

# NSW Early Childhood Oral Health Program Evaluation

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Centre for Oral Health Strategy NSW

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## Abbreviations

ACCHS	Aboriginal Community Controlled Health Service
AHS	Area Health Service
AMS	Aboriginal Medical Service
DoCS	Department of Community Services
ECC	Early Childhood Caries
ECOH	Early Childhood Oral Health
CALD	Culturally and Linguistically Diverse
CFHN	Child and family health nurses
COHS	Centre for Oral Health Strategy
ISOH	Information System for Oral Health database

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# Executive Summary

## Background

Early childhood caries (ECC) is a chronic disease with high prevalence and a significant health burden in Australia and globally, despite being preventable. The Centre for Oral Health Strategy (COHS) New South Wales (NSW) developed the Early Childhood Oral Health (ECOH) Program to promote and improve the oral health and wellbeing of infants and young children through prevention of, and early intervention for, ECC. It is a community based early intervention program. The founding principle is integrated service delivery: child health professionals promote oral health, screen and refer for caries while oral health professionals incorporate promotion and prevention into their management strategy for young children. The evaluation project reviews the ECOH program, focussing on process, partnerships, impact, and equity.

## Methods

A mixed-methods evaluation approach gathered qualitative and quantitative information from a number of sources. Information for the evaluation was gathered through:

1. Document review
2. Survey and interviews of program implementers and beneficiaries
3. The Information System for Oral Health (ISOH) database of public dental services activity.

A case study approach was used for the interview component of the evaluation with three localities chosen within NSW as specific cases to be investigated.

## Key Findings

The major achievements of the program (those comprehensively achieved state-wide) include the:

- development of *Early Childhood Oral Health Guidelines*, training resources, and information materials for child health professionals and parents
- identification of ECOH program co-ordinators within each Area Health Service (AHS)
- implementation of NSW Health Department Policy Directive for the program
- development of structures and systems which support program development, partnership development, training delivery, referrals, and monitoring and evaluation processes
- roll-out of the program to child and family health nurses, which can be considered complete. This has been greatly facilitated by the re-inclusion of oral health into the Blue Book.

The significant achievements of the program (achieved within some AHS only):

- the partnerships developed with general practitioners and practice nurses
- the partnerships developed with local hospitals
- the development of effective partnerships with Aboriginal Medical Services
- resource development for Aboriginal people and Culturally and Linguistically Diverse (CALD) populations
- delivery of early childhood oral health professional development for oral health professionals
- the incorporation of promotion and prevention strategies into public dental service delivery.

## **Recommendations**

The main recommendations of this evaluation are:

### **Program Management:**

1. Implement a collaborative project review and strategic planning process for the ECOH program.
2. Ensure adequate allocated human resources for program co-ordination within each AHS.

### **Partnerships:**

3. Maintain the excellent partnerships that have been established with child and family health nurses networks.
4. Ensure that oral health information and risk assessments remain an integral part of the NSW Personal Health Record (Blue Book).
5. Further develop partnerships with GPs and practice nurses across all AHS.
6. Develop further partnerships with hospitals and health services.
7. Clarify and publicise the referral criteria and the recommended age for a child's first dental visit.

### **Equity and Reach:**

8. Specifically target improvements in accessibility of the ECOH program to Aboriginal children and families.
9. Improve the accessibility of the program for CALD communities.

### **Additional Opportunities:**

10. Consider further developing partnerships with community services, nongovernment organisations (NGOs) and pharmacies.
11. Continue to collaborate with the NSW Oral Health Promotion Network in achieving objectives for the ECOH program in NSW.

### **Public Dental Services:**

12. Encourage ongoing incorporation of promotion and prevention strategies into public dental service delivery for young children.

### **Program Monitoring and Evaluation**

13. Review the monitoring and evaluation framework for the ECOH program, including the data elements used to monitor some aspects of the program.

# 1. Background

## 1.1 Early Childhood Caries

Early childhood caries is a dental decay disease with high prevalence and a significant health burden in Australia, despite being preventable. Early childhood caries is defined as at least one carious (decayed) lesion affecting a maxillary anterior tooth in a preschool-aged child.<sup>1</sup>

Dental caries is a bacterial disease that is modified by diet.<sup>2</sup> Bacteria in dental plaque metabolise sugars and starches producing acids in the mouth that cause loss of minerals from the tooth surface.<sup>3</sup> Dental caries can be prevented through changed bottle feeding practices, limiting behaviours which transmit bacteria from parent to child, dietary modification, fluoride delivery, and tooth brushing.<sup>4</sup>

Early childhood caries has significant consequences. Untreated decay can cause significant pain. It can result in systemic infection and the development of abscesses, which often require hospitalisation and general anaesthesia (GA) to address.<sup>5</sup> Early childhood caries can also adversely affect growth, cognitive development, speech, communication, self image and social functioning.<sup>3</sup> Additionally, children who experience ECC are more likely to experience other dental problems as they grow older.<sup>6</sup>

Caries experience is measured by calculating how many deciduous (baby) teeth have carious lesions, how many have been extracted, and how many have fillings – the dmft measure.<sup>7</sup> The NSW Child Dental Health Survey 2007 identified the prevalence of dental disease in NSW.<sup>8</sup> In children aged 5–6 years, 40% have experience of dental disease, with a mean dmft of 1.54. The experience of dental disease is significantly higher in certain populations with the mean dmft increasing to 3.04 among Aboriginal children, 2.67 in children living in remote/very remote areas, 2.34 for children of mothers born in non-English speaking countries and 2.11 for children whose parents hold a Centrelink concession card who are among the most disadvantaged socio-economic grouping.

In NSW in 2006–07,<sup>9</sup> the hospitalisation rate for the restoration of teeth only among children aged 0–4 years was 143.2 per 100,000 population; the rate for removal of teeth was 114.7 per 100,000 population. More than one third of all children in that age group who were hospitalised for restoration or removal of teeth due to dental caries in 2006–07 were admitted for both restoration and removal (138.8 per 100,000).

Experience of ECC in a child is a powerful predictor of future caries in adolescence and adulthood.<sup>6</sup> Interventions need to focus on primary prevention of ECC with research indicating a need for anticipatory advice to be provided to parents before their child's teeth erupt.<sup>10</sup> Only 12% of Australian children at 2 years of age have ever seen a dental professional<sup>11</sup> so it is clear that advice may be best delivered by non-dental health care providers who are more likely to see infants and toddlers before ECC manifests clinically.<sup>4</sup>

As well as prevention, early identification of ECC could also significantly decrease the burden of disease. Hospitalisation and surgery is required for ECC at an advanced stage, at significant financial cost to the health system and heavy burden to both child and family.<sup>5</sup> Identification of ECC at an early stage and appropriate intervention can reverse the disease process, prevent further decay developing, and avoid future surgical interventions.<sup>4</sup>

## **1.2 The Early Childhood Oral Health Program**

In 2007, COHS (NSW) developed the ECOH program to promote and improve the oral health and wellbeing of infants and young children through promotion, prevention and early intervention.<sup>12</sup> The program focuses on effective partnerships between families, oral health professionals and general child health professionals to achieve optimal oral health for infants and young children. It is a community based early intervention program that is based on integrated service delivery. The strategy is two-fold: targeting both child health professionals as well as oral health professionals. The goal for the first target group is for child health professionals (e.g. child and family health nurses, GPs, hospital staff, and NGO staff) to include oral health in child health checks. This includes providing oral health information to parents, oral health screening for infants, early identification of ECC, and referral to oral health services for infants at risk of ECC as required. The goal for the second target group is to encourage oral health professionals to focus on early management of dental disease and to incorporate promotion and prevention into their services.

The key elements of the program are:

- development of child health networks and partnerships to enable implementation of the program
- development of resources and training for parents, child health professionals, and oral health professionals
- delivery by child health professionals of oral health promotion and prevention strategies, and early identification and referral processes for ECC, for children aged under 5 years and their parents/carers
- facilitation of appropriate early management of dental disease by oral health services and incorporation of prevention and promotion into oral health services.

The initial Program Framework, developed in 2007, is outlined in Table 1.

## **1.3 Evaluation of the Early Childhood Oral Health Program**

The ECOH program is intended to be an ongoing program of COHS. The initial Program Framework (Table 1) was designed for a 3 year period and a review of this framework in late 2009 suggested that most strategies and tasks outlined in the framework had been addressed. Component monitoring and evaluation strategies had been implemented during the course of the program; however, a full evaluation of the program had not been completed. The COHS staff, along with other key program stakeholders, developed a plan for this evaluation to be completed in 2010. It was identified that the evaluation should particularly focus on processes, partnerships, equity, and impact. It was envisaged that the key findings of the program evaluation would inform the strategic planning process and development of a new project framework for the 2010–2015 period.

**Table 1: The ECOH Program Framework, 2007**

Goal		To reduce the incidence of early childhood caries in children 0–5 years		
Objectives	Strategies	Tasks	Performance Indicators	
			Process	Impact
To improve the awareness of oral health issues for parents and/or child health professionals	Provide appropriate oral health information for parents and child health professionals	Develop a Lift the Lip Resource	# Lift the Lip resources printed & distributed	
			Satisfaction level	
	Provide oral health education and training for child health professionals	Develop Early Childhood Oral Health Guidelines for Child health professionals	# Early Childhood Oral Health Guidelines for Child health professionals printed & distributed	
Develop and implement an oral health training package for child health professionals			# training sessions held # attended % satisfied with training	
To increase the early identification and intervention of dental caries for children 0–5 years	Integrate an oral health risk assessment into child health checks, home visits and dental clinics	Implement the Early Childhood OH Guidelines for Child health professionals	# child health professionals who integrate an oral health risk assessment into their core business	<dmfts at 5 years
			# children who have been assessed	Reduction in GAs
			# children referred from child health professionals	Increase in referrals from child health professionals
	Provide early childhood oral health professional development for dentists and dental therapists	Conduct a needs assessment to determine appropriate professional development needs	Professional development needs identified	
Develop and implement an early childhood oral health professional development package for dentists and dental therapists			# training sessions held # attended % satisfied with training	

## 2. Evaluation Questions

The following questions were identified for the evaluation:

1. Has the program been implemented as designed?
2. Has the program had any impact on early identification, referral, and intervention of ECC in NSW?
3. Has the program been equitable in relation to people from low socioeconomic, CALD, regional and remote locations, and Aboriginal populations?
4. Have the partnerships established for integrated service delivery been effective?
5. What are the experiences and recommendations of program coordinators and implementers?
6. What are the experiences and recommendations of program beneficiaries (i.e. parents)?

## 3. Methods

### 3.1 Evaluation Approach

A mixed- methods approach, combining qualitative and quantitative data, was utilised for this evaluation to capture state-wide service utilisation data as well as the perspectives and experiences of service providers and beneficiaries.<sup>13</sup> Mixed-methods approaches are being increasingly used in health care research, particularly for evaluation purposes, for increased comprehensiveness, pragmatism, confirmation, and in recognising the limitations of quantitative data to answer complex questions.<sup>14</sup> Information for the evaluation was gathered through:

1. Document review
2. Survey and interviews of program implementers and beneficiaries
3. The Information System for Oral Health (ISOH) database for public dental services activity.

### 3.2 Evaluation Locations

A case study approach was used for the interview component of the evaluation with three localities within NSW chosen as specific cases to be investigated. Case studies using qualitative methods can be valuable when the intervention is to be investigated in detail, where the focus is on how and why the intervention succeeds or fails, and where the general context will influence the outcome.<sup>15</sup> The case study localities were Doonside, Auburn and Dubbo. These were purposely identified<sup>16</sup> to ensure that the communities examined were diverse and representative of communities with considerable proportions of children known to have increased experience of dental disease.<sup>8</sup> This included children from low socio-economic (all three locations), CALD (Auburn), regional and remote (Dubbo), and Aboriginal populations (Doonside and Dubbo). A matrix system was devised to identify appropriate locations according to these criteria and pragmatic reasons also factored into the final locations chosen.

### 3.3 Study Population

Three different groups formed the study population for the evaluation:

1. All children referred to public dental services through the ECOH program. De-identified state-wide data was available through the ISOH database.
2. Parents/carers of children aged 18 months to 5 years attending a community health centre in one of three study locations (Doonside, Auburn, or Dubbo) for a Child Health Check.
3. Program implementers – responsible for implementing the ECOH program at various levels within the three study locations.

## **3.4 Data Collection Techniques**

### **3.4.1 Document Review**

An analysis of available program literature, documents and data held at COHS was reviewed to compile a narrative report of program implementation and monitoring to date. Program proposals, reports, published papers, presentations, and the results of component monitoring and evaluation activities that have been completed during the project were analysed. A complete overview of the program was compiled and compared to the original project plans. Implementation data submitted to COHS by AHS ECOH co-ordinators was also reviewed.

