

Dental Health of Preschool Children with Autism Spectrum Disorder in Hong Kong

DFY CHAN, SHY CHAN, HK So, AM LI, RCM NG, N TSANG

Abstract

Children with autism spectrum disorder (ASD) were reported to have higher rates of unmet dental needs and behavioural problems that leading to dental care or oral hygiene problems. With the lack of dental services for preschool children in Hong Kong, the severity of dental problems in this group of children has not been documented locally. The aim of this study is to evaluate how well the preschool aged children with autism spectrum disorder comply with the recommendations from the dental profession, namely of tooth brushing habits, dental visits and rate of dental caries. Seventy percent of the 196 recruited children diagnosed with ASD with a mean age of 5.36 years from thirteen rehabilitation centres had established a twice daily tooth brushing habit at a mean age of 2.5 years. Eight-three of the children reported to have behavioural problems during toothbrushing. Thirty-six percent of these behavioural problems were unrelated to the toothbrushing procedure, including crying, screaming and other aggressive behaviour. Twenty-six percent suffered from dental caries of which 60% were reported as severe. Only 48% of them had visited dental services, the majority of these attending for dental checkups. Dental caries was significant higher in mother with low educational level and low-income families with children of ASD. Dental problems in this group of children are not a minor issue. A primary screening dental checkup service for preschool children with ASD especially in low-income families should be deeply considered in Hong Kong.

Key words

Austism spectrum disorder; Dental health; Preschool children

Department of Paediatrics, Faculty of Medicine, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong, China

DFY CHAN (陳鳳英) *FHKCPaed, FHKAM(Paed)*
SHY CHAN (陳曉欣) *BSc*
HK So (蘇鴻鈞) *PhD*
AM LI (李民瞻) *MD, FHKAM(Paed), FHKCPaed*

Heep Hong Society, Hong Kong

RCM NG (吳翠雯) *BA(Hons) Social Work*
N TSANG (曾蘭斯) *JP*

Correspondence to: Dr Dfy CHAN

Received May 23, 2013

Introduction

Autism spectrum disorder (ASD) is one of the most devastating neurodevelopmental disorders with major impact on families of affected children as well as social support and education systems. Children with ASD are characterised by a triad of symptoms, namely lack of social reciprocal responsiveness, language and communication deficit and rigid repetitive behaviour.¹ In recent decades, an "Autism epidemic" has been noted worldwide. According to the latest update by the Centers for Disease Control and Prevention (CDC) in the US, about 1 in 88 children suffers from ASD, which is 1.7 times more than

that reported 10 years ago.²

In Hong Kong, there is a lack of well-designed population based prevalence and epidemiological study on ASD. Child Assessment Service (CAS) in Hong Kong provides tertiary clinical assessment service and they are responsible in diagnosing and arranging subsequent therapy for children with any kind of developmental problems. As documented in one of their annual reports, there was an increase of 184% in ASD diagnosis from the year 1997 to 2005.³ Though CAS captured a great proportion of children diagnosed with ASD, their data remain an underestimate of the true prevalence in the territory. Quite a number of children are nowadays diagnosed in the private sector, and there are certainly children attending mainstream schools without a diagnostic label being given. In 2007, Wong and Hui had estimated 16.1 in 10,000 children under age 14 were suffered from ASD by retrieving computer diagnostic code of hospital. Again, this figure was likely to be underestimated as not all children with ASD will be followed up in hospital.⁴

