

REVIEW OF THE

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# SAVE OUR KIDS SMILES (SOKS) PROGRAM

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**Volume 11: Technical Reports**

NSW HEALTH DEPARTMENT

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# F oreword

**This document, *Review Of The Save Our Kids Smiles (SOKS) Program Volume II: Technical Reports*, provides supporting documentation to the 1999 Review of the SOKS Program (*Review Of The Save Our Kids Smiles (SOKS) Program Volume I: Report*).**

The SOKS Program encompasses three activities – oral health education, oral health assessments, and clinical services. School children in Kindergarten and Years 2, 4, 6, and 8 are targeted with around 260,000 children receiving assessments each year. The variety of the Program's components and the number of children involved demonstrate the magnitude of the Program.

The program review was comprehensive both in its scope and the consultative process employed.

These Technical Reports illustrate the range of activities used to conduct the Review as well as the number and variety of people contributing to the Review. The active participation of parents, the Department of School Education, Area Health Service oral health professionals and other key stakeholders, guarantees the significance of the Review. I would like to acknowledge the contributions and support given to this Review by all concerned.



**Michael Reid**  
Director General

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Abbreviations	
AHS	Area Health Service
SOKS	Save Our Kids Smiles
CDHPO	Community Dental Health Program Officer
DA	Dental Assistant
DDS	Director of Dental Services
DEO	Data Entry Officer
DMFT or dmft	Number of decayed, missing or filled teeth due to caries. Upper case denotes permanent teeth, lower case signifies primary or deciduous teeth.
DO	Dental Officer
DT	Dental Therapist
NSW	New South Wales
OHP	Oral Health Promotion
OH&S	Occupational Health and Safety
PDHPE	Personal development, health and physical education
PDO	Principal Dental Officer
RA	Risk Assessment

# SOKS Program codes and criteria

## Code 1 – Immediate care

Children in this category require immediate care (within 24 - 48 hours).

**A Code 1 child:**

- is in pain at the time of assessment
- has a dental condition likely to cause pain within the foreseeable future
- has a carious lesion/s in permanent anterior teeth
- has an oral infection.

## Code 2-2.5 - Routine care

### Code 2

Children in this category require prevention and treatment of caries in permanent teeth.

**A Code 2 child:**

- has previous experience of caries and therefore may require the placement of fissure sealants on their permanent molars.
- has carious lesions in permanent teeth that do not require urgent clinical intervention.
- requires restorations in permanent to be replaced
- requires non-urgent care for old fractures of permanent teeth.

### Code 2.1

This code is to be used for children who have over-retained primary teeth only.

The charting symbol 'K' is defined as: Primary teeth that are over-retained, non-mobile and have the permanent successor either erupted (fully or partially) and able to be detected at assessment.

### Code 2.2

Material or chemical stabilisation of caries in primary teeth.

This code applies to the child who has all permanent molars sealed and the operator detects carious lesions in the primary teeth, that require clinical intervention.

### Code 2.4

Clinical intervention required due to poor oral hygiene.

This coding is to be used for children who require clinical removal of calculus, and or clinical intervention to remedy poor oral hygiene practice or gingival conditions.

### Code 2.5

X-rays only are required.

Children with Code 2.5 letters need to have the radiographs taken and then be re-coded appropriately.

## Code 3 - No treatment required

No abnormalities apparent and will be offered an assessment at school in 2 years.

## Referral required (Yes/No)

This code letter is to be used only when there are no other dental conditions requiring clinical intervention from a dental therapist, but require consultation with a dental officer.

Detail	
Eruption problems	Ectopic eruption Impacted Submerging
Ortho	Disfiguring malocclusion Severe functional malocclusion
Other	All conditions that may require consultation.

<b>SOKS Charting Definitions</b>	
<b>Definitions referring to caries - any caries experience warrants a full exam to determine the need for fissure sealants.</b>	
F	Sound and Filled.
D	Active Decay needing clinical intervention ( <i>including fistulas or abscesses</i> ).
O	Defective restoration for reasons other than caries – restoration needs to be replaced. Is usually an indicator of previous caries experience. However, if a tooth has been previously restored due to injury or trauma and requires further clinical intervention this tooth is also to be recorded as an O. This child should be examined to determine the need for fissure sealants.
R	Caries defective – restoration needs to be replaced. This child may require fissure sealants.
P	Preventively treated – any decay that will be left (TBL). This includes arrested caries, caries control, decay that has been stabilised or decay that does not require clinical intervention. P is a caries indicator, the child may need fissure sealants.
I	Indicated for extraction due to caries. This child may need fissure sealants.
M	Missing due to caries. This child may need fissure sealants.
<b>Definitions regarding injury to teeth</b>	
X	Refers to unrestored fractures or injury to teeth.  In primary teeth X refers to non vital anteriors due to trauma.
Y	Teeth are restored as a result of an injury or trauma.
<b>Definitions referring to fissure sealants</b>	
A	Fissure sealed previously, seal still present and adequate.
B	Failed Fissure Sealant, needs to be replaced.
C	Tooth needs to be Fissure Sealed.
<b>Definitions referring to over retained teeth</b>	
K	Primary teeth that are over-retained, non-mobile and have the permanent successor either erupted (fully or partially) or are able to be detected at assessment.
<b>Definitions referring to gingival bleeding</b>	
1	Normal gingiva, mild localised inflammation.
2	Likely to bleed if a probe is run lightly along the gingival sulcus – requires clinical intervention. Coded as 2.4 if no other conditions are present.
<b>Definitions referring to plaque</b>	
1	Normal, mostly present on buccal surfaces of molars.
2	Present (quite thickly) on upper and lower anteriors (individual OHI at SOKS assessment).
3	Gross plaque with bleeding of gingiva and halitosis – requires clinical intervention. Clinical intervention means this child will be coded as a 2.4 if no other conditions are present.
<b>Definitions referring to calculus</b>	
no	Not present.
yes	Present, and requires clinical intervention. Coded as 2.4 if no other conditions are present.
<i>Reference 1. Northern Rivers Dental Service. SOKS reference manual. Northern Rivers Area Health Service, 1996</i>	

# Child oral health services in Australia and overseas

## Child oral health services in Australia

With the exception of the ACT, NSW is the only State or Territory in Australia to undertake a school-based oral health risk assessment or screening program. All other states undertake a full examination in a fixed or mobile dental clinic. The ACT utilises a modified form of the SOKS Program in which a mobile dental clinic is set up within a school and children are assessed and prioritised prior to referral to a clinic for treatment. Each child in the ACT has a patient record which documents assessment and treatment history. All children in primary schools and children in secondary children who are covered by a health care card are eligible for services but when co-payments were introduced in 1997, overall demand for services was reduced.

Queensland, Western Australia (WA) and South Australia (SA) had historically identified higher levels of funding for child dental services than other States and Territories. WA and SA have comprehensive child services for children from pre-school to 16 years in WA (18 years in remote areas) and 18 years in SA. Recall periods of between 12 and 18 months exist in both WA and SA. Co-payments were introduced in SA in 1995 for secondary children not covered by a Health Care Card, again reducing demand. There are no co-payments in WA.

Queensland offers a free and comprehensive oral health service for children aged 4 to 16 years, from both fixed and mobile clinics. Nearly three quarters of eligible children participate and children are seen every 12 months. Recent changes in the award structure have resulted in more flexible staffing arrangements in both the adult and child services. There is a strong emphasis on oral health promotion with a range of strategies used including incorporation of oral health into the school curriculum, assistance to teachers and liaison with Health Promoting Schools.

In Victoria the service covers all primary school children and children in Years 7 and 8, covered by a Health Care Card. Co-payments for non-concession cardholders were introduced in 1997 with a corresponding drop in demand from the two thirds of children covered previously. However, some recovery in the participation rate of low-income groups has occurred since that time. Ninety percent of children are seen every two years, with the remaining 10% considered high-risk and seen annually. The service was implemented using many mobile clinics until recently, but there has since been a move towards fixed clinics.

Tasmania provides a similar service to Victoria but all children are eligible for care to the age of 16 years. A reduction in the use of mobile clinics and increased use of fixed clinics has occurred in addition to the introduction of co-payments for treatment since 1997. As with other co-payment schemes, children of health care cardholders are entitled to free treatment but all children remain eligible for a free clinical examination. A personalised recall system is used for those accessing treatment and both Victoria and Tasmania are developing statewide databases in which adult and child oral health data are integrated.

Services in the Northern Territory are divided into northern and southern regions and clinical services in SA are utilised when necessary. All children aged 4-12 years are eligible for the service and no fees are charged. Secondary school children attend adult clinics and may have to wait some months for treatment. Mobile clinics are used to service remote parts of the Territory, including Aboriginal communities.

## Child oral health services in other countries

Models of service delivery in the United Kingdom (UK), New Zealand, the United States of America (USA) and Canada were reviewed for comparison with the NSW service model. Key informants in each of these countries provided the information for this section.

## United States of America

Services for children in the USA were described as a 'patchwork quilt', reflecting a variety of models of care and the lack of a national child oral health service. Most services for children in the US are provided by private dentists and covered by health insurance. Children from low-income families receive assistance primarily by the Medicaid program which allows them to access basic treatment by private dentists. However, the low level of reimbursement is a disincentive for private practitioners to treat these children and this creates many difficulties in accessing care. Furthermore, the restrictive eligibility for Medicaid excludes many low-income families and it is likely that a substantial number of children receive little or no oral health care in the USA.

Local health departments in some States provide free public dental services by using salaried staff for children of low-income families and many dental schools also provide free care. In addition, some States eg. North Carolina, provide periodic screening and referral services for school children and also some preventive programs, but no treatment. Some care is provided by charitable trusts and staffed by volunteer dentists, but the proportion of the population serviced in this way is small and currently undocumented. The Indian Health Service provides care for Native Americans only and offers programs on various reservations which are generally concentrated in the mid-west and rocky mountain States.

The provision of oral health promotion (OHP) is again varied, provided by some State health departments but not in others. North Carolina, for example, integrates OHE into the school curriculum where it is delivered by teachers rather than clinical staff. (Slade GD. personal communication, 2000)

## Canada

Health in Canada is largely the responsibility of the 10 provinces and, like the USA, there is no national program and child oral health services are very fragmented. The Federal Government has responsibility for the health of special groups like the First Nations Peoples. All provinces make some provision for oral health for children but the types of services provided and age groups covered varies, with services often implemented by municipal health departments.

Two models are used which are firstly, service plans where the funding body pays private providers a fee for service and secondly, administered programs where salaried dentists and other clinicians including dental therapists in native communities, are paid to provide care. The service plan model is the most commonly used as most care in Canada provided by private dentists. While some schools include oral health education in their programs, there is no standard model and these services are provided at a local rather than provincial level. (Leake JL, personal communication, 2000)

## United Kingdom

In the UK, all children aged 0-16 years and students in full time education over the age of 16 years are entitled to free oral health care. Most (80%) child oral health services in the UK is provided by general dental practitioners who work on a capitation basis linked to fee per item. The service for children is free and the clinician is accountable to the appropriate health authority for providing an adequate service. The remaining fifth of children use the Community Dental Service which has salaried dental officers who also treat children with special needs or behavioural problems.

There is no national strategy for OHP and provision varies widely throughout the UK. Concern about the usefulness of OHP exists, with a preference for strategies such as fluoride milk schemes or fluoride toothpaste and brushing schemes. (Blinkhorn AS, personal communication, 2000)

## New Zealand

New Zealand also has a comprehensive child oral health program in which school-based dental clinics staffed by dental therapists provide free services to children aged 0-13 years. Any specialist care or orthodontic treatment is referred to private dentists and paid for by a one-off special dental benefit. All secondary school students are enrolled into a General Benefits Scheme which entitles them to free treatment by private dentists who are reimbursed on a fee for service basis. Use of this service varies by ethnicity and region, with a lower proportion of Maori adolescents accessing care than Europeans and higher use in the South Island than the North Island. As in the previous countries, OHP is provided in an ad hoc way across the country, with most oral health resources used for clinical care. (Thomson M, personal communication, 2000)

## 3

# Technical Advisory Group

<b>Project Officer appointed for the Review</b>	
Susan Lister	Oral Health Branch, NSW Health
<b>Membership of Technical Advisory Group</b>	
Jane Bell	Oral Health Branch, NSW Health
Sameer Bhole	South Western Sydney Area Health Service
Erica Gray	Health Promotion Branch, NSW Health
Louisa Jorm	Epidemiology & Surveillance Branch, NSW Health
Alan Patterson	Oral Health Branch, NSW Health
John Skinner	Oral Health Branch, NSW Health
Lee Taylor	Epidemiology & Surveillance Branch, NSW Health

## 4

# Evaluation plan for the review of SOKS Program

June 1999 to February 2000

## Aim

To review the implementation and effectiveness of the SOKS Program against the original goals of the Program which were to:

- find and treat children with decay, focusing on the prevention and treatment of caries in permanent teeth.
- increase the number of children with no experience of oral disease.

The three main Program objectives were to:

1. increase the number of children participating in an oral health education session.
2. allow access to an oral health risk assessment for school children in NSW every two years.
3. facilitate care for those children who need dental treatment.

The evaluation should include:

- how the SOKS Program compares with other best practice models in Australia and overseas.
- how the oral health promotion component in SOKS compares with other best practice models eg. Health Promoting Schools.
- how the Program is implemented in each AHS, highlighting variations across the State.
- levels of satisfaction with, and support for, the Program by the AHSs and other key stakeholders.
- the effectiveness of SOKS in meeting the oral health needs of children and improving access to clinical care.
- the interim health outcomes of the Program and how the variations in practice / implementation affect outcomes.
- review of the validity and reliability of SOKS assessment and treatment instruments.
- the appropriateness and usefulness of SOKS data collection and reporting mechanisms. Identification of minimum data requirements.

- a preliminary analysis of costs and costs modelling.
- the sustainability of Program outcomes in regard to resources.

The review should include recommendations on the following:

- The original Program – design, goals, objectives, strategies and outcomes.
- Strategies to improve the efficiency and effectiveness of child oral health services in regard to the three key components of SOKS.

## Overall approach of the evaluation

The review process will include consultation, data collection and analysis, report writing and presentation. Stakeholders, including staff at all levels of the SOKS Program, will be invited to contribute to the review in addition to being involved in the process of prioritising issues and problems arising from the review and in developing solutions.

## Key stakeholders

- NSW Health Department
- AHSs / SOKS team members (urban, rural, remote)
- AHS Executive and service planners
- Principal Dental Officers (PDOs)
- CHDPOs / SOKS Program coordinators
- Dental therapists
- Dental assistants
- Data recorders

## Other oral health professionals

- Paediatric specialists at Westmead and UDH
- Australian Dental Association
- NSW Dental Therapist Association
- Training bodies e.g. Westmead College of Dental Therapy
- Dental Statistics and Research Unit, University of Adelaide

## Education

- NSW Dept of School Education
- Catholic Education Office
- Independent Schools
- Children

## Parents / carers

- P&C Association
- FOSCO
- School Canteen Association of NSW

## Review of literature

- NSW, Australian and international literature outlining best practice models for child oral health service delivery, including school-based and pre-school services.
- Incidence and prevalence of oral disease in children in NSW / Australia / overseas.

## Review of NSW child oral health data

- Identify outcomes in child oral health (assessment and treatment) across NSW.
- Identify gaps and inconsistencies in current SOKS data collection.
- Compare NSW data with national / overseas data where possible.
- Review SOKS data quality and usefulness of data collected.
- Explore data linkage between NSW dental databases (SOKS, DMIS).
- Review sampling methods used in SOKS.
- Identify waiting times for treatment.

## Existing data sources

- SOKS database (assessment)
- DMIS (clinical care)
- NSW Child dental health reports

- ABS census data, health and school surveys including:
  - Immunisation survey 1995, National health surveys, Oral health survey 1987-8
  - AIHW (annual surveys and State reports)
  - NSW Health surveys

## Additional methods

- Documentation of SOKS data collection process.
- Comparison between 1996 and 1998 SOKS data to identify changes in oral health status at unit record level.
- Survey of treatment status using a sample of SOKS assessment and clinic records.

## AHS survey of implementation of SOKS

### Collect data on the following:

- Resource allocation for child dental health including assessment and treatment components and any additional AHS funding data for SOKS.
- AHS-wide implementation plan for SOKS including variation within AHSs and any targeting of services.
- Therapist workforce distribution in assessment and treatment.
- Data collection and use of data in the management and planning of services.
- Demographic data on schools / non-respondents.
- High school strategies.
- Pre-school programs (if available).
- Oral health promotion.
- Liaison with private dental sector.
- Resources available to SOKS (clinics, equipment, personnel, private sector).
- Level of satisfaction with current SOKS model including mix of assessment and treatment. Perceived barriers to implementation, clinical concerns, strengths and weaknesses.
- Recommendations for improving SOKS at regional and State level.

## Methods of data collection

- Two semi-structured interviews with each AHS (PDO / DDS and CDHPO or equivalent) – conducted face to face or by telephone.
- Focus groups for dental therapists, dental assistants and data entry operators to discuss implementation issues and priorities for improvement at regional and State level. Sites selected to reflect a range of service delivery systems across urban, rural and remote AHSs (minimum two rural, two metropolitan).
- Obtain copies of AHS reports, surveys, manual on SOKS.

## Review of the validity and reliability of SOKS assessment instrument

Validity and reliability of assessment instruments will be assessed, including coding and referral systems. Comparison to international standards will be made.

## Methods of data collection

Quality assurance strategy including an in-service training component for staff in participating AHSs. A range of urban / rural AHSs will be invited to participate (minimum 3). Senior dental therapists willing to supervise the QA strategy will be selected from these AHSs.

## Economic analysis

Data to be collected on costs of the Program at State and AHS levels pre-post SOKS, subject to availability. Data on fixed and recurrent costs on an AHS-wide basis will be included and preliminary projections made regarding future costs of the Program.

A full economic analysis is beyond the scope of this review and may be a recommendation arising from the review.

A trainee from the Centre for Health Economic and Research (CHERE) will undertake the analysis under the joint supervision of the Oral Health Branch and CHERE.

Schools (Education offices, school staff, parents) collect data on the following:

- Access issues, sampling and targeting of SOKS.
- Non-respondents.

- Satisfaction with current SOKS model including mix of assessment and treatment. Perceived barriers to implementation, strengths and weaknesses.
- Recommendations for improving SOKS at regional and State level.

## Methods of data collection

- Key informant interviews and / or focus groups for departmental and school staff and parent representatives (all sectors).
- Analysis of SOKS and DMIS data.
- Telephone survey of parents to obtain outcome data on treatment and non-respondents and to assess level of satisfaction with the SOKS Program (subject to available resources).

## Health promotion

- Review of oral health promotion including links with other school health promotion programs.
- Marketing of SOKS.

## Methods of data collection

- Include in the AHS survey and focus groups.
- Include in key informant interviews and focus groups.
- Review of literature on other Australian and international best practice models.

## Review of findings

- Present the review findings to the Steering Committee and selected stakeholders for discussion followed by prioritising of issues and identification of solutions.
- Report writing and recommendations.

# Submissions to the review

## Introduction

The Review of the SOKS Program invited submissions from a wide range of stakeholders, including executives in AHSs, oral health professionals working in public oral health clinics, and other stakeholders.

Comments about the SOKS Program in general, or about specific components of the Program were sought. The following questions were suggested as a guide:

- What do you think the main purpose(s) of the SOKS Program is and how well does the current Program fulfil this?
- What are your views on the SOKS Program before and after implementation in 1996?
- Do you have any comments on the staffing and day to day management of the Program?
- What do you see as the most successful aspects of the SOKS Program and why?
- What are the things you would most like to see changed to improve the SOKS Program and why?

Individuals and organisations were reassured that they would not be identified in the report.

In total, 40 submissions were received from AHS executives, oral health staff (groups and individuals) and from other organisations.

Seven submissions from executives in AHSs, six submissions from teams or groups of AHS staff and 19 submissions from individual employees working in the SOKS Program were received. The following AHSs were represented:

- Central Sydney
- Greater Murray
- Hunter
- Illawarra
- Mid North Coast
- Mid Western
- Northern Rivers
- Northern Sydney
- South Eastern Sydney

- Southern
- South Western Sydney
- Wentworth
- Western Sydney

Four AHSs did not submit comments.

Eight submissions were received from other stakeholders:

- Dental Statistics and Research Unit (AIHW)
- NSW Canteen Association
- Paediatric and private dental practitioners
- NSW Dental Therapists Association
- Australian Dental Association (NSW Branch)
- An Aboriginal Health Service
- Primary school principal (Catholic school)

The large number of submissions received in the Review indicated a high degree of interest in the future of the SOKS Program. While most supported the current model, many suggestions were made to improve the quality and efficiency of service delivery. Submissions from staff in urban parts of NSW reported greater levels of satisfaction overall with the Program than those from rural AHS.

## General findings

### Comments from AHS executives

All except one were reasonably positive in their overall view of the SOKS Program. For example, "...provides more equitable access to dental services than previously and appropriately prioritises care." "The system is overall, a good one, and should be continued with adjustments from time to time to meet community needs." "The SOKS Program has made a positive impact on the intervention strategies in primary school children."

The executive expressing reservations about the Program explained that: "... the preventive and educative focus of the SOKS Program appears to have received widespread dental team support, however some aspects of the Program have heightened community concerns."

Another submission was pessimistic about the status of oral health services in its AHS - "Little more than lip service is given to it at the most senior level in the organisation. Below this level, I doubt there is any awareness of it except by staff directly involved in, or responsible for it."

In comparing SOKS to the previous model of child oral health services, three AHSs commented that SOKS had successfully introduced a public health model of service delivery with improved access and equity to care. For example, "services are being provided to children who may not have access to dental care in other circumstances." It was also stated that, "(SOKS) appears to have improved the cost benefit for funds currently invested in dental services."

