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School Oral Health Program in Kuwait

Jitendra Ariga Sabiha Al-Mutawa Huda Nazar

School Oral Health Program, Ministry of Health, Kuwait City, Kuwait

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Abstract
The School Oral Health Program (SOHP), Kuwait, is a joint venture between the Ministry of Health, Kuwait, and Forsyth Institute, Cambridge, Mass., USA. This program provides oral health education, prevention and treatment to almost 280,000 public school children in Kuwait. Services are delivered through a system of center- and school-based clinics and preventive mobile teams. One of the recent developments is the effective use of portable dental units for the delivery of preventive care to children in schools without the need for children to go to dental clinics. Preventive procedures performed under this program are the biannual application of fluoride varnish and the placement of pit and fissure sealants on newly erupted permanent molars and premolars. During recent years, the SOHP has improved its coverage of children, with prevention up to 80%. This has resulted in a considerable reduction in treatment needs, which is evident from the reduced number of composite restorations performed under this program during the last 6 years. This indicates that the disease level is on a decline, which can be confirmed from the results of the ongoing National Oral Health Survey on Kuwaiti school children.

Introduction

The School Oral Health Program (SOHP), Kuwait, is probably the only comprehensive oral health program for school children in the Middle East. The SOHP delivers oral health education, prevention and treatment to almost 280,000 school-aged children in Kuwait. Consequently, over the years this program has become the model program for oral health planners in the neighboring Arab Gulf countries. This program has evolved since its inception in 1983 and today the outcome measures appear to be good (fig. 1–3).

History of the Program

The SOHP, Kuwait, began as a pilot project in the capital governorate in 1983. Based on its initial success, the program was extended to the Al-Ahmadi governorate in 1986. During 1993–94, the Ministry of Health decided to extend this program to all the remaining governorates – Al-Farwaniya, Hawally and Al-Jahra. The University of Kentucky, Lexington, Ky., USA, the University of Copenhagen, Copenhagen, Denmark, and the Forsyth Institute, Cambridge, Mass., USA, were given the responsibility of managing the program in each governorate. In 2000, the SOHP in all the governorates came under the manage-

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E-Mail karger@karger.com
www.karger.com/mpp

1011–7571/13/0237–0043$38.00/0

Dr. J. Ariga
PO Box 5338
Salmiya 22064 (Kuwait)
E-Mail director@smilekw.com

ment of the Ministry of Health, Kuwait, and the Forsyth Institute. In 2004, another branch was started at the new governorate of Mubarak Al-Kabeer. Hence, today the SOHP is present in all the 6 governorates of Kuwait.

During 2000–2001, the dft (decayed and filled primary teeth) among 6-year-old children was 4.6 and the DMFT (decayed, missing and filled permanent teeth) among 12-year-olds was 2.6. Maxillofacial trauma among children is reported to be 2 times greater in Kuwait than in other countries [1]. The main causes of the maxillofacial injuries were road traffic accidents and falls in and around the home, with 75% of the cases occurring among boys [2].

Delivery of Care

Today, the SOHP is responsible for delivering oral health education, prevention and treatment to all school children in the public schools of Kuwait for the age group of 6–16 years, while kindergarten children in the age group of 4–5 years receive education and primary preventive care. Approximately 280,000 children are eligible to receive care through the SOHP. Delivery of care is through a system of center- and school-based clinics and preventive mobile teams that deliver preventive services to children in schools without permanent dental clinics.

Center-based clinics are present in each governorate. It is a system of polyclinics and they are open during morning and afternoon. The number of dental clinics in each center varies from 8 to 15. Overall, there are 70 dental clinics in 6 centers. In the morning, clinics are reserved for prevention, emergency care, restorative procedures and endodontic treatment, whereas in the evening the main focus is on restorative procedures. School-based clinics are dental clinics present in a primary or intermediate school. The SOHP has 65 fully equipped school-based clinics, each managed by a dentist and 2 dental assistants. Preventive mobile clinics are comprised of portable dental units that are moved from one school to the other to deliver primary preventive services, fluoride varnish applications and fissure sealants. The SOHP has 41 mobile teams for sealants and another 33 for applications of fluoride varnish. Delivery of care is performed by almost 207 dentists, 335 nurses and around 25 dental hygienists.