Unmet dental services to dental needs of children with ASD had been reported in US.⁵⁻⁶ The main barriers were their behavior and cost. There were conflicting information on dental caries and oral hygiene in people with ASD as shown worldwide. Loo et al in 2008 had reviewed identified a group of 395 patients with ASD and a group of 386 unaffected patients, that showed people with ASD were less in caries but significantly higher percentage were uncooperative, and required dental treatment under general anesthesia.⁷ Orelanlla et al found adult with ASD were assisted for toothbrushing 2 to 3 times a day with less caries but higher incident of bruxism and anterior open bite.⁸ While the other study was conducted by Marshall et al showed individuals with ASD were higher risk for dental caries.⁹ Jaber¹⁰ had reported that the majority of recruited autistic children aged 6 to 16 years in this study had either poor or fair oral hygiene compared with healthy control subjects. As concluded by US National Institutes of Health in 2012, the dental needs of individual with ASD was comparative with unaffected people, but the dental services were unmet for this special group of people, that may be attributed by their behaviour or sensory processing problem during the dental examination and procedures.¹¹

The unmet dental service is also observed as problem in Hong Kong. There is no subsidised dental service provided for preschool children locally. In Hong Kong, private dentists provide most of the dental service. Dental services provided by the Hong Kong Special Administrative Region Department of Health are namely:

1. Oral Health Education Unit;
2. Yearly dental checkup for school aged children;
3. Emergency extraction of tooth or pain relief service in some dental clinics;
4. Dental services for civil servants;
5. Severe dental diseases of disabled clients are handled by the dental department of hospitals.

The oral health survey of Hong Kong conducted in 2001,¹² whose subjects included a group of children aged 5 from normal kindergartens, reported that almost three quarters of the 5-year old population had never visited a dentist. Most of them only visited the dentist when they were suffering from oral health problems including toothache, abscesses or trauma, or suspected tooth decay. Half of the children were affected by tooth decay. More than 90% of the decayed teeth actually went untreated. The low rate of dental consultation as revealed by the survey may relate to the lack of universal dental services for preschool children provided by the Hong Kong Government. For children with ASD, the lack of general knowledge in handling their behaviour especially in unfamiliar and unusual dental room environment may attribute them the difficulties in completing the dental procedures in difficulties. One of the study reported that only 35% of people with ASD were cooperative for dental examination.¹³

According to the webpage information of The Hong Kong Society of Paediatric Dentistry, children with autism often attend private dental services. Special consideration to clinic settings to accommodate for these patients is recommended. Limitations of sedation and manpower facilities, together with the unpredictable behaviour of patients during dental procedures, has resulted in the use of general anesthesia being required when treating complicated dental diseases of special needs children in public hospitals. Therefore, to understand the dental health status of children with ASD is essential to formulate the strategies to promote their dental condition and possible reduce the risk and rate of general anesthesia for dental treatment.

The aim of this survey is to evaluate how well the preschool aged children with autism spectrum disorder comply with dental profession recommendations¹² as follows:

1. Brushing their teeth at least twice daily with fluoridated toothpaste, with the assistance of an adult;
2. Dental consultation at the age of 3 for checkup purposes;
3. Regular dental checkups for early diagnosis and treatment of dental disease, and oral health education for the parents.

Method

In Hong Kong, over 90% of children aged under 2 years old will attend Maternity and Child Health Centres (MCHCs) for receiving vaccination and developmental surveillance (DSS). Children will be referred to tertiary Child Assessment Centre (CAC) for further evaluation of the suspected developmental problems. Children with Autism Spectrum Disorder were diagnosed by Paediatrician or Clinical Psychologist according to the standard of DSM IV. The DSS program in MCHC had been validated with sensitivity and specificity both were higher than 80% at aged of 18 months. (by personal communication)

In Hong Kong, preschool aged children diagnosed to have ASD or suspected ASD will be referred to rehabilitation service according to the same criteria stated by the service provider, Social Welfare Department, to either Early Educational Training Centres (EETC), Integrated Child Care Centres and Special Child Care Centres (SCCC) (Appendix 1).

Heep Hong Society is one of the non-government organisations which are operating 13 SCCC, and that covered one third of all SCCC in Hong Kong.

All children aged 2 to 6 years diagnosed with confirmed or suspected autism, autistic features, autism spectrum disorder, asperger syndrome, pervasive developmental disorder by