diet, oral health, and preventive services of oral health. It will also foster collaboration between teachers and parents to promote the oral health of children. Children's hygiene will, therefore, be enhanced. It will reduce government spending since the government will invest in prevention rather than the treatment of oral diseases. Finally, the partnership between the private and public sectors will be strengthened to enhance the children's oral health in Qatar.

Table 2: Statistics of Number of School and children in public and private schools obtained from MEHE, Academic year 2020-2021

Target population	Total Number of children (Schools) in Qatar	Setting for ANSOHP	Program activities
Kindergarten children (KG), aged 3-5 years	22,226 [180 kindergartens 69- Public KG-6753 children 111- Private KG-15,473 children]	Public Kindergartens in HCs and Private KGs in schools.	1. Oral health promotion and education. 2. Oral Disease prevention. (Screening, Topical Fluoride application, and Fissure sealants)
Primary School children aged 6-12 years.	160,646 [309 Primary schools 113- Public-56,903 children 196- Private-103,743 children]	Public and Private Students in Primary schools.	3. Referral through appropriate channels. 4. Increase Oral health awareness through community engagement for children.

Table 3: Estimation of NSOHP days in Public & Private schools

Public schools:				
No. of days in a year	No. of Non- Academic days / Holidays in school	No. of School Academic days	No. of days for NSOHP	Extra days
365	1. Weekends= 76 days 2. Summer break=54 days 3. Winter break= 12 days 4. Spring break=5 days 5. Examination days= 20days 6. Qatar National Day & National sports day= 2 day Total= 169	196	150	46
Private schools:				
No. of days in a year	No. of Non- Academic days / Holidays in school	No. of School Academic days	No. of days for NSOHP	Extra days
365	1. Weekends= 76 days 2. Summer break=54 days 3. Winter break= 12 days 4. Examination days= 20days 5. Events at school, sports day and festivals= 20 days Total= 182	174	100-150	74-46

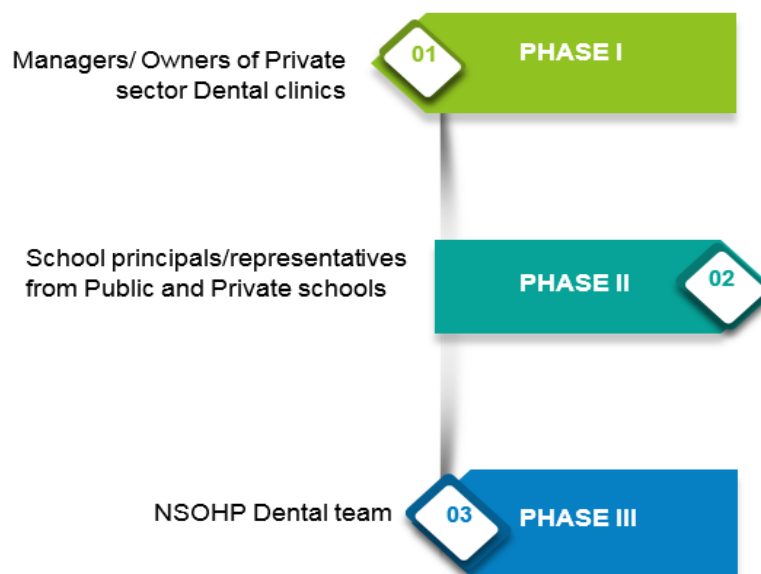


Figure 3: Phases of implementation

The indicators of performance of NSOHP are identified in the list below and will be used in the evaluation of NSOHP.

1. No. of students and public schools examined.
2. No. of students and Private schools examined.
3. No. of the students that were examined per hygienist/dentist.
4. No. of forms for consent that were distributed.
5. No. of students who got a positive consent from their parents.
6. No. of those who refused.
7. Prevalence of caries in the primary teeth.
8. Prevalence of caries in permanent teeth.
9. The number of caries for free children.
10. The number of students who are receiving dental screening.
11. Number of students who are receiving the application of fluoride varnish.
12. The number of students to get pit and application of fissure sealant.
13. The number of teeth to receive pit and application of fissure sealant.
14. Retention of fissure sealant and pit after three months as well as one year.
15. The number of students who got referred for dental treatment.