Program Services

Oral Health Education

The following are the educational activities:

- All the students get at least two oral health education lessons with supervised tooth brushing during every school year.
- Oral health education sessions are organized for parents and expectant mothers.
- Dental health education programs are conducted for school teachers.
- SOHP education teams participate in school activities.
- Education teams participate in community activities in public places.
- Each year around 4,000 h are spent on health education.
- Concentrated efforts are made to make health education need based.
- Health education teams work closely with prevention teams.
- Every year new education materials are prepared by the department.
- Efforts are made to convey our messages through emails and SMSs to the public.

Oral Health Prevention

The following are the primary prevention activities that are performed:

- Preventive procedures are delivered to all children with positive consents throughout the year.
- Twice-a-year application of fluoride varnish is administered to all the children.
- Pit and fissure sealants are performed, targeting newly erupted molars and premolars including early caries lesions.
- During the academic year, almost all the preventive procedures are delivered to children within the school premises.

Treatment Services

The following is the protocol for delivery of treatment to school children:

- Dental treatment is provided to all children with positive consents.
- Children receive general pediatric dental treatment.
- Emergency treatment is carried out.
- Treatment is provided on quadrant basis.
- The main emphasis is on first permanent molars.
- The treatment is provided in center- and school-based clinics.
- Emphasis is put on following universal infection control procedures [3] as well as four-handed dentistry.

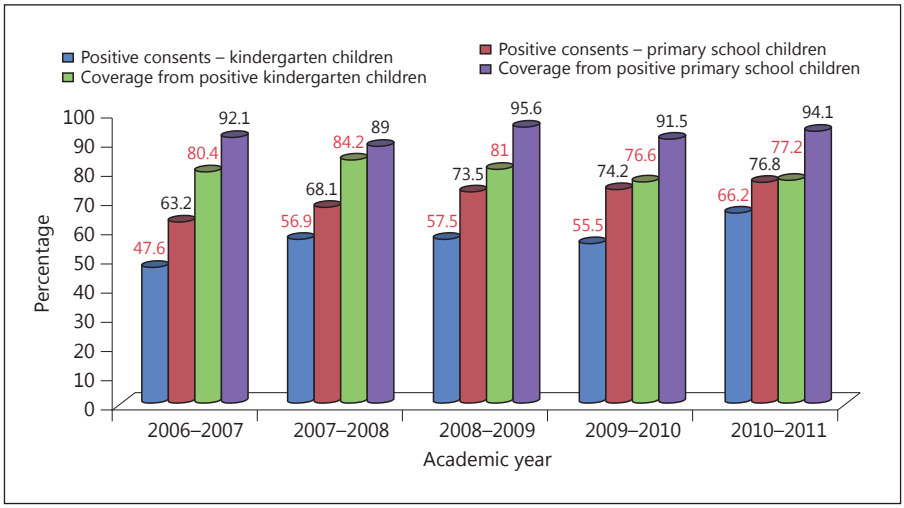

Fig. 1. Positive consents and prevention coverage during 2006–2011: the improvement in positive consents among kindergarten and primary school children by almost 20%. This has helped the SOHP to increase its prevention coverage during the same period.