Another AHS believed that the Program had improved job satisfaction among staff and led to the development of a "quality mindset". Further successful aspects of the SOKS Program included "the introduction of a well managed waiting list system" and the positive impact of oral health education.

### **Comments from oral health teams in AHSs**

Again, all except one were positive about the SOKS Program, stating that the prioritisation of children for treatment was a successful strategy, that children not previously seen prior to SOKS were now being assessed and that partnerships with schools and communities had developed.

It was also believed that service delivery was now more uniform across the State compared with the period prior to 1996 when schools with dental clinics in their grounds were considered advantaged in comparison to those without. For example, "The SOKS Program is considered good in that it targets at risk children and prioritises those children requiring care. Additionally, it targets children who may not otherwise receive any form of dental care."

Positive aspects of the Program included a higher profile for oral health and increased support from AHS directors. An increased proportion of children seeking treatment was reported in one submission and many others associated the increased use of fissure sealants in the SOKS Program as an important preventive tool.

The one AHS dissenting from the views above, reported that SOKS did not provide a more accessible or equitable service, claiming that previous clients were now unable to attend with their child and that SOKS "discriminates against motivated parents and those who have healthy mouths." This AHS also questioned the ability of the Program to identify and target high-risk groups but acknowledged that the Program successfully prioritised treatment needs.

A small number of DTs still felt dissatisfied with some aspects of the SOKS Program. For example, "Staff find it very repetitive and, at times, boring. We get sore backs and necks. We spend too much time out of the clinic."

### **Comments from individuals working in public oral health services in NSW**

While most expressed support for the SOKS Program overall, five submissions from three AHSs were less positive about the Program and it was not uncommon to find divergent views within the same AHS. For example, one DT wrote, "I personally do not feel the SOKS Program is as effective as first advocated - there are a great number of the population who do not access any service". Another DT from the same AHS stated that she did not wish the service to "go backwards to the days when only those who had the means accessed the service".

Clearly, the introduction of the SOKS Program in 1996 had been difficult for some DTs, particularly in some rural areas where coverage of children for oral health services was reportedly high prior to the introduction of SOKS. For example, "Staff were not really happy about the implementation of SOKS, as in our AHS we had wide coverage and the service was well known - maybe this is a country issue."

The same submission later acknowledged that some improvements had taken place as a result of the SOKS Program - "After the Program had been operating for some time, we could see it opened up different avenues or needs... We now have the opportunity to develop new programs and procedures..."

Submissions from most urban AHSs were positive about the Program. They believed that SOKS had identified and benefited children in greatest need and that beneficial partnerships had been developed with schools. One submission also reported that the introduction of the SOKS Program now meant that the “inefficiencies of the (previous) child dental services were now being addressed.”

### **Comments from other stakeholders**

It was noted in two submissions that there had not been a formal pilot study of the SOKS Program prior to implementation and that consultation had been extremely limited. Most expressed support for the public health approach of the SOKS Program – “SOKS provided a public health model of service which supports oral health outcomes” and “a move towards targeting risk rather than service demand.”

Other positive comments included “... has lifted the profile of child dental services within the community and enabled staff to build partnerships with other stakeholders” and “probably provided an emphasis in the right direction, that is, prevention and oral health education, prioritised treatment planning, reaching out to children who are most at risk and from disadvantaged backgrounds.” One of the submissions however, had some “concerns regarding the implementation and conduct of the Program.”

Specific ideas for improvement to the SOKS Program were made in the submissions, including the need to address “the growing popularity of Breakfast Programs. There is a particular concern that children may not (and certainly would not be controlled by the canteen) brush their teeth following breakfast.” The snacking of fast foods during the school day was also noted. One submission recommended that toothbrushes and toothpaste be available at school canteens.

Suggestions were also made in regard to Aboriginal health. For example, “Collaboration between the NSW health system and the Aboriginal Community Controlled Sector can improve access to services and continuity of care”. Another submission which strongly supported the SOKS Program was concerned that if the Program was abandoned “children from families where dental health is a low priority will again miss out totally”. This submission recommended that “the Program be continued and / or extended to cater for children ages four to sixteen and that further advertising of the Program’s existence and worth be undertaken in the general mass media.”

## **Oral Health Education and Promotion**

### **Comments from AHS executives**

Changes in Oral Health Education and Promotion (OHP) were advocated by several AHSs who cited the lack of evidence for the effectiveness of a single education session conducted by clinical staff. One submission noted however, that almost all school principals who responded to a survey of OHP were keen to continue with this mode of delivery. Alternative strategies included incorporating OHP into the school curriculum for teachers to implement and distributing resource packages to schools. Targeting of OHP to high-risk groups was also suggested. All these strategies would release DTs for more clinical work. In addition, some submissions suggested including parents in the provision of OHP.

### **Comments from oral health teams in AHSs**

The incorporation of OHP into the SOKS Program was supported in all submissions but the effectiveness of a one-off education session was questioned by some. Staff shortages also limited the provision of OHP in some AHS and it was considered time-consuming. Examples of recent modifications to OHP were provided, including the development of oral health packages for teachers and incorporation of oral hygiene information for parents into school newsletters. Liaison with the Health Promoting Schools program was suggested and the appointment of a specialist OHP officer identified as a useful strategy for coordinating and evaluating this component of SOKS.

### **Comments from individuals working in public oral health services in NSW**

There was overall support for the inclusion of OHP into the Program, but several submissions suggested that teachers should implement OHP rather than clinical staff, who often experienced difficulties in presenting to Year 8 children in particular. Inappropriate or outdated videos and other resources were mentioned and in particular, the need for a Year 6 video was recognised. A range of alternative strategies was suggested, including the recruitment of a specialist oral health educator to coordinate programs, incorporation of OHP into the school curriculum, and providing teachers with updated resources and education for parents.

## Comments from other stakeholders

Two submissions suggested that “Oral health should be targeted at individuals most at risk and not at every child.”

## Summary of comments on OHP from all submissions

The majority of submissions supported the inclusion of OHP in the SOKS Program, with some advocating this be targeted only to high-risk children. Most suggested that OHP should be incorporated into the school curriculum and implemented by teachers rather than by clinical staff. Updated resources provided by SOKS staff would need to be developed. A survey of school principals in one AHS, however, found that principals were keen to continue with OHP provided by oral health staff. The use of an AHS-wide oral health educator and the inclusion of parents in OHP was also supported and liaison with other school programs or services such as Health Promoting Schools, school canteens and breakfast programs was also suggested.

## Risk assessment

### Comments from AHS executives

One submission questioned the usefulness of the SOKS risk assessment (RA), stating that “current literature does not support the practice of biennial classroom sessions nor of mass population screenings.” Four AHSs supported the targeting of the SOKS Program to low socio-economic, non-English speaking and other disadvantaged groups. There were mixed views regarding frequency of RAs, with one AHS advocating more frequent assessments and another that RAs be delayed until all waiting lists had been cleared.

Concerns were raised in several submissions about Year 8 children assessed as Code 3 throughout their school life who therefore, had never had a full oral examination in the SOKS Program. One submission suggested that all Code 3 children have a full examination and radiograph in Year 8. Another suggested that RAs be integrated with other routine school health checks and that a “feasibility study of coordinating dental assessments with medical assessments for school children” be undertaken.

Two AHSs advocated revising the assessment and coding criteria in the RA.

Most AHSs had difficulty in comparing the effectiveness of child dental health services before and after the implementation of SOKS, due to the lack of comparable data. For example, “pre-SOKS data is not compatible with the SOKS Program and therefore significant quality evaluation of the Program is extremely difficult.”

Some also expressed concerns about the quality of the SOKS data – “current data collection systems are inaccurate and inaccessible to users”. One submission suggested “that meaningful indicators (be) developed to measure the performance of the Program.” The need to improve the quality of RA data to make useful comparisons with other Australian and international oral health data was also proposed.

However, not all AHSs agreed with these views, with two reporting that a positive impact of the Program was the “establishment of a valuable database of the oral health status of the children in the (AHS) and a basis for comparison with data from other NSW dental services”.

### Comments from oral health teams in AHSs

Suggestions for improvement of the RA included a simplification of the SOKS codes and measures to increase uniformity in coding by DTs across the State. Other submissions suggested that the SOKS coding letters for parents be amended to provide more information about the coding category.

Several AHSs found the SOKS risk assessment data useful for identifying schools with a high level of need – “The data allow the AHS to see which schools, postcodes and districts have the highest rates of active decay and even breaks this down into school grades. Once again, this assists in planning for the future and allocating resources in a much more equitable manner.”

Some submissions questioned the accuracy and consistency of the SOKS coding and charting data and requested that the validity and reliability of the data be ascertained. A reduction in the quantity of paper work associated with the collection of SOKS data was also advocated in most submissions, as were improved reporting systems at AHS level, including the ability to make statewide comparisons.

## Comments from individuals working in public oral health services in NSW

The frequency of the RA, particularly for high-risk groups, was mentioned in several submissions. Some advocated an annual RA for all children each year, especially those living in remote country schools and in non-fluoridated areas of NSW. One submission also recommended that children attending a private dentist should be advised not to use the SOKS Program.

The two stage consent process for the SOKS Program (for the RA and treatment components) in addition to reliance on children to take home and return consent and coding letters was considered an obstacle to accessing care. One submission illustrated the point by identifying “the seven weak links in the chain where we can lose the patient.” Reducing reliance on children to transport letters and also reducing the number of steps needed to access treatment was recommended. One submission suggested that coding letters be mailed directly to parents.

Concerns were raised about the reliability of the SOKS codes and also the accuracy of SOKS charting data.

Several submissions were critical of the large number of coding letters and the lack of information provided to parents. In particular, Code 2 letters for children requiring fissure sealants confused many parents, creating the impression that routine rather than preventive treatment was required.

It was suggested that the number of coding letters be reduced and that they were all the same colour to avoid identification of Code 1 children in the classroom. A change to the text of the letter was also suggested – that referral to public dental services be placed before private dentists.

The need for improved lighting and conditions in the RA was mentioned and the use of radiographs advocated. One DO attributed the RA to higher levels of decay in six-year-old molars, believing the assessment conditions were inadequate for early diagnosis and that this had led to an “increase in demand for emergency and standard general anaesthetics for both conservation and extraction.”

Several submissions reported that substandard locations and poor timetabling in some schools lead to difficulties in Program implementation. Some high schools were particularly difficult to work with and composite classes could lead to some children missing a RA. While the majority of the submissions found that most schools were very receptive to SOKS, two AHSs believed that some schools viewed the RA as an “interference.” Improved conditions with cleaner rooms and running water were recommended, as was improved time-tabling within schools to ensure smooth implementation of the RA.

Comments related to the collection of SOKS data included the lack of feedback to clinical staff, concerns about the quality of RA and treatment sought data. Many recommended an updated, flexible system of data collection which had increased reporting capability at AHS level, a more efficient back-up system and also a statewide help desk.

## Comments from other stakeholders

One submission reported that many parents believed a full oral examination took place during the RA and that this had the potential to create conflict between the private and public sectors. This submission proposed that a standardised, statewide SOKS consent letter be used which clearly stated that a quick check only was provided. A more flexible approach to consent was advocated for Aboriginal children as family disputes and alternative living arrangements can mean that a parent may not be easily located.

Additional comments were made in regard to children visiting a private dentist after a RA with a Code 2 letter referring the child for treatment. This had created confusion when children required preventive rather than routine care and it was recommended that the letter should clearly state the purpose of the referral.

The development of the SOKS data collection was identified as a positive aspect of the Program in most submissions. For example, “... has provided population health information and statistics that were previously unavailable and which now enable appropriate distribution of resources ... therefore planning of services has become more manageable.”

However, several submissions questioned the quality of SOKS data and recommended that a review of the validity and reliability of the SOKS assessment data be undertaken. The need to calibrate dental therapists to measure reliability was recommended in two submissions and another stated that “so much time appeared to be spent on collecting statistics and dental data that there were not sufficient resources to treat children needing dental care”. These submissions recommended that the data collection in SOKS be streamlined to increase time spent on clinical care.

One submission noted that as there was a considerable amount of data now available to target high-risk schools, there was little need to re-survey all children

## Clinical care

### Comments from AHS executives

Concern about the proportion of high-risk children accessing treatment in the public sector was apparent in many submissions. One AHS reported a decreased utilisation rate in clinical care between 1996 and 1998, particularly for children from non-English speaking backgrounds. Most submissions stated that a review of the SOKS Program was limited by the lack of knowledge about the proportion of children attending either private dentists or not receiving care at all.

Increasing access to care by high-risk children was an important issue in most of the submissions and several suggestions were made. For example, in the AHS reporting a decreasing level of utilisation, children of any age presenting for emergency care were automatically identified as high-risk and staff were “directed to complete treatment on any patient who attends in pain and to provide sibling checks where applicable.”

The closure of some clinics during SOKS assessments and OHP was also identified as a negative aspect of the Program.

Two AHSs advocated revising the clinical protocols for preventive treatment.

### Comments from individuals working in public oral health services in NSW

Several submissions expressed concerns about the proportion of children accessing treatment in the SOKS Program. For example, “From statistical feedback we seem to get a good percentage of assessments done but a poor response to follow-up treatment.” Another submission stated that “The SOKS Program is not finding all the high risk children – that is, your typical Code 1 patient. They usually won’t consent at school and then come in later as a Relief of Pain.”

Several submissions also referred to the need for improved access to care by high-risk school children not in the nominated SOKS school grades in order to reduce the likelihood of their presentation at clinics for emergency care.

Waiting lists were mentioned in a small number of submissions as these can reduce access to care, particularly for Code 2 children. Recommendations for more effective management of waiting lists were made including increased staffing of clinic reception areas, training in the management of waiting lists and strategies to avoid children being placed on more than one list.

Two submissions referred to the need for the “introduction of clinical best practice guidelines” for both child and adult oral health services. Two rural AHSs proposed increased funding and local private practitioner involvement in the provision of general anaesthetics to reduce the need for referral to dental hospitals in Sydney.

As in submissions from other stakeholder groups, it was recommended that surveys be undertaken – to determine the proportion of children accessing the private sector for treatment or not accessing services at all, and to assess levels of satisfaction with the SOKS Program.

## Comments from other stakeholders

While most submissions considered that the SOKS Program successfully identified children who were at high risk of oral disease, they questioned whether these children actually sought treatment – “It is known that this group of patients (Code 1) are infrequent attendees and seek dental care as emergency patients.” The SOKS database estimates that approximately 50% of Code 1 children attend the public sector for routine treatment, but the proportion accessing private care is unknown. Three submissions supported a statewide outcome evaluation to investigate the type of treatment sought by children who had been assessed in the SOKS Program.

Another submission suggested that a survey of the characteristics of children seeking emergency care between SOKS assessments be undertaken as part of the SOKS evaluation.

### Summary of comments from all submissions – Risk assessment and clinical care

Most submissions questioned the quality of the coding and charting data collected in the RA and recommended that a review of data quality be done. The range of physical conditions under which the RA data was collected was also source of concern and was considered likely to impact on data quality.

Most submissions commenting on the SOKS data collection suggested that the quantity of data collected was reduced, more efficient methods of collection used, that the computer Program was upgraded and that AHS reporting capability increased. Resolution of many of these issues is likely in the future as the OHB is currently developing an Oral Health Information Management System and minimum data set into which the child oral health data collections will be integrated.

Most submissions believed the RA undertaken in schools was effective in prioritising treatment needs and that access to a RA was now more equitable than before the SOKS Program. There was far less agreement on whether SOKS had been effective in increasing access to treatment by high risk children,

with most reporting that many of these children were still not accessing care and were attending only for emergency care. One AHS described that subsequently, they always identified children attending for emergency care as high-risk and placed them on a Managed Care program.

Barriers to RA and clinical care were described in the submissions, including the reliance on children to take assessment and coding letters home, through to difficulties in making clinic appointments. The lack of clinic reception staff, use of answer machines, lengthy waiting lists and the two-stage consent process were considered to create barriers for many families. Children from non-English speaking backgrounds, Aboriginal and low-income families were particularly affected. Proposals to improve access to services overall were made including simplified and more flexible consent procedures, less reliance on answer machines, a reduction in waiting lists and alternative methods for transmitting information to parents.

Simplification of the SOKS coding system was recommended in many submissions, as was clarification of the codes in the letters sent to parents and a separate letter for fissure sealant referrals.

Most submissions also recommended that the RA be targeted to high-risk groups, as data was now available to identify these schools and grades. Frequency of RA was discussed in a small number of submissions, with some recommending more frequent assessments in high-risk children to reduce the number of children attending for emergency care in the alternate years of the SOKS Program. An alternative approach for these children would be to increase the use of Managed Care. Also suggested was curtailing or targeting RAs to high-risk children in AHSs with long waiting lists, to allow more time for clinical care.

While the SOKS Review had investigated many of these issues, the lack of population data on the type of provider and treatment sought by children in NSW has placed some limitations on the evaluation. Many submissions to the SOKS Review suggested that a statewide oral health outcome be undertaken.

## Implementation of the SOKS Program

### Comments from AHS executives

Most submissions reported that there had been little or no consultation prior to the introduction of the SOKS Program. One described the implementation as “quite inflexible” and reported that “The Dental Health Branch’s prescriptive program tended to exclude local management and ownership of this Program”. The same AHS expressed dissatisfaction with the newly appointed Community Dental Health Program Officer (CDHPO) position as at the time it had “reported directly to the (Oral Health) Branch without consultation with either local dental management nor AHS Health Service management.” The CDHPOs now report directly to their AHS Principal Dental Officer or Director of Dental Services.

Another AHS noted that “ the implementation of the Program was not incorporated into the Performance Agreement contracts across the State, therefore resulting in no effective way to measure success...” It was also stated in another submission that the outcome of the current review of the Dentists Act (NSW) may negatively impact on the ability of AHSs to maintain the SOKS Program.

### Comments from oral health teams in AHSs

Most AHS commented on the abrupt introduction of SOKS in 1996 and reported some disadvantages of the Program which focused mainly on staffing issues including:

- Loss of full time positions and lack of relief staff which can lead to cancellation of clinical appointments.
- Need for a receptionist in the clinics to release DTs for increased clinical time and to more effectively manage waiting lists.
- Difficulties with the recruitment of DTs in rural and outlying metropolitan AHSs of NSW.
- Closure of some clinics when a SOKS assessment is taking place.
- Long waiting lists in some AHS.

- Inadequate provision in the SOKS budget for equipment and training.
- Occupational health and safety (OH&S) issues.

Suggestions for improving the staffing of the SOKS Program included:

- Increased staffing to cover clinic reception and to relieve permanent staff on leave.
- In-service training for DTs and DAs including more career development.
- Statewide OH&S guidelines and training.
- Improved equipment eg. suitable cars.

### Comments from individuals working in public oral health services in NSW

Many submissions commented on the staffing and day to day management of the Program. A small number of submissions were critical of the management of their AHS oral health service and, in particular, of the lack of communication between themselves and AHS managers. It was also believed that some managers and DOs had little respect for the skills and role of DTs in the provision of child oral health services. Most submissions critical of their AHS management called for greater involvement by the Oral Health Branch (NSW Health) in the implementation of the SOKS Program.

Some DTs commented on the pressures resulting from a morning spent undertaking a RA. They believed that their managers were not fully aware of the impact of such intensive work practices and that some expected them to take a full caseload of patients in the clinic the afternoon following a RA. Adjusting the workload accordingly was therefore proposed in these submissions.

Other submissions debated the role of the CDHPO, with one submission stressing the “importance of having a CDHPO to coordinate planning for the service” while another claimed the role was: “..somewhat diminished – as the clinics are making all the arrangements for the SOKS assessments.” It was recommended that CDHPO meetings be reinstated to facilitate information exchange and one submission suggested changing the name of the position to ‘Oral Health Programs Manager’.

Several submissions recommended that more clinic receptionists be employed and that answer machines not be used as frequently, particularly in the period immediately after a RA when there is a high demand for appointments. Increased overall staffing in clinics located in AHSs with either high-risk populations, high population growth or long waiting lists was also suggested.

## Gaps in coverage of the SOKS Program

### Comments from AHS executives

Most submissions commented on the lack of services in the SOKS Program for children under 5 years of age and over the age of 14 years, with most stating that clinical care for these age groups was inadequate, being mainly confined to emergency care.

The need for improved access to services by pre-schoolers in particular and also children aged 15 to 18 years was strongly advocated in most submissions - "Dental Therapists are able (trained) to provide basic dental services to children from preschool age through to 18 years. Any modified program should accommodate their needs."

### Comments from oral health teams in AHSs

To reduce the incidence of bottle caries, staff were keen to see OHP and clinical services provided to children aged 0-5 years. Improved services for high school children, including 15 to 18 year olds, were also requested.

### Comments from individuals working in public oral health services in NSW

Most submissions highlighted the lack of services for pre-school children. For example, "frighteningly high rates of caries in the 2-5 year age group in non-fluoridated areas." Improved access to services for this age group was suggested.

Concerns were also expressed about the lack of services for high school children aged 15-18 years. Some submissions advocated extending SOKS assessments and treatment beyond Year 8.

### Comments from other stakeholders

Gaps in service provision in the SOKS Program were identified for pre-school children, with two submissions stressing that "The group most in need of attention throughout Australia is the pre-school child."

## 6

# Interviews with Community Dental Health Program Officers

## Introduction

Semi-structured interviews were conducted with either the Community Dental Health Program Officer (CDHPO) or a Senior Dental Therapist (SDT) in each of the 17 AHSs.