### **3.4.2 Survey and Interviews of Program Implementers and Beneficiaries**

#### **(a) 5x5 Questionnaires**

In December 2009, a pre-evaluation “5x5” questionnaire was conducted by COHS to inform the evaluation planning process. ECOH co-ordinators from each AHS were asked to conduct questionnaire interviews with five child and family health nurses, asking them five questions. The questions addressed the frequency with which child and family health nurses conducted oral health promotion and screening within routine child health checks, and the nurses impressions of what impact those interventions may have. Forty child and family health nurses in total were surveyed, from all eight AHS. For completeness, the results of the survey are included in this report. The results of the 5x5 survey were considered in developing the evaluation protocol and interview questions.

#### **(b) Interview Questionnaires: Program Implementers**

Twenty-six program implementers were interviewed in person. These included one AHS oral health director, five AHS ECOH program co-ordinators, 14 child and family health nurses or other related staff from community health centres and four staff from the COHS, including the state-wide program co-ordinator. Informed written consent was given by participants. Structured interviews lasted approximately 30 minutes and were short form questions and answers. The questions explored the experiences of the implementers in the development, implementation, and monitoring of the ECOH program, and their understanding of the successes and challenges of the program to date. The interviews were audio-taped to facilitate the completion of the questionnaire form. The Questionnaire Form for child and family health nurses is included in Appendix 1. Other program implementer interviews were less structured in style.

#### **(c) Interview Questionnaires: Parents/Carers**

Up to 6 parents from each locality were interviewed (17 in total) at community health clinics in the case locations, where parents routinely attend for child health checks or clinics. After the usual intervention with the child and family health nurse was completed, parents of children aged between 18 months and 5 years were invited to participate in the evaluation. Written informed consent was provided by participants. Structured interviews of approximately 30 minutes were conducted using short form questions and answers.

The questions addressed the parent's knowledge, attitudes and practices in early childhood oral health, and any experiences with child health and oral health professionals providing oral health promotion, screening, and intervention to their child. The interviews were audio-taped to facilitate the completion of the questionnaire form. The Questionnaire Form for parents is included in Appendix 2.

The qualitative data from the interview questionnaires of program implementers and parents/carers were analysed using content analysis methodology. The interviews were transcribed, then a number of key categories and concepts were identified, and the responses of each person related to each key concept were collated and reported in the results section.

### **3.4.3 Information System for Oral Health (ISOH) Data**

ISOH is the database used to manage patient interactions with public oral health services in NSW. The ISOH database is managed by COHS. All people who access public dental services in NSW are entered into the ISOH system and demographic data and information about dental services received is recorded. This database can record if children have been referred by the ECOH program. An analysis of de-identified data for children referred by the ECOH program to public dental services was undertaken to review the number of referrals, interventions, and outcomes for these children. The demographic data of the children referred under ECOH were analysed to assess the equity aspects of the program.

For children aged 0–5 years who are referred to public dental services through the ECOH program (that is, referred by NGOs, the Department of Community Services, or Community Health), the following data items were retrieved: gender, postcode, whether born in Australia, speaking English in the home, Aboriginal or Torres Strait Islander status, child experiencing pain in the mouth on referral, outcome of referral (appointment/waiting list/voucher), and the type of intervention provided (filling, extraction).

De-identified quantitative data were retrieved from the ISOH database. Descriptive epidemiological analysis of the data was conducted using EpiInfo™ Version 3.5.1. The analysis included calculating frequency distributions and cross tabulations of the number of children referred to public dental services, their demographic indicators, their experience of pain, the outcome of their referral, and the treatment received.

## **3.5 Ethical Considerations**

This project was approved for implementation as a quality assurance project by the Sydney West Area Health Service Human Research Ethics Committee and as a research project by the Greater Western Area Health Service Ethics Committee. This approval was ratified by the University of New South Wales Human Research Ethics Committee.

## **4. Results (Part 1): Program Implementation 2007–2009**

This section collates the results of the document review and overviews the ECOH program achievements for 2007–2009. The Centre for Oral Health Strategy NSW (COHS) developed the ECOH program in 2007. The Program Framework is shown in Table 1.

### **4.1 Governance**

An ECOH Program Advisory Committee was formed in July 2006 to provide governance, oversight, and advice to the ECOH program. The role of the ECOH Program Advisory Committee is to:

1. Provide advice on the ECOH program
2. Provide input into the major documents produced
3. Provide input into oral health training initiatives
4. Participate in consultation forums related to the program
5. Provide advice on oral health research to support indicators in strategic oral health plans.

Membership of the Advisory Committee includes representatives from COHS, NSW Health, the University of Sydney, Aboriginal Health, Dental Therapists and Paediatric Dentists from AHS, Dietician, Paediatrician, GP NSW, Clinical Nurse Consultant, Oral Health Promotion Network, Australian Dental Association, and Consumer Organisations.

The Committee meets two times per year. The Advisory Committee reports on the progress made on key ECOH program strategies through the Chief Dental Officer and the State Oral Health Executive to the State Oral Health Strategic Advisory Committee (SOHSAC)

### **4.2 Structure and Responsibilities**

The implementation of the ECOH program relies on collaborative partnerships between COHS and the Oral Health Divisions of each AHS. At COHS, the Senior Policy Analyst, Ms Claire Phelan, has been responsible for developing, co-ordinating and implementing the program. In each AHS, an ECOH program co-ordinator was identified to implement the program within their AHS and to collaborate with COHS in the ongoing development of the program. The role of the ECOH program co-ordinator is most often an additional function for an incumbent staff member working in oral health within the AHS, although a few AHS have dedicated a number of working days (up to 2 per week) to the role for their ECOH co-ordinator.

In partnership with the ECOH Advisory Committee and AHS representatives, COHS has co-ordinated development of the program and policies as well as the development, production and distribution of resources that support the program. Within each AHS, the ECOH co-ordinator provides or co-ordinates training, resources and support to child health professionals within the area, monitors referrals and outcomes for children referred from the program, and participates in broader program development as they are able. The ECOH co-ordinators and COHS have regular meetings to co-ordinate and further develop the ECOH program.

The COHS also co-ordinates a state-wide Oral Health Promotion Network which develops and implements other health promotion activities within NSW, including some that target children under 5 years of age and align with the overall ECOH program aims. Many ECOH co-ordinators are also members of the NSW Oral Health Promotion Network.

### **4.3 Policy**

The ECOH program is mandated by the *NSW Health Policy Directive PD2008\_020 Early Childhood Oral Health Program: The Role of Public Oral Health Services*,<sup>17</sup> which was published in 2008. This policy is mandatory and describes the procedures and responsibilities for implementing the ECOH program in NSW.

The policy statement says:

*“The identification of children at risk of oral disease and the detection of ECC at an early age can prevent widespread destruction of the primary teeth and is critical to good oral health outcomes for children. It is too late to begin oral examinations when children start school as dental disease may already be established.” (page 2)*

The policy recognises that child health professionals have more opportunities to engage with and influence new parents, and conduct risk assessments, than do oral health professionals. As such, the intended objectives include: providing training to both child health professionals and all members of the child oral health team; developing and making available appropriate resources; ensuring appropriate referral and feedback processes are in place and supported; and ensuring public policy enables optimisation of cost, quality, satisfaction and health outcomes. The policy then goes on to outline the responsibilities for COHS, AHS managers and clinical directors, ECOH co-ordinators, and child health professionals.

## 4.4 Target child health professionals

Infants and young children under 5 years of age may see a variety of child health professionals including:

- Child and family health nurses
- GPs
- Paediatricians
- General hospital and children's hospital staff (in emergency and paediatric departments)
- Aboriginal health workers.

The ECOH program specifically targeted all the child health professionals listed above during the first 3 years of the program, with a particular emphasis on child and family health nurses and GPs. Community Health Centres, operated by NSW Health through AHS, are located throughout the state and provide a free service for new parents, including an initial health check, regular developmental checks and vaccinations. The centres are staffed predominantly by child and family health nurses. General practitioners also provide the services described above, and in addition, provide a Healthy Kids Check for 4 year olds, which is now a Medicare rebate item. This check, and the Aboriginal and Torres Strait Islander Medicare Health Check, include an oral health check and refer to the Lift the Lip process. The health checks may also be undertaken by a practice nurse or within an Aboriginal Medical Service (AMS).

## 4.5 Resource development

### 4.5.1 Early Childhood Oral Health Guidelines for Child Health Professionals

The *Early Childhood Oral Health Guidelines for Child Health Professionals* was produced in 2007 to support the re-inclusion of oral health in the Blue Book. The guidelines provide appropriate information for child health professionals on prevention of ECC, oral health assessment, and early identification and referral for caries. The target audience of the guidelines is child health professionals, including paediatricians, child and family health and community health nurses, Aboriginal health workers, GPs and practice nurses.

The guidelines include 13 key recommendations for child health professionals, such as advising pregnant women to visit a dentist, providing preventive interventions to pregnant women and new parents, "Lifting the Lip" of children up to 5 years of age, assessing children's risk for oral disease, providing dietary advice and counselling, providing oral hygiene and fluoride advice, and referring children at risk of ECC to dental services.

An evaluation of the guidelines was completed in 2009 with 173 nurses from across NSW participating in a survey:

- 71% had their own copy of the guidelines and 66% of the remainder knew where to find a copy.
- 76% reported referring to the guidelines “often” or “occasionally”, while 20% never referred to them.
- 63% found the guidelines easy to understand and 46% found them useful in their daily practice.
- The main reasons respondents gave for referring to the guidelines included: oral health service phone numbers (53%), referral form (47%), anticipatory guidance advice for parents (46%), and information on ECC (42%).

The evaluation also asked respondents to suggest changes to the first edition of the guidelines and any additional information. Where possible, these suggestions were incorporated into the second edition, which was released in September 2009. Since 2007, 3240 *Early Childhood Oral Health Guidelines* have been distributed in NSW.

#### **4.5.2 Early Childhood Oral Health Training Program**

An ECOH Training Program<sup>18</sup> was developed to support training for child health professionals in ECOH. It informs participants about how to incorporate oral health into regular Child Health Checks, and the 4 Year Child Health Check. The training package is designed to be delivered by anyone in a dental or oral health team with training or experience in oral health promotion. The training package includes all resources such as PowerPoint presentations and training guidelines. The information complements that provided in the guidelines described above.

#### **4.5.3 The “Blue Book”**

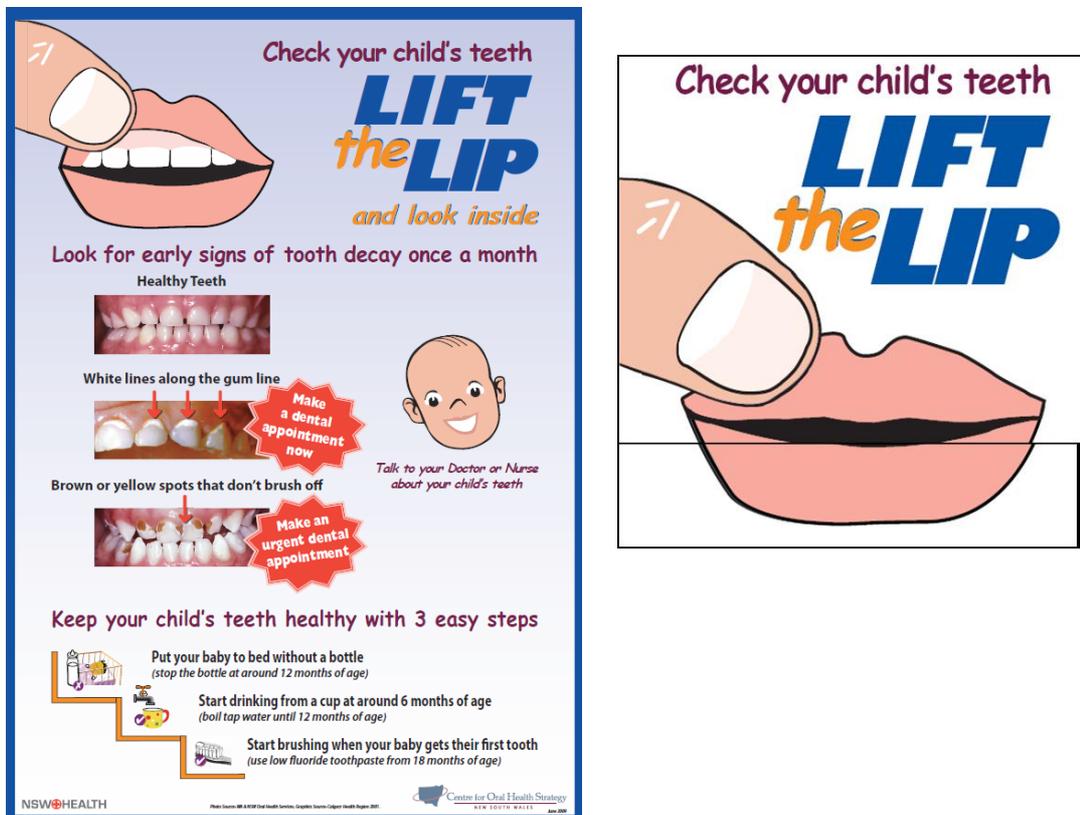
The NSW Personal Health Record, or Blue Book, is given to all parents of newborn babies in NSW by the Department of Health. It is a tool for child health professionals to use to record details of the child’s health, growth and development, immunisations and to provide information and advice to parents.<sup>19</sup>

Prior to the commencement of the ECOH program, the Blue Book program<sup>19</sup> was undertaken. This aimed to reinstate accurate and appropriate oral health care information in the Blue Book to provide both parents and child health professionals with information about prevention of dental disease in young children. While oral health information had been included in prior editions, this information was removed in 1997. The program identified appropriate oral health messages and advocated for the re-inclusion in the Blue Book, which was approved by NSW Health in 2005. As well as providing oral health information to parents and child health professionals, the re-issued Blue Book also includes a “Lift the Lip” Oral Health Check at all child health checks from 6 months of age, and encourages parents to complete a dental check before the child starts school.

