WEEKLY EPIDEMIOLOGICAL REPORT

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EARLY CHILDHOOD DENTAL CARIES

Early Childhood Caries (ECC) is the term used for caries of the primary dentition of infants to children between 0 to 71 months. It includes conditions previously referred as Nursing Bottle Caries, Baby Bottle Tooth Decay and other variants of the terminology related to caries in children[1].

According to available information, the prevalence of ECC in Sri Lanka ranges from 23% in infants[2] to 65% in 5 years olds[3]. The characteristic feature of ECC is the sharp increase in the prevalence from 1 year olds to 3 year olds, that usually coincides with the beginning of weaning practices of infants[2].

However, ECC is not distributed evenly throughout the population. Children from disadvantaged families like low income, less access to dental care and some racial/ethnic minorities are estimated to be affected at higher rates[1.4]. Unfortunately for these groups, ECC has become a “normal” expected childhood occurrence and they often wait to go for dental care until there is a problem. This makes it difficult to identify and treat ECC at an early stage and more importantly, to provide guidance and support in order to prevent the problem in the first place.

The impact of ECC to the society is enormous[1,5]. Children with ECC weigh significantly less than orally healthy peers and their risk for future dental caries is dramatically increased. In addition to the obvious pain and suffering from infection, children with ECC may develop poor eating habits, speech problems and low self-esteem as well as being distracted in playing and learning activities. Moreover, as treatment of ECC usually requires multiple dental visits, sometimes done under sedation or general anesthesia for uncooperative children, direct cost for treatment as well as the indirect cost like work loss of parents, transport costs havs often been out-sized.

As with any carious lesion, ECC is also formed by the time dependant interaction of 3 factors namely, amount of cariogenic microorganisms (mutans streptococci) in the saliva, amount and frequency of fermentable carbohydrates intake, and susceptibility of teeth[1,4,5]. It has been reported that infants acquire mutans streptococci from their mother's saliva[1,4,5]. Therefore, mothers who

High risk groups for ECC

1. Children with frequent consumption of:
   - Bottle feeding at night
   - Sugar-added feeds (juice, milk, formula)
   - Sweets (toffees, chocolates, drinks)
   - Biscuits

2.Children with high mutans streptococci counts in the saliva

3. Children with weaker teeth:
   - Children who do not brush their teeth corr ectly (not exposed to optimum levels of fluoride)

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Moreover, it has also been shown that suppressing maternal reservoirs of mutans streptococci via dental rehabilitation and antimicrobial treatments can prevent or delay infant inoculation[1,4,5] .

ECC usually starts from upper anterior (front) teeth in infants. In high risk infants, it begins soon after eruption of teeth. Clinically, it appears as chalky-white or brown spots/bands close to gum line in upper anterior teeth and then start breaking down the whole tooth surfaces.

This is a rapid process dependant on the risk state of the child. In high risk children, whole tooth surfaces might get destroyed within 2-3 months after eruption. Because of this rapid progress, parents often misinterpret ECC as a developmental defect of teeth (enamel). When the child continues to be in the risk state, the upper posterior (back) teeth and then the lower posterior teeth will also get affected. Usually lower anterior teeth get spared.

Treatment of ECC is based on three principles; firstly appropriate fluoride therapy to arrest the disease progression, then restorative/surgical treatment for affected teeth and finally family/child specific habit intervention & awareness to prevent future lesions[1]. However providing treatment at early stages of the disease is more beneficial to the patients/family as it saves treatment time/cost and more importantly prevents the progression of the disease as well as the occurrence of undesirable complications (e.g. dental pain, swelling, abscess etc.).

Addressing the Issue

Since most children affected with ECC are from families of socially or economically disadvantaged groups, it is highly unlikely that significant progress can be achieved solely by providing treatment. Therefore, a potential solution could be the establishment of sustainable interdisciplinary awareness and prevention services to arrest ECC and prevent succeeding cohorts of children from this dreadful condition while establishing and maintaining treatment services for those who have been affected[5].

Here is an outline of a potential strategy to overcome this problem.