The aims of the interviews were to:

- describe the implementation of the SOKS Program including service planning, delivery and resources
- explore the level of satisfaction with and support for the Program
- make recommendations for improving the delivery and access to child oral health services

CDHPOs were asked 43 questions covering:

- the main purpose of the SOKS Program
- comparison with child oral health services
- role of CDHPO
- oral health education and promotion
- delivery of programs in primary and high schools
- delivery of clinical care
- services for high-risk groups eg. Aboriginal, non-English speaking background
- services for children aged 0-5 and 15-18 years
- collection of SOKS data and usefulness of reports from the Oral Health Branch
- in-service training for clinical staff
- Occupational Health & Safety issues
- level of support from the AHS Executive
- liaison with the private sector
- successful aspects of the SOKS Program
- suggestions for improvement

An interview schedule was used (see last four pages in this Technical Report). Except one, all interviews were conducted face-to-face. Interviews took an average of one hour to complete. Findings are presented below.

## Overview and purpose of the SOKS Program

Most respondents stated that the aim of the SOKS Program was to improve access and equity to oral health services for children and to prioritise treatment. Re-orientation of the service from an “illness driven private practice model to a public health model” was another common response. Standardisation of the child oral health service at a statewide level and provision of a “structured information system” were also considered important.

Most respondents (81%, n=14) rated SOKS either better or much better than the previous program. One rural respondent did not find it as good and two answered ‘don’t know’. Positive comments included “dramatic change for the better”; “change from the old system was very much needed” and “more visible in the community to parents and schools”. Negative comments included inadequate staffing levels to operate SOKS, reduced coverage in rural NSW and that some low-risk children were no longer able to access clinics as easily as before.

While many respondents believed SOKS had been imposed with minimum consultation, some believed that this had been necessary to ensure uniform implementation of the Program across NSW. Some clinical staff had resented these methods and had found change hard to accept. Others had been concerned that they may lose their jobs. Some CDHPOs reported that staff and clinics had been lost as a result of the SOKS Program and believed there had not been adequate funding for essential equipment such as lights and portable chairs. They also believed that the limited resources restricted the effectiveness of the Program.

Nine CDHPOs considered that the SOKS Program had contributed to the prevention of oral health problems but seven remained unsure and two did not believe it contributed. Improvements in service delivery associated with the Program included increased numbers of children participating in the RA

and accessing treatment, increased use of fissure sealants, identification of high-risk children and the introduction of OHP into the delivery of child oral health services.

Those who remained unsure cited lack of data including the proportion of those accessing private dental care and the inability to measure health outcomes. Other reasons cited the low rate of treatment sought, large numbers still attending for relief of pain and the lack of services for pre-school children.

## Oral health education and promotion

Almost all respondents considered OHP an important part of the SOKS Program, with some recommending an increased focus. However, several CDHPOs questioned the effectiveness of one-off education sessions in schools and recommended that OHP be incorporated into the school curriculum with clinical staff only providing the resources. The ambivalence of some DTs combined with a lack of training in OHP further supports this approach. This strategy would also reduce the need for clinical staff to visit each school twice.

Most respondents followed the OHP guidelines as outlined in their SOKS manual. Three AHSs had appointed a trained OHP educator and others had transferred the implementation of OHP to teaching staff, therefore releasing additional time for clinical work. Co-ordination and implementation in most AHSs was undertaken by the relevant SDT in association with other clinical staff including DAs.

### Primary schools

In 15 AHSs, OHP was delivered to children in all eligible SOKS grades in participating primary schools. Children received OHP either in their class or with the whole school year, with most respondents believing the class group allowed more opportunity for discussion. In one AHS, OHP was provided only to kindergarten and high-risk children. In another AHS, OHP had been withdrawn from a quarter of primary schools which were identified as low-risk. In at least seven AHSs, OHP packages were provided for teachers in some or all schools and clinical staff were no longer involved in implementation.

### High schools

Delivery of OHP in high schools was mixed, with 12 AHSs providing OHP via DTs while four AHSs provided teachers with oral health education packages for classroom lessons. One AHS did not provide any OHP in the classroom due to behavioural problems and reported a drop in participation in the subsequent RA. Several respondents believed the SOKS Year 8 video 'Life Sux' was not appropriate, particularly in rural areas. Some clinical staff found presentations in high schools difficult, particularly if the class teacher left the room or did not assist with discipline. One AHS is currently liaising with the NSW Board of Studies and Oral Health Branch (OHB) to incorporate oral health into the Year 8 science curriculum.

### OHP resources

While most AHSs still used the packages provided by the Dental Health Branch in 1996, many had developed additional resources such as lesson plans, slides, posters and a small number used commercial packages. The need for new resources and in particular, the development of suitable videos for children in Years 6 and 8 was raised by several respondents, with OHB identified as the most appropriate agency to undertake these tasks.

### Liaison with teachers and parents

Most AHSs (n=12) reported an excellent, very good or good level of support from teaching staff for the SOKS Program and four reported a variable level of support. Half did not have any formal links with either the health promoting schools program or with school canteens.

Information for parents about the Program and oral hygiene was provided in some schools via the newsletter and a small number had attended parent and citizen (P&C) meetings to explain the SOKS Program and assessment results. However, one respondent commented that parents attending P&C meetings were not representative of the school community as they were more likely to have low-risk children.

## Evaluation of OHP

Most respondents (n=11) had evaluated the OHP component of the SOKS Program, with feedback focusing on presentations by clinical staff. Few had evaluated either the proportion of teachers implementing oral health packages or satisfaction with the package. Of those that had, results were mixed with high levels of implementation in some AHSs and low levels in others. Teacher-implemented OHP also appeared to have a mixed impact on the participation rate in the SOKS RA, with some respondents reporting a reduction in response rates.

## Risk assessment

All schools in NSW were approached annually in almost all AHSs and most (n=14) planned the SOKS assessments annually. Senior Dental Therapists (SDTs) in 11 AHSs arranged the date of the risk assessment, with the CDHPO involved in the other AHSs. Most of the higher fee-paying private schools did not participate but were mailed information about the SOKS Program.

Ten AHSs identified high-risk schools using data from the SOKS database using the proportion of children categorised as Code 1, the active decay rate, caries experience (often compared with the state average), consent rate and treatment sought. In some rural AHSs all small or remote schools were classified as high-risk. Additional strategies to increase RA participation rates in these schools were made in some of these AHSs. Some respondents recommended that all children with a history of caries should be offered a RA annually.

Most schools were generally very receptive to the SOKS Program and now anticipated the annual visit. Incentives, such as flavoured milk, gum and magnets were used in some AHSs to increase consent rates. Locating suitable premises to conduct RAs was difficult in some schools with lack of space, running water and ground floor accommodation as particular problems.

Estimated time spent on SOKS RA averaged one day per week, ranging from 10-30% of time. Most CDHPOs had no problems with the balance of time spent between RA and clinical care.

## Primary schools

Almost all AHSs (n=16) used lights and 12 AHSs always or sometimes used portable dental chairs. The remainder positioned the child lying on a table, sitting or kneeling on a chair or standing in front of the DT. A small number did not use portable chairs due to difficulties in transporting and setting-up. Some AHSs limited the maximum number of children assessed by one oral health team (comprising of a DT and dental assistant ) (for example, up to 100 children). Other AHSs allowed between 130 and 140 children to be assessed daily.

In almost all AHSs, clinics were closed due to SOKS assessments, with an answer-machine advising parents to telephone back and providing emergency information. It was not possible for parents to leave a message on most answer machines. In addition, some parents did not fully understand that only a quick check was carried out at a RA, believing that a full oral examination was provided. Concerns were raised about some children who change school who may miss the RA and may also not access clinical care. As it was difficult to identify these children in the SOKS database, strategies for tracking these children from school to school were needed.

## High schools

Delivery of the RA to Year 8 children followed a similar pattern to that described in primary schools. Respondents reported several difficulties including poor time-tabling, children not taking assessment and coding letters home to their parents and low participation rates. While children over the age of 14 years are legally able to consent themselves, parental consent was preferred in the SOKS Program. Several strategies, such as mailing consent forms directly to parents and assessing children in private rather than in front of their peers, had been developed to increase participation rates. Organised time-tabling and the need for an enthusiastic Year 8 coordinator were identified as key factors in increasing participation rates in high school RAs.

Alternative models of care for high school children were being investigated in two AHSs where a strategy was being piloted in which Year 8 children were given a flier and invited to the clinic for a SOKS RA. However, preliminary attendance rates at the clinic were considerably lower than for the previous school-based assessment and some respondents considered that the clinic assessment was also more time-consuming.

## Coding and charting

Many concerns about lack of uniformity in the coding and charting in the RA were reported, with some believing that there was not time in a RA to chart accurately and that there were different interpretations in the coding system. Misclassification may also take place in the verbal transmission of charting data from DT to DA due to distraction in the classroom. However, many CDHPOs monitored this process closely and liaised with Data Entry Officers (DEOs) to resolve discrepancies.

Additional training and calibration were recommended to resolve variations in both coding and charting and some respondents also recommended the cessation of dental charting.

## Coding letter to parents

Simplification of the coding system to three categories only, was advocated by some and was already planned by one AHS for the year 2000. Other suggestions included a specific letter for fissure sealants to explain that preventive rather than routine treatment was necessary. In addition, a letter specifically for nursing bottle caries and which included information on prevention was also recommended.

Several respondents reported that many parents did not understand the meaning of the SOKS codes and that the clinic receptionist was unable to provide detailed information as they did not know the child's history. Clarification of the codes in the letters was therefore recommended, as was the use of a single colour of paper to avoid Code 1 children being identified by their classmates.

## Data collection

Most CDHPOs recommended reducing the amount of data collected and the number of different forms used in the SOKS Program. For example, one AHS collected and stored around 14,000 forms a year. It was also suggested that data be entered onto a portable computer at the time of the assessment and that the assessment form be reformatted to match the data entry screen.

All AHSs used the standard SOKS forms for the collection and entry of risk assessment data although in some cases, minor modifications had been made to consent letters and treatment sought forms.

## Clinical care

Most respondents followed-up Code 1 children if they failed to contact the nearest clinic within a month of a RA. Only one AHS did not follow-up this group, citing antagonism from parents. There was very limited follow-up of Code 2 children statewide.

Emergency care, and to a lesser extent, recall and managed care were the mechanisms by which school children in years 1, 3, 5 and 7 were treated in child oral health clinics. In most AHSs, treatment for emergency care followed the protocol in the SOKS manual stating that only the cause of the emergency should be dealt with. Children requiring further treatment either had to attend a private dentist or had to wait for a clinic appointment which was sometimes not available until after their next SOKS assessment. Some respondents reported that waiting lists generated by the SOKS assessment reduced access to clinical care by these children in many AHSs.

Most respondents reported a high level of support from dental officers (DO), but some believed that the DOs had unrealistic expectations of the productivity of therapists following a RA. In addition, they believed that some DOs did not fully understand either the role of DTs or the concept of public health.

Variations in clinical practice such as use of fissure sealants were reported and the replacement of the SOKS recall system with managed care was occurring in several AHSs. The need for more relief staff was also mentioned and it was recommended by some that all Year 8 children had radiographs taken as this was the last year the children were eligible for a school assessment.

Nearly half (n=7) reported a demand for after-hours clinic appointments, but it was evident that this issue had not been explored in most AHSs. Respondents working in outer metropolitan AHSs with expanding populations of young families believed that dual income families preferred more flexible opening hours. Others said that even if there was a demand, it could not be accommodated within current staffing levels.

## Waiting lists for clinical care

Thirteen AHSs have waiting lists, including six with long waiting times in some sectors and no waiting time in others. For example, a rural AHS reported no waiting list in the fluoridated sector but lists of nine to 12 months in the two non-fluoridated sectors. AHS management systems also influenced the ability of oral health managers to re-locate staff and therefore reduce waiting lists and in one AHS, for example, parents had been advised to relocate to another clinic as staff were unable to move. Most used a clinic-based manual waiting list system and some children reportedly placed their names on more than one list.

Waiting lists for Code 1 children were reported in two AHSs of six weeks and nine months duration respectively. Waiting lists for Code 2 children ranged from two months to two years, averaged six months and included children referred for fissure sealants. Two out of the 13 AHSs with waiting lists cleared them by the end of each calendar year. The AHS with a waiting list of two years reported that some children were receiving another RA prior to being treated.

## Collection and entry of clinical data

Two systems of clinical data collection were in operation until October 1999. The Dental Management Information system (DMIS) was decommissioned in October 1999. Occasions of service and treatment provided were entered in the clinics and then scanned into the database at the OHB. Several respondents believed that some DTs and DOs over-reported their workload but there was no way of auditing these data. The DMIS system was not considered user-friendly. It was suggested that clinical data should be linked to the SOKS assessment data.

The second system is the patient record for each child attending the clinic. This record is completed manually on each visit and is kept in the clinic. In addition, treatment sought forms are completed by DTs in the clinic and entered onto the SOKS database at AHS level. Audits suggested an under-reporting of treatment sought by around 10% and the aggregated data were also considered a further limitation.

## High-risk groups

### Aboriginal children

Four respondents described special services for Aboriginal children in their AHS and a further five liaised with the Aboriginal Medical or Dental Service to increase both consent rates and access to treatment. In some cases, Aboriginal medical workers or education assistants brought the children into the clinics for treatment. There were no specific programs reported in eight AHSs.

It was reported that many Aboriginal families omitted the question on Aboriginality on the consent form, preferring not to identify themselves. Obtaining consent at both the risk assessment and treatment phases was considered a further barrier as many Aboriginal families were concerned about signing forms. Suggestions included obtaining consent for the RA either at school enrolment or at the beginning of each school year, thereby reducing the need for two consents at a similar time. Consent could also be difficult to obtain for Aboriginal children who were not living with their parents, so a more flexible system was required.

### Other special needs groups

Services in rural or remote NSW frequently included assessment of all children in small schools rather than just the children in the targeted years. In some remote AHSs, treatment was provided at the same time as the RA visits. Children in many special schools are invited to their local clinic on an annual basis for a RA.

Services to children from non-English speaking backgrounds were similar to those for other children although it was reported that some parents had difficulty in understanding the RA form and returned the consent component unsigned. The use of coloured code letters for such families was seen as helpful by some DTs to assist in the identification of treatment needs. One AHS targeted English language centres to offer a RA to children who had recently arrived in Australia.

## Groups not included in the SOKS Program

### Pre-school children

There was strong support by respondents for a pre-school program to be included in the SOKS Program. High levels of caries in pre-school children were reported by many respondents, particularly those from rural and remote parts of NSW or from areas with non-English speaking or Aboriginal communities. Nine AHSs currently provided a pre-school program, one of which identified high-risk pre-schools which were then visited by a DT to deliver OHP.

Strategies used by these AHSs included the use of the “blue book” in Early Childhood Centres and inviting pre-school children to a clinic for a brief check and treatment. One AHS in remote NSW provided an additional monthly clinic to search for bottle caries. Most AHSs had developed useful OHP resources and packages for presentations or for pre-schools to borrow.

An additional four AHSs provided ad hoc services to pre-schools and new mothers groups (for example, visits and OHE in Dental Health Week). Six AHSs did not report any formal program for pre-school children. All AHSs offered emergency services to pre-school aged children but two AHSs restricted services to children of health care cardholders. Some AHSs placed pre-school children on a managed care program following an attendance for emergency care while others referred them either privately or to a Sydney dental hospital.

### Services to young people aged 15 to 18 years

Oral health services for many young people aged 15 to 18 years old were variable and often limited across the state. Many respondents expressed concern about this situation and also about the dental erosion caused by the high intake of sports and soft drinks by this age group.

Young people at school beyond Year 8 were still eligible for child oral health services in NSW but most AHSs offered only emergency care, with at least three AHSs restricting this to dependants of health care card holders. Only two AHSs reported that all

young people were eligible for routine clinical care, with most other AHSs referring young people to the private sector, or placing them on a waiting list for treatment in public clinics for adults, or referring them to a Sydney dental hospital.

A small number of AHSs reported special projects to increase access to services by this age group. For example, one AHS had developed ‘Youth at Risk’, a program targeting homeless youth. Another AHS had developed a joint managed care project with the AHS adult oral health services.

## Usefulness of oral health status and DMIS reports

All except one AHS found the oral health status report either useful or very useful. Only four respondents found the DMIS reports useful, with almost half (n=8) finding them not useful.

Most AHSs had used the OHS report for identifying high-risk schools and school grades, with some comparing their AHS findings with statewide data previously available from these reports. Feedback to school principals and parents was also provided from the oral health status report.

Five respondents had used the DMIS reports to measure variations in clinical practice and productivity between DTs – for example, in the number of fissure sealants and radiographs undertaken. Two respondents stated they had never seen the DMIS reports and other respondents found the reports difficult to interpret and did not use them. However, two CDHPOS reported that DTS in their AHSs missed the DMIS forms since the decommissioning in October as they had found them useful for measuring productivity.

Several requested that statewide oral health status reports be made available for planning purposes. In some AHSs it was not possible to combine all the AHS’s data onto one computer to obtain AHS-wide reports and many respondents requested greater ability to manipulate the SOKS data at a local level.

Most found the SOKS computer software was inflexible and not user-friendly. Other comments included that it:

- took a long time to back-up
- was difficult to link the child details screen with the teeth screen
- was difficult to track a child who had changed schools
- was too easy to duplicate records
- had limited search capability
- took a long time to enter treatment sought data

### **Maintaining the quality of RA and clinical data**

Most CDHPOs had responsibility for supervising the data entry and the quality of SOKS data. Some had undertaken audits or used a quality assurance system. A range of other mechanisms, including regular clinic visits and ad hoc audits of clinical records was used if anomalies arose. Several CDHPOs found that participating in a RA assisted them in monitoring data quality.

### **Information technology support at AHS and state levels**

Responsibility for the maintenance and support of SOKS computer hardware has recently been transferred to AHSs and OHB provides support for SOKS software.

A small number of CDHPOs reported a high level of support from AHS information technology staff but many others received little or no support. While many were satisfied with the telephone assistance received from the OHB, others considered that they needed additional support. A small number requested a statewide help desk for the SOKS Program.

## **Workforce issues**

### **Role of CDHPO**

Thirteen AHSs had a CDHPO in position at the time of the survey. Of the remaining four AHSs, one had not been allocated a position in 1996, with management decisions or recruitment problems given as reasons for the vacancies.

The role of the CDHPO had changed since the introduction of the SOKS Program in 1996, when the main aim had been to assist the DDS or PDO with the implementation and coordination the Program. At the time of the interview, the systems to run SOKS were largely in place and the position included a clinical component in many AHSs, including relief of staff on leave. Some AHSs were clearly attempting to broaden the role and duties now included quality assurance, occupational health and safety, research and evaluation. In addition, one CDHPO had achieved a line management position with direct responsibility for the AHS-wide coordination and management of the SOKS Program. Another CDHPO was acting in the position of DDS. However, several other CDHPOs considered that while the job had been clearly defined initially, their responsibilities had been subsequently reduced and they were now under-utilised.

### **Training of staff**

New staff, including those undertaking data entry were orientated to the SOKS Program by the CDHPO in most (n=10) AHSs, with SDTs providing most of the day to day training. Six AHSs did not undertake any in-service training for SOKS staff and nine AHSs provided some at least annually. Most AHSs organised training in general oral health issues although this often focused on adult oral health.

Increased training for SOKS staff and the re-instatement of regular CDHPO meetings were the most frequently proposed changes to the SOKS Program, made by respondents. A small number commented on the lack of communication between themselves and their DDS or PDO and said that they did not always receive relevant documentation. Greater understanding and respect by Dos, DDS / PDOs and AHS sector managers towards CDHPOs was requested. Increased career opportunities for DTs including the opportunity to progress into AHS management positions was also advocated.

### **Occupational health and safety**

Most AHSs (n=16) had developed procedures and protocols for OH&S and had undertaken in-service training on this issue. Three AHSs had received claims for worker's compensation. The majority of AHSs did not report any major problems with OH&S.

The injuries most commonly reported resulted from lifting heavy equipment such as portable chairs and trolleys out of cars, bending during RA and sterilisation of instruments. Two CDHPOs reported security concerns in isolated clinics which had resulted in either an emergency button being installed or the closure of the clinic.

## Other issues

Most respondents (n=11) reported a good to high level of support from their AHS executives for child oral health. Five were unsure or didn't know and one considered their executive was not supportive. A small proportion of respondents reported a higher level of support from their AHS executive than from their direct managers, including sector or district managers.

Most respondents (n=9) had limited contact with private dentists, referring mainly for orthodontics. Two CDHPOs mentioned that there had been some difficulties in this relationship but a further two reported excellent working relationships. One of these involved a voucher system allowing patients requiring emergency care to attend private dentists in rural towns with limited or no access to a public clinic. Another respondent had surveyed private dentists to assess the level of treatment sought by children who had recently had a RA.

## Successful aspects of the SOKS Program

The most successful aspects of SOKS in order of frequency mentioned by the CDHPOs and SDTs, with the most frequent first, were:

1. the identification of high risk groups and prioritising of treatment
2. increased equity of access to care
3. improved clinical practice
4. introduction of a population or public health approach to oral health
5. increased public awareness of the child oral health service
6. introduction of OHP
7. increased use of fissure sealants

## Summary of interviews with CDHPOs

There was a high level of support by the CDHPOs and SDTs for continuing the SOKS Program and most did not wish to return to the clinic-based model of service delivery. However, many questioned whether the Program was reaching all high-risk children as only around 50% of Code 1 children were currently seeking treatment in the public sector. The proportion seeking care privately or not at all was unknown. While some AHSs were already using the RA data to identify high-risk schools, it was apparent that greater use could be made of this and other relevant data sources to target schools more effectively.

Increased staffing, particularly to relieve staff and assist in high-demand clinics was suggested, combined with greater flexibility in re-locating staff to assist where necessary. In some AHSs, this required the support of AHS health managers who had responsibility for staffing levels.

While difficulties in the implementation of SOKS in high schools were commonly reported, many respondents believed it was important to provide services to this age group. Some advocated that a full oral examination with radiographs for Year 8 children be undertaken as this was the last year they were eligible for the SOKS Program and subsequent services were limited in most parts of the state.