#### 4.5.4 “Lift the Lip” Resources

“Lift the Lip” resources were developed to provide appropriate oral health information to parents and child health professionals. The information encourages people to “Check your child’s teeth – lift the lip”, looking for early signs of tooth decay once a month. A large graphic shows a finger lifting a lip, exposing the teeth below. The information also includes a picture each of healthy teeth, teeth with early stage decay, and teeth with developed decay. It clearly informs that a dental appointment needs to be made if there are any signs of tooth decay. The resource also includes three key messages for early childhood oral health care. The information comes in a poster format (Figure 1) that may be displayed in a community health centre and in a magnetic mini brochure designed to go on a household fridge.

*Figure 1: Lift the Lip Poster and Mini Brochure*



An evaluation of the Lift the Lip resources was completed in 2008, surveying 150 people (93 child health professionals, 22 oral health professionals, 26 parents (five Aboriginal), and nine Aboriginal health workers.<sup>20</sup> Generally the results were positive: 93% thought the information in the brochure was clear and easy to understand, and 37% said they learned something new from the resources. Feedback given through this review, regarding language and graphics, was incorporated into a redesign of the brochure in 2009.

Further consultation with Aboriginal communities regarding the Lift the Lip resource resulted in the development of a new version of the Lift the Lip magnet brochure for Aboriginal health workers and families. The “Lift the Lip” slogan was changed to “See my Smile”, the colours of the brochure were changed to red, black and yellow, and the key oral health messages and illustrations were clarified (Figure 2). Between mid-2007 and end-2009, 217,251 Lift the Lip magnets and 27,000 See My Smile brochures were distributed – approximately 81,400 per year. Approximately 85,000 babies are born in NSW each year.

**Figure 2:** See My Smile magnet brochure



Lift the Lip resources have also been formatted and translated into 15 languages and are available through the NSW Health Multicultural Health Communication website.<sup>21</sup> In 2008, COHS completed an evaluation of the “Lift the Lip” brochure to assess appropriateness for CALD communities”.<sup>22</sup> This recommended some changes to the brochures to assist CALD users, such as using more pictures, simpler terminology, and changing some wording. The changes were incorporated into the updated English Lift the Lip brochure; however, the translations available are for the older version. The evaluation also suggested points for distribution to CALD communities (pharmacies, intensive English centres, migrant resource centres), and identified opportunities to include oral health information into adult English education programs.

#### **4.5.5 Other Resources for Early Childhood Oral Health**

There are a number of other ECOH information resources available to child health professionals and parents, including brochures, flip charts, CD ROMs. In addition, the Little Smiles Program is currently being delivered for child care centres. It includes a number of resources including an information session for child care workers, parent information sheets, and activities with children in child care centres.

#### **4.5.6 Distribution and Availability of Resources**

The ECOH co-ordinators generally distribute examples of ECOH resources to all child health professionals who participate in ECOH training and many send packs with examples of resources to others who enquire about the ECOH program. Copies of all resources for reference and distribution can be ordered through The Better Health Centre Publications Warehouse, and are available free of charge.

### **4.6 Providing Oral Health Training to Child Health Professionals**

#### **4.6.1 Child and Family Health Nurses**

The primary target audience for the ECOH program child health professional training has been child and family health nurses based at community or child health centres. The ECOH co-ordinators have also established working relationships with clinical nurse consultants and community health and centre managers to develop collaborative and context-specific partnerships to roll out the ECOH program in these areas.

An evaluation of the ECOH training (and guidelines as described above) of 179 nurses in 2009 identified that:

- 89% had attended an ECOH training session.
- 63% experienced no barriers in applying what they had learned in the program and 23% cited time or staffing issues as difficulties in applying the knowledge gained.
- 68% found the sessions informative and 64% found the sessions useful in daily practice.
- 63% of those who had attended training felt they did not require further training in order to conduct an oral risk assessment or provide parental oral health education, while 20% wanted further education.
- 80% of respondents felt that periodic in-person seminars would be the preferred method of any future training sessions, over online learning (30%), tele-health presentations (7%), or practical hands on workshops (41%).

#### **4.6.2 General Practitioners and Practice Nurses**

In some AHS, ECOH co-ordinators have also delivered ECOH training to GPs and practice nurses at local Divisions of General Practice. In addition Karitane has developed a Healthy Kids Check education package that includes the ECOH oral health information, which is being delivered to Divisions of GPs in 2009 under contract with NSW Health.

In 2009 COHS and the Royal Australian College of General Practice (RACGP) entered into partnership to redevelop the ECOH training materials into online education for GPs and practice nurses. The online education activity, “Early childhood oral health: case studies from general practice”, was researched and written by the RACGP’s online education service (*gplearning*) team, in collaboration with COHS. It became available online in May 2010. All RACGP members, including nurse affiliate members, will have free access to the activity and completion of the activity can earn ongoing professional development credits. A comparison of the number of referrals from general practices to NSW oral health services prior to release of this activity in May 2010 and after its release will be conducted.

#### **4.6.3 Other Partnerships**

Early Childhood Oral Health co-ordinators have developed many local partnerships with different groups, including AMS, hospital-based child health professionals, refugee health professionals, paediatricians, NGOs. These are generally formally documented formally, and will be described in the Evaluation Results section.

#### **4.6.4 Workforce Training**

As well as addressing training of current child health professionals, COHS has been working to ensure that oral health information and training is included in the curriculum of training programs for child health professionals, such as doctors, nurses, allied health professionals, Aboriginal health workers, and child care workers.

#### **4.6.5 Oral Health Assessment in Child Health Setting**

The aims of the ECOH program are for child health professionals to integrate preventive interventions and an oral health assessment into their core business and to refer children at risk of, or showing signs of, ECC. In the evaluation of the *Early Childhood Oral Health Guidelines and Training Package*<sup>20</sup>, 70% of 173 child and family health nurses surveyed said that they always include an oral health assessment as part of the scheduled Child Health Checks.<sup>20</sup> While some AHS use community health data to monitor oral health interventions in the community setting, this is not entered or collated reliably state-wide.

A referral system has been developed for children identified through the oral health assessment process as being at risk of, or showing signs of, ECC. An Oral Health Advice (ECOH referral) Form is completed if children require a review by an oral health professional (Appendix 3). The ECOH co-ordinator or intake system then arranges an appointment by public dental services in the AHS and priority is given to referrals made through the ECOH program. The number of referrals received, and the outcomes for children referred, are monitored by ECOH co-ordinators. Data collected by ECOH co-ordinators suggests the overwhelming majority of referrals to public dental services come from community health services (predominantly child and family health nurses).

#### **4.6.6 Training of Oral Health Professionals**

The ECOH program also undertakes to educate and train all members of the child oral health team to address the issues of children aged 0–5 years. This recognises that dental services have primarily been provided for school aged children in the past and that the dental treatment, and management, of younger children requires different skills and techniques.

In 2008, four professional development seminars for oral health professionals were conducted in NSW. The aim was to complement existing knowledge in identifying and managing oral health conditions common to the 0–5 year age group, to review issues related to undertaking dietary risk assessment and providing effective dietary advice to parents, and provide practical tips for easing the anxiety of younger children and parents in the dental environment. Evaluations from these training days gave positive feedback about the content and clinical usefulness of the information presented.

In 2009 training for oral health professionals focused on motivational interviewing. There is an emerging body of research demonstrating that brief motivational interviewing can be an effective method for changing dental professionals' counselling techniques and for motivating parents to improve the care of their children's oral health.<sup>23</sup> A pilot training program for oral health staff in Newcastle occurred in December 2009. Positive feedback was received and the training program is being rolled out across other areas in 2010.

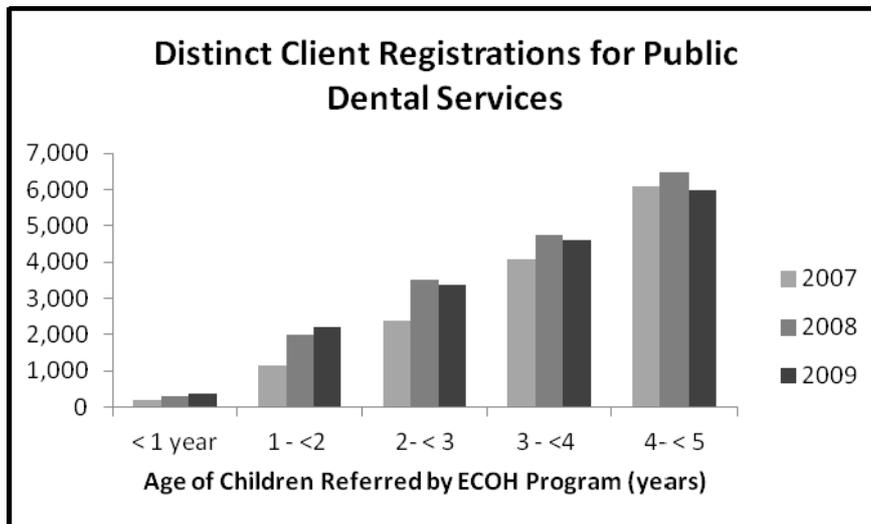
A number of dental clinics have actively started to routinely include prevention and promotion into their regular management of young children referred to dental services, as will be described in the Results Section 6D.

### **4.7 Monitoring and Evaluation**

A data monitoring system was developed for the ECOH program and, until December 2009, each AHS ECOH co-ordinator was completing paper forms manually and reporting them to COHS on a quarterly basis for collation. Information collected included a record of the number of children for whom a child health professional had returned an Oral Health Advice form (whether referring to public dental services or reporting that they had referred to private dentist), the number of feedback letters sent to referring agencies, the patient outcomes, and information about local ECOH program initiatives, projects and partnerships.

The manual reporting system for the ECOH program was replaced recently with ISOH reporting. The first review in November 2009 showed the number of distinct client registrations to public dental services for all children under 5 years of age has increased since the ECOH program began. (Figure 3).

**Figure 3:** Distinct client registrations to public dental services for all children aged 0 to 5 years from June 2007 to October 2009.



## 5. Results (Part 2): Evaluation Findings

### 5.1 ECOH Program Co-ordinators and COHS Staff

Six ECOH co-ordinators (five current) from five AHS were interviewed. Four staff from COHS were interviewed, including the state-wide co-ordinator of the ECOH program.

#### 5.1.1 Implementation of Program at an Area Health Service Level

Each ECOH co-ordinator has developed a location and context specific approach to the implementation of the ECOH program within their AHS.

The ECOH co-ordinators have very different amounts of time allocated to implementing the program in their region, varying from 2 full dedicated days per week, to 2 hours per week. Some AHS have a dedicated ECOH co-ordinator role, others have an oral health promotion co-ordinator who also has responsibility for implementing the program, while others have a dental clinician co-ordinating the program in a few dedicated hours per week. Obviously, the time allocated to co-ordination of the program within the AHS greatly impacts the results that can be achieved – and co-ordinators with less time are frustrated by this limitation. Most co-ordinators reported the initial roll out of the program in 2007-2008 as an extremely time intensive process but report that the ongoing maintenance requires less time, with most identifying 1–2 days per week as an appropriate time allocation.