The public awareness: should start at different levels starting from eligible couples. The aim should be to maintain good oral health status during pregnancy, early identification of ECC and seek treatment.

Eligible couples: encourage young couples, especially females, to make dental visits before getting pregnant in order to avoid possible dental problems during pregnancy by obtaining necessary treatment and adapting good oral health practices

Expectant mothers: advice on:

- Maintaining good oral health status during pregnancy and encourage dental visits whenever needed

Mothers/parents: advice on:

- Oral health consequences of bedtime bottle feeding & Healthful feeding practices
- Start tooth brushing as soon as they erupt
- Maintaining good oral hygiene of the baby as well as the whole family
- Early identification of disease and seek treatment

A visit to the dentist at least by 18 months of age

Professional education for primary health care providers

- Healthy feeding practices for infants and children
- Behaviors and practices that promote good oral health (eg: tooth brushing)
- Early identification of disease and referral

Professional education for dental community: awareness/training on

- Appropriate clinical management of very young patients

New therapeutic modalities for management of ECC

Establishment of treatment services

- Establishment of treatment services to address ECC at grass root level.
- Development and introduction of appropriate therapeutic guidelines for management of ECC

References

[1]Harris N O, Garcia-Godoy F. Primary Preventive Dentistry
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[2] Shahim F N. Factors of risk to early childhood caries in a
selected district in Sri Lanka. Thesis (MD), Post Graduate
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Table 1: Vaccine-preventable Diseases & 12th - 18th July 2008 (29thWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	00	01 GL=1	00	00	00	00	00	00	01	01	58	52	+11.5%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	00	00	00	00	00	00	00	00	00	00	00	62	41	+51. 2%
Tetanus	00	00	00	00	00	00	01 AP=1	00	00	01	01	20	21	0.0%
Whooping Cough	00	00	00	00	00	00	00	00	00	00	01	24	24	0.0%
Tuberculosis	18	25	11	08	29	08	04	00	06	109	133	4839	5727	-15.5`%

Table 2: Newly Introduced Notifiable Diseases 12th - 18th July 2008 (29thWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Chicken-pox	19	05	06	00	07	03	03	08	19	70	56	3192	2034	+56.9%
Meningitis	02 KL=2	00	03 HB=2 MT=1	00	00	03 KR=1 PU=1	00	01 BD=1	02 KG=2	11	26	815	224	+263.8%
Mumps	02	05	12	00	07	08	09	03	07	53	54	1509	891	+69.4%

Key to Table 1 & 2

Provinces: W=Western, C=Central, S=Southern, N=North, E= East, NC=North Central, NW=North Western, U=Uva, Sab=Sabaragamuwa.
DPDHS Divisions: CB=Colombo, GM=Gampaha, KL=Kalutara, KD=Kandy, ML=Matale, NE=Nuwara Eliya, GL=Galle, HB=Hambantota, MT=Matara, JF=Jaffna, KN=Killinochchi, MN=Mannar, VA=Vavuniya, MU=Mullaitivu, BT=Batticaloa, AM=Ampara, TR=Trincomalee, KM=Kalmunai, KR=Kurunegala, PU=Puttalam, AP=Anuradhapura, PO=Polonnaruwa, BD=Badulla, MO=Moneragala, RP=Ratnapura, KG=Kegalle.

Table 3: Laboratory Surveillance of Dengue Fever 12th– 18th July 2008 (29thWeek)

Samples	Number tested		Number positive *		Serotypes									
					D_1		D_2		D_3		D_4		Negative	
	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH
Number for current week	01	04	00	00	00	00	00	00	00	00	00	00	00	00
Total number to date in 2008	104	113	08	19	00	00	05	08	01	06	00	00	02	00

Sources: Genetech Molecular Diagnostics & School of Gene Technology, Colombo [GT] and Genetic Laboratory Asiri Surgical Hospital [AH]
* Not all positives are subjected to serotyping.
NA= Not Available.