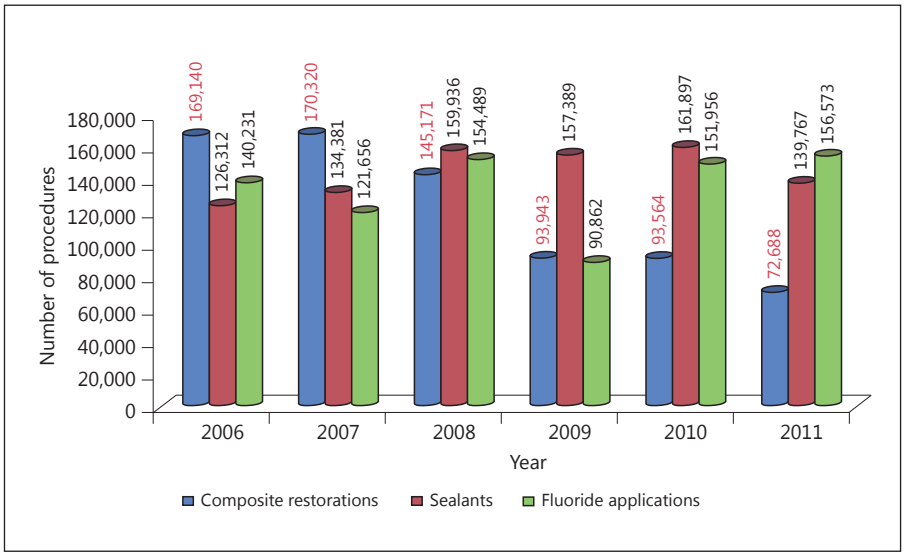

Fig. 2. Treatment procedures in comparison to preventive procedures since 2006: the changes observed in terms of preventive procedures performed in comparison with composite restorations done since 2006–2007. There has been a significant reduction in composite fillings done under the SOHP and at the same time the productivity of preventive procedures performed has increased considerably.

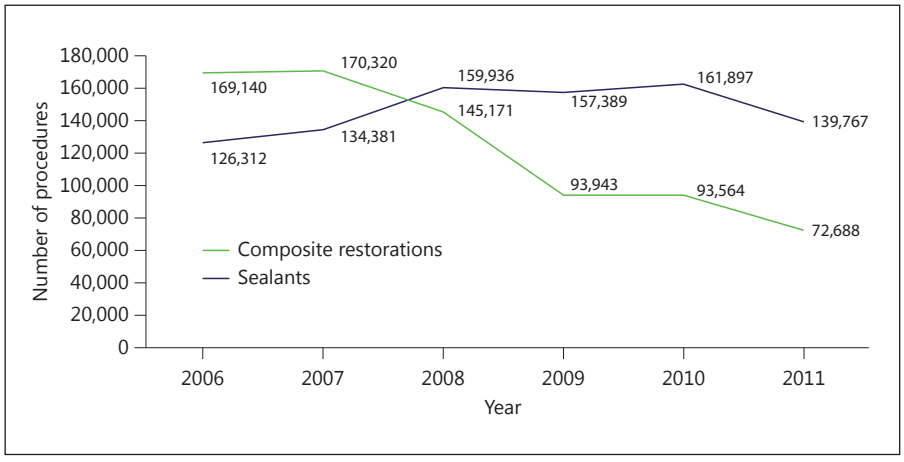

Fig. 3. Composite fillings against pit and fissure sealants since 2006: the comparison between composite fillings and sealants done under the SOHP during 2006 to 2011. It is clearly seen that the composite fillings have been overtaken in terms of productivity by pit and fissure sealants.

Outcome

Success of Primary Prevention – Initial Observations

Primary prevention is the basis of this program. Some of the observations based on the available statistics during recent years are very encouraging (fig. 1–3). Certain recent policy changes made by the program management were very productive. They were as follows:

- Replacement of fluoride gel with fluoride varnish since 2006. Based on the available evidence [4], the SOHP decided to replace the use of fluoride gel with fluoride varnish starting in 2006–2007. This was well accepted by the children and has been successful in improving our prevention coverage.
- Expansion of portable dental units since 2006. In 2006–2007, SOHP began its expansion of the use of portable dental units. This has helped in the delivery of preventive care to school children belonging to schools without fixed dental clinics. This is cost-effective and has helped us to improve our prevention coverage.
- Introduction of the follow-up system for sealants [5] since 2007–2008. In 2007–2008, the SOHP introduced a system to check the quality of the pit and fissure sealants placed in schools. At least 20% of the sealants placed are rechecked on a short- and long-term basis for their quality. This has dramatically improved the quality of sealants placed.
- Policy change to seal noncavitated caries since 2008–2009. In accordance with the evidence-based CDC recommendations [6], the SOHP made a major policy change to seal noncavitated caries lesions which otherwise would have gone for restorations. This will have a major impact on the disease outcomes in the future. See figures 1–3 for details of the outcome measures of the SOHP since 2006.

Conclusions and Recommendations

- Effective primary prevention is the key to control over dental caries.
- The SOHP will focus on improving the prevention coverage further in the future.
- Expanding the program to include infants would be one of the important initiatives for the future, so that we have better control over tooth decay in primary teeth.
- Systematic prevention over a period of time will yield results as evident from the recent observations in Kuwait.
- The recent observations are encouraging and it will be interesting to see whether they have been reflected on disease level. This will be known once we get the results of our ongoing National Oral Health Survey on school children of Kuwait. The results should be available by the early part of 2013.

Disclosure Statement

The authors declare that no financial or other conflict of interest exists in relation to the content of the article.

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