Rural AHS Co-ordinators have significant challenges due to the geographical distance that needs to be covered. One rural AHS has divided the area into two regions, with one co-ordinator but two people responsible for delivering training and developing networks. Another reported developing a network of 18 ECOH co-ordinators within the area, one from each of the public dental service facilities in the region. Each of those regional co-ordinators received Train-the-Trainer training for the program and all associated resources. They were then responsible for developing working partnerships, delivering training, and managing referrals within their region. A third rural AHS continues to rely on one co-ordinator to roll out the program, across vast distances, with videoconferencing an essential tool to deliver training.

A number of co-ordinators discussed the support of both COHS and oral health management within their AHS as integral aspects for the success of the program. While a few reported that the initial roll out of the program was highly stressful and the role of co-ordination was much larger than they expected, nearly all were happy with the collaborative process of program development and implementation and the level of support from COHS. All were satisfied with the resources developed and found that the training package was an excellent tool that they could adapt for most situations.

Some highly praised their area management as forward thinking and visionary regarding oral health promotion strategies; while others felt that it did not appear to be a key priority within their AHS.

### **5.1.2 Partnerships**

Developing, and maintaining effective working relationships and key partnerships, including the roll out of training to those groups, is the key priority of the ECOH co-ordinators.

**Child and family health nurses:** All of the ECOH co-ordinators reported successful partnerships with child and family health nurses networks within their AHS. The nurses were the primary target group for the implementation of the program. The roll out of training and the development of effective working relationships with these nurses has been achieved in all areas according to the co-ordinators and COHS staff. A number of co-ordinators have provided ongoing updates and training to the nurses and a number of AHS have included the ECOH training in the AHS Learning and Development Calendar so it is available to new staff or to those who feel they need follow up. The ECOH co-ordinators report being available to all nurses for questions and queries, and ensure prompt reporting to nurses on the outcomes of children they have referred to public dental services.

Several co-ordinators expressed concern that it is usually a small proportion of nurses within their areas who refer children to public dental services and that not all nurses who participated in training are actively referring children. Generally, the co-ordinators are unable to monitor whether the nurses are screening and providing oral health advice but are concerned that the lack of referrals from some nurses may indicate that they are not incorporating oral health into their routine management of children.

**Aboriginal Medical Services:** All ECOH co-ordinators were asked to contact the AMSs within their AHS, and while this has not been universally rolled out, a number of the co-ordinators report significant achievements in this area, leading to development of robust relationships with the AMSs in their region, and provision of regular training sessions to their staff. One AHS is working specifically with an Aboriginal Community Controlled Health Service (ACCHS) in their area to develop an Aboriginal oral health training package, which will support Aboriginal health workers in promoting oral health in their communities. One rural AHS combined with a Regional Aboriginal Medical Service Grouping to fund an Aboriginal health promotion co-ordinator, who was involved in delivering ECOH Training to AMS, although unfortunately this position is currently vacant. Another AHS has received Demonstration Grant funding with an AMS to develop a training package for Aboriginal health workers to complete oral health assessments when testing for otitis media. Other ECOH co-ordinators have not approached the AMS in their region, and expressed some hesitation in doing so, feeling that they were not fully resourced or skilled to work specifically with Aboriginal services.

The co-ordinators felt that the See My Smile brochure for Aboriginal children was a useful resource, but felt that more specific resources for Aboriginal health workers and families would be helpful.

COHS supports 16 AMS in NSW to deliver dental services, and has completed a mail-out to all 52 AMS in NSW with information on the ECOH program and the See My Smile resource. COHS hosts an annual oral health workshop for the 16 AMS, in which the ECOH program is always on the agenda. Also, COHS has presented an overview of the ECOH program at Aboriginal health conferences, including the 2008 and 2010 AH&MRC conferences.

In 2009, COHS provided training on oral health to the Primary Health Certificate 3 and 4 students at the Aboriginal Health College in La Perouse. COHS has since engaged a consultancy company to develop an early childhood oral health curriculum for the College.

**General Practitioners:** A number of ECOH co-ordinators have developed partnerships with GPs and practice nurses in their area through GP Divisions and have comprehensively delivered training and developed networks across their AHS. Others have only addressed this partially, and some not at all. One AHS has worked with a GP Division in their Area to link an ECOH referral form with the GP's electronic patient management system, which enables GPs to generate referrals more quickly. Many feel that inclusion of an oral health check into the Medicare item for the 4 Year Child Check was a significant achievement, and resulted in GPs and practice nurses actively seeking out further information about early childhood oral health.

**Paediatric and Emergency Departments in Hospitals:** Several ECOH co-ordinators have specifically targeted the ECOH program towards staff working in paediatric and emergency departments in hospitals within their area. One AHS received specific funding to roll out the program in a number of paediatric departments and emergency departments in hospitals within their area, focusing on training nurses and doctors working in those areas, which has since generated referrals to public dental services. In other AHS hospitals have not been specifically targeted as yet.

**Other Partnerships:** Many of the ECOH co-ordinators interviewed have developed opportunistic partnerships wherever possible to further spread the impact of the ECOH program. These partnerships include links with refugee health nurses, multi-cultural health centres, foster care agencies, local libraries, local council health initiatives, and child care centres. Other potential organisations mentioned where partnerships could be further developed included DoCS, and other mainstream (non-health) community service organisations, and non-government organisations. Some ECOH co-ordinators are also involved in providing training about oral health to post graduate nursing courses.

### **5.1.3 Oral Health Promotion in the Public Dental Health Setting**

In general, the ECOH co-ordinators have focussed more on child health professionals than oral health professionals in their roll out of the ECOH program.

The co-ordinators reported that while some dental therapists are very motivated to include oral health promotion into their patient management plans, in other AHS dental therapists are overwhelmed by the number people requiring treatment and are less able to spend time on preventive strategies.

Two AHS have developed models of care and treatment guidelines for oral health interventions for children (and adults) that have a heavy emphasis on promotion and prevention strategies, including instruction on tooth brushing, dietary advice, delivery of fluoride for all clients, and shorter recall periods for those with decay. Clinicians are supported in this through regular servicing and updates. Another AHS introduced the Tooth Smart Prevention Program to deliver regular preventive interventions to children (and their siblings) who are on the waiting list to have teeth extracted and/or filled under general anaesthesia.

### **5.1.4 Monitoring and Evaluation**

Most of the ECOH co-ordinators who were interviewed expressed concerns about the monitoring and evaluation strategies of the program. Many felt that the main outcome used to monitor and measure the success of the program was the number of referrals to dental services, however they felt that this measure was not reliable as many referrals to private dentists are not recorded, or was an inaccurate reflection of the work they were doing (which is predominantly promotion and prevention). Some co-ordinators reported feeling disheartened when referral numbers are low, even though they believe that significant promotion and screening is occurring. The recording of manual statistics was a cumbersome process and most co-ordinators are unclear about why they are still collecting this data when it is no longer collated by COHS, however most also recognise that the ISOH data is also not an entirely comprehensive data source. Many of the co-ordinators felt that they wanted more information about what the child and family health nurses are doing, and more information about the type of children who are being referred to public dentals services. Some were considering developing new forms within their area to try and garner this information.

### **5.1.5 Program Aims and Boundaries**

There was some variation between the ECOH co-ordinators in their understanding about the main priorities and aims of the program, and their impression of the program scope. Some saw the ECOH program as being predominantly about encouraging promotion and screening by child health professionals, while others place a stronger emphasis on the early identification and referral of children with decay to public dental services, while a few were focussed mainly on the management of young children by public dental services.

There was also a disparity between the co-ordinators regarding which children should be referred to dental services (i.e. all children, only those at risk, or only those with problems already) and when they should be referred. This reflects the fact that each AHS has different demands and resources placed on their public dental services, and therefore different capacities to respond to referrals.

## 5.2 Community Health Centre Staff

### 5.2.1 5x5 Questionnaire Quantitative Responses

The quantitative results of the 5x5 questionnaires are reproduced below. The additional comments received in the 5x5 questionnaire will be incorporated into the collated interview responses which follow.

1. Do you show parents / caregivers how to lift the lip at every developmental check from 6 months onwards?

Almost Always	Some of the Time	Almost Never	Never
34	4	1	1
85%	10%	2.5%	2.5%

2. Do you talk to parents / caregivers about other areas of oral health (eg stopping the bottle, introducing fluoride toothpaste, avoiding sugary snacks and drinks)?

Almost Always	Some of the Time	Almost Never	Never
37	3	0	0
93%	7%	0%	0%

3. Do you feel that lifting the lip or talking to parents and caregivers about oral health is a valuable use of your time?

Definitely	Probably	Probably Not	Definitely Not
35	5	0	0
88%	12%	0%	0%

4. Do you think parents / caregivers understand why they should look at their child's teeth?

Definitely	Probably	Probably Not	Definitely Not
12	21	6	1
30%	52%	15%	3%

5. Do you think that showing parents / caregivers how to lift the lip will reduce the risk of early childhood caries?

Definitely	Probably	Probably Not	Definitely Not	Unsure	No response
14	23	1	0	1	1
35%	46%	3%	0%	3%	3%

### 5.2.2 Experiences of ECOH Training

All of the child and family health nurses who were interviewed had completed the training, mostly in 2007. Community Health Centre managers interviewed had ensured that all their staff had completed the training, and that it was seen as a priority within their Learning and Development Calendar. The one Allied Health staff member interviewed had not completed the training program as yet, but expressed a desire to do so.

*“They gave us the training, and gave us all the pamphlets, and it is written in the blue book, so we have to track mothers from day 1 to do oral care”. (H5)*

*“I did the initial training.... It was interesting, useful, informative. It changed my practice”. (H7)*

*“I would have known most of the oral health information before the training, but it was a trigger to remind us of particular times to do it”. (H4)*

The majority of nurses interviewed said that although they had completed the training, they felt it was a long time ago, and although they only had a vague recollection of the training, they felt they did remember the basic tenets of it and were incorporating the recommendations into their daily work.

*“I did the training, which I can vaguely remember; it was about three years ago”. (H6).*

*“I can’t remember the training.... The gist I can remember, what it is all about. And we do that.” (H8).*

The majority of nurses interviewed requested follow-up training sessions, or refreshers. They felt that they would like to hear if there had been updates or changes to protocols or recommendations. They also felt that training updates or a follow up session could increase awareness or improve motivation.

*“We need more support and follow-up. We just need a refresher. Because it has been a few years now.” (H6).*

*“I would like a training update, to give more motivation”. (H7).*

*“We have not been given feedback about the program. I want to see how many people are coming to the dentist who have decay. I want to hear the big total numbers”. (H5).*

While most nurses interviewed said they felt confident about implementing the ECOH recommendations, individuals expressed different aspects of the recommendations, which they would like to clarify further. This included the concept of the oral health risk assessment and how to complete it, the referral processes to public and private dentists, the age young children should first see a dental professional, and the degree of tooth change required to refer the child.

*“I think we are confused about what is urgent, so maybe we do need updates”. (H7).*

A number of nurses also felt unclear about what services are provided through public dental services, and two in particular asked if they could go to a dental clinic to observe the structure and service.

*"I would like to see what they do at the clinic. A lot of mothers say to me "Well what do they do at the clinic?" So I really need to know." (H9).*

### **5.2.3 Oral Health Promotion and Oral Health Risk Assessments**

All the nurses interviewed reported that they almost always "Lift the Lip" to check the oral health of the children they see, and almost always give anticipatory advice to parents about early childhood oral health.

*"Starting at the first home visit I tell them when they are new borns. Because we only do one home visit I tell them then, then I keep telling them when they come into the clinic". (H5).*

*"I talk to mothers about diet and appropriate diet for the child, and try to encourage them to drink water rather than juices". (H9).*

*"I am quite adamant about them not putting the baby to bed with a bottle." (H3).*

*"I say the parents must brush (the child's teeth) to eight years, because they don't have the dexterity."(H5)*

Nearly all the nurses interviewed mentioned the inclusion of oral health checks in the Blue Book as an important factor guiding their practice. They follow the Blue Book check components when seeing a child, and complete the oral health checks because they are one of the components.

*"Yes I always do (Lift the Lip), on every health check. There is a reminder in the Blue Book which is very helpful. We all follow the Blue Book". (H6).*

*"Yes, it would be very unusual if I didn't (do the check) because it is there (in the Blue Book), and you have to tick if you have done it". (H7)*

*"It is in the Blue Book now, which is a good trigger. Bing in the Blue Book reminds us. If it wasn't in the Blue Book that would be difficult because there is so much for us to do at the 6 month check". (H4).*

Most nurses felt that the resources were an important aspect of the program, and generally were happy with the quality of the resources.