Data Sources:
Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Human Rabies, Dengue Haemorrhagic Fever, Japanese Encephalitis, Chickenpox, Meningitis, Mumps.
Special Surveillance: Acute Flaccid Paralysis.
National Control Program for Tuberculosis and Chest Diseases: Tuberculosis.

Table 4: Selected notifiable diseases reported by Medical Officers of Health

12th - 18th July 2008 (29thWeek)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephal-itis		Enteric Fever		Food Poisoning		Leptos-pirosis		Typhus Fever		Viral Hepatitis		Human-Rabies		Re-turns Re-ceive
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	20	1036	05	105	00	07	01	60	00	69	13	256	00	02	00	73	00	01	**100**
Gampaha	17	621	04	106	00	14	00	33	00	67	03	245	00	05	01	84	00	03	**93**
Kalutara	10	316	06	213	00	08	00	44	00	16	10	303	00	02	02	27	00	00	**100**
Kandy	02	146	08	173	00	05	00	38	01	52	07	281	02	64	02	90	00	01	**72**
Matale	04	72	02	141	00	02	01	35	00	04	12	583	00	01	01	22	00	00	**83**
Nuwara Eliya	00	16	06	158	00	02	00	189	00	110	00	34	00	34	00	86	00	01	**100**
Galle	00	69	04	112	00	12	00	12	00	43	02	218	00	10	00	06	00	03	**76**
Hambantota	03	61	08	64	01	05	00	06	00	07	00	68	01	60	01	06	00	00	**100**
Matara	09	166	01	119	03	09	00	23	02	04	01	218	04	128	01	09	00	01	**94**
Jaffna	00	52	00	86	00	02	00	215	00	09	00	00	00	148	00	28	00	00	**25**
Kilinochchi	00	00	00	14	00	00	00	01	00	00	00	02	00	00	00	01	00	00	**25**
Mannar	00	25	01	12	00	06	00	115	00	00	00	00	00	01	00	12	00	00	**50**
Vavuniya	00	10	00	38	00	02	00	05	00	13	00	05	00	01	00	04	00	00	**75**
Mullaitivu	00	00	00	05	00	00	00	11	00	12	00	00	00	01	00	06	00	00	**00**
Batticaloa	00	85	00	71	00	03	00	20	00	19	00	04	00	01	01	80	00	05	**82**
Ampara	00	24	06	199	00	00	00	05	00	00	01	17	00	00	00	05	00	00	**29**
Trincomalee	00	173	04	67	00	00	00	12	00	12	03	28	00	15	00	12	00	00	**100**
Kurunegala	00	233	00	157	00	11	01	37	00	13	02	166	00	16	01	43	00	04	**83**
Puttalam	01	264	00	49	00	08	01	128	00	21	00	25	00	32	00	26	00	03	**78**
Anuradhapur	00	109	00	51	00	09	00	08	00	06	00	219	00	10	01	11	00	02	**63**
Polonnaruwa	02	57	01	82	00	01	00	21	00	07	00	54	00	01	00	17	00	00	**57**
Badulla	02	58	11	296	00	04	01	87	00	13	01	32	06	85	06	82	00	01	**93**
Monaragala	00	45	08	264	00	02	01	29	00	114	01	85	00	71	01	26	00	00	**100**
Ratnapura	10	193	00	203	01	24	00	41	00	43	00	119	00	74	01	43	00	00	**100**
Kegalle	07	277	02	222	00	23	01	47	00	02	04	205	00	47	06	402	00	01	**100**
Kalmunai	00	29	01	188	00	02	00	09	00	12	00	00	00	02	01	20	00	00	**69**
SRI LANKA	**87**	**4137**	**78**	**3195**	**05**	**161**	**07**	**1231**	**03**	**668**	**61**	**3167**	**13**	**811**	**26**	**1221**	**00**	**26**	**81**

Source: Weekly Returns of Communicable Diseases (WRCD).

***Dengue Fever / DHF** refers to Dengue Fever / Dengue Haemorrhagic Fever.

****Timely** refers to returns received on or before 26 July, 2008 Total number of reporting units =238. Number of reporting units data provided for the current week: 247

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