Simplification and clarification of the SOKS assessment form and consent procedures were suggested. For example, some suggested that consent could be incorporated into school enrolment. Simplification and clarification of the SOKS codes, and clearer explanations for parents about referrals for preventive treatment were needed. Questions about the reliability of the charting data were raised and some advocated that these data no longer be collected. An overall reduction in the amount of data collected in the SOKS Program, simplification of data entry, improved programming and increased reporting capability at an AHS level were all wanted. In addition, greater support for the Program by AHSs was requested.

OHP was seen as a valuable component of the SOKS Program and several respondents recommended an increased focus and resources. Others supported the integration of OHP into the school curriculum with less reliance on clinical staff for implementation. Many resources including teacher packages had been developed over and above the original SOKS resource packages and there is clearly a need to assess and rationalise these at a statewide level to avoid 'reinventing the wheel'.

While pre-school programs or packages were available in over half the AHSs, almost all CDHPOs wished for expansion of pre-school services and their inclusion into the SOKS Program. CDHPOs also proposed that there should be greater consistency in service provision to this age group across the state. The two AHSs which limit services for pre-school children to emergency care for pre-school children of health care card holders are not following the statewide eligibility policy.

A smaller number of respondents expressed concerns about the limited range of services for school students aged 15 to 18 years. Most AHSs only offer emergency care, and again, a small number of AHSs restrict this to children of health care card holders.

The status of dental therapists within the public sector, limited opportunities for career advancement and the changing role of CDHPOs were mentioned by all respondents. While most accepted that the original program implementation role of the CDHPO was no longer necessary, several expressed frustration with their current roles and with the transfer of accountability from the OHB to the AHSs. It was evident, however, that some AHSs were modifying the role of CDHPO to allow for a wider range of responsibilities.

Almost all respondents would like regular CDHPO meetings to be reinstated and more in-service training for all child oral health staff. In-service training may be more appropriately done in conjunction with the relevant professional associations.

In summary, this Technical Report describes the implementation of the SOKS Program and variation in service delivery across NSW. Levels of satisfaction with the model were also assessed. The CDHPOs and SDTs who participated in these interviews were keen to maintain the SOKS Program overall and made many suggestions for its improvement.

## Outline of interview with CDHPOs

### Section 1: Introduction to SOKS

Q1. What do you think the main purpose of the SOKS Program is?

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Q2. How does SOKS compare with the pre-1996 child oral health service? *Please tick one box*

- Much better
- Better
- No difference
- Not as good
- Don't know

Comments: \_\_\_\_\_

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Q3. Do you have any comments about the implementation of SOKS in 1996? \_\_\_\_\_

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Q4. How well does SOKS contribute to the prevention of oral health problems in children in your Area Health Services ?

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Q5. What is the role of the CDHPO in the SOKS Program in your AHS ? *Prompt: Has the role changed since 1996?*

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### Section 2: SOKS Assessment

Q6. Please describe the way in which the SOKS Program is delivered in your AHS. *Prompts*

- (a) *Who arranges the school visits and how is this planned e.g. school term or annual basis?*
- (b) *Are all schools approached annually, including those who have previously declined?*
- (c) *Are schools prioritised in terms of need?*
- (d) *If Yes to (c) how are they prioritised?*

(e) *Are all eligible school grades of children included in the SOKS Program?*

(f) *Check number and location of clinics (e.g. school-based / mobiles)*

(g) *Resources available for use in the SOKS assessments e.g. chairs, lights, transport*

(h) *Are any clinics closed during SOKS assessments?*

(i) *What arrangements are made for referring telephone inquiries when clinics are closed?*

(j) *Is there any follow-up of children with parental consent who are absent of the day of the SOKS assessment?*

Q7. Please describe how your High school programs (Year 8) are delivered? *Prompts: Any differences with the primary school program?*

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Q8. Are there any oral health programs for pre-school children in your AHS? *Prompts:*

- (a) *If yes, please describe.*
- (b) *If no, please explain why.*

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Q9. Is there any targeting of the SOKS Program to Aboriginal children? *Prompts: If yes, please describe.*

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Q10. Do you have any other comments about the SOKS assessment? *Prompt: Use of incentives?*

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Outline of interview with CDHPOs (continued)	
Section 3: Clinical Care and Treatment	Section 4: Data Collection and Reports
<p>Q11. Please describe the process by which children receive clinical care through the oral health clinics in your AHS.  <i>Prompts:</i></p> <ul style="list-style-type: none"> <li>(a) Any follow-up of non-respondents (especially Code 1)</li> <li>(b) Any differences by age of child (including pre-school)?</li> <li>(c) Any programs for high need groups other than Aboriginal children?</li> </ul> <hr/> <hr/> <hr/> <hr/> <p>Q12. Are there any special clinical care programs for Aboriginal children?</p> <hr/> <hr/> <hr/> <p>Q13. Are there waiting lists for children in your AHS?            If YES, please describe:</p> <ul style="list-style-type: none"> <li>(a) Length of time by SOKS code</li> <li>(b) Management and administration of the waiting lists</li> </ul> <hr/> <hr/> <hr/> <p>Q14. Do you have any other comments about SOKS clinical care? <i>Prompts:</i></p> <ul style="list-style-type: none"> <li>(a) Support from Dental Officers</li> <li>(b) Suggestions for improvement</li> </ul> <hr/> <hr/> <hr/> <p>Q15. Do you have any comments about the current SOKS model in regard to the balance of time spent on assessment and clinical care?  <i>Prompt: Proportion of time spent on SOKS assessments?</i></p> <hr/> <hr/> <hr/>	<p><i>This section relates to two main data collections: SOKS treatment and SOKS Clinical Services DMIS</i></p> <p>Q16a. Which of the following forms do you use:</p> <ul style="list-style-type: none"> <li>(a) Consent forms</li> <li>(b) SOKS assessment forms</li> <li>(c) Treatment sought</li> <li>(d) Follow-up treatment form</li> <li>(e) Purple and orange dot forms</li> <li>(f) X-ray forms</li> </ul> <p>Q16b. Do you use any other forms (including alternatives to those in Q16a)?</p> <hr/> <hr/> <hr/> <p>Q17. What is the participation rate (%) in your AHS for 1998 (and if possible 1996 and 1997) for the following:</p> <ul style="list-style-type: none"> <li>(a) Proportion of government, Catholic and independent schools involved in the SOKS assessment program _____</li> <li>(b) SOKS assessment (both parental consent and actual attendance at either school or clinic) [check denominator] _____</li> <li>(c) Children attending a dental clinic for treatment [check denominator and that count is number of children and not occasions of service] _____</li> <li>(d) Children completing a course of treatment _____</li> </ul> <p>Q18. Do you have any suggestions for improving the SOKS assessment data (form (b) above)? <i>Prompts:</i></p> <ul style="list-style-type: none"> <li>(a) Amount of data collected?</li> <li>(b) Coding</li> <li>(c) Uniformity of coding between dental therapists?</li> </ul> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

**Outline of interview with CDHPOs (continued)**

Q19. Do you have any suggestions for improving the collection of CLINICAL CARE data (forms (c) to (f) previous)? *Prompts:*

- (a) Amount of data collected
- (b) Coding
- (c) Separate forms completed by Dental Therapist and Dental Officer

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Q20a. How useful do you find the routine SOKS / DMIS reports provided by the Oral Health Branch (OHB) in planning services in your AHS? *Please tick one box*

- Very useful
- Useful
- Not useful
- Don't know

Q20b. Can you give me some examples of how you have used these reports.

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Q21. Are there any ways in which the Oral Health Branch routine reports could be made more useful?

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Q22. Do you use any other sources of information for your AHS oral health reports?

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Q23a. Who trains new staff (clinical and non-clinical) in the collection and entry of data for the SOKS Program?

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Q23b. How often is in-service training conducted for SOKS staff in your AHS?

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Q24. What systems do you have for maintaining the quality of SOKS data?

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Q25. Do you have any other comments about the collection and reporting of SOKS data? *Prompts*

- (a) Central office support
- (b) Equipment / resources

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**Section 5: Health Promotion**

Q26. Is there a protocol or policy for SOKS health promotion in your AHS?

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Q27. Please outline any oral health promotion (OHP) undertaken in primary schools in your AHS. *Prompts:*

- (a) Who coordinates oral health promotion?
- (b) Who implements SOKS OHP in the schools
- (c) How is OHP implemented?
- (d) Any other AHS resources used / developed (in addition to statewide packages)?
- (e) Level of support from teachers / principals?
- (f) Any links with the Health Promoting Schools program?
- (g) Any links with canteens?
- (h) Liaison with parents / P&C

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Q28. Please outline any oral health promotion undertaken in high schools. *Prompts: See Q27*

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Q29. (If relevant) Please outline any oral health promotion in pre-schools.

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**Outline of interview with CDHPOs (continued)**

Q30. Have you evaluated the health promotion component of SOKS? If YES, please describe

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Q31. Are there any changes to oral health promotion you would like to see take place?

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**Section 6: Other Issues**

Q32. Please describe the level of support for Oral Health demonstrated by your AHS Executive.

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Q33. Do you have any comments about occupational health and safety in the SOKS Program? Prompts:

- (a) Reporting of OH&S
- (b) Follow-up
- (c) Suggestions for improvement

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Q34. Who manages the workload of the dental therapists?

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Q35. Is there any sharing of staff between dental clinics to facilitate the SOKS Program? (If yes, please describe)  
Prompt: Use of adult dental staff

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Q36. Is there any provision for part-time work by staff employed in the SOKS Program? (If not, please explain)

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Q37. Are all dental therapists involved in SOKS assessments? – if not please describe.

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Q38. Is there demand for after-hours appointments, including Saturday morning? Prompt: How has this been measured?

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Q39. Please outline your liaison with private dental sector and general level of satisfaction with this.

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Q40. Please provide copies of any SOKS reports and surveys undertaken by staff from your AHS since 1996 (including school surveys) (additional to the routine reports prepared by the NSW Oral Health Branch)

List of reports	Date received
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Q41. What do you see as the most successful aspects of the SOKS Program and why?

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Q42. What are the things you would most like to see changed to improve the SOKS Program and why?

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Q43. Do you have any other comments about the SOKS Program?

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## 7

# Interviews with Directors of Dental Services and Principal Dental Officers

## Introduction

Semi-structured interviews were conducted with the Principal Dental Officer (PDO) or Director of Dental Services (DDS) in 16 AHS Health Services (AHS). In the other AHS, the acting DDS was a former CDHPO and so the interview schedule for PDOs/DDSs was not completed.

The interviews aimed to:

1. Describe the implementation of the SOKS Program including service planning, delivery and resources.
2. Explore the level of satisfaction with and support for the Program.
3. Obtain recommendations for improving the delivery and access to child oral health services.

Eleven questions (see last page of this Technical Report) were asked during the interview covering:

- the main purpose of the SOKS Program.
- comparison with the pre-SOKS Program.
- role of CDHPO.
- staffing and day to day management of the Program.
- usefulness of reports from the Oral Health Branch.
- level of support by AHS Executive.
- successful aspects of the SOKS Program.
- recommendations for improvement.

Half the interviews were conducted face-to-face and the remainder by telephone. Interviews took an average of 15 minutes. Results are presented below.

## Purpose and overview of the SOKS Program

Most respondents stated that the main purpose of SOKS was to identify and treat high-risk children and increase access to clinical care, particularly by those not previously accessing care. In addition, the SOKS Program introduced OHP into child oral health, increased awareness in the community about oral health and introduced a primary health care model.

Most respondents (N=11) rated SOKS either better or much better than the previous program. Two respondents found it no different or not as good and three didn't know.

Positive comments included, "heaps and heaps better", "data available for the first time", "SOKS is good for dental education" and is "based on the population and not motivated parents". One respondent recommended the SOKS Program be used as a model for other child health programs. The small number of less favourable comments included, "lengthy waiting lists have been generated", "no real improvement in the number of complaints" and "has created some concerns in the community from previous users."

All but two of the 14 respondents employed in AHS oral health services during 1996 had experienced some difficulties in the implementation of the Program and most considered it had been imposed in a rigid manner with minimal consultation. Several commented on the lack of adequate resources with which to implement the Program.

While most believed that SOKS had successfully identified and prioritised high-risk children, they were less consistent in their views of whether the Program improved access to treatment. Several also considered that it was hard to quantify any improvements in primary prevention due to lack of appropriate data and it was noted that there had been no reduction in the proportion of Code 1 children in the period from 1996 to 1998.

Expanding the SOKS Program to include pre-school children was recommended by several respondents.

## Oral health promotion

Many comments were made about OHP including the need to increase resources and to incorporate OHP into the school curriculum for teachers to present, especially for year 8. Also recommended was the incorporation of OHP into health promoting schools and healthy Harold programs and the employment of specialist oral health educators, thereby releasing clinical staff from this component of the SOKS Program.

One respondent believed that OHP had been successful in teaching children about the prevention of oral disease and the other stated that a long-term approach was required to produce health outcomes.

### **Risk assessment**

Improved targeting of resources by identifying high risk schools and actively following-up the children in these schools was recommended by several PDOs / DDSs. One respondent suggested that all children with either a SOKS Code 1 or presenting as an emergency patient or ROP should be placed on a Managed Care system and their siblings offered a clinical assessment.

The need for greater flexibility in the frequency of the RA and in the age groups assessed was frequently mentioned by respondents. Three AHSs advocated more frequent RAs but others suggested that the number of school grades in the Program should be either reduced (to Years 2, 4 and 8 for example) or changed (from Year 8 to Year 7 for example).

The inclusion of Year 10 into the SOKS Program was recommended by a small number of respondents, as was the expansion of the service to include young people aged 15 to 18 years. Some expressed concern about children assessed as Code 3 throughout their schooling and therefore not given a full oral examination at any stage of the SOKS Program.

Simplifying the consent procedure for both the RA and treatment, particularly for NESB and aboriginal families was recommended. For example, consent could be obtained either on enrolment at the school or at the beginning of each year. Simplifying the Code 2 letters and providing clearer information to parents about referrals for fissure sealants was also recommended, as was provision of a more thorough oral examination in the SOKS assessment.

### **Data collection**

Simplifying the collection and entry of data was seen as an important issue by many respondents. Comments included the need to upgrade the computer program and introduce sampling to reduce the quantity of data collected. The quality of data in the RA and DMIS collections was questioned by several respondents and they recommended that the validity and reliability of the data be assessed.

Most AHSs (n=15) found the oral health status (OHS) report either useful or very useful but only five found that the DMIS reports were useful and the need for state averages for comparison with AHS data was requested. DMIS reports were hard to interpret and in some cases the reports had not been used at all. Some respondents believed the potential for over-reporting productivity in DMIS reduced its effectiveness and also noted that neither the SOKS RA or DMIS data collection were compatible with NSW adult oral health data. The need for a more useful data collection to replace DMIS was recommended by almost all respondents.

A small number of PDOs/ DDSs had used DMIS to monitor the productivity and clinical practice of staff and used this information for in-service training. OHS reports had been used for identifying high-risk schools and for relocating staff according to demand. However, most had not used either OHS or DMIS reports to any major degree, although some delegated this role to their CDHPO.

### **Clinical care**

Increasing the proportion of children seeking clinical care by making child oral health services more customer focused was recommended by several respondents who were concerned about barriers to clinical care. The need to review clinic opening hours, reducing the use of answer-machines and improving the management of waiting lists were all recommended. In AHSs or regions with lengthy waiting lists it was also recommended the children classed as Codes 1 and 2 should be cleared first prior to any further RA taking place.

To track children who move around the State, information transfer should improve, and records should be transferred to host AHSs.

### **Workforce issues**

Many respondents believed additional staffing was required for the SOKS Program, particularly to cover staff on leave as this often led to a reduction in services, particularly in rural communities. Most associated a reduction of overall staffing levels in child oral health services with the introduction of SOKS. Difficulties in recruiting staff for rural or outer metropolitan AHSs and higher demand for treatment in non-fluoridated AHSs was believed to exacerbate

staffing problems. In some cases, restrictive AHS management structures limited the ability of the DDS/PDO to transfer additional staff to clinics with a high workload.

Several respondents believed that funding from the NSW department of health was inadequate for the needs of their AHSs, particularly those with large non-English speaking populations and in rural or remote AHSs. Two respondents recommended that the adult and child oral health services be combined, as they believed this would facilitate the management of AHS oral health programs and improve the status of services for children. Other suggestions included the need for improved occupational health and safety in the SOKS Program and the incorporation of a population health perspective into undergraduate training for dentists.

### Role of CDHPO

Changes in the role of the CDHPO since 1996 had occurred in most of the 13 AHSs with a CDHPO in position. While the role still focused on liaison and day to day coordination of the SOKS Program including data collection and reporting, some of these functions had been taken over by SDTs in some AHSs. Several respondents stated that there was a need to clarify the role of the CDHPO now that the systems for the delivery of the SOKS Program had been established. The one AHS without an allocated CDHPO position requested that a position be funded due to the large proportion of high-risk children in its population.

### Level of support from AHS executive

Most respondents (n=12) reported a fairly good to high level of support from their AHS executives for oral health. Three were unsure or didn't know and one felt their executive was not supportive. Most respondents managed their oral health budgets and also believed they received the full allocation from their AHS.

### Successful aspects of the SOKS Program

The most successful aspects of SOKS in order of frequency mentioned (with the more frequent first) were:

1. The identification of high risk groups and prioritising by treatment.
2. Population approach to oral health.
3. Changed workplace culture in child oral health clinics and improved clinical practice.
4. Introduction of OHP.
5. Increased public awareness of the child oral health service.
6. Introduction of a child oral health data collection system.

### Summary of discussions with PDOs and DDSs

The level of support for the SOKS Program by the PDOs / DDSs was reasonably high with two thirds finding it either better or much better than previously. Many however, believed that additional resources and staffing were required to operate the Program effectively in areas of low socio-economic status, with large non-English speaking populations and in rural and remote areas of NSW. Respondents in rural communities particularly associated SOKS with a reduction in staffing levels and service provision.

Respondents suggested increased targeting of high-risk schools. Concerns were also raised about whether an adequate proportion of high-risk children were accessing treatment. Increasing access to clinical care by reducing barriers such as lengthy waiting lists and reliance on answer machines was therefore recommended by most respondents in addition to the inclusion of pre-school children into the SOKS Program.

The PDOs / DDSs advocated greater flexibility at AHS level in determining the age groups eligible for SOKS and the frequency of the RA. Other suggestions included simplification of consent and coding procedures, a review of data quality, reducing the amount of data collected and integration of child oral health data collections with adult data systems. The development of more user-friendly and relevant reporting systems was also promoted. Support for maintaining OHP in the Program was evident but most PDOs/DDSs placed greater emphasis on the incorporation of information into the school curriculum and reduced involvement by clinical staff.

**Interview outline**

Q1. What do you think the main purpose of the SOKS Program is?

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Q2. How does SOKS compare with the pre-1996 child oral health service? *Please tick one box*

- Much better
- Better
- No difference
- Not as good
- Don't know

Comments: \_\_\_\_\_

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Q3. Do you have any comments about the implementation of SOKS in 1996?

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Q4. How well does SOKS contribute to the prevention of oral health problems in children in your AHS ?

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Q5. Please describe the level of support for Oral Health demonstrated by your AHS Executive.

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Q6. What is the role of the CDHPO in the SOKS Program in your AHS ? *Prompt: Has the role changed since 1996?*

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Q7. Do you have any comments on the staffing and day to day management of the SOKS Program in you AHS?

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Q8a. How useful do you find the routine SOKS / DMIS reports provided by the Oral Health Branch in planning services in your AHS? *Please tick one box*

- Very useful
- Useful
- Not useful
- Don't know

Q8b. Can you give me some examples of how you have used these reports

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Q9. What do you see as the most successful aspects of the SOKS Program and why?

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Q10. What are the things you would most like to see changed to improve the SOKS Program and why?

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Q11. Do you have any other comments about the SOKS Program?

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# Focus groups held with AHS personnel

## Introduction

Focus groups were held with oral health staff in AHSs. A protocol guided the discussion and analysis for each group.

The aims of the focus groups were to:

- Explore the implementation and practice of the SOKS Program, its effectiveness in meeting the oral health needs of children and in improving access to clinical care.
- Describe the level of satisfaction with, and support for, the SOKS Program.
- Obtain recommendations for improving the delivery of child oral health services.

Three focus groups were held for SOKS staff from seven rural AHSs. Thirty staff attended the three groups including SDTs, DTs, DAs and Data Entry Officers (DEOs). A DO participated in one group. Findings are described below.

## Overall views of the SOKS Program

Most believed that the SOKS Program worked well and that it was better managed than previously. They also valued the concept of prevention that had been introduced by the Program and believed that SOKS was well accepted by parents and schools. They also believed that more high-risk children now accessed the service, including in remote parts of NSW. Some acknowledged that the introduction of SOKS had been difficult for many DTs even though the previous program was described by one participant as a “drill and fill” service.

Reported advantages of the previous model were that a more thorough oral examination was provided and that patients attending the service were seen more frequently. It was noted that in the SOKS Program an estimated 50% of Code 1 children were accessing treatment in public clinics, with some of the remainder presenting as emergency patients at a later date. Several participants considered that this level of access was too low but acknowledged that the lack of

information regarding access to private oral health services made it difficult to determine overall rates of treatment. Amalgamation of some child clinics with adult clinics was viewed negatively, but mobile clinics were favourably mentioned by some participants as this made it possible “to take the clinic to the child”.

Many DTs felt their role was undervalued and that their role needed to be better understood by DOs.

## Oral health promotion

Most staff believed that oral health education and promotion (OHP) was an important part of the SOKS Program as this increased the consent rate for the RA and it was also the main strategy for providing information on oral health to children.