Stakeholders play a crucial role in the implementation process. The MOPH stakeholders will be responsible for media communications, KPIs and quality assurance, promotion of oral health and publishing, the distribution of the materials, contacting the private clinics, and budgeting. The PHCC will be responsible for KPIs and quality assurance, auditing and monitoring, clinical and technical governance of the NSOHP administration. The HMC will help provide support for the implementation NSOHP in KGs and primary schools. The private dental sector will also support the implementation of NSOHP in private schools. The MEHE will provide overall support for NSOHP operation at school premises.

A milestone is used to signify a stage in development (see figure 4). They aid in showing powerful components in a

project as they portray key events and map a project's movement as outlined in the project plan. For this NSHOP, the first milestone was gauged by the formulation of an effective NSOHP committee. Secondly, NSOHP stakeholders were also identified. There was an agreement on the roles and responsibilities of stakeholders. The next stage was signified by the successful development of a guidance document used as the basis for NSOHP. The next milestone involved ministerial approval, which was preceded by the recruitment of NSOHP personnel and procurement of equipment. Thereafter, the orientation of stakeholders followed, which was followed by successful training of NSHOP professionals. The following milestone was denoted by successfully creating public awareness of the NSOHP. In the last milestone, the NSOHP was officially launched, which marked the successful completion of the NSOHP.

The operation of NSOHP being on a large scale may encounter certain risks. Firstly, there might be delay in seeking approval of the program from the Ministry of Public Health. Secondly, there might be protraction in contracting and engagement for the private dental sector. There might also be a delay in the recruitment of the NSOHP dental teams and the procurement of the equipment. There might also be incommensurate cooperation from schools.

Considering the current scenario, there may be a low rate of participation from the children due to fear of the Covid-19 virus and its spread.

RECOMMENDATIONS

The number of KGs and primary school children with dental caries is increasing in number.

A new, integrated, and comprehensive school oral health program should be adopted to assist minimize the increased dental caries rates among school children in Qatar. The researcher has presented a remolded SOHP for primary and KGs schools and recommends that this new design be adopted as a National School Oral Health Program to cover all private and public schools in Qatar.

Besides, owing to the costly treatment of oral diseases, Qatar should focus on oral health promotion and preventive measures that can reduce the need for curative

procedures and minimize the financial expenses on dental treatment.