*"We have access to all the literature and the brochures, there is lots of good info in there". (H4)*

*"Having the actual visual of the damaged teeth is good for parents because they can look at that". (H3).*

*"I always show them the Lift the Lip brochure, with the decay and the three tips on the back". (H6).*

*"I do use them and show them and show the instructions. I like the new instructions- three simple things". (H7).*

Most nurses reported giving out the Lift the Lip magnet to parents, and using that resource to provide anticipatory guidance to parents about oral health promotion and prevention of decay. The other early childhood oral health promotion resources were mentioned very infrequently by the nurses interviewed, though they did encourage parents to use the Blue Book as a source of information, including oral health information.

*"I always give the resources to everybody - the Lift the Lip and the Drinking from a Cup Brochure" (H5).*

*"I really encourage (parents) to sit down and read the information (in the Blue Book), and tell them that the Blue Book is not just for recording the weight of the baby". (H8).*

*"I give out the flip chart at 6 months, because that is in the Blue Book at 6 months. Also the drinking from a cup one- I give that out at 6 months too. I think doing it at the 6-12 month period is really good". (H3).*

The nurses interviewed all felt that they have an important role to play in health promotion, and most felt that their input was changing parents' knowledge and behaviour. The nurses felt that some parents are already aware of the information, other parents hear the information and implement the desired behaviours, while a third group are less receptive to the information and are unable to implement the changes. Nurses generally felt that they were changing oral health practices in the home, but many nurses expressed frustration with being unable to really change the attitudes, knowledge and practices of some parents. The nurses also expressed a need for caution with parents - their role is to support, but not to overtly tell parents what to do, and it is easy to upset or alienate some parents with an overly directive approach.

*"It is a really valuable program, because parents are thinking they don't need to work (on oral health) until (the child) starts school, but getting that message out that they need to start sooner is important". (H6).*

*I think it changes behaviour, makes the parents more aware. They make a concerted effort to change. But they are all very conscious of not upsetting the child". (H8)*

#### **5.2.4 Translated Versions**

Only three of the nurses interviewed were aware there were translated versions of the Lift the Lip resource. One of the nurses had saved the translated versions on a USB drive, and if she is at a clinic with a computer she shows the translated version to parents on the computer. She had previously formatted and printed the translated version for distribution, but this also relied on having a colour printer. As an alternative, another nurse had printed and laminated all the translated versions and bound them on a ring, so that they could be available for demonstrating to parents in other languages, but not available for distribution.

When informed of the resources online, many nurses thought it would be helpful to be able to give out the translated resources but they said that they often worked from clinics without computers, internet, or printers, and also do not have time to print a resource for a client within an appointment time. Nurses reported they often give out the Lift the Lip resource in English to CALD clients.

### **5.2.5 Early Identification and Screening and Referral**

Most of the nurses had some experience of identifying and referring children with early signs of tooth decay. However, generally they felt that these situations were quite rare and could describe the details of each occurrence. They felt that they did not see many children with decay because predominantly they saw children up to 12-18 months of age, after which their clinic attendance declined.

A number of the nurses reported making judgements about the seriousness of the oral health problem in individual children. If they felt the problem was not severe they would recommend that the parent take the child to a dentist and sometimes provide details of the public dental service. Then, if they felt the problem was more serious, they would ensure an ECOH referral form was completed.

The nurses said that if a child needed to be referred, they would ask the parent whether they would prefer a public or private dentist, or sometimes they made an assumption based on impressions of socio-economic status. None of the nurses reported returning an ECOH referral form when a parent chose private dental services.

For public referrals, nurses reported that they did not always complete the ECOH referral form. Some nurses felt that if the referral was arranged for the parent, that this would take the responsibility away from the parent and they would be less compliant with adhering to the appointment. As such, some nurses were giving out the information for public dental services for the parent to arrange an appointment, but were not actually referring them.

Approximately half the nurses interviewed were unclear about when and how to refer to public dental services. Many were not aware that public dental services are available for all children under 18 years of age, or that children under 5 years of age are prioritised. Other nurses were extremely confident about the process of referrals. A number reported a very good relationship with the ECOH co-ordinator, who managed the referrals they had made, arranged appointments for the children, and gave feedback on the outcome of the child's appointment and treatment. These nurses were extremely satisfied with this process.

Most nurses were unclear about the guidelines for the age of a first dental visit. Some felt that only those with problems should be referred to dental services, while others felt that all children should go to the dentist at 2, or 5 years of age. They reported that private dentists often recommend this approach.

### **5.2.6 Access and Equity**

The nurses report that they see children regularly up to the age of 12-18 months, but that after the parents are less compliant with the child health checks as per the Blue Book schedule. They also felt that parents were more compliant with the checks with their first child than with subsequent children.

The nurses felt that there was a proportion of the population who does not access child health services. In one Community Health Centre, in a particularly low socio-economic area, the nurses reported that they often were unable to contact parents, or that parents refused the service.

*“They are the ones we need to see, but they aren’t always interested. You can’t force the service on people”. (H3)*

The nurses in the two urban environments reported that they rarely or never saw Aboriginal children in their clinics despite one of the centres being in a location with a proportionally large Aboriginal population. In the rural town, the nurses reported seeing many Aboriginal families, particularly in one clinic. The nurses in the urban areas reported seeing many children from CALD backgrounds, especially at one centre based in an area of high diversity.

## **5.3 Parents and Carers**

Seventeen parents were interviewed, from the three case locations. Of these:

- 12 were living in urban Sydney and 5 were living in a rural town
- 6 were concession card holders
- 8 were born in countries outside Australia and 9 spoke languages other than English in the home
- 1 identified as Aboriginal
- The age range of the children was 18 months to 3 years.

### **5.3.1 Early Childhood Oral Health Behaviours, Knowledge and Practices**

All parents interviewed identified tooth brushing as an important way to care for their child’s teeth and all reported that tooth brushing was included in their child’s routine every day. Most of the parents interviewed were brushing their child’s teeth for them, however many of reported that they found it quite difficult and their child often would not let them do it. About half of the parents were only brushing their child’s teeth once a day, often in the morning. A number of parents expressed confusion about when they should be starting with toothpaste and the type of toothpaste to use.

*"I clean his teeth in the morning and before he sleeps. He cleans first then I do it after". (P6)*

*"We are trying but she (the child) does not allow". (P9).*

*"He is not doing well. He always bite me.... He always eat the brush. I just want to let him know you have to do this". (P7)*

*"We are brushing in the morning before her breakfast. Not in the night time. We are using normal toothpaste" (P11)*

*"Is it recommended to use toothpaste at his age?" (P10).*

Most parents could report that water is the most appropriate drink for good oral health for children, and also identified milk and juice as appropriate drinks. The majority of the parents interviewed were giving their children juice or cordial daily, and a number of these were not aware that regular juice consumption could be detrimental to teeth. Many reported fizzy drinks as being bad for teeth and none reported giving their child fizzy soft drinks.

*"He drinks a lot of water. Because it is healthier. And cheaper". (P2)*

*"He loves juice. He drinks a lot of juice, more so than water". (P10)*

*"He drinks milk and juice. He drinks juice everyday. I don't know if it is good for his teeth". (P6)*

*"Some juice is probably bad because it has added sugar, but we bought this juice which is actually water and juice diluted". (P10).*

While most parents reported that they knew and understood the message about not putting their baby to bed with a bottle, approximately one third of those interviewed were still putting the child to bed with a bottle of milk.

*"He never went to bed with a bottle, none of my kids did" (P1)*

*"He takes the bottle to bed with him, it has milk in it. I know not good for him but I don't know what I can do.....When he has milk in the bottle he sleeps". (P6).*

*"This child he drinks from the bottle but I don't put him to bed with the bottle. The other son went to sleep with the bottle in his mouth, but I think they affect the teeth- he had his teeth affected. Even my daughter she had two teeth that got rotten. That's why for this son I didn't practice this one". (P4)*

Only one third of the parents interviewed had completely finished bottle use for their child and moved onto using a cup.

*"Yes I tried the cup but he doesn't like it".(P6)*

*"We stopped the bottle at one year and use a little cup now". (P8)*

When asked about which dietary practices are good for oral health, most parents focussed on appropriate drinks as described above and avoiding lollies.

*"He has a lot of vegetables, he generally has a better diet than I do". (P2)*

*"He loves his sweets. I try to limit them to when he has been a good boy as a treat." (P1)*

*“I don’t give him sweet things and sticky-like lollies in the evening. He can eat in the daytime but in the evening I don’t give him”. (P4)*  
*“We don’t know what foods are good for her teeth. Maybe calcium is good for her teeth.... When she goes to the shop she always has lollies and chocolate- maybe it is also beneficial because it has dairy”. (P11).*

A number of parents considered the effects of food and drink remaining in the mouth and reported rinsing the mouth after food as a positive oral health behaviour.

*“When he finishes (chocolate and sweet things) we have to give water to clean the mouth and the teeth” (P6).*  
*“The only thing he has at night after I brush his teeth is a glass of milk”. (P10).*  
*“I try to get her to drink her milk before bed time and just go to bed with a bottle of water, because I don’t want her to have all that milk swilling around in her mouth”. (P5)*  
*“Before he goes to sleep and he finishes his milk I give him some water”. (P7)*

Interestingly, in all the discussion and interviews about oral health knowledge and practices and prevention of decay, no parents raised the topic of fluoride in water.

### **5.3.2 “Lifting the Lip”**

More than half the parents interviewed reported regularly looking into their child’s mouth to check their teeth, although many of them reported that it was difficult to see the back teeth as their child was not always compliant with the mouth checks. Mostly, the parents reported that they felt they would know decay if they saw it, expecting that there would be brown or black spots, but most had not seen it before.

*“I look in her mouth every now and then and have a look. I look at her teeth and see how they look” (P5)*  
*“I do regularly, especially since his teeth started to go yellow”. (P9).*  
*“I try to but she tends to bite down. I don’t even know how many teeth she has at the moment”. (P3)*  
*“If I saw decay I would know it. I know because I have decay”. (P2)*  
*“I really haven’t seen (decay) before. I imagine it would start to look like little black spots”. ((P5)*  
*“Sometimes (I check the teeth). I don’t really know what I am looking for. I don’t know what decay looks like. .... Maybe it would look yellow”. (P11)*

### 5.3.3 Experiences with Child Health Professionals

As parents were interviewed in the Community Health Centres, nearly all those interviewed had predominantly attended the Community Health Centre for the child health checks outlined in the Blue Book. All parents interviewed had their child's Blue Book with them for the appointment. Most reported being vigilant about attending the checks until their child was 18 months, but then missing some checks after that age. One parent had stopped coming to the Community Health Centre for Child Health checks, and started going to see a nurse based at the local pharmacy, who was completing the Blue Book checks, while another had been seeing her GP and a paediatrician for her child's health checks, due to other concurrent medical issues. Most saw the Child Health Checks as important and helpful, and most reported that they liked seeing the same nurse each time if possible, with a few changing location of the visits to follow a particular nurse.

*"We did all the checks, and always here. It is easy to stick with the checks and to come along. The checks were helpful" (P11).*

*"Up until 18 months old (we came to the checks). I didn't realise there was another one between then and school." (P1)*

*"She has a blue book. I followed all the checks until the lady actually had to start telling me to stop coming. That's the nurse at the chemist." (P5)*

As well as seeing child health professionals at the Community Health Centre, most parents reported their child also attended a GP regularly, mostly when sick. One person saw a nurse based at the local Pharmacy.

Half of the parents interviewed could recall having a child health professional (child and family health nurse or GP) looking inside their child's mouth, but most of them were not sure if that was to look at teeth or to look at tonsils.

*"The GP has looked in the mouth but I don't know if she looked at the teeth" (P11).*

*"They have checked the baby to see if they are teething, but that's not looking for decay". (P1).*

*"Yes, (the nurse) had a look in his mouth, but it is still difficult to open". (P6).*

*"Sometimes they are looking in the mouth. I don't know if they are checking the teeth?" (P5).*

Only a few parents could recall a child health professional giving them advice about their child's oral health.

*"When (my child) got her first teeth, she was asking me if I was brushing them and things like that. So she was checking up to make sure I was doing things like that". (P5)*

*"I don't remember anyone ever mentioning his teeth or anything". (P10).*

### 5.3.4 Access to Oral Health Information and Resources

Only five of the parents interviewed could recall having seen the Lift the Lip brochure before, and one reported having a Don't Put your Baby to Bed with a Bottle brochure on her fridge. None of the parents from CALD Background had seen any of the resources in their own language.

Half of the parents interviewed reporting using the Blue Book for health information, and regularly completed the checklists before each age specific Child Health Check. Most of the parents reported using the internet.