Different views were expressed in regard to the most appropriate method of OHP, with some advocating the need for a specialist oral health educator to coordinate and implement OHP, some preferring to maintain presentations by clinical staff. More resources for Years 6 and 8 in particular, were requested. Several participants felt they did not receive adequate training to undertake OHP effectively, particularly in high schools. Several participants also believed there should be a stronger family focus on the prevention of oral disease in the SOKS Program, with increased education for teachers and parents.

## Risk assessment

Some participants reported low levels of consent for some high-risk children, with forms not returned or signed by parents. Low levels of consent for some Aboriginal children were also mentioned as their parents appeared reluctant to sign the forms. It was acknowledged that assistance was often available from the Aboriginal Medical Service for these children. Many high school students also did not return consent forms and participation rates were generally low. Focus group participants reported that many parents thought a full oral examination was provided at the RA rather than a quick check and that greater clarification was required in this matter.

Many participants were concerned about the complexity of the SOKS codes, with several recommending that the system be simplified and three codes be used (for example, Codes 1, 2 and 3) with separate classifications for the need for radiography and fissure sealants. Some also recommended that only one colour of letter be used to avoid Code 1 and 2 children being identified in the classroom.

Some participants revealed that a Code 2 child was sometimes assessed as Code 1 to facilitate access to treatment, particularly in AHSs with lengthy waiting lists. Several also believed that the variable quality of lighting and equipment affected the ability of staff to accurately assess children and staff also questioned the accuracy of charting.

### Data collection

Group members were unanimous in their view that there should be a reduction in the amount of data collected and in the number of forms used in the SOKS Program. DEOs and DAs cited many problems with data entry and in the maintenance of the SOKS database and felt they received only limited support in this role. Several also commented on the limited usefulness of the aggregated data collected on the SOKS treatment sought form. These data were very time-consuming to enter into the SOKS database and also difficult to audit.

Limitations of the SOKS computer software included a restrictive searching capability and lengthy time required to back-up records. Several DEOs reported that it took a long time to print SOKS reports and that in many AHSs it was not possible to merge the data to produce an AHS-wide report. Many DTs recommended a greater ability to generate a wider range of reports at AHS level and also requested the ability to access the SOKS database in the clinic.

### Occupational health and safety

Several suggestions were made to improve occupational health and safety (OH&S) in the SOKS Program including:

- Improving the equipment available in the schools. The portable clinic equipment used in child oral health services in the ACT was cited as a good example.
- Limiting the number of children assessed by each DT team in a session.

- Reducing the number of patients treated in a clinic the afternoon following a RA.
- Using station wagons and portable carts to transport equipment between schools.

Additional comments related to the hazards created by poor road surfaces in some rural AHSs, the impact of driving long distances and the need for overnight stays in some remote areas. The time spent travelling in rural areas to undertake RAs also reduced the time available for treatment.

### Services to pre-school children and young people aged 15-18 years

Almost all participants recommended that the SOKS Program be extended to all pre-school children. Suggestions for Program implementation included pre-schools and new mothers' groups. There was considerable variation across the State in services to this age group with some AHSs already providing a comprehensive service. However, a small number of other AHSs were restricting treatment to emergency care for pre-school children of Health Care Card holders only.

There was wide variation across the State in terms of services for 15-18 year old young people and several participants recommended that services to this age group should be increased and be standardised across NSW.

### Clinical services

Workforce issues were of concern to participants, with most reporting they were now "very short staffed" and had difficulties in coping with the demand for treatment. Some directly attributed the reduction in staffing to the introduction of the SOKS Program and stated that long waiting lists in some AHSs had increased pressures for staff. It was suggested that relief of staff in the high-pressure clinics could occur either by employing additional staff or rotating existing staff.

It was also suggested that private dentists could assist public patients in rural AHSs by undertaking general anaesthetics (GAs) in local hospitals, reducing the need for children to travel to Sydney. Increased funding to enable this to occur was also required.

# Summary of suggestions from AHS personnel

## General issues

- Maintain the SOKS Program with some modifications.
- Include all pre-school children in the SOKS Program and increase uniformity of service provision across the State to this age group.
- Explore strategies for improving service provision across NSW for 15-18 year old children.

## Oral health promotion

- Maintain the OHP component of SOKS with more age-appropriate resources and explore alternative methods of implementation, particularly for Year 8 children.
- Take a family focus by including parents in OHP.

## Risk assessment

- Improve the equipment available to undertake SOKS RAs.
- Simplify the system of consent to increase access to care by high-risk children.
- Simplify the number of SOKS codes to 1, 2 and 3 with separate letters for X-rays and fissure sealants.
- Cease charting in RAs.
- Develop statewide guidelines for OH&S.
- Reduce amount of data collected and limit the number of forms used.
- Upgrade SOKS software, improve computer support and increase AHS reporting capability.

## Clinical care

- Increase the number of staff, or rotate staff, in the 'high pressure' clinics.
- Increase the proportion of Code 1 children and other high-risk children accessing clinical care.
- Increased funding and support for private dentists to undertake general anaesthetics in rural AHSs.

## 9

# Findings from discussions with schools: group discussions and interviews

## Introduction

Interviews were held with a representative from the Department of Education and Training (DET), NSW Board of Studies, three rural primary school principals and the NSW Student Services Reference Group which comprised 15 principals from across NSW.

The aims the discussions were to:

- Explore the implementation and practice of the SOKS Program, its effectiveness in meeting the oral health needs of children and in improving access to clinical care.
- Describe the level of satisfaction with, and support for, the SOKS Program.
- Obtain recommendations for improving the delivery of child oral health services.

Findings are outlined below.

## Delivery of child oral health services in schools

There was unanimous agreement among school principals that the current model of service delivery worked well and allowed more children to participate than previously. One principal described the RA in schools as “a window of opportunity” and most others “could not see any other way of screening kids”. Most were aware that the RA was a quick check only and stated they were not able to assess the overall effectiveness of the SOKS Program as this depended on parents taking the children for clinical care.

Many were not aware of the waiting lists for treatment in some AHSs and also expressed concerns that the service may be curtailed as a result of this Review. One principal suggested that the model could be improved if coordinated with other health checks eg. speech therapy, hearing and vision tests.

## Oral health education and promotion

Most principals strongly believed that OHP was an important part of the Program and that presentations by the DTs gave a more ‘powerful’ and effective message than those by the class teachers.

In schools where teachers were provided with OHP packages, principals reported that not all teachers used these and therefore some children were not receiving any information. Some participants also stated that the response rate for the RA was lower in classes where OHP was not provided. One school principal reported that the OHP component of SOKS was no longer incorporated in the SOKS Program in his AHS and that he was disappointed with this decision.

Several principals commented favourably on the OHP resources used by the DTs eg. for demonstrating correct brushing techniques. Several schools included the results of the RA and advice on oral hygiene in the school newsletter, believing this provided useful information to parents and students.

While the representative from DET supported the incorporation of OHP into the Personal Development, Health and Physical Education (PDHPE) curriculum for implementation by teachers, school principals were less enthusiastic as they were concerned about the additional workload this may place on teachers and also the lack of resources. A revised PDHPE was implemented in January 2000 by the NSW Board of Studies and was unlikely to be changed for another five to ten years, although regular reviews of the curriculum will allow some opportunity for some amendments. Oral health was included in some modules of the curriculum and teachers could choose (or not choose) to include these in their lessons. The DET representative also supported a ‘whole school’ approach including participation in the Health Promoting Schools Program and health promoting canteen awards for healthy foods.

Several principals commented on the unhealthy food given by some parents to their children for lunch and also available in their school canteens. They suggested that parents receive education on good nutrition and that canteens be encouraged to provide healthier choices.

## Risk assessment

Several principals expressed concerns about low levels of consent given for the RA by some parents of high-risk children and several suggestions were made for improving response rates e.g. by incorporating consent into the school enrolment form or the annual donation letter.

The expectation in the SOKS Program that parents would take the children for treatment was also considered problematic by many participants who reported that this did not always occur, particularly in low income and larger families. One school principal with a large proportion of high-risk children reported that School Aides sometimes had to take children for clinical care as the parents did not do so. The same principal reported that around 25-30% of children transferred in or out of his school annually and some of these children were 'slipping through the net' i.e. missing a RA and subsequent treatment. He therefore recommended that the RA be undertaken 'as frequently as possible'.

Another principal recommended that dates for the RAs needed to be finalised as early as possible and that greater flexibility on the part of the SOKS team was necessary due to the busy school timetable. Several principals acknowledged it could be difficult to provide adequate facilities for the RAs.

## Summary of suggestions from schools

### General issues

- Maintain the current SOKS Program.
- Explore means of coordinating the Program with other routine health checks undertaken in schools.

## Oral health promotion

- Maintain the delivery of OHP by clinical staff rather than by teachers.
- Incorporate OHP into the PDHPE curriculum and develop a 'whole school' approach to improving the oral health of children e.g. liaison with the Health Promoting Schools program and with canteens.
- Encourage healthier food choices in school canteens.
- Encourage parents to provide healthier food in school lunches and snacks.
- Include the results of the RA and information on oral hygiene in school newsletters.

### Risk assessment

- Finalise dates for the RA as early in the year as possible with schools.
- Increase parental consent for RA. For example, by incorporating it into the school enrolment form or annual donation letter.
- Identify strategies for tracking children who change schools to ensure they do not miss a RA.

## Clinical care

- Identify strategies for increasing access to treatment, particularly by high-risk children.

# Findings from discussions with parent groups

## Introduction

Interviews were held with three groups of parents comprising:

- Three parents at a rural school, both users and non-users of the SOKS Program.
- Two parents in a meeting organised by the Parents & Citizens (P&C) Regional Officer in northern NSW.
- Ten parents attending the P&C Regional Council in Western Sydney.

The aims were to:

- Explore the implementation and practice of the SOKS Program, its effectiveness in meeting the oral health needs of children and in improving access to clinical care.
- Describe the level of satisfaction with, and support for, the SOKS Program.
- Obtain recommendations for improving the delivery of child oral health services.

Despite extensive radio and newspaper promotion of the first evening meeting organised by the P&C Association in northern NSW to discuss the SOKS Program, very few parents attended. This suggested that other means of consulting with parents needed to be used. Subsequently, it was arranged to attend a scheduled regional P&C meeting in Sydney where the SOKS Program was included on the agenda.

## Delivery of child oral health services in schools

Most parents expressed positive views about the SOKS model of service delivery in the schools although one P&C group recommended that resources for treatment should be increased. There were mixed views about the frequency of RA with some advocating for more frequent assessment to ensure that children who change schools, repeat a year or simply miss the assessment though other circumstances will still receive a regular RA. A small number of parents believed that children attending a

private dentist should not participate in the SOKS Program, but acknowledged that this would not affect the majority of children in their schools who could not afford to attend private dentists. One parent used the results of the RA to compare with the diagnosis given by her private dentist.

Kindergarten children were identified as a priority by several parents, as it was believed that many of these children did not receive any dental care prior to attending school. It was also recommended that an oral health examination be included in the pre-school screen undertaken by community health nurses. Parents believed that children were well serviced by the DTs and said there had been no complaints from children. The parents of one school who used the clinic located in the school grounds made very positive comments and another parent believed that mobile clinics were useful as they were visible in the community and raised awareness of the service.

While some parents did realise a quick check rather than a full oral examination was given in the RA, others appeared to be less aware of this. The Disadvantaged Schools Program (DSP) operated by the NSW Department of Education and Training was mentioned by one group of parents and it was recommended that the DSP model be explored for targeting high-risk schools in the SOKS Program.

## Oral health promotion

Some parents believed that their children had acquired some information about correct brushing techniques but said it was still difficult to encourage them to brush regularly at home. One parent said that the toothbrush provided at a recent RA had assisted her in selecting a more suitable brush in future. Another suggested incorporating OHP into the school syllabus as he felt it was “important to teach children about oral hygiene”.

Some members of the P&C groups stated that the organisation should do more to promote the SOKS Program and also that a public awareness campaign was needed to promote the Program

### **Risk assessment**

It was suggested that consent for the RA be included in the school enrolment form to avoid the need to obtain this on each occasion. More explanation of the SOKS codes in the letters to parents was requested. It was also recommended that only one colour for these letters be used as older children tried to work out the meaning of the codes if several colours were used.

Other suggestions made by parents included the provision of a booklet for each child, which recorded all SOKS assessments and treatment, similar to the immunisation records.

### **Clinical care**

A number of problems were reported in accessing treatment, including difficulties in contacting a clinic by telephone, long distances to travel in rural areas and long waiting lists which may then be followed by a cancellation if a staff member is ill. Children with headlice had also been refused treatment which frustrated parents in northern NSW where the condition was prevalent. It was reported that non-assertive parents might find clinical care particularly hard to access due to the barriers outlined above.

One parent attending a clinic located in the school grounds reported favourably on the treatment received by her child, saying she had not had to wait for an appointment and that the staff were well organised. The different experiences in accessing treatment in the SOKS Program suggest that there may be considerable variation across NSW.

Some parents recommended that consent for treatment be included on enrolment so that children could be treated at school, therefore avoiding the need for a parent to take time off work to attend a clinic appointment.

## **Summary of suggestions from parent groups**

### **General issues**

- Maintain the current model of service delivery.
- Explore means of targeting high-risk schools to provide additional funding / resources in oral health e.g. the model used in the Disadvantaged School Program.
- Include an oral health assessment be in the pre-school health screening program.

### **Oral health promotion**

- Incorporate the results of the RA and include information on oral hygiene into the school newsletters.
- Encourage P&C groups to promote awareness of the SOKS Program.
- Organise a public awareness campaign to promote the SOKS Program.

### **Risk assessment**

- Incorporate consent for the RA into the school enrolment form.
- Develop a strategy to track children who miss the RA.
- Provide more explanation of the SOKS codes in the letters sent to parents.
- Provide each child with a booklet to record RA and treatment .

### **Clinical care**

- Increase resources to clinical care.
- Improve access to clinical care – for example, by answering telephone calls, allowing adequate time to travel to an appointment for relief of pain appointment in rural AHSs .
- Reduce waiting lists.
- Develop strategies for children to be treated at school, thereby avoiding the need for parents to take children to the clinic.

# Review of literature on oral health promotion

Five major reviews of the literature on OHP, have been undertaken since 1994 and results from these reviews have not always been consistent.<sup>1-5</sup> For example, a Dutch review in 1994 concluded that traditional health education can be effective but that intensive and comprehensive strategies were more likely to lead to longer-term behaviour change than simple persuasive approaches.<sup>2</sup> Similar findings were reported in a large systematic review commissioned by Health Promotion Wales in which criteria were developed for assessing the value of oral health gain. The authors acknowledge however, that it is unclear whether one-off OHP initiatives can improve oral health over an extended period of time.<sup>3</sup>

The Welsh review based its conclusions on the premise that increased knowledge leads to changes in behaviour, despite lack of support for this in other health literature. The authors also believed that longer-term gains were achievable if young children (pre-adolescence) were targeted.

A review published in 1994 by Brown concluded that knowledge and plaque control could be influenced by OHP but only on a short-term basis.<sup>4</sup> This is consistent with the results of a review undertaken by Kay and Locker in 1996 which found a small and temporary reduction in plaque accumulation, no effect on caries increment and a positive effect on knowledge.<sup>5</sup> Both these reviews found that many studies suffered from research design problems and had to be excluded from the analyses.

The most recent major review, undertaken for the Health Education Authority (HEA) in the UK in 1997, adopted an evidence-based approach to assess the effectiveness of OHP in studies dating back to around 1980.<sup>1</sup> Again, it was limited by the poor evaluation designs in many of the studies and the authors acknowledged that a largely quantitative methodology may not be entirely appropriate for assessing the effectiveness of health promotion interventions.

The over-riding message from the HEA review was that traditional OHP had never been shown to result in positive behaviour change. More specifically it concluded that school-based health education aimed at improving oral hygiene had not been shown to be effective. However, the review did conclude that individual clinical chairside education can be effective, at least in the short term, although the subjects in most of the studies were adults or parents attending with a child.

The main findings from the HEA review were<sup>1</sup>:

- OHP including the use of agents incorporating fluoride is effective in reducing the development of caries. OHP strategies which incorporate daily brushing with fluoride toothpaste are considered effective as long as compliance is achieved. This strategy is also considered to be an achievable goal compared with use of other fluoride supplements but the applicability of this to areas where the water is already fluoridated was not discussed.
- There is no available evidence that OHP can change dietary practices by reducing sugar consumption to the extent which leads to a reduction in caries.
- OHP aimed at improving oral hygiene is capable of reducing plaque levels and simple direct strategies are effective in the short term but long term change may be harder to sustain.
- OHP can lead to increases in knowledge of oral health but this does not necessarily lead to positive behaviour change. However, it could be argued that there is an ethical responsibility to inform children and adults about ways of improving oral health. Enhancement of knowledge can be quickly and easily achieved by educative programs.
- The effect of OHP on attitudes and beliefs remains unclear, largely due to a lack of valid methods for measuring such changes.

The HEA review recommended that more innovative OHP strategies be developed and stressed that these should be evidence-based and rigorously designed so that comparisons can be made in the future. Training of field staff in evaluation techniques was also recommended, in addition to:

- Strategies aimed at preventing caries targeted to children as benefits are cumulative.
- Targeting OHP to areas of deprivation, as untargeted strategies will further widen the gap in oral health inequalities.
- Including OHP in the school curriculum, with outcomes focusing on improvements in knowledge rather than changes in behaviour.
- Local population campaigns which focus on daily brushing with fluoride toothpaste.
- Continuing to promote fluoridated water supplies, particularly where disease levels are highest.

A randomised trial undertaken in the former Yugoslavia found a short term improvement in the gingival health of 11-14 year old children during the instruction period of an intensive educational program.<sup>6</sup> Six months after the program, mean gingival index scores reverted to baseline levels and there was no overall change in the plaque index. The paper concluded that as prolonged repeated instruction was required for sustained improvement in oral health, the intervention was of questionable cost-effectiveness. These findings are consistent with those in the HEA review.<sup>1</sup>

A Scandinavian study compared caries-prevention measures in children across four countries and found little variation in oral health status of children.<sup>7</sup> Similar results were found in a Western Australian trial which compared a combined tooth cleaning and OHP intervention with a standard preventive program of fissure sealants and topical fluorides on control of occlusal caries in newly erupted molars.<sup>8</sup>

A Victorian trial undertaken over three years in a non-fluoridated region concluded that an annual oral hygiene education program was significantly less effective in preventing dental caries in a high risk early adolescent group than a combined program of annual replacement or repair of pit and fissure sealants, weekly fluoride mouth-rinse and OHP. Most improvement was associated with the pit and fissure sealants.<sup>9</sup>

A systematic review of literature on OHP recently undertaken by Dental Health Services Victoria recommended that future strategies needed to focus on increasing access to fluoride, sealants and developing personal skills in oral hygiene. The need to target high-risk groups was identified in addition to increasing the knowledge of other health providers. The report warned against using a purely quantitative evidence-based approach in measuring oral health promotion outcomes, citing the influence of qualitative and political factors in decisions not to implement water fluoridation.<sup>10</sup>

Literature on strategies for 0-4 year old children included a recent review paper from the United States proposing strategies for preventing early childhood caries on a population basis.<sup>11</sup> Among these was a recommendation to link screening and easily implemented low cost interventions with immunisation schedules and public health nursing activities. Such a strategy, combined with the availability of effective treatment of pre-school children, could be explored in the Australian context.

## Discussion

Most findings from the literature on OHP support the implementation of evidence-based strategies which address oral health inequalities and lead to sustained behaviour change. They suggest that while educational programs may have a role to play, they have limited effectiveness in making sustained improvements in caries and other standard oral health indices. However, the inclusion of basic oral health education into the school curriculum is supported on an ethical basis, with health gain confined to increases in knowledge rather than behaviour. Providers of this information need not necessarily be clinical staff whose skills may be more usefully applied in treatment.

While acknowledging that water fluoridation, fissure sealants and brushing with fluoride toothpaste are the most effective tools for preventing dental caries,<sup>12</sup> the literature advocates the use of additional prevention strategies for the minority of Australian children with high levels of caries. It should be possible to target high-risk children in the SOKS Program by increasing the proportion of Code 1 children seeking treatment and by following up all children and their siblings attending as either a Code 1 or for emergency care. Children living in non-fluoridated areas would also be

likely to benefit from additional measures. Data from the SOKS Program can now be used to identify high-risk schools and age groups. This targeted approach is consistent with the comprehensive approach to school health promotion advocated by the NSW Health Department.<sup>13</sup>

Published literature suggests that chairside interventions in OHP for children and their caregivers attending clinical care were effective in changing behaviour and this strategy needs further exploration in the SOKS Program.

In addition, greater flexibility in the implementation of OHP for different age groups of children including those at pre-school and at high school is required. Younger children for example, have stronger influences from their parents and school staff while older children are more influenced by peers. Oral health promotion resources and strategies need to address these different needs and efforts should be made to include parents, caregivers and teachers. This approach is consistent with the original aims of the SOKS Program which recommended that parents and carers were provided with information on oral health.

Strategies to identify 0-4 year old children at high risk of bottle caries need to be explored as part of a future child oral health service in NSW, including opportunistic screening linked to the standard immunisation schedule or pre-school checks at Early Childhood Centres. Also required is the provision of routine treatment for this age group in the public and private sectors with priority of access to high-risk families. In addition, information on OHP also needs to be made available to all parents of pre-school children and access to public oral health services across NSW should be standardised.

Effective OHP models and resources developed at Area level and in particular the teacher packages, need to be reviewed and disseminated across the State to allow for a more consistent and high quality approach. Resources for Year 6 children also need to be developed, in addition to updated resource materials for high school children. The NSW Health Department is currently developing a policy on health promotion with schools which takes a comprehensive approach by recommending the use of an integrated set of strategies across key areas.<sup>13</sup> It also recommends the development of partnerships between the health and education sectors. The draft policy supports the role of OHP in school health promotion, citing evidence of

improved knowledge and attitudes in cases where the OHP is implemented well.

