Healthy Tums, Healthy Gums: an oral health and nutrition collaboration

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Introduction
Nutrition, food and oral health share a co-dependent relationship. As the mouth is the entry point of the gastrointestinal tract, food not only affects overall nutrition but oral health.¹ Research indicates that approximately 50% of children aged 5-6 years have experienced some form of dental decay.² Current figures indicate that children from the lowest socioeconomic areas are approximately 70% more likely to have dental decay when compared with children from the highest socioeconomic status areas.³

On the world stage, Australians enjoy a relatively high standard of oral health however this high standard is not equally distributed among different age and social groups.¹ In NSW, disadvantage and low income earners have significantly worse oral health than the general population: these groups have the greatest difficulty accessing dental services, with low income earners almost twice as likely to have untreated dental decay.⁴ Factors contributing to poor oral health in this population group often include a variety of social, environmental and economic issues including mental health issues, a lack of knowledge, limited transport, housing instability and financial hardship.⁵ In 2004-05, the burden of illness associated with oral health cost Australia an estimated $5.3 billion, representing approximately 10% of the allocated health expenditure.⁴

The Intensive Family Preservation Program (IFPP) is an initiative of NSW Government Family and Community Services that seeks to support vulnerable families at imminent risk of having their children placed in Out of Home Care. The IFPP is a 52 week program where case workers provide families with intensive case management, and schedule group based health education to improve parenting capacity and family functioning. Within Tamworth NSW, three IFPP cycles with unlimited family enrolments commence each year through Tamworth Family Support Services. Case workers within the IFPP identified poor oral health and nutrition as prevalent preventable health risk factors for program children. This resulted in a partnership between Hunter New England Oral Health and Tamworth Child and Family Allied Health, Dietetic services to investigate appropriate collaborative support strategies for this demographic.

Aim
Oral health plays a pivotal role in overall health and wellbeing; therefore it is vital to provide education relating to both nutrition and oral health to support families and children to achieve optimal health outcomes.

The aim of the intervention was to develop a sustainable preventative focused nutrition and oral health education program for the IFPP, that supports individual capacity building by meeting the learning and education needs of enrolled families.

To achieve this, the authors aimed to identify the literacy and education needs of families to inform development and delivery of appropriate nutrition and oral health resource material.
Early childhood caries is a severe and rapidly progressing form of tooth decay.

**Methods**

The authors and research assistants conducted 14 semi-structured interviews with key stakeholders. Interview participants were grouped as:

- IFPP case workers (2),
- paediatric oral health (3) and dietetic clinicians (4), and
- IFPP families (5).

Consultations followed a set interview protocol. Questions differed according to participant group however incorporated the following themes:

- main food culprits and feeding practices contributing to oral health issues;
- knowledge gaps regarding nutrition and oral health;
- desired education content for nutrition and oral health program resources; and
- literacy levels and effective education delivery methods.

Nutrition and oral health guidelines such as Australia’s National Oral Health Plan *Healthy Mouths, Healthy Lives 2004-2013*, were reviewed to extract key collaborative preventative messages that could be incorporated into an education program.
Results

Consultation results
Case managers and clinicians provided detailed responses on observed attributing nutrition factors to increased risk of poor oral health. The food culprits/practices and knowledge gaps regarding nutrition and oral health that were unanimously identified included:

- prolonged bottle use and overconsumption of formula
- early solids introduction
- lack of core foods eaten daily, and snacks consisting of ‘sometimes food’ items such as sticky fruit straps
- limited cooking
- shopping and budgeting skills
- sugar sweetened drinks
- all aspects of oral hygiene, including
  - frequency of brushing
  - how to brush children’s teeth
  - signs of dental caries
  - access to public dental services.

Additionally, support with positive role modelling was requested.

Literacy levels were a major reoccurring theme; with IFPP families identified as averaging 3rd grade literacy levels. Group sessions vs. written material was preference, with key health messages imparted as simple practical advice desired.

IFPP families could not identify links from their food practices that may contribute to risk of poor oral health, however 80% could link confectionary to tooth decay. There was overwhelming request for practical advice regarding childhood nutrition management such as:

- lunchbox and recipe ideas
- shopping
- budgeting
- encouraging tooth brushing
- fussy eating
- access to free services (dental and nutrition).

Group sessions were a preference. It was concluded families lack of access to low literacy resources, and practical food and oral health management strategies were attributing factors to limited knowledge, and poor oral health and nutrition practice.
Healthy Tums, Healthy Gums program