*"I use the Blue Book. Every now and then I have a check to see if she is OK. And I read the questionnaire before each visit".*

*"Sometimes I would use the Blue Book and have a look as a guide, and if I didn't find what I needed there I would go online and have a look there". (P5).*

### 5.3.5 Experiences with Oral Health Services

Most of the parents interviewed reported that they would take their child to see a dentist if they felt there was a problem with their child's teeth or if they saw any problems when looking into their child's mouth. A few said they would first take the child to the doctor or would tell their child and family health nurse if any problem arose.

Two of the parents interviewed had accessed public dental services for review of their child's teeth problems. Another two parents reported that their private dentist had looked at their child's teeth when they (the parent) was having their teeth checked. Another two parents interviewed reported recognising problems with their child's teeth (yellow teeth and a black spot), but had not yet seen an oral health professional for review. One was waiting to see a private dentist suggested by her GP, who was currently unavailable, while the other thought that it would be too difficult getting her child to co-operate with the dentist. One other mother had experienced seeking dental treatment for her two older children who had both had dental caries.

*"He has a black part since he was one year old. The doctor said he needs to go to the dentist. I did not go yet because my husband has no time to drive us". (P6)*

*"I wouldn't dare take him to the dentist right now. Because when he is shy he doesn't want anyone to touch him..... so I think we would have very big difficulties". (P8).*

Parents reported receiving varied advice about when their child should first see a dental professional. Some parents reported a private dentist checking their child's teeth, while others reported their private dentist saying they don't need to see the child properly until the adult teeth come through, or until the age of four.

Only five of the parents interviewed were aware that public dental services were available for all children under eighteen years of age. The mother of two older children with dental caries was not aware of public dental service, and was not following a private dentist's recommendation for tooth extraction for her older daughter because she was unable to afford the cost.

*"I know there is a free dentist at Westmead, but anything else I don't know". (P2)*

*"We can pay for a dentist but I don't know how expensive it is. Can I use my Medicare card?" (P6).*

*"For my older son, the (private) dentist said we need to pay \$1000 for two teeth. I cannot pay. Already I wait half year on the list at Westmead for him".*

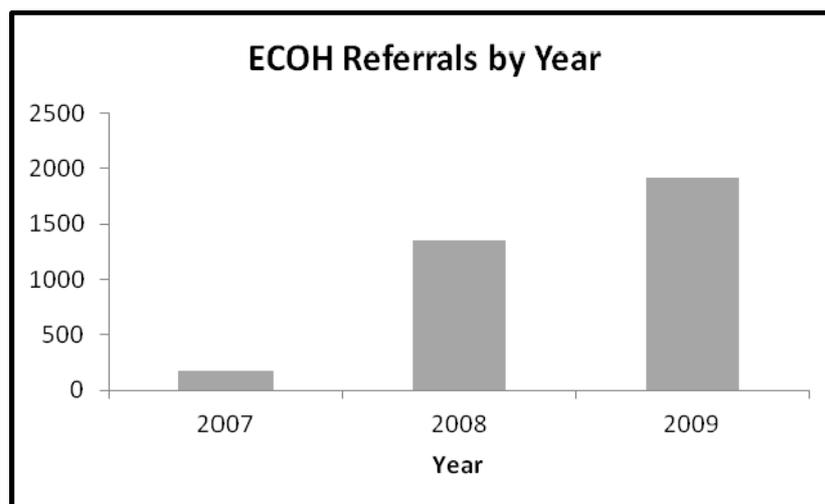
## 5.4 Public Dental Services Data

Data were extracted from the ISOH database for children referred from June 2007 to December 2009 to public dental services by the ECOH program referral sources of Community Health (child and family health nurses, Aboriginal health workers, GPs), NGOs, and DoCs.

### 5.4.1 Referral Sources and Numbers

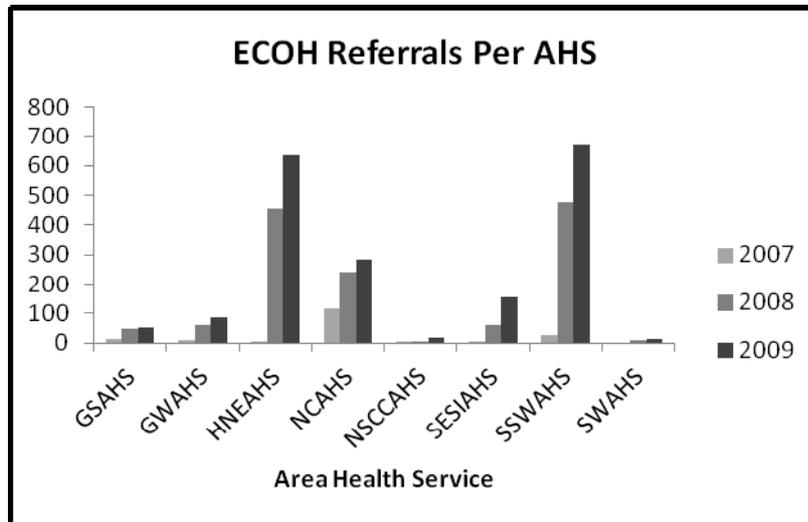
A total of 3440 referrals were made to public dental services by ECOH referral sources in this time period, with 176 in 2007, 1353 in 2008, and 1911 in 2009 (Figure 4). The program roll out began in 2007 with the first referral recorded by the program in June 2007. While these figures represent referrals to the program, rather than individual children, there were only 46 children who had two referrals and one child who had three referrals.

**Figure 4:** Referrals to Public Dental Services by ECOH Program Referral Sources



The referrals from the ECOH program to Public Dental Services were not evenly distributed across the AHS (Figure 5), and were predominantly from three AHS: Sydney South West (34%), Hunter New England (31.8%), and North Coast AHS (18.5%). As will be discussed, this represents data entry disparities rather than low rates of referrals.

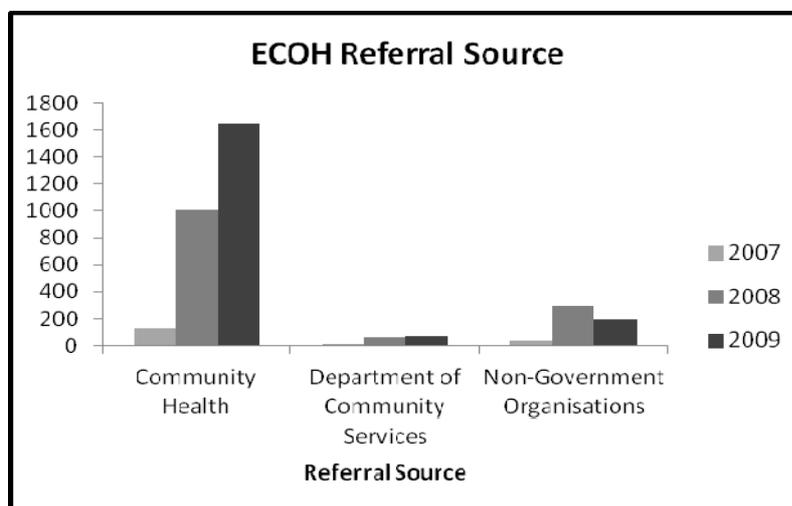
**Figure 5: ECOH referrals to Public Dental Services by AHS**



(GSAHS= Greater Southern AHS, GWAHS= Greater Western AHS, HNEAHS= Hunter New England AHS, NCAHS= North Coast AHS, NSCCAHS= North Sydney Central Coast AHS, SESIAHS= South Eastern Sydney Illawarra AHS, SSWAHS= Sydney South West AHS, SWAHS= Sydney West AHS).

The majority of referrals (80.7%) in the ECOH program over the three years (June 2007- December 2009) came from Community Health sources (child and family health nurses, GPs, and Aboriginal health workers) (Figure 6). A total of 15.1% came from Non Government Organisations (NGOs), and 4.2% came from Department of Community Services (DoCs). These were the only three categories of referral available in ISOH under the program referral sources.

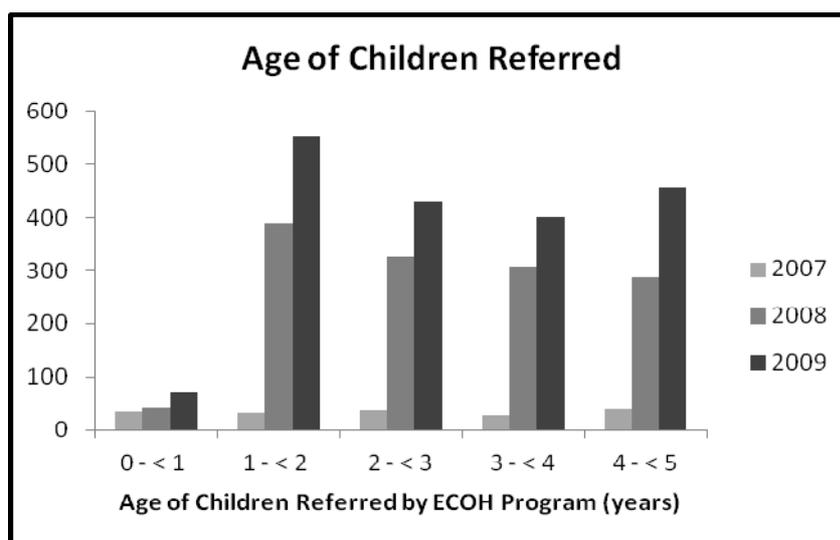
**Figure 6: ECOH Referrals to Public Dental Services by Referral Source**



### 5.4.2 Children Referred

Referrals to public dental services by the ECOH program were the same for male and female children. For children aged less than 5 years referred to the program, the majority (27.5%) were 1 to <2 years old. The remainder of the referrals were evenly distributed across the age ranges 2 to <3 years (23%), 3 to <4 years (21%), and 4 to <5 years (23%). Figure 7 shows the distribution of referrals within each age group by year.

**Figure 7:** Age distribution of children referred to Public Dental Services ECOH Referrals to Public Dental Services by Referral Source



Approximately 10% of referrals from the ECOH program in 2008 and 2009 were for Aboriginal children. While the percentage was higher in 2007, there was a marked increase in the total number of referrals in 2007 and 2008 for all children, including Aboriginal children, and a decrease in the number children recorded as “unknown” indigenous status. Table 2 shows the referral numbers from the ECOH program for Aboriginal and non Aboriginal children.

**Table 2:** Number and percentage of referrals by the ECOH Program for Aboriginal and non-Aboriginal children

	2007	2008	2009	TOTAL
Aboriginal	29 (16.0%)	127 (9.3%)	189 (9.9%)	345 (10.0%)
Torres Strait Islander	0 (0.0%)	0 (0.0%)	2 (0.1%)	2 (0.0%)
Non-Aboriginal	103 (59%)	1025 (76%)	1458 (76%)	2586 (75.2%)
Unknown	44 (25.0%)	201 (14.9%)	262 (13.7%)	507 (14.7%)
<b>TOTAL</b>	<b>176</b>	<b>1353</b>	<b>1911</b>	<b>3440</b>

The majority of the children referred to public dental services by the ECOH program were born in Australia (84.20%) (Table 3). Two percent were born in non-English speaking countries. This represents the country of birth of the

child (aged 0-5 years) referred, and does not indicate where their parents were born. In all, 82.1% of the children referred by the program were from households where English was the main language spoken in the home, while 6% were from households where a language other than English is spoken in the home (Table 3).

In relation to Socio-Economic Disadvantage, 70.1% of children referred came from postcodes in the lowest half of the Index of Relative Social Disadvantage Scale (IRSD). Table 4 shows the number and cumulative percentage of referrals for each IRSD decile, and Figure 8 shows the distribution of referrals across each IRSD decile by postcode, including cumulative percentages.