The partnerships between the Department of Health and the Department of Education and Training and NSW Board of Studies should be strengthened and suitable resources and the most up to date information on oral health provided to teachers for use in the PDHPE and Science curriculums. Liaison with organisations such as Health Promoting Schools and NSW Canteen Association should also be increased as part of a whole school approach to OHP.

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# Reliability of data collected during SOKS assessments

## Background

During SOKS assessments, children are categorised into three broad codes, defining need and urgency for oral health care. At the same time, data on dental caries status are collected and used to describe the oral health status of children in NSW. These data are reported to the NSW Health Department, and also contribute to the picture of children's oral health in Australia. The quality of both the SOKS assessment and oral health status data was unknown.

Compared with data until 1996, the caries status of NSW children appeared to improve dramatically after the SOKS Program was introduced.<sup>1</sup> For example, the mean number of decayed primary teeth in five year old children dropped from 1.32 in 1995 to 0.68 in 1996. And the proportion of five year old children with four or more decayed teeth dropped from 14.5% to 6.5%. Although less dramatic, similar differences were seen in 11 year old children. The changed sampling method may have contributed to these differences. Also, the quality of SOKS data may be different from data collected previously under clinical examination conditions.

Reliability, an important measure of data quality, refers to the consistency of information and is the extent to which similar information is obtained when a measurement is performed more than once.<sup>2</sup> Reliability is measured by performing two sets of measurements (in this case, by two dental therapists) and comparing the findings using an appropriate statistical index. High reliability does not necessarily mean the procedure is a satisfactory, but if reliability is low, then the measurement can not be valid.

Validity, another important measure of data quality, refers to the degree to which a measure actually measures what it is designed to measure.<sup>3</sup> The way the SOKS codes are defined means validity of the codes is very difficult to determine. So, whether the majority of children at highest need are classified as Code 1, and similarly, those with no need of oral health care are classified as Code 3 are unknown.

To determine the reliability of the SOKS codes and caries experience data (DMFT index), a quality assurance project was undertaken in four AHSs.

## Aims

The quality assurance project aimed to assess the reliability of the SOKS codes and caries status data.

## Methods

### Sample

One school in each of four AHSs was selected to participate. These schools had not participated in the SOKS Program earlier in 1999 and all had a dental clinic located in the school grounds. Usual information and consent forms were modified to inform parents that children participating in the SOKS assessments had a chance of being selected for further assessments on that same day.

### Examiners

A team of six senior dental therapists, including Community Dental Health Project Officers participated in a one-day training workshop to attain consistency in applying the SOKS codes as described in the SOKS manual. At the end of the training day, consistency in coding was attained, as assessed by independent assessment of 11 case scenarios. The protocol for the quality assurance project is found in Technical Report No. 13.

### Oral health assessments

All children consenting to SOKS received their normal SOKS assessment by the local AHS dental therapists who usually perform the assessments.

After the first (field) SOKS assessment, a stratified random sample of children in Years 2, 4 and 6 was selected, providing around 40 children from each school. All children classified as Code 1, and approximately 1/3 to 1/5 of children in each of Codes 2 and 3 received a second SOKS assessment

under the same conditions by ‘standardised’ dental therapists, blind to the results of the first assessment. The same children then received a third assessment in the school dental clinic, by different ‘standardised’ dental therapists, also blind to the results of both previous assessments. In the clinic, better lighting and the availability of compressed air etc optimised conditions for assessing oral health. No radiographs were taken.

### Analysis

Data were entered into an Excel spreadsheet, and analysed using SAS. SOKS Codes 2, 2.1, 2.2, 2.4 and 2.5 were all grouped into Code 2 as all represent a need for preventive or routine oral health care. Reliability of SOKS codes was assessed using a weighted Kappa statistic. The weighted Kappa assesses the agreement between ordinal measurements, adjusting for chance agreement. Paired t-tests were used to assess differences in mean numbers of decayed, missing and filled teeth due to dental caries between usual field conditions and clinic conditions.

### Results

From the first field SOKS assessment, 28 children categorised as Code 1, 90 as Code 2 and 61 as Code 3 were re-assessed under field conditions and in clinic by ‘standardised’ dental therapists. These 179 children ranged in age from seven to 12 years, and approximately equal proportions came from each of years 2, 4 and 6.

There was little difference in results between schools, so data from all schools were combined.

### SOKS codes

Table 1 compares the codes reported under field conditions with those from assessments performed in the clinics by the ‘standardised’ dental therapists. Of the 32 children categorised as Code 1 by therapists under clinic conditions, 23 were classified as Code 1, and 9 were classified as Code 2 or 3 under field conditions. Of the 46 children categorised as Code 3 under clinic conditions, 9 were classified as requiring oral health care (either Code 1 or Code 2) under field conditions. Overall, there was moderate agreement in the codes collected by these two methods.

### Caries status

For this group of 179 children, mean numbers of decayed teeth, and teeth missing and filled due to dental caries, were compared by their data collection method.

Compared with data collected in the clinic-based assessments, data collected under field conditions consistently under-estimated the number of teeth with decay and number of teeth affected by dental caries (Table 2). Differences were statistically different ( $p < 0.05$ ) for the mean number of decayed teeth (both deciduous and permanent) and mean DMFT indices. Differences in the teeth missing or filled due to dental caries were not statistically different. Mean values for decayed teeth and the DMFT indices collected by ‘standardised’ dental therapists in the field fell midway between those derived from usual field and clinic conditions.

Field SOKS code (usual DT)	Clinic SOKS code ('standardised' DT)			Total
	1	2	3	
1	23	4	1	28
2	8	74	8	90
3	1	23	37	61
<b>Total</b>	<b>32</b>	<b>101</b>	<b>46</b>	<b>179</b>

\*Weighted Kappa = 0.63 (95%CI 0.53-0.73)

**Table 1.** Agreement\* between SOKS codes allocated under usual field conditions and those assigned by ‘standardised’ dental therapists under clinic conditions

	Field	Clinic
<b>Deciduous teeth</b>		
Mean d*	0.83	1.30
Mean m	0.11	0.09
Mean f	0.62	0.66
Mean dmft*	1.56	2.06
<b>Permanent teeth</b>		
Mean D*	0.44	0.74
Mean M	0.02	0.02
Mean F	0.25	0.22
Mean DMFT*	0.70	0.98
<b>All teeth</b>		
Mean d+D*	1.26	2.03
Mean dmft+DMFT*	2.26	3.03

\*Differences in mean values collected under field and clinic conditions statistically significant (p < 0.05)

**Table 2.** Agreement between DMFT components and index between field and clinic conditions

Caries status (clinic, conditions, 'standardises' DT)	Field SOKS code (usual DT)		
	1	2	3
Mean d	2.85	1.35	0.51
Mean D	1.86	0.73	0.23
Mean d+D	4.71	2.08	0.74
Mean dmft+DMFT	6.25	3.38	1.05

**Table 3.** Caries status assessed in clinic conditions, by SOKS code allocated under usual field conditions

While the validity of the SOKS codes can not be assessed, results suggest that children classified as Code 1 require more oral health care compared with children classed as Codes 2 or 3 (Table 3). Urgency of need of care, however, cannot be determined from this survey.

## Discussion

As only four clinics from four AHSs participated, results may not be generalisable around NSW. Interviews with oral health personnel including PDOs and CDHPOs suggest wide variation in implementation of the SOKS Program around AHSs. Quite possibly, results could be different in other schools and AHSs.

Compared with results of previous years assessments, relatively more children were classified as Code 2, suggesting that the examiners were more cautious during this project compared the previous year. Although it is possible that blinding was not achieved, there was little opportunity for examiners to collude. While moderate agreement was achieved between SOKS codes, large differences were found between components of the DMFT index, suggesting that blinding was successful.

Despite these limitations, this project found moderate concordance among the SOKS assessment codes. The project did however, highlight a considerable underestimation of the number of decayed teeth measured under SOKS conditions compared with that measured under clinical conditions and raises concerns

about the quality of these data. These data are used for planning and monitoring purposes both at a State and national level.

## Summary

In summary, there is moderate agreement between SOKS codes assigned under field and clinic conditions. However, validity of these measures is unknown.

The number of teeth affected by decay is consistently underestimated when assessed by the usual SOKS procedures, and this in turn leads to an under-estimation of the DMFT index, or caries experience of children.

## References

1. AIHW Dental Statistics and Research Unit. *Child Dental Health Survey, New South Wales 1996*. AIHW Catalogue No DEN 47. 1999.
2. Abramson JH. *Survey methods in community medicine: Epidemiological studies, programme evaluation, clinical trials*. 4th edition. Churchill Livingstone, Edinburgh 1990.
3. Abramson JH. *Making sense of data: A self-instruction manual on the interpretation of epidemiological data*. Oxford University Press, New York 1988.

# TECHNICAL REPORT 13 Protocol: SOKS Quality Assurance Strategy

## Introduction

In 1996, the Save our Kids Smiles (SOKS) child oral health program was implemented in NSW, replacing a clinic-based system with a needs-based priority system located in schools. The SOKS Program introduced an oral health risk assessment for all children in Kindergarten and grades 2,4,6 and 8. Each child was offered an assessment every two years, but children at high risk of oral disease could access the service more frequently in the managed care program.

A review of the SOKS Program is now taking place and an important component of this review is the assessment of reliability of the SOKS assessment instrument.

## Study aim

To assess the reliability of the SOKS assessment instrument, namely the SOKS codes and dental caries status.

## Rationale

- The SOKS Program has been in operation since 1996 and measurement of the validity and reliability of the risk assessment has not been undertaken on a statewide basis.
- Data from the SOKS assessment program is randomly sampled for the annual Child Dental Health Survey and compared with other States in Australia which use data from a full oral exam. The quality of the SOKS data is unknown as the present time.
- Possible factors influencing the reported reduction in the mean dmft+DMFT (an index of caries experience) between 1995 and 1996 need to be examined. This was the time the SOKS Program was introduced in NSW.

Measuring the validity of SOKS codes is not feasible due to the lack of a 'gold standard'.

The intention of the QA strategy is to evaluate the SOKS assessment tool and not the performance of individual clinicians

## Definitions

**Repeatability / Reliability:** This is where the original readings are compared under the same conditions. This includes *re-test reliability* is where the original readings are compared with a repeat reading. *Inter-rater reliability* in which measures the level of agreement between two practitioners undertaking the same readings.

## Summary of methods

- The project will be called the SOKS Quality Assurance (QA) strategy and will take place within a normal SOKS assessment, using the normal dental therapists.
- A letter will be sent to the Directors of Dental Services / Principal Dental Officers in four Area Health Services (AHS) inviting their participation in the strategy.
- Four primary schools in different Area Health Services (AHS), each with a two-chair oral health clinics in their school grounds will be selected, representing a range of geographic and socio-economic conditions.
- A team of 4 plus 2 reserve Community Dental Health Project Officers (CDHPOs) or Senior Dental Therapists from the participating AHSs will form the QA team.
- The team will meet for one day prior to the field work to agree on SOKS coding, practice coding scenarios and finalise the study protocol.

- The QA SOKS assessment (including local staff members) will be managed jointly by the team member from the host AHS in association with the researcher from the Oral Health Branch. The team member will take responsibility for managing the staff in the Area, liaising with the host school, disseminating and collecting consent forms in advance and providing the necessary clinical equipment.
- The researcher will undertake the sampling, coordination of the QA forms and overall administration of the project.
- The SOKS consent form will be modified to inform parents of the possibility of their child receiving a full oral exam using air (without radiographs). The consent form will be sent out and collected prior to the SOKS assessment. Information about the SOKS / QA procedure will be included in the school newsletter if possible.
- The normal SOKS assessment will be conducted under standard classroom conditions by the normal Area dental therapists (SOKS 1). Portable equipment will be used as required.
- All participating therapists will be identified by ID number only.
- Children will then be sampled to participate in the additional assessments (full details below).
- Children not selected will return to their classrooms with a standard SOKS code letter.
- Children selected for the additional assessments will receive a standard SOKS code letter based on the 'worst' code in each of additional assessments.
- Analysis of data will be undertaken by the researcher. Analysis will be confined to SOKS codes and oral health status data and will not include comparison of individual clinicians.
- A debriefing session including results will take place with the QA team members.

## Selection of survey sites

### Eligible population

Children in the SOKS school grades 2, 4 and 6 are eligible to participate in the QA strategy. Children in these grades, aged from 6 through 12 years will cover a period of changing dentition, from deciduous to permanent teeth and many will have previously participated in a SOKS oral health assessment in Kindergarten.

The selected schools will not have had a previous SOKS assessment for the selected grades in 1999 and will be representative of a range of geographic and socio-economic characteristics in NSW.

### Exclusions

No child will be examined without written parental consent. Children in grades K and 8 will be excluded.

## Sampling procedure

### (See Figure 1)

Sample size calculations will include approximately 25-30 children per school ie. all Code 1s and a random sample of both Codes 2 and 3 (therefore oversampling Code 1s). Approximately eight children per code will be selected.

A child with written consent will participate in a standard SOKS assessment (SOKS 1) and give their SOKS assessment form (Form 1) to the researcher who will note the SOKS code and sample accordingly. If not selected they will be given a standard code letter based on Form 1 and return to their class.

If selected the child will proceed to the second SOKS assessment (SOKS 2) in the classroom with a clean form (Form 2). They will then return Form 2 to the researcher who will give them a clean third form (Form 3), which they will take to the full oral exam in the clinic. The child will then return to the researcher with Form 3 and be given a standard SOKS code letter representing the 'worst' scenario from the three forms.

## Blinding

All children sampled for SOKS 2 and the full oral exam will receive an identification number and will be examined 'blind' ie. the clinician will not have examined the child previously or sighted earlier forms. The QA team will work in pairs, one pair in the clinic and one pair (or individual) undertaking the SOKS 2 assessments. Rotation of teams is recommended for both the SOKS 2 exam and the full oral exam in such a way that avoids a team-member assessing the same child twice. For example a rotation of teams of children could occur half way through the SOKS 2 assessment and the full oral exam. All forms will be administered by the researcher only.

## Training of QA team

The six team members (4 plus 2 reserves) will attend a training day on 1 September 1999 to attain consistency on assessing and documenting SOKS Program codes and criteria. This will include coding scenarios and an evaluation component. The study method and administrative arrangements will also be outlined.

## Additional staffing

Two recorders per school will be required to assist the QA team in the clinic to conduct the full oral exam. A third recorder (or QA team member) will be required for the SOKS2 assessment. Recorders will be selected by the host QA team member and be fully trained in the documenting of the SOKS assessment and full oral exam. Dental assistants and Data entry operators will be used for these positions.

Recording undertaken by members of the validating team in SOKS 2 will exclude them from examining the same child in the full oral exam. It is also recommended that the data recorders for the oral exam remain in the clinic while the children are rotated so they are 'blinded' to the child's previous codes.

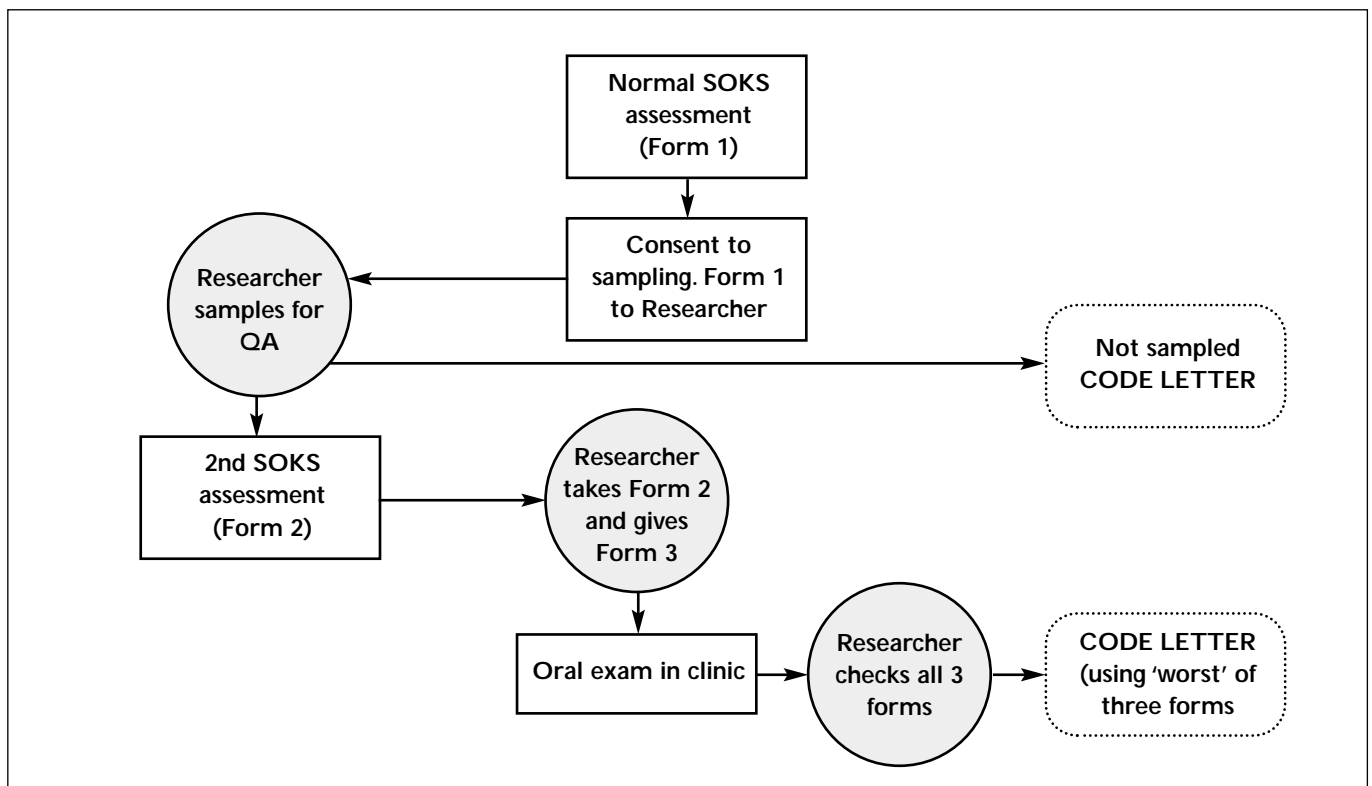


Figure 1. SOKS Quality Assurance Strategy

## Additional decisions on charting for the QA strategy (from training day)

- In SOKS assessments, sound, present or missing teeth due to exfoliation are not recorded.
- In the full oral exam, every tooth will be charted using 's' or a diagonal line if missing or unerrupted.
- Any previous dmf (caries) experience signifies coding for fissure sealants (Code 2).
- Any child with experience of cavities in anterior teeth will be coded as a Code 1.
- All orthodontic work required refer to a dental officer.

## Survey documentation and recording of clinical data

### *Dental Assessment forms 1 to 3*

**Form 1 (normal SOKS assessment):** This will be a standard SOKS consent form modified to include parental consent for a possible sampling procedure and ID system.

The charting used for the SOKS consent form will be used.

Note: calculation of dmft / DMFT will be done separately.

**Form 2 (for 2nd SOKS assessment):** Standard SOKS assessment form with ID as above and normal charting outline. It will not have child's personal details on it.

**Form 3 (for full oral exam in clinic):** As for form 2.

### **Additional sheets for sampling (for use by researcher only)**

- (a) ID sheets - allocation of ID for child (eg 001, 052).
- (b) Reconciliation sheet (school code, child and clinician IDs, codes for Forms 1,2,3 and final code number).

## Equipment and resources

Access to a two-chair child oral health clinic located in the grounds of a primary school

Clinical resources required per school - Note that these are additional to the equipment for the normal SOKS assessment and based on 30 children being sampled per school for SOKS 2 and the full oral exam. Equipment for the normal SOKS exam may include 2 portable dental chairs or tables, portable lights etc.

### **SOKS 2**

- mobile dental chair or table (or school chair if used normally)
- mobile light (if normally used)

### **SOKS 2 and oral exam in clinic**

- 80 pairs Dental examination gloves (40 x 2 exams)
- protective glasses (operator and patient)
- dental masks
- mirrors
- probes
- sterilising solution and containers
- gowns (if applicable)
- disposal bags
- Documentation - Forms 1,2,3 (30 each of Forms 2 and 3), Reconciliation and ID sheets, Pencils / pens, Stapler / eraser etc.

# Survey of treatment status

## Background

The follow up of children assessed in the SOKS Program is an important part of the program's review. After assessment, oral health care can be sought from either, or both, public and private sectors. If children, especially those classified as requiring urgent or routine care (Codes 1 and 2) are not receiving appropriate oral health care after their SOKS assessments, then the program has failed. Using SOKS data and clinical data from public oral health clinics, children who received SOKS assessments and who subsequently received oral health care in public clinics can be followed up.

## Aims

Of children who received SOKS assessments in 1998:

- to determine the proportion of children who subsequently attended public oral health clinics in NSW, by their SOKS assessment result.

Of the children who received SOKS assessments and attended public oral health clinics:

- to determine the time between the assessment and the appointment.
- to describe the type of treatment they received.
- to assess the proportion who required pain relief subsequent to their course of care.

## Methods

Five Area Health Services (AHS) and one clinic from each were selected. AHS and clinic selection aimed to provide a range of geographic location and socio-economic status. For each clinic, around 30 children categorised as Code 1, 40 as Code 2 and 30 as Code 3 were randomly selected from the SOKS database maintained in Oral Health Branch. All children selected were assessed during a defined period at various times between April and August in 1998.

Each AHS was asked to complete a questionnaire for each child, detailing their SOKS code and assessment date, some demographic information and attendance at a public oral health clinic in the 12 months after the SOKS assessment. If the child had attended a public clinic in the 12 months subsequent to the SOKS assessment, then details of the oral health care provided (for example, date of attendance, type of treatment provided, number of appointments, whether treatment was completed or not) were requested. A copy of the questionnaire and its instructions are found in Technical Report No. 15.