Table 1  Program session titles and topic overview

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic overview</th>
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<tbody>
<tr>
<td>General Nutrition for Kids</td>
<td>- Core foods</td>
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<td>- Child size serves</td>
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<td>- Infant feeding</td>
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<td>- Introduction of a sippy cup</td>
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<td>- Stopping the bottle at 12 months</td>
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<td>Nutrition and Happy Teeth</td>
<td>- Session 1 recap</td>
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<td></td>
<td>- Oral hygiene</td>
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<td></td>
<td>- Sugar sweetened drinks</td>
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<td></td>
<td>- Teeth friendly snacks and grazing</td>
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<td></td>
<td>- Recommended foods</td>
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<td>- Lunchboxes</td>
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<td>Family Meal Times</td>
<td>- Session 2 recap</td>
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<td>- Food safety</td>
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<td>- Meal planning</td>
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<td>- Easy Recipes</td>
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<td></td>
<td>- Fussy eating</td>
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<td>- Positive role modelling</td>
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<tr>
<td>Budget Friendly Shopping</td>
<td>- Session 3 recap</td>
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<td>- Healthy eating on a budget</td>
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<td></td>
<td>- Homemade vs. packaged</td>
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<td>- Label reading</td>
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<tr>
<td>Recap session</td>
<td>Key messages and practical strategies from sessions reviewed</td>
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Identified content was compiled into an interactive five session group education program ‘Healthy Tums, Healthy Gums as outlined in Table 1’. Collaborative oral health and nutrition messages were weaved throughout every topic.

Due to lower literacy needs of the group, education methods utilised in the program sessions include:

- how to vs. why
- the teach back or show me approach
- demonstrations
- key messages
- limited syllable words
- pictures and illustrations.

Practical strategies are a mainstay throughout e.g. ‘how to’ transition from bottle to cup.

The program includes:

- goals and objectives
- session plans
- PowerPoint slides
- interactive activities
- pictorial resources
evaluation tools.

Resources provided to families include existing e.g. 'Lift the Lip'; newly developed e.g. 'sugar poster'; and physical e.g. tooth brushes and paste, and tooth friendly sipper cups and water bottles.

**Pilot results**

Preliminary baseline results indicate prior to education participants lacked knowledge of the practical links between nutrition and oral health and childhood nutrition management strategies, which significantly improved post education, e.g. integrated relationship between juice, early childhood caries and grazing, and how to encourage water consumption.

The evaluation results showed significant improvement in participant knowledge in the following areas post education:

- 100% understood the link between grazing and dental decay demonstrating an increase of 65%
- 100% aware that bottle feeding should be phased out by 12 months of age
- 100% recognised the significance of role modelling
- 85% aware of the recommendation of introducing a sippy at 6 months
- 80% increase (20% to 100%) participants could identify tooth friendly snacks
- Up to 70% increase in correct identification of “off the plate” foods (Australian Guide to Healthy Eating) not conducive to good oral health and nutrition
- Increase from 40% to 90% in knowledge on infant feeding recommendations e.g. when to introduce solids
- 42% increase of understanding of impact and consequences of early childhood caries (8%-50%)
- 35% increase (65% to 100%) in confidence to modify and try new recipes
- 40% increase in correct identification of first signs of early childhood caries (0%-40%)

There were several areas for improvement highlighted by pilot evaluation results where knowledge gains were not as high as anticipated:

<table>
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<tr>
<th>Topic</th>
<th>Strategy for improvement</th>
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<td>Knowledge of the first signs of early childhood caries-white spot lesion</td>
<td>Referral completed by casework for all children to access services to assist in identifying first signs of decay</td>
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<td>Fussy eating management</td>
<td>Increased group involvement in problem solving strategies</td>
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<td>Budgeting</td>
<td>Additional group interaction regarding family budget needs</td>
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**Future directions**

- To enhance sustainability, a service agreement to deliver ‘Healthy Tums, Healthy Gums’ to each IFPP cycle has been established.
- A train the trainer component for case workers to complement the program has been developed and implemented to assist ongoing reinforcement of key messages nutrition and oral health messages with families.
• While initially providing the opportunity to explore the education and learning needs of vulnerable families on these topics; success has allowed a current project to evolve that is exploring the potential applicability of program information for supporting the broader rural community accessing community health service and oral health service settings. This has involved conducting a needs assessment with families accessing child and family nursing and oral health services to determine education and learning needs regarding nutrition and oral health.

**Conclusion**

The ‘Healthy Tums, Healthy Gums’ program supports partnership building between dietetic and oral health services, which in turn strengthens the delivery of coexisting preventative nutrition and oral health messages. While providing collaborative opportunity to explore the education and learning needs of vulnerable families; it has allowed development of strategies to support the individual capacity building of IFPP families. Identified education topics that additionally support national recommendations have been incorporated into the prevention focused education program that employs learning strategies supportive of lower health literacy levels. Preliminary evaluation results indicate success in enhancing practical knowledge of the link between nutrition and oral health, suggesting potential to roll out to IFPP programs in other areas, similar vulnerable groups, as well as to the broader general community.

**Recommendations**

**Broad recommendations for strategy and service implementation**

• Consideration of health literacy when engaging in education and resource development

• Utilisation of service agreements and train the trainer resources to support sustainability of established programs and key preventative messages between partnering services.

• Collaboration ensures the utilisation if expert knowledge to educate on joint preventative health messages and enhances effectiveness of education and subsequent client health outcomes

• Health messages are improved as a result of partnering with other health professionals in
  - delivering own services
  - utilising existing resources across the services

**References**


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