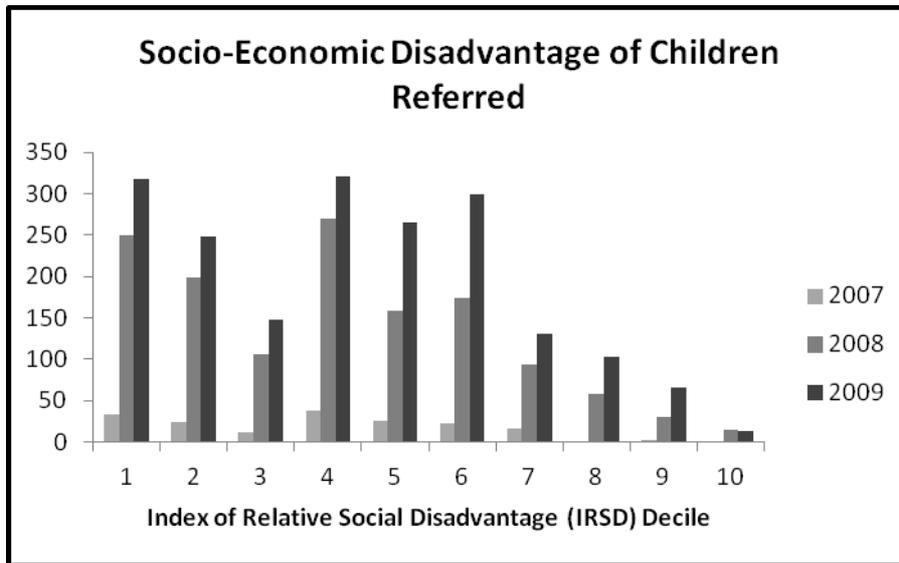
**Table 3:** Country of birth and language spoken at home for children referred to public dental services by ECOH Program

Country of Birth:	Number	Percentage
Australia	2897	84.2%
English Speaking Countries	29	1%
Non-English Speaking Countries	78	2%
Not Stated	436	13%
<b>TOTAL</b>	<b>3440</b>	<b>100%</b>
Language Spoken at Home:	Number	Percentage
English	2825	82%
Language other than English	195	6%
Not Stated	420	12%
<b>TOTAL</b>	<b>3440</b>	<b>100%</b>

**Table 4:** Cumulative Percentages of referrals to Public Dental Services from the ECOH Program across Index of Relative Social Disadvantage (IRSD) Deciles

SEIFA IRSD Decile	Frequency	Percentage	Cumulative Percentage
1	601	17.5%	17.5%
2	471	13.7%	31.2%
3	266	7.7%	38.9%
4	629	18.3%	57.2%
5	449	13.1%	70.2%
6	495	14.4%	84.6%
7	240	7.0%	91.6%
8	162	4.7%	96.3%
9	99	2.9%	99.2%
10	28	0.8%	100%
<b>TOTAL</b>	<b>3440</b>	<b>100%</b>	<b>100%</b>

**Figure 8:** Distribution of referrals to Public Dental Services from the ECOH Program across Index of Relative Social Disadvantage (IRSD) Deciles. (Note a lower score indicates relatively greater disadvantage).



#### 5.4.2 Dental Problems and Treatment Received of Children Referred

When the public dental service is registering the child, the referring person (parent, health professional) is asked if the child has pain their mouth, which is an indicator of the severity of the dental problem. For 2008 and 2009 4% and 5% of referred children respectively were reported to have pain in the mouth on referral (Table 5). Note that “Not Stated” could indicate that the person did not answer the question, or answered no to the question.

**Table 5:** Number of Referrals by the ECOH Program where children report Pain in the Mouth.

Pain in Mouth Reported	2007	2008	2009	Total
Yes	44 (33%)	47 (4%)	88 (5%)	179 (5%)
Not Stated	132 (67%)	1306 (96%)	1823 (95%)	3261 (95%)

Eighteen percent of referrals to public dental services did not result in any treatment delivered by the end of 2009. However, some of the children referred in 2009 may be on a waiting list for assessment or treatment. Some referrals resulted in only one treatment, while others resulted in a series of treatments, sometimes over a number of years. The treatments delivered to children referred by the program were categorised into one of ten categories. Table 6 shows the types of treatment received. Note that these are not mutually exclusive and each referral may have resulted in a number of different treatments delivered over time, all of which have been recorded.

**Table 6:** Treatments resulting from ECOH referrals

Treatment	Number	%
No Treatment	617	18%
Diagnostic Service	2785	81%
Preventive Prophylactic	2393	70%
Restorative Service	545	16%
General Services	255	7%
Oral Surgery	233	7%
Endodontics	63	2%
Orthodontics	3	0%
Prosthodontics	10	0%

## 6. Discussion

### 6.1 Limitations

There are a number of limitations to this program evaluation methodology. For the qualitative data gathered from interviews of program implementers and program beneficiaries, a state-wide perspective has not been achieved. Parents and child and family health nurses interviewed represented only three Community Health Centres, from within two AHS, while only four of the eight AHS were represented in the ECOH co-ordinators interviewed. As such, the results give a snap shot of the program in those particular locations, which raises some pertinent insights and reflections on the program only. Many aspects of program implementation achieved in other AHS may not have been considered here. There is also some inherent bias in the selection of participants. Staff generally volunteered to participate in the evaluation, and may represent those nurses most interested in the program. Similarly, parents interviewed were those already attending the Community Health Centres for Child Health Checks, and therefore do not represent the general populations' awareness and experiences of oral health, which could be assumed to be lower.

Secondly, the quantitative data gathered through the ISOH system highlights several limitations using this data to evaluate the program. Data from ISOH were gathered for children referred to public dental services from Community Health, DOCS and NGOs, however it appears that this item is not routinely or reliably entered during intake into the ISOH system in all AHS, and as such many of the children who may have been referred from these sources were not included in the data analysed. Although not representative of the whole state, the data do provide important information about referral patterns and outcomes.

### 6.2 Major Findings

The Major Achievements of the program (those comprehensively achieved state-wide) include:

- The development of Early Childhood Oral Health Guidelines, training resources, and information / education / communication materials for child health professionals and parents.
- The development of the role of ECOH program co-ordinator within each AHS, responsible for implementing the program with a context and location specific approach.
- The development and implementation of Policy Directive for the program, which supports and mandates the program at an AHS level, and clearly identifies roles and responsibilities for most key players.
- The development of structures and systems within COHS and within each AHS, which supports program development, partnership development, training delivery, referrals, and monitoring and evaluation processes.

- The roll-out of the program to child and family health nurses, which can be considered complete. Various evaluation techniques, including this one, have revealed that nearly all of these nurses have completed the training, and most incorporate oral health promotion, screening, and early referral into child health checks. This has been greatly facilitated by the re-inclusion of oral health into the Blue Book.

The significant achievements of the ECOH program (those that have been achieved within some AHS but not comprehensively across the state) include:

- The partnerships developed with GPs and practice nurses. This should be facilitated by the roll-out of the online *gplearning* module, however effective partnerships between oral health staff and GPs within each AHS will also be required to support ongoing professional development, resource provision, and referral processes for GPs.
- The partnerships developed with local hospitals, particularly with staff in Emergency and Paediatric Departments. The three Children's Hospitals in NSW were not considered in this evaluation; however they are significant players in child health services, with good potential for oral health promotion, screening, and early identification and referral for early childhood caries, and it should be ensured that they are included.
- The development of effective partnerships with AMS has only been achieved within some AHS, as well as through the networks COHS has developed with AMS where dental services are funded. Some ECOH co-ordinators do not feel confident to develop partnerships with AMS, and also do not feel they have sufficient resources.
- The development of appropriate and accessible resources for Aboriginal people, and CALD populations.
- Comprehensive delivery of early childhood oral health professional development for dentists and dental therapists
- The incorporation of promotion and prevention strategies into public dental service delivery, and the development of appropriate models of care specifically for children under five.

### **6.3 Considering the Evaluation Questions**

The first four questions of the evaluation will be considered. The last two questions, the experiences and recommendations of implementers and parents, have been adequately covered in the results section.

#### **1. Has the program been implemented as designed?**

The ECOH program has been running for three years and the majority of the original goals and activities planned for the first three years (Table 1) have been achieved. All staff involved in the design and implementation of the program should be pleased and proud of the achievements thus far.

The major and significant achievements are obviously due to an enormous amount of work, energy, commitment and enthusiasm from those responsible for program implementation, most notably the state-wide program coordinator at COHS, and the ECOH co-ordinators from the eight AHS. They all should be commended on their success with the program thus far.

The organisation of the program, with co-ordination and support from COHS and implementation at an AHS level by the ECOH co-ordinators, has enabled the development of effective multi-disciplinary relationships and context-specific approaches to program implementation. This structure also decentralised responsibility and ownership of the program and, as a result, significant achievements, successes and creativity have occurred across the different AHS. A major achievement in one AHS may be a specific challenge or difficulty in another. Opportunities to share success stories and lessons learned between the co-ordinators, and a commitment to adopt successful approaches in other areas where appropriate, would help to further spread the success of the program. The challenge with this structure, as identified above in the significant achievements list, is that there are varied priorities and focus in implementation of the program across the state, and many important aspects of the program are not yet achieved state-wide.

The strength of the program within each AHS appears to be dependent on a number of key factors. The human resources dedicated to oral health promotion and prevention, including the ECOH program, greatly impacts how much can be done. It would be optimum for all AHS have a 0.2-0.4 FTE position for the ECOH program co-ordination. The commitment of AHS managers to oral health promotion and prevention was also identified as a key factor. Thirdly, regional AHS have specific challenges due to geography, which also challenges the roll-out of the program. Some AHS have adopted a system with regional co-ordinators within the AHS which appears to be working well. The development of Regional Hospital Networks through the Federal Health Reforms in 2010 may require a review of the ECOH co-ordinator numbers.

The ECOH program required significant energy to develop and implement, and major and significant achievements have been realised. For some elements of the program, including the partnerships with child and family health nurses, the program is in somewhat of a maintenance stage and attention needs to be directed to ensure that these partnerships continue to be active and effective. Many nurses indicated an interest in follow-up training and updates on a regular basis.

The ECOH program has enjoyed considerable success in achieving the majority of the plans in the program framework and can now focus comprehensively on the more challenging areas of the program, predominantly the focus on Aboriginal people, CALD populations, GPs and practice nurses, hospitals, oral health practitioners, and community services partnerships.

It is recommended that a collaborative review and planning process be undertaken with all ECOH co-ordinators in partnership with the ECOH Advisory Committee to develop a new program framework and strategic plan for the next three years. This process could help prioritise the aspects of the program that should be achieved comprehensively state-wide, and address ways to support all AHS.

## **2. Has the program had an impact on early identification, referral, and intervention of early childhood caries in NSW?**

The program has raised significant awareness of oral health issues among many child health professionals, and indications suggest that child and family health nurses in particular have the most routinely incorporated oral health promotion, screening, early identification and referral into their routine work practices. The re-inclusion of oral health issues in the Blue Book, and the roll-out of training and resources to all nurses through the ECOH program, appear to be the two most significant factors in facilitating this change. The adoption of oral health promotion and screening as a routine practice for child and family health nurses in such a short time frame is a significant achievement in changing professional behaviour.

The evidence available suggests that referrals to public dental services for children under 5 years of age have increased significantly since the program began for all children in general, and for those referred specifically by ECOH program referrers (i.e. Community Health, DOCs, and NGOs). The largest number of referrals was for children aged 1-2 years (Figure 7), which shows that children are being referred early, and also reflects that child and family health nurses predominantly see children until 2 years of age, after which contact decreases significantly.

The criteria for referral to dental services are not clear to all child and family health nurses, and indeed a number of ECOH co-ordinators have varied opinions about the timing of a child's first dental review. It is recommended that advice about the age by which children should see a dental professional be more widely publicised and promoted.

Referral data for public dental services data indicate that only a small proportion of children (5.2%) are recorded as having pain in the mouth at the time of referral. This measure could indicate that children are referred early to public dental services before pain occurs. However the fact that a large proportion of respondents did not answer the question suggests that the data may be unreliable.

It is not possible to have a state-wide picture of referrals to dental services unless private dental services are considered, which they have not been in this evaluation. The ECOH program monitoring system attempted to capture this information by asking that child health professionals fax the ECOH referral form even if the child will be seen by a private practitioner. However, the information provided by program implementers suggests that this is not uniformly adhered to and that the data would therefore be incomplete. It does not appear to be feasible for the program to capture this information at the AHS level and, if this was deemed an evaluation priority, state-wide dental data sources need to be considered.

Within the scope of this evaluation, it is not possible to comprehensively determine whether the ECOH program has had significant impact on the management of ECC by oral health services. However the reported scope of activities implemented by the program to date would be unlikely to have changed these interventions on a significant scale.

A number of AHS have adopted significant changes in their management strategies for children under 5 years of age, with an increased focus on promotion, prevention, and more frequent recall, and it is recommended that these approaches be considered for adoption by other AHS. The data for treatments delivered to children referred by the program indicate that 70% of referred children received some form of preventive prophylactic treatment.

The monitoring and evaluation strategy of the ECOH program requires review. The number of referrals to public dental services is not necessarily the most appropriate measure of the program's success, and this evaluation has highlighted limitations in the use of ISOH data to measure this. There is only partial compliance with entering data in all ISOH database fields capturing demographic and intervention data, which results in incomplete data for each AHS. Until data entry compliance improves, it is recommended that the ECOH program evaluation considers all client registrations for children under 5 years of age, and not only those referred by the ECOH referral group categories of Community Health, GPs and DoCS. The quantitative data retrieved from ISOH for the purpose of this evaluation was cumbersome to collate and clean for analysis, particularly the demographic and intervention data, and it is recommended that an analysis system or program be developed to meet the evaluation needs of the program and allow routine analysis of the data.