Questionnaires were returned to Oral Health Branch and entered into an Excel spreadsheet. Where the day of the SOKS assessment was not specified, the first day of the month was recorded. Data were analysed using SAS.

## Results

Of the 500 records selected, data were received for 469 (94%). Two duplicates were removed and 18 children with an unknown SOKS category were excluded, leaving 449 children for whom the result of SOKS assessment was known, for analysis.

Of these 449 children, 130 were categorised as Code 1, 191 as Code 2 and 128 children classified as Code 3 (Table 1).

The numbers and proportions of children attending public oral health clinics by SOKS code are shown in Table 1. As expected, the proportion of children attending public oral health clinics in the 12 months after their SOKS assessment declined as their need was categorised as less urgent. Just over half the Code 1 children attended a public clinic in the 12 months compared with 11% of children categorised as Code 3. As only 14 children classed as Code 3 attended public clinics in the following 12 months, interpretation of survey results for these children is difficult. Twenty-nine children were placed on a waiting list and all received care.

SOKS code	Number of children in survey	Attendance at public oral health clinic in the 12 months after the SOKS assessment	
		Number of children	Proportion of children (%)
1	130	69	53
2	191	71	37
3	128	14	11

**Table 1.** Proportion of children attending public oral health clinics in the 12 months after their SOKS assessment, by SOKS code

SOKS code	Type of treatment provided		
	Urgent	Routine	X-ray or consultation only
1	7	55	7
2	3	54	14
3	3	8	3

**Table 2.** Number of children receiving urgent, routine or consultative treatment by SOKS code

SOKS code	Time (days)				
	0-7	8-28	29-91	92-365	Median
1	13	34	16	5	22.5
2	2	12	25	30	83
3	1	4	3	6	39.5

*Note: data missing for two children*

**Table 3.** Time (days) between SOKS assessment and first clinic appointment, by SOKS code

The type of treatment provided to the 154 children who received SOKS assessments and who attended public oral health clinics in the following 12 months is shown in Table 2. Ninety per cent of the children classified as Code 1, 80% of Code 2 and 79% of Code 3 received treatment categorised as urgent or routine.

Table 3 shows the time between the SOKS assessment and first clinic attendance and the average number of appointments, for the 154 children who attended public clinics in the 12 months post SOKS assessment. As hoped, children with greatest need waited least time, although some waited over three months. Sixty-eight per cent of children classified as Code 1 waited up to four weeks, and 30% waited longer than one month. Of children categorised as Code 2 and 3, 20% and 36% respectively, waited up to four weeks.

Forty-two per cent of children in Code 2 did not receive care for at least 3 months after their assessment.

As expected children classified as Code 1 required more appointments to complete their course of care than children from Codes 2 and 3 (Table 4). The majority of children completed their course of care – 87%, 89% and 100% of children classified as Codes 1, 2 and 3 respectively.

Very few children who completed their care returned to the clinic within the following six months (see Table 5). Seven per cent and 5% of children from Codes 1 and 2 respectively, returned for an emergency appointment.

SOKS code	Median number of appointments	Range in number of appointments
1	3	1 – 10
2	2	1 – 4
3	1	1 – 3

**Table 4.** Number of appointments in course of care, by SOKS code

SOKS code	Relief of pain or emergency	New course of care	No further treatment
1	4	4	50
2	3	3	56
3	0	1	13

*Note: data missing for two children*

**Table 5.** Numbers of children returning for care in the six months following completion of their previous course of care, by SOKS code

## Discussion

While it is encouraging that 53% of children classified as requiring urgent oral health care attended public oral health clinics in the 12 months following their SOKS assessment, we have no information about the other 47% who also required urgent care. As well, it is unknown what happened to the 63% of Code 2 and 89% of children categorised as Code 3 who were not seen in public oral health clinics. Whether they attended private dental practitioners or did not seek treatment at all is unknown.

It is also encouraging that the majority of children categorised as requiring urgent care (Code 1) attended a public oral health clinic in the following four weeks, 30% waited longer than four weeks, and 7% waited over three months. Similarly 42% of children in Code 2 waited over three months before their appointment.

It is difficult to make sense of the data about whether the child was placed on a waiting list. The question was ambiguous and it was not clear whether the placement was before or after the clinic care. All 29 children who were placed on a waiting list received care - a large proportion of these children may have been placed on the waiting list after their course of care was completed.

It is also difficult to make sense of the data about type of care children received as the types of care were not defined. As 90% of the children classified as Code 1, 80% of Code 2 and 79% of Code 3 received

treatment categorised as urgent or routine. We also did not ask if the first appointment after the SOKS assessment was the result of need for emergency care.

Although numbers are small, it is interesting that 7% and 5% of children categorised in Code 1 and 2 respectively, required emergency appointments in the 12 months after their original care was completed.

Results from this survey may not be generalisable to all children in NSW. A convenience sample of AHSs, and a convenience sample of clinics were selected. As well, times between SOKS assessments and clinic appointments are likely to vary by AHS and clinic, by time of year, and by work load.

## Summary

The proportions of children attending public clinics by SOKS assessment code, as well as their waiting times suggest that children categorised as Code 1 are receiving priority of access in public clinics.

However, data also highlight that outcomes for the majority of children receiving SOKS assessments are unknown. Without that information, it is impossible to determine whether the program has been successful or not. Ideally, follow up children in both private and public sectors should have been planned from the beginning. Unfortunately resources available to the review, including time limitations, precluded such a survey.

# Instructions for survey of treatment status

## Aims

To determine from a sample of children receiving SOKS assessments:

1. What proportion in each SOKS Code subsequently attend public dental clinics?
2. How long after the assessment did they attend ?
3. What treatment was given?

## Instructions

1. You have been supplied with two sets of information:
  - a. Three blue sheets (A) containing a total of 99 randomly selected records from the SOKS database held by the Oral Health Branch. There are 29 records on the sheet for SOKS Code 1, 40 for Code 2 and 30 records for Code 3. These children all received SOKS assessments in your District (701) between 1 – 31 August 1998.
  - b. Child Survey Form (B) to complete details from each child's SOKS record and whether treatment was sought.
2. Using the SOKS database held in your District, please do the following:
  - a. Find the district and child ID numbers provided in the three blue sheets.
  - b. Identify the selected children by name. We have left a column for you on the blue sheets to write their names in.
3. The names on these sheets are for your use only in tracking the treatment sought. All information returned to the Oral Health Branch will use ID codes only and not include the child's name.
4. Please make 100 copies of the white Child Survey Form (B) – one for every child.
5. Please complete a new Child Survey Form for every child (total of 90 forms). You must write the child's ID and SOKS District on top of the form (the same ID and District code we have provided to you in the blue sheets (A).

6. Information to be entered onto the top half of Form B comes from the SOKS record and includes date of birth, sex, SOKS code, date of SOKS assessment and language spoken at home.
7. Please ensure that the SOKS code for each child from your database matches the information provided in the relevant blue sheet A. Also that date of assessment is between 1 – 31 August 1998.
8. Then take the blue sheets with the names and IDs and SOKS information to the relevant clinic(s) to search clinic dental records to find out whether each of the 90 children attended a public dental clinic in the 12 months after the SOKS assessment date. Some of the clinics used by children may not be in the nominated SOKS District so these will also need to be checked.
9. If there is no record of that child attending a public clinic in the 12 months since the SOKS assessment, then circle 'No' in the appropriate box on Form B and go on to the next child.
10. If the child did attend the public dental clinic in the 12 months after the SOKS assessment, then complete the Child Survey Form as well as you can, using the instructions in the middle column of the form. Please note the letters 'ROP' mean 'relief of pain'.

**Please send all Child Survey Forms (B) back to Susan Lister at Oral Health Branch by November 30th 1999. Do not send back the blue sheets (A) which contain the children's ID numbers and names.**

***If you have any questions about this survey, or how to complete the forms, please ring Susan Lister on (02) 9816 0306.***

## Child Survey Form (B)

Information from Forms A	Instructions	Write answer in this column
SOKS district code	Write number	
Child ID (from SOKS record)	Write number	
<b>Information available from SOKS record</b>		
Date of birth	Day/Month/Year	_____/_____/_____
Sex	Tick	<input type="checkbox"/> Male <input type="checkbox"/> Female
SOKS code	Write code	
Date of SOKS assessment	Day/Month/Year	_____/_____/_____
Language spoken at home	Tick	<input type="checkbox"/> English <input type="checkbox"/> Other (specify)
<b>Information to be collected from clinic records</b>		
Did child attend a public dental clinic in the 12 months after SOKS assessment	Tick	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>If NO, no further information is required for this child. Go on to next child.</b> <b>If YES, please continue</b>		
Date of first attendance at clinic	Day/Month/Year	_____/_____/_____
Was the child placed on a waiting list?	Tick	<input type="checkbox"/> Yes <input type="checkbox"/> No
Was the appointment made because of an injury to the mouth or teeth?	Tick	<input type="checkbox"/> Yes <input type="checkbox"/> No
What type of treatment was provided?	Tick <i>ONE only</i>	<input type="checkbox"/> Routine <input type="checkbox"/> Consultation or X-ray only <input type="checkbox"/> ROP
How many appointments were required for this course of care?	Write number	
Was treatment completed?	Tick	<input type="checkbox"/> Yes <input type="checkbox"/> No
Date of last appointment in that course of care	Day/Month/Year	_____/_____/_____
Did the child return for a NEW course of treatment, or ROP, in the 6 months following that last appointment?	Tick <i>ONE only</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> ROP
Write any additional comments here		

# Survey of children seeking emergency care

## Background

The SOKS Program aims to identify children requiring urgent oral health care, and to encourage them to seek care. If the SOKS Program were successful, the numbers of children attending public oral health clinics for relief of pain or emergencies (especially facial swellings and toothache) should be low. In children’s oral health services in NSW in 1998, one-third (34%) of all first visits for the year were for relief of pain or an emergency. These visits also accounted for 13% of all attendances. The proportion of first visits for relief of pain (not Code 1) varied between 16% and 60% by Area Health Service (Table 1).

As part of the evaluation of the SOKS Program, Oral Health Branch undertook a survey to determine reasons children attended public oral health clinics for emergency care, and whether or not, they had been assessed in the SOKS Program.

## Aims

This survey aimed to:

- describe the reasons children attend public child oral health clinics for relief of pain or emergencies.
- determine whether these children had received a SOKS assessment in the previous 12 months, and if so, how they were categorised.

## Methods

A clinic was selected from each Area Health Service, and for each clinic a date in 1998. From that date forward, staff identified the first 10 children aged between five and 15 years attending the clinic for an emergency. For each of these children, demographic data, the reason for the appointment, and information on previous clinic attendance and participation in the SOKS Program in the previous 12 months were sought. Technical Report No. 17 provides details of the questionnaire.

AHS	Emergency visits as a percentage of first visits	AHS	Emergency visits as a percentage of first visits
Central Coast	51.7	Far West	21.9
Central Sydney	22.8	Greater Murray	21.3
Hunter	19.9	Macquarie	22.3
Illawarra	49.0	Mid North Coast	56.0
Northern Sydney	27.1	Mid Western	16.2
South Eastern Sydney	36.4	New England	29.9
South Western Sydney	59.6	Northern Rivers	56.8
Wentworth	30.1	Southern	28.7
Western Sydney	17.5		

*Source: DMIS, Oral Health Branch*

**Table 1.** Emergency visits as a percentage of first visits by Area Health Service, Child Oral Health Services, NSW 1998

Data sources included the clinic appointment or day book, children's oral health records and the local SOKS database.

Data were entered into an Excel spread sheet and analysed using SAS. Children were regarded as having had an opportunity for a previous SOKS assessment if they were in grade 1 or higher, or, if their grade was unknown, if they were aged eight years or more.

## Results

All but one AHS participated, providing information on 160 children who attended public oral health clinics for relief of pain or emergency appointments during 1998/99. Seven children outside the specified age range of 5 to 15 years were excluded from the analysis.

Of the 153 children, 75 were female and 76 male and the sex of two children was unknown. Their ages ranged between five and 15 years, including four children whose age was unknown, but who were in grades 1, 6 and 9 at school.

Forty-three (28%) children attended for emergency care for a severe toothache, 32 children (21%) presented with a swelling caused by an infection, 17 children had lost a filling, 12 attended because of injury and nearly one-third of children (n = 48) had

made appointments for other reasons. Comments by data collectors for 31 children attending for 'other' reasons indicated that the majority (n=21) attended because of exfoliation and eruption problems.

Over 93% (n = 143) of children either participated in the SOKS Program or attended a public clinic in the previous 12 months, or would have had the opportunity to participate in SOKS at some time. Table 2 shows their reasons for emergency attendance. Of the 10 children who may not have had an opportunity to participate in SOKS and who did not attend a public clinic in the previous 12 months, five presented with severe toothache, two had suffered injury and three attended for other reasons.

In the 12 months prior to this emergency appointment, 55 children (36%) had received a SOKS assessment. Ten children were categorised as requiring urgent care (Code 1), 28 children were classified as Code 2 and 17 children as Code 3 (Table 2).

The majority of children who had been classified as Code 1 attended because of a swelling due to infection, or a severe toothache. For children classified as Code 1, the time between their SOKS assessment and the emergency appointment varied between 6 and 279 days. The median time between assessment and the emergency appointment was 161.5 days (more than five months) (Table 3).

Reason for attendance	SOKS Assessment			No SOKS assessment but would have had the opportunity, and		Total
	Code 1	Code 2	Code 3	attended public clinician previous 12 months	no clinical attendance in previous 12 months	
Swelling due to infection	6	5	2	6	13	32
Severe toothache	1	11	5	5	16	38
Lost filling	1	3	3	6	4	17
Injury	1	3	0	2	4	12
Other	1	5	7	15	17	45
<b>Total</b>	<b>10</b>	<b>28*</b>	<b>17</b>	<b>34</b>	<b>54</b>	<b>143*</b>

\*The total includes one child assessed as Code 2, but whose reason for attending was unknown.

**Table 2.** Numbers of children requiring emergency oral health care, by reason for attendance and receipt of SOKS assessment in previous 12 months, or not

Of the 45 children classified as Code 2 or 3, 23 (51%) attended for swelling caused by an infection or a severe toothache. Table 3 shows the variation in times, and median times between assessment and attendance for emergency care.

Fifty-nine of the 153 children (39%) were seen in a public clinic in the 12 months prior to this emergency appointment (including 25 who also received SOKS assessments). Of these 59 children, 25 required emergency appointments during the following 12 months because of swelling or severe toothache (Table 4).

Of the 54 children who did not participate in SOKS or attend a public clinic in the previous 12 months, but who should have had an opportunity to participate in the SOKS Program, 29 attended because of a swelling or severe toothache.

## Discussion

This was an exploratory study only. The reasons for attendance and definitions of types of treatment were not clearly defined and the period of SOKS assessment was limited to the 12 months before the emergency appointment. As the SOKS cycle is every two years, an unknown additional number of children would have had a SOKS assessment in the time

between 12 and 24 months. The survey only included children aged 5-15 years, and therefore precludes any assessment of the demand for emergency care in pre-school aged children. A more detailed survey of children attending for emergency care would provide more information and more detail.

Changes in the rates of attendance for emergency care would provide additional information about the impact of the SOKS Program. As oral health data collections have changed over time, it is not possible to evaluate trends in the numbers and proportion of attendances for emergencies.

In this survey, nearly 50% of emergency appointments were for facial swellings of infective origin or severe toothaches. The remaining attendances (for injury, lost fillings and other reasons) are regarded as being more difficult to anticipate. Although not all facial swellings of infective origin or toothaches are identifiable or preventable, children presenting for these reasons represent failures of the SOKS Program to identify and provide oral health care to prevent such emergency appointments. Of the 75 children who attended because of swelling or toothache, in the previous 12 months, 14 children had attended both a SOKS assessment and a public clinic in the last 12 months, 16 had a SOKS assessment only and 11

Time (days)	SOKS assessment code		
	1	2	3
Range	6 - 279	2 - 323	12 - 365
Median	161.5	160	203

*Note: data for 1 child, categorised as Code 3 unknown*

**Table 3.** Time between previous SOKS assessment and emergency appointment for those children who were assessed in the 12 months prior to SOKS

Reason for attendance	Type of care received			Total
	Routine	Consultation or radiography only	Emergency	
Swelling due to infection or severe toothache	14	1	10	25
Lost filling, injury or other reason	20	3	11	34
<b>Total</b>	<b>34</b>	<b>4</b>	<b>21</b>	<b>59</b>

*Data include 25 children who also had SOKS assessment in 12 months before emergency attendance*

**Table 4.** Reason for emergency attendance for children who had attended public clinics in the previous 12 months, by type of care received

attended a clinic only. In addition, 29 would have had an opportunity to receive an assessment in the SOKS Program at some time during their school life.

Seven children required emergency appointments for facial swellings or severe toothaches, despite the SOKS Program identifying them as requiring urgent care within the previous year. These children, under the aims of the SOKS Program, should all have received care soon after their assessments. Reasons for the delaying attendance (an average of five months between assessment and appointment) are unknown but may include patient apathy or preference, or clinic workload or practices. If those identified as requiring urgent care do not subsequently attend for oral health care, the program is ineffective.

That 23 children who had been classed as Code 2 or 3 presented with a facial swelling or severe toothache in the following 12 months questions the validity of the coding.

Receipt of oral health care in public clinics should provide an opportunity to prevent most future presentations for emergencies such as swellings or toothaches. That 25 of the 75 children attending for emergency care because of facial swelling or severe toothache had been seen in a public clinic in the previous 12 months, suggests that the care provided did not achieve desirable oral health outcomes.

Screening programs should only be implemented if the service supporting the assessment can provide appropriate quality care. Results from this survey, and also from the treatment status survey where only 53% and 37% of children classified as Code 1 and 2 respectively, attended public clinics in the following 12 months question the effectiveness of the SOKS Program.

## Summary

While only an exploratory study, a large proportion of children who attended for emergency care had contact with either the SOKS Program or a public clinic in the previous 12 months. Results suggest that the SOKS Program is not preventing a large proportion of attendance for emergency care in public clinics. As well, when clinical care is provided, it may not prevent attendance for emergency even within following 12 months.

# Instruction sheet - emergency survey

*Please send all completed white Relief of Pain / Emergency Survey Forms back to Susan Lister at Oral Health Branch, NSW Health, Locked Bag 961, North Sydney, NSW 2059 by Wednesday 15 December 1999.*

## Aims

To determine from a sample of children attending a child oral health clinic for relief of pain (ROP) or emergency treatment:

- What was the primary diagnosis for the ROP / Emergency ?
- What proportion had received a SOKS assessment in the previous 12 months?
- Of those that had received a SOKS assessment, what was the SOKS Code?

## Instructions

1. You have been supplied with three sheets:
  - Instruction sheet (purple – this sheet).
  - List of children's names (green) (for your use only).
  - Relief of Pain / Emergency Survey Form (white).
2. In summary, for this survey you will need to:
  - Go to the nominated Child Oral Health Clinic and select 10 records.
  - Then search your SOKS database(s) for information on these 10 children.
3. Go to the «Clinic» Child Oral Health Clinic
4. Find the Day Book (or Appointment book) for «M\_1998\_Day\_book\_date».
5. Start from this date and identify the names of first 10 consecutive children aged between 5 and 15 years attending the clinic for emergency care or relief of pain. Write down their names on the green 'List of children's names' sheet in the order they appear in the book.

6. Please do not include children if they failed to attend the clinic. Please do not miss any children even if their clinic records are incomplete.
7. The name of the first child should be written against ID number 1 on the green sheet, the second child against ID number 2 etc. You will later need to add other information to this sheet from the clinic record to help you track each child in the SOKS database ie. school and grade. You will need to record school and grade for the current year (1998) as well as the year before (1997) if possible to help in your search.

***The green 'List of children's names' is for your use only and should not be returned to the Oral Health Branch. Please keep this sheet for future reference.***

8. Make 10 photocopies of the ROP / Emergency Survey Form attached – one for each child.
9. Fill out a new ROP / Emergency Survey Form for each child (total of 10 forms), using the shaded boxes. You must first write the ID number you have given the child (between 1 and 10), the name of the clinic and the Area Health Service on the top part of this form. Instructions for completing each of the following questions are given in the middle column.
10. You may like to use the 'Comments' section in the question on primary diagnosis of the ROP e.g. 'for cases where the presentation was not considered a 'true' ROP.
11. If a clinic record for a child is incomplete, write this in the comments box at the end of the child's form.
12. Go to the Area SOKS database (or databases) and search for each child listed on the purple sheet. The purpose is to identify whether the 10 children had a SOKS assessment in the last 12 months i.e. between «M\_12\_month\_period». This means you will need to use the school and grade for both 1998 and 1997 in your search.

If information for 1997 is not available, use the same school as for 1998 but use the previous school grade i.e. if child is in grade 5 in 1998 then search for grade 4 in 1997.

13. If a child had a SOKS assessment in this time, circle 'Yes' on the ROP / Emergency Survey Form and complete the remaining questions. Then go to the next child in the list and repeat the process.

If the child did not have a SOKS assessment in this time, circle 'No' and go to the next child.

You may find it helpful to record this result on the green 'List of children's names' in the two fields (SOKS assessment in last 12 months / Date of assessment).