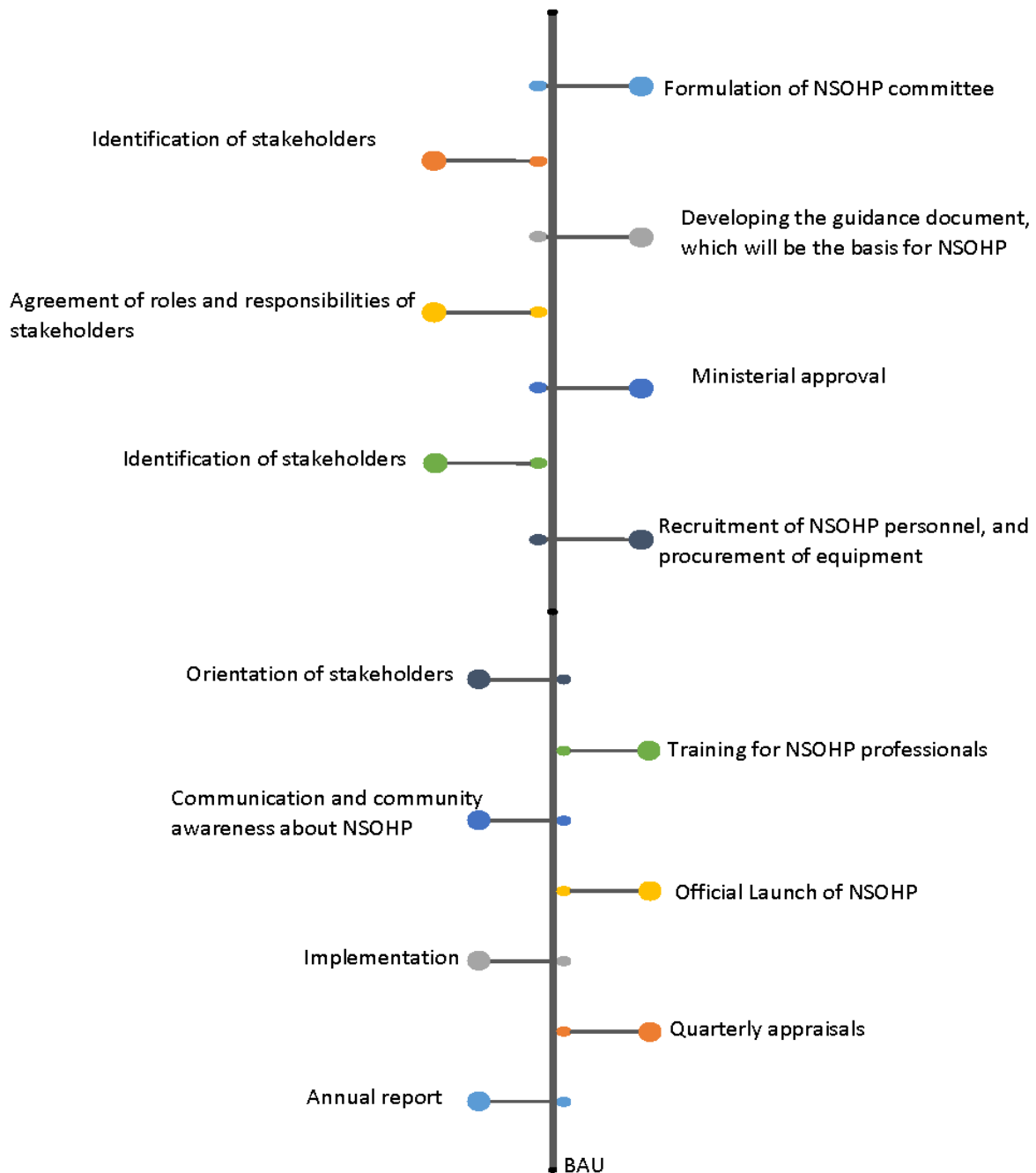


Figure 4: Milestone stage development

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None.

COMPETING INTERESTS

The author declares no competing interests with this case.

REFERENCES

- [1] Alsumait, A., ElSalhy, M., & Amin, M. (2015). Long-term effects of school-based oral health program on oral health knowledge and practices and oral health-related quality of life. *Medical Principles and Practice*, 24(4), 362-368.
- [2] Centers for Disease Control and Prevention. Hygiene-related diseases. [Accessed 5/10/2020]. http://www.cdc.gov/healthywater/hygiene/disease/dental_caries.html. Page last reviewed: September 22, 2016.
- [3] National Institute of Dental and Craniofacial Research (2020). Dental Caries (Tooth Decay) in Children Age 2 to 11.
- [4] Bourgeois, D. M., & Llodra, J. C. (2014). Global burden of the dental condition among children in nine countries participating in an international oral health promotion programme, 2012–2013. *International Dental Journal*, 64, 27-34.
- [5] Al-Darwish, M., El Ansari, W., & Bener, A. (2014). Prevalence of dental caries among 12–14-year-old children in Qatar. *The Saudi dental journal*, 26(3), 115-125. <https://dx.doi.org/10.1016%2Fj.sdentj.2014.03.006>
- [6] Tonetti, M. S., Bottenberg, P., Conrads, G., Eickholz, P., Heasman, P., Huysmans, M. C., ... & Nyvad, B. (2017). Dental caries and periodontal diseases in the ageing population: Call to action to protect and enhance oral health and well-being as an essential component of healthy ageing—Consensus report of group 4 of the joint EFP/ORCA workshop on the boundaries between caries and periodontal diseases. *Journal of Clinical Periodontology*, 44, S135-S144.
- [7] Al-Darwish, M. S. (2016). Oral health knowledge, behavior, and practices among school children in Qatar. *Dental research journal*, 13(4), 342. <https://doi.org/10.4103/1735-3327.187885>
- [8] Qatar Legal Portal (2017). Cabinet Decision No. (10) of 1990 transferring the School Health Department from the Ministry of Education to the Ministry of Public Health. <https://almeezan.qa/LawView.aspx?opt&LawID=1365&language=en>
- [9] Qatar Legal Portal (2012). Emiri Resolution No. (15) of 2012 establishing the Primary Health Care Corporation. <https://www.almeezan.qa/LawArticles.aspx?LawArticleID=59553&LawId=4503&language=ar>
- [10] Shekhawat, K. S., Chauhan, A., & Priya, H. (2016). Planning and implementing school oral health programs: A scoping review. *Journal of Indian Association of Public Health Dentistry*, 14(2), 237.
- [11] Alyafei, N. (2018). Asnani project: A preventative oral health program targeting school children in Qatar. 6th Annual Congress on Dentistry and Dental Medicine.
- [12] Ministry of Education and Higher Education (MEHE), 2020. Statistics of Number of School and children in public and private schools for the academic year 2020-2021.