Monitoring the degree to which child health professionals are promoting and screening for oral health has been attempted in some AHS through various databases. However, this depends on reliable data entry from a broad range of professionals through various systems, and the value of the final information gathered may not warrant the effort required. It may be more feasible to gather information about the promotion and preventive interventions of public oral health professionals through ISOH, and it is recommended that this does remain a part of the monitoring and evaluation system of the ECOH program.

Ultimately, the aim of the program is to decrease the dmft rate and the need for oral surgery with general anaesthesia in children under 5 years of age in NSW. The 2007 Child Health Survey was undertaken before the ECOH program began, and while it does not specifically measure dmft in children under 5 years of age, improved results in dmft for children aged 5-6 years in the next child dental survey could reflect positively on the ECOH program and other strategies undertaken in NSW. Data for general anaesthetic procedures in NSW for children could also be monitored over time. As a separate measure, the knowledge, attitudes and practices of parents could be assessed using the NSW Health telephone surveying systems.

### **3. Has the program been equitable in relation to people from low socioeconomic, CALD, and Aboriginal populations?**

Significant work has started in ensuring the program is implemented equitably to all people; however, more could be done in reaching some populations.

It does not appear that the program has comprehensively reached Aboriginal populations. Urban based Aboriginal families do not appear to be routinely accessing services through mainstream community health centres. Improved partnerships with all AMS and other agencies that provide services to Aboriginal people could improve the exposure of Aboriginal people to oral health promotion and screening. In relation to public dental service referrals for children under 5 years of age, the data demonstrated that a significant proportion (10%) of referrals were for Aboriginal children although this does not include children referred for treatment at an AMS dental service. However the overall number of referrals of Aboriginal children (345 over 3 years) is not high considering there is an estimated 18,000 Aboriginal children under the 5 years of age in NSW, and the Child Dental Survey estimated that 65% of Aboriginal children aged 5–6 years have had some experience of decay.<sup>8</sup> It is recommended that the program takes a more specific focus on Aboriginal populations in the next project phase. An Aboriginal oral health promotion co-ordinator based within COHS may facilitate this process, as may the identification of oral health promotion contact persons within each of the 52 AMS.

For CALD populations, these groups do appear to be accessing community centres and therefore are seeing child and family health nurses. Some Refugee and Migrant Resource Centres have also been specifically given ECOH training – this could be further rolled out state-wide. The translated ECOH resources are not easily accessible and are yet to be updated to the new versions. It is recommended that these be printed in target languages and made available to community health centres to order directly. As there are many languages, it may be more feasible to print tear off brochures in each language on thinner paper so that they can be available more easily within health centres. Only 6% of referrals from the ECOH program are for children from homes where languages other than English are spoken in the home, while 18.9% of the NSW population speaks languages other than English in the home. This suggests that CALD populations are not equally accessing public dental services for children under 5 years of age. A stronger focus on CALD populations is recommended for the next project phase.

For lower socioeconomic populations, it appears that these groups are accessing community health centres for regular Child Health Checks. Seventy percent of referrals to public dental services come from the lower socio-economic half of the population. However, there is potentially a proportion of the population who have low health care seeking behaviour and do not frequently access services through community health centres or their GPs. Increasing partnerships with community services and NGOs could potentially increase the reach to these populations; however, the effort required in developing these partnerships for the additional reach that would be achieved may be deemed excessive or inefficient by the program implementers.

#### **4. Have the partnerships developed for integrated service delivery been effective?**

As discussed in Evaluation Question 1 above, the partnerships developed with child and family health nurse networks have been strong and effective and are the major achievement of the program thus far. The partnerships developed with GPs and practice nurses, local hospitals, and AMS are well developed within some AHS but this has not been achieved comprehensively state-wide. It is recommended that the program takes a more specific focus on these partnerships within the next project phase, while also maintaining the current partnerships with child and family health nurses. Partnerships with community services, NGOs and pharmacies could be considered for future project development but may require considerable effort for the additional program reach that would be achieved. The Little Smiles program, which will develop partnerships with child care centres for oral health promotion, will complement other partnerships and achieve more reach of oral health promotion to young children, especially those aged 2–5 years who would no longer be attending community health centres. A final potential partnership is with the Department of Education to achieve a stronger focus on oral health promotion in the curriculum for children in kindergarten and through primary school, which may not only improve their oral health but could also bring more oral health information into the home and positively affect oral health behaviours for younger siblings.

## 7. Recommendations

### Program Management

1. Implement a collaborative Project Review and Strategic Planning Process, involving all ECOH co-ordinators and the ECOH Advisory Committee to develop a new Program Framework and 3 year Strategic Plan. Prioritise which aspects of the program should be achieved comprehensively state-wide.
2. Ensure the program has adequate allocated human resources for program co-ordination within each AHS. It is recommended that all AHS have a 0.2–0.4 FTE position for the ECOH program co-ordination within their area. Identify additional Regional Co-ordinator roles in AHS with large distances to cover, which may also be required with the development of Regional Hospital Networks in 2010.

### Partnerships

3. Maintain the excellent partnerships developed with child and family health nurse networks. It is recommended that regular training and updates are provided to all nurses, communication channels and regular feedback to nurses is maintained, and that clinics that are not routinely referring children are targeted for specific attention.
4. Ensure that oral health information and risk assessments remain an integral part of the NSW Personal Health Record (Blue Book).
5. Further develop partnerships with GPs and practice nurses across all AHS. Explore opportunities to include ECOH referral forms within GPs electronic patient records systems. Monitor the impact of the new *gplearning* module in improving referrals.
6. Develop further partnerships with hospitals and health services, particularly the paediatric and emergency departments, following the model developed and trialled successfully within one AHS.
7. Clarify the referral criteria for the ECOH program, and the recommended age for a child's first dental visit, and publicise and promote this information widely.

### Equity and Reach

8. Specifically target improving the accessibility of the ECOH program to Aboriginal children and families. An Aboriginal oral health promotion co-ordinator based within COHS may facilitate this process, as may the identification of oral health promotion contact persons within each of the 52

AMS in NSW. Develop specific ECOH resources appropriate for Aboriginal families and specific ECOH training packages for Aboriginal health workers. Develop effective working partnerships with Aboriginal services.

9. Improve the accessibility of the program for CALD communities. Revise the translated version of Lift the Lip and make them more readily available to child health professionals. Review the recommendations of the recent review for the Lift the Lip resources for CALD communities and implement where possible. Develop further partnerships with migrant and refugee health and community services.

### **Additional Opportunities**

10. Consider further developing partnerships with community services, NGOs, and pharmacies – determine if the additional program reach that would be achieved through these partnerships would warrant the effort required.
11. Continue to collaborate with the NSW Oral Health Promotion Network in achieving objectives for Early Childhood Oral Health in NSW.

### **Public Dental Services**

12. Encourage all AHS to review the public dental services management strategies for children under 5 years of age, developing an increased focus on promotion, prevention, and more frequent recall, as has been implemented already within some AHS. Continue addressing professional development of oral health professionals in ECOH management.

### **Program Monitoring and Evaluation**

13. Review the Monitoring and Evaluation framework for the ECOH program and the indicators used to measure the success of the program. Develop effective and efficient data collection strategies to implement the strategy.
14. Review the ISOH data elements that can be used to monitor some aspects of the ECOH program, namely referrals to public dental services and treatment received. Develop an analysis system that enables this data to be collected and analysed efficiently. Consider the impact that poor data entry adherence has on the quality of the data and review referrals for all children under 5 years of age (not just those from the ECOH referrers) to review impact of the program until adherence improves.

## 8. Appendices

### Appendix 1: Questionnaire Interview: Program Implementers

1. What is your role in the Early Childhood Oral Health program?

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2. How would you define the ECOH program? What do you think it is?

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3. What do you perceive as the successes and challenges for this program?

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4. What are your experiences of participating in or delivering training associated with the ECOH program? Do you have recommendations for the training aspect of the program?

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5. Do you feel confident in delivering oral health promotion to parents and carers, and in early identification and referral for ECC?

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6. Do you show parents / caregivers how to “Lift the Lip” from 6 months onwards? Do you think parents become more informed and aware about oral health through this program?

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7. Do you think this program is an effective way to promote oral health in infants and young children? What else do you think could be done to improve oral health in young children?

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8. Do you feel the program has had an impact on early identification, referral and management of early childhood caries in your area?

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9. Do you feel this program is equally available, accessible, and acceptable, to different demographic groups in your population? (eg low socio-economic, CALD, Aboriginal, rural populations). Do you have ideas on how this could be improved further?

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10. What other support or resources could help you or your centre be more effective in promoting oral health?

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11. Do you have any recommendations for the program?

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## Appendix 2: Questionnaire Interview: Parents

1. How many children do you have, and what are their ages?

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2. How do you feel about the oral health of your child?

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3. Do you feel confident you know how to keep your child's teeth healthy? Can you explain what things you think are good for oral health care?

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4. Do you ever check your child's teeth for signs of tooth decay? Yes  No

If you saw signs of tooth decay, what would you do?

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5. The Personal Health Record ("Blue Book") recommends child health checks at 6, 12, and 18 months and 2,3 and 4 years. Has your child had all these health checks so far? What makes it easy or difficult for you to adhere to this schedule? Do you always go the same place for your child's health checks?

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6. When your child has had a child health check:

a. Did you receive information about how to look after your child's teeth? Yes  No

b. Did a health professional check your child's teeth, and show you how to check your child's teeth for early signs of tooth decay? Yes  No

c. Has your child ever been referred to a dental service, or been to see a dental health professional? Yes  No

d. If yes, can you tell me about the treatment / service they received there?

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7. Has any other health professionals (eg your GP, hospital staff etc) ever checked your child's teeth? Yes  No

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8. Has any other health professional or non health professional (eg community worker, child care worker etc) ever given you information on how to care for your child's teeth? Please explain who.

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9. Have you heard of "Lift the Lip" or "See my Smile" slogan? Yes  No   
If yes, what do you think that is about?

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10. Have you ever received a brochure on “Lift the Lip” or “See my Smile”?

Yes  No

Have you read about oral health care in the Personal Health Record (“Blue Book”)?

Yes  No

If yes, did you find this information helpful and easy to understand?

Yes  No

*(show the information if they have not seen it before)*

Can you explain what you liked / did not like, or what more you would like to know?

Yes  No

11. Where do you seek health information? What would be the best way for you to receive more information about keeping your child’s teeth healthy?

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12. Do you have contact with any other services who you feel could help you to understand more about your child’s oral health? (eg Community Workers, Case Workers, etc).

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13. I would like to ask you some questions about your situation, however these questions are not essential if you would prefer not to answer them:

- a. Were you born in Australia? Yes  No
- b. Do you speak English at home? Yes  No
- c. Is your child of Aboriginal or Torres Strait Islander origin? Yes  No
- d. Do you live rurally or remotely? Yes  No
- e. Do you hold a Centrelink Concession card? Yes  No

**Appendix 3: Oral Health Advice Form**

**Oral Health Advice Form**  
**Fax No:**



AHS LOGO
MRN

**CHILD'S DETAILS**  
 Family Name: ..... First Name: .....  
 Address: .....  
 Child's Medicare No: ..... Date of Birth: .....  
 Interpreter required:  Yes  No If yes, which language: .....

**PARENT/GUARDIAN DETAILS**  
 Name: .....  
 Relationship to child: .....  
 Mobile Phone No: ..... Hm/Wk Phone No: .....

*I give consent for the Public Oral Health Service to use this information.*  
**Signature:** ..... **Date:** .....

ORAL HEALTH ASSESSMENT (tick boxes)	ACTION (tick one box)
<input type="checkbox"/> Trauma or facial swelling	<input type="checkbox"/> Immediate transfer to Dental Call Centre <call centre phone number> and FAX advice form to oral health
<input type="checkbox"/> White spot demineralisation	<input type="checkbox"/> FAX advice form to oral health  <input type="checkbox"/> Will attend own dentist FAX advice form to oral health
<input type="checkbox"/> Cavitated lesions (holes)	
<input type="checkbox"/> Family requires oral health support	
<input type="checkbox"/> Frequent snacking (especially high sugar intake)	<input type="checkbox"/> Discuss with parent and record findings  Re-assess at next scheduled health check
<input type="checkbox"/> Child takes a bottle to bed (or uses at will by day)	
<input type="checkbox"/> Special health needs / frequent medications	
<input type="checkbox"/> Visible plaque	
<input type="checkbox"/> No oral health issues noted	

**REFERRED BY:** Name ..... Clinic  
 .....  
 Phone No: ..... Email  
 .....

Notes:  
 .....  
 .....

<b>Phone advice for nurses &amp; health professionals</b>	<b>ECOH Coordinator Ph: xxxxxxxxxxxxxxxx</b>
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