***Please send all completed white Relief of Pain / Emergency Survey forms back to Susan Lister at Oral Health Branch, NSW Health, Locked Bag 961, North Sydney, NSW 2059 by 15 December 1999.***

***If you have any questions about this survey, or how to complete the forms, please telephone Susan Lister on (02) 9816 0306***

## Relief of pain / emergency survey form

From Day Book	Instructions	Write answer in this column
Child ID (1 to 10)	Write number from List of children's names	
Date of ROP / emergency appointment	Day/Month/Year	____/____/____
Clinic Name	Write name	
Name of Area Health Service	Write name	
<b>From child's clinic record</b>		
Date of birth	Day/Month/Year	____/____/____
Sex	Tick	<input type="checkbox"/> M <input type="checkbox"/> F
School grade	Write grade	
What was the primary diagnosis for ROP or emergency? Comments:	Tick ONE only	<input type="checkbox"/> Swelling due to infection <input type="checkbox"/> Severe toothache <input type="checkbox"/> Lost filling <input type="checkbox"/> Other
Was the ROP due to trauma or injury?	Tick	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the child present at the clinic in the 12 months before the ROP attendance?	Tick	<input type="checkbox"/> Yes <input type="checkbox"/> No
If YES, What type of treatment was provided in the most recent presentation before ROP?	Tick ONE only	<input type="checkbox"/> Routine <input type="checkbox"/> Consultation or X-ray only <input type="checkbox"/> ROP
<b>Cross check clinic information with the Area SOKS database</b>		
Did the child have a SOKS assessment in the 12 months before the ROP attendance?	Tick	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>If YES, please continue</b> <b>If NO, no further information is required for this child. Go on to next child.</b>		
Date of SOKS assessment	Day/Month/Year	____/____/____
SOKS Code given at the assessment	Tick ONE only	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2.1 <input type="checkbox"/> 2.2 <input type="checkbox"/> 2.4 <input type="checkbox"/> 2.5 <input type="checkbox"/> 3
Language spoken at home?	Tick ONE only	<input type="checkbox"/> English <input type="checkbox"/> Other (specify)
Write any additional comments here		

# Data collection in child oral health services

## NSW SOKS database

A database for the SOKS risk assessment (RA) was developed in 1996. Demographic data collected for each child participating in the assessment include name, address, sex, age, place of birth, Aboriginality, language spoken at home and whether the child attends a private dentist and, or, the public child oral health clinic. Data also include the name of the school, grade and class. All data are provided by parents or guardians on the consent form for the risk assessment.

Clinical staff complete the assessment form and odonotogram during the RA. All data are then entered into the SOKS database in each AHS. The number of children seeking clinical care (that is, “treatment sought”) is also collected and entered. Each AHS is able to generate a limited range of reports on oral health status, although it is not always possible to aggregate all the AHS data onto one computer.

De-identified data are then submitted to the NSW Oral Health Branch where oral health status reports are generated by State, AHS, school or grade. These data are available on the HOIST system, a data warehouse and analysis system used in population health and surveillance across all AHSs.

## Dental Management and Information System (DMIS)

Clinical data from child oral health clinics were collected as part of the Dental Management and Information System (DMIS) until October 1999.<sup>1</sup> The DMIS was an optical mark read system which collected de-identified information on the clinical services provided at each appointment by each clinical operator. Information obtained included first attendance, occasions of service, type of treatment sought and treatment provided. The data were submitted to the NSW Oral Health Branch and scanned into the database. Routine reports were then prepared for each AHS.

As DMIS was not YK2 compliant, had little support from AHS staff and a statewide integrated Oral Health Information Technology system was being developed, this system was de-commissioned in October 1999.

## Patient records

A patient record is completed manually for each child attending a child oral health clinic. Data items include name, age, address, sex, SOKS code, reason for attendance and treatment provided. Each AHS designs its own patient record card and may include information on ethnicity and Aboriginality. As clinical staff do not have direct access to the Area SOKS database they are unable to obtain details of the SOKS assessment at the time of the appointment. These data are therefore obtained either from the code letter provided by the child or by self-report. If the child is attending the clinic for the first time, a full oral examination is undertaken and recorded.

## Waiting lists

Most children in NSW are placed on waiting lists for routine clinical care. In two AHSs, a waiting list for children requiring urgent care (Code 1) also exists. A manual, clinic-based waiting list system is used which is usually managed by clinic staff. Some children are placed on more than one waiting list by their parents.

## Child Dental Health Survey

Data are sampled annually from the SOKS risk assessment database and forwarded to the Dental Statistics and Research Unit of the Australian Institute of Health and Welfare for inclusion in the national Child Dental Health Survey. NSW contributes around one third of the national data and this is used for the monitoring of child oral health status and planning of services.<sup>2</sup> Annual reports for NSW are also published.<sup>2,3</sup>

## Analysis of SOKS data from 1996 to 1998

A report of results of the SOKS RA data from 1996 to 1998 is being prepared at the time of writing.<sup>4</sup> Selected results are reported in this review.

### Participation rates

In 1998, most schools participated in the SOKS Program (89%; N=2,736). Almost two-thirds (63%) of all children in the eligible grades received a SOKS risk assessment, being 33% of children in all grades K to 8. Data show a decreasing level of participation with increasing age, with the majority of children in Year 8 not receiving a RA. Participation rates in 1998 varied from 73% of children in Kindergarten to 40% of children in Year 8 (Table 1). Data are not collected on non-participants in the SOKS Program. There is no information on oral health status of the one-third of children who do not participate in the SOKS Program.

### SOKS assessment codes

Trends for each of the SOKS assessment codes for the period 1996 to 1998 are shown in Table 2. Trends in the three coding categories show little change the three year period. The proportion of children categorised as Code 1 ranges from 3.7% to 4.6% and for Code 2 from 39% to 41%. The three-year period over which the data are collected may also be too short to identify a change in coding categories. The proportion of children in urgent need of clinical care has not decreased. The results are consistent with reports of high levels of clinic attendance for emergency care as described in Technical Report No. 16. This suggests that children at high risk of oral diseases are not accessing oral health care.

School grade	% participating
K	72.4
2	73.0
4	65.9
6	58.4
8	40.3

**Table 1.** Participation rates by school grade in the SOKS Program 1998

Children receiving a SOKS assessment in 1996 were matched with children assessed in 1998. Half (50%) the children assessed as Code 1 in 1996 were Code 2 in 1998, but 28% remained Code 1. These data suggest that some of the high-risk (Code 1) children are either not accessing care or the treatment received is not effective.<sup>4</sup>

## Summary

A large amount of risk assessment data are now available for the period 1996 to 1998 in the SOKS database and accessible to all AHSs via the HOIST system. Most schools in NSW participate in the SOKS Program. Data show a decreasing level of participation with increasing age, with the majority of children in Year 8 not receiving a RA. The oral health status of the one third of children who do not participate in the SOKS RA requires further investigation, and could be combined with a statewide survey on treatment outcomes.

The development of an Oral Health Information Management System, Waiting Time Management Program and Oral Health Minimum Data Set provide an ideal opportunity for the child oral data health collections to be revised and integrated into the new statewide information technology system.

## References

1. NSW Health Department. *SOKS Dental Management Information System: Instruction Manual*. NSW Health Department, 1997.
2. AIHW Dental Statistics and Research Unit. *Child Dental Health Survey, New South Wales, 1996*. Catalogue No. DEN 47, The University of Adelaide, Adelaide, 1999.
3. AIHW Dental Statistics and Research Unit. *Child Dental Health Survey, New South Wales, 1997*. Catalogue No. DEN 54, The University of Adelaide, Adelaide, 2000.
4. NSW Health. *NSW child oral health report: Save Our Kids Smiles 1996-1998 (draft)*. Oral Health Branch, NSW Department of Health, 1999.

	1996	1997	1998
Code 1	3.7	4.3	4.6
Code 2	38.9	41.4	40.0
Code 3	57.4	54.2	55.2

**Table 2.** Proportion of children in each assessment code, SOKS Program 1996 to 1998

# Economic Analysis of the SOKS Program

## Structure of the SOKS Program

The structure of the SOKS Program has been simplified in order to model the cost structure and implications of movements in funding resources. For the purposes of this modelling it is assumed that there is a central pool of funding, that is then distributed between three separate activities; Public education, screening/assessment and treatment. These three activities are linked. Public education reduces the incidence and the need for treatment, screening discovers the need for treatment and treatment is related to the oral disease found.

The system is complicated by the existence of private health care which may treat some of the disease found by screening and the idea that the treatment of oral disease may not be limited to disease found by the assessment program and there is the possibility of unnecessary servicing in the treatment area.

The aim of the three functions (public education, assessment, and treatment) is to reduce the burden of oral disease in ways that ultimately interact. Education of children will hopefully reduce the burden of disease in children over time. Assessment will identify children for whom treatment will improve oral health and treatment will reduce the prevalence of oral disease that has been identified with or without the use of the SOKS Program.

The presence of private treatment complicates the costing, evaluation and implementation of the SOKS Program. This is largely due to the possibility that private treatment may or may not reduce the number of services required under SOKS. For instance, if severe dental disease is being treated by private dentists this will reduce the treatment requirements of the SOKS Program. On the other hand, if private dental treatment is primarily for minor conditions it will not influence the requirement for dental treatment from the SOKS Program.

## Cost modelling of the three arms of the SOKS Program

### Global budgeting

The global budget for the dental services in New South Wales is approximately \$70 million. From this approximately \$15 million is spent on child oral health services including the SOKS Program. Approximately one third is spent on oral health education / promotion and on the risk assessment.

### Oral health education and promotion (OHP)

Approximately 5-10% of the time available for the dental centres is used for the purposes of OHP. Assuming costs can be allocated on the basis of time, this arm of the SOKS Program costs approximately \$750,000- \$1.5 million. This cost division assumes that on a per diem allocation education is as expensive as assessment and treatment of children within the SOKS Program. This is probably an over-estimate. A more appropriate way to allocate the resources may be on the basis of wage costs of the dental therapists. Under this assumption the cost of the public education is \$309,000 - \$618,000.

The approximate coverage of the SOKS Program is 56% but this probably underestimates the coverage of the public education program because the public education will include children who were not consented for treatment.

### Assessment of children

In 1998 270,202 children were assessed in the SOKS Program with another 18,964 having parents who refused consent. For the purposes of this analysis the refusal of consent is considered the same as removal from the sample. The rate of consent refusal is 6.4% amongst the returned consent.

It should be noted that the coverage of the SOKS Program is not comprehensive. A number of assumptions are required to model the expansion of the services. The first is that costs are linear. Assuming the costs of the project are linear and can be allocated on a time basis, the cost of the assessment program is approximately \$4.5 million.

This is probably an over-estimate of the cost because the allocation on the basis of time over-estimates the cost of the education and the assessment programs and underestimates the value of the treatment arm of the program. Based on a time estimate this is a cost of \$16.10 per child assessed. The cost is probably best modelled by the attribution of wage costs of dental therapists. This is a cost of \$6.60 per child examined. Materials and travel costs would increase this to \$9 per child. This is probably a more realistic estimate, and brings the cost of providing assessment to \$2.5 million.

## Cost modelling of service expansion

Assuming a linear model, the cost of expanding the assessment to the uncovered population is approximately \$1.9 million using the cost of \$9 per child.

### Treatment

Treatment for the SOKS Program is provided through public dental clinics and by private oral health practitioners. For the purpose of this analysis, treatment through the public and private systems for an individual is considered to be equivalent. This leads

to the conclusion that, given a resource constraint, a Code 1 or Code 2 child who receives private treatment results in the promotion of the goals of the SOKS Program.

## Dental Therapists

### Treatment for Code 1

In 1998 there were 12,528 children diagnosed as being Code 1, which involved 23,736 visits to public dental therapists. This is an average of 1.9 visits per Code 1 child. However there were only 6940 first visits and if it is assumed that these represent the burden of new disease then 55% of those with Code 1 are being treated.

It is assumed that the use of dental services is appropriate for the treatment of those who have Code 1 disease.

In 1998, there were 270,202 people assessed by the SOKS Program representing 55.6% of the assumed target group. However there were 18,964 consent refusal and these should be removed from consideration. Excluding these from the analysis results in 58% patients who were potentially available being assessed. If it is assumed that those who did not return the survey where as likely to refuse consent as those who did refuse it then 59.5% of those available where assessed. Further assuming that the rate of being coded with Code 1 disease is the same in the unassessed as well as the assessed population then the number of potential children with Code 1 disease is 21,067. This is 8,539 more patients than are currently assessed.

### Dental Therapist treatment requirements for Code 1 patients

The following table describes the number of people who could potentially present for treatment to the SOKS Program depending on the portion that attend private dental treatment. For example a 10% attending private practice results in a reduction in the number of people with Code 1 disease by 10% to 16,854 which are potentially treatable. As can be seen in table 1 between 12,000 and 21,000 could potentially present for treatment.

Portion of children attending private treatment				
0%	10%	20%	30%	40%
21,067	18,961	16,854	14,747	12,640

**Table 1.** Number of children potentially requiring treatment with Code 1 dental disease

The number of dental therapists that will be required to treat this number of people are shown in the table 2 below. The figures are based upon the current Code 1 workload and the assumptions that this fairly represents new patient care, the mix of conditions and the level of severity does not change. Based on these assumptions, the number of dental therapists required is between 25 and 42. It should be noted that this is within the resources of the current treatment program. Also in table 2 is the salary required for these Full Time Equivalent (FTE) Dental Therapists<sup>1</sup>.

**Treatment for Code 2**

In 1998 there were 85,501 children that were assessed as having Code 2 dental disease. The same assumptions that were used in Code 1 treatment calculations are replicated. The potential number of children with Code 2 disease is 143,780, this is 58,279 more children than currently assessed. The number of children that may require treatment depending on the number entering private treatment are shown in table 3 below, as well as the number of FTE dental therapists required and their salary requirements.

It should be noted that despite the lower cost of treatment per patient the total requirements exceed that of the Code 1 disease.

**Combining Codes 1 and 2**

The full time equivalent dental therapists required for the treatment of both Codes 1 and 2 are shown in the table below, this is simply the aggregation of the table 2 and 3.

**Dental Officers**

There are substantial difficulties the costing of SOKS with the incorporation of the dental officers into the analysis rather than the dental therapists. This is because it is not immediately obvious what proportion of children are required to visit a dental officer as opposed to a dental therapist. The lack of knowledge results in a subsequent loss of accuracy over the figures. In 1998 there were 6,160 referrals to dentists for a variety of reasons. If we use the same assumptions as for Code 1 and Code 2 disease the FTE dentists and their salary is given below in table 5.

Portion of children attending private treatment					
	0%	10%	20%	30%	40%
FTE	42	38	33	29	25
Salary	\$1,629,000	\$1,466,000	\$1,303,000	\$1,140,000	\$978,000

**Table 2.** Number of Full Time Equivalent (FTE) dental therapists required to treat the Code 1 disease and the potential salary required

Portion of children attending private treatment					
	0%	10%	20%	30%	40%
Children	143,780	129,402	115,024	100,646	86,268
FTE	214	193	172	150	129
Salary	\$8,354,000	\$7,519,000	\$6,683,000	\$5,848,000	\$5,013,000

**Table 3.** Numbers of children potentially requiring treatment with Code 2 dental disease, the FTE dental therapists required their salary

Portion of children attending private treatment					
	0%	10%	20%	30%	40%
FTE	256	231	205	179	154
Salary	\$9,984,000	\$8,985,000	\$7,987,000	\$6,988,000	\$5,990,000

**Table 4.** Number of FTE dental therapists required to treat Code 1 and Code 2 disease and their required salary

As can be seen in table 5 above the number of dentists required for the treatment of the referred children varies between 13 and 25 FTE dentists. In 1998, there were the equivalent of 11.7 FTE dentists, therefore under the most optimistic assumptions there are almost enough dentists.

### Combined dentists and dental therapists

Combining the dental therapists and the dentists wage bills will give an indication of the cost of treating the identified oral disease within the state. This is shown in table 6 below.

As can be seen in table 6 above the wage cost required for the treatment of oral disease identified in the assessment of children will be at least \$7 million and under extreme conditions as much as \$12.6 million. If however it is assumed that about 20% of children move into private dental treatment approximately \$9.5 million is required.

### Total costs

Up to this stage the modelling has been mostly on the required wage costs. While this is a major component of the cost of dental care the use of other factors of production contributes substantially to the overall cost of dental care. This has been averaged over dental therapists and dentists and so may underestimate the cost of dental services based on an hourly rate. It should be noted that the use of the average cost per hour will include the administration and other costs and should not be strictly interpreted.

As can be seen in the table above the total cost of treating all Code 1 and Code 2 disease as well as the disease referred to the dentists for the state varies between \$19 million and \$28 million dollars depending on the assumptions used. The treatment of Code 1 disease is within the current resources but the treatment of Code 2 disease is not.

Portion of children attending private treatment					
	0%	10%	20%	30%	40%
FTE	23	20	18	16	14
Salary	\$1,552,000	\$1,397,000	\$1,242,000	\$1,087,000	\$931,000

**Table 5.** Number of FTE dentists required to treat referred disease and their required salary

Portion of children attending private treatment				
0%	10%	20%	30%	40%
\$11,536,000	\$10,382,000	\$9,229,000	\$8,075,000	\$6,921,000

**Table 6.** Wage cost of the dental therapists and dentists required to treat identified disease

Portion of children attending private treatment					
Code	0%	10%	20%	30%	40%
Code 1	\$4.7M	\$4.3M	\$3.8M	\$3.3M	\$2.8M
Code 2	\$22.6M	\$20.6M	\$18.6M	\$16.5M	\$14.4M
Referred	\$2.1M	\$1.9M	\$1.7M	\$1.5M	\$1.3M
<b>Total</b>	<b>\$28M</b>	<b>\$27M</b>	<b>\$24M</b>	<b>\$21M</b>	<b>\$19M</b>

**Table 7.** Total cost of treating all identifiable disease by category of disease (millions of dollars)

## Allocative efficiency

One of the purposes of the review of the SOKS Program is to help achieve allocative efficiency between the arms of the Program. Allocative efficiency is achieved when the benefit from various programs within a fixed budget is maximised. This is achieved when it is not possible to move resources from one part of the budget to another to improve the outcome. As part of this section the budget required for assessment, treatment and education will be analysed and then subsequently the potential arrangements of these services will be examined.

Table 8 below shows the total monetary resources required for the education, assessment and treatment of the potential population. As can be seen, the amount of money is approximately \$30 million, which is double the current budget.

However an expansion in resourcing may not be an option for the program and instead the movement of resources from one arm of the program to others must be considered. The modelling up to date has assumed that the program has been operating with technical efficiency<sup>3</sup>. If it is possible to streamline either the education or the assessment process then it may be possible to increase the amount of treatment within the available budget.

For example, if it was possible for a 15% efficiency gain in the current delivery of assessment and education cost this would result in a potential saving of up to approximately \$787,000<sup>4</sup>. This could be used for a number of purposes including increased assessment or increased treatment. An indication of the amount of assessment or treatment that could be provided is given below in table 9.

It can be seen from table 9 above that if the aim of a 15% increase in technical efficiency is achieved then this will free up resources for a substantial amount of treatment or assessment.

Another way of examining the potential allocative efficiency is to examine other programs that could be achieved within the \$15 million budget cap and then allowing others to assess their relative worth.

Because there are essentially an infinite number of ways of distributing resources between the three arms of the SOKS dental project a base case will be introduced. The base case will be the assessment of all children in the defined population and then as much treatment as is possible moving through the codes and referred disease. This is shown in the table below, assuming it is possible to target treatment accurately and efficiently to the most appropriate disease categories. Table 10 below has assumed a 20% private treatment rate of the Code 1 and referred disease.

Program Monetary Requirements	
Education	\$300,000
Assessment	\$6,400,000
Treatment <sup>2</sup>	\$24,000,000
<b>Total</b>	<b>\$30,700,000</b>

**Table 8.** Monetary requirements for the program for full treatment, assessment and education

Service	Increase (in units)
Assessment	87,500
Code 1 treatment	3,501
Code 2 treatment	5,487
Referred disease treatment	4,429

**Table 9.** Alternative uses for the resources freed by a 15% increase in the technical efficiency of screening

The rate of substitution between different types of services for the SOKS Program are listed below for \$1M. The numbers can be interpreted as the increase or decrease that can occur for the gain or loss of one million dollars from each service and therefore may be regarded as the substitution rate between services. For example for the cost of a million dollars 111,111 more assessments could be done but reducing the Code 1 budget for this would cost approximately 4,500 Code 1 repairs.

## Conclusion

The modelling of the costs of the SOKS Programs has highlighted a number issues. Key amongst them is the relatively low cost of the assessment and public education arms of the Program. It has also highlighted the fact that at present funding levels not all oral disease potentially identified is capable of being treated within the current program budget.

Analysis of the costs of providing the treatment emphasises the role of private dental care in good oral health. It also emphasises the fact that while it would be possible to treat all Code 1 disease if resources

could be adequately targeted it is not possible to treat Code 1 and Code 2 disease within the available budget constraint without an extremely high level of private dental care being used.

The use of cost modelling is dependant upon the assumptions used (for example, the costs of dental assistants were not included in this analysis and so costs are underestimated) but it would appear that the goal of assessing and treating all children in the even numbered school year is not possible within the available budget. Given this productivity, decisions need to be made regarding what services are considered to be the most important.

## References

- 1 This is based upon a dental technician grade 1 sixth year of service under the Dental Therapist New South Wales (State) Award
- 2 Assuming approximately 20% of the identified disease is completed by private practitioners.
- 3 Technical efficiency is achieved when it is not possible to produce the current output with fewer resources.
- 4 Assuming the higher estimates are used for assessment and education (ie the time estimates).

Service	Portion of available units	Monetary Requirements
Education	Not Applicable	\$308,620
Assessment	100%	\$6,437,192
Treatment Code 1	80%	\$3,791,541
Treatment Code 2	13%	\$2,758,148
Treatment referred	80%	\$1,704,499
<b>Total</b>		<b>\$15,000,000</b>

**Table 10.** Monetary distribution for full assessment and some treatment

Service	Increase/Decrease (in units)
Screening	111,111
Code 1 treatment	4,445
Code 2 treatment	6,967
Referred disease treatment	5,625

**Table 11.** Alternative uses for \$1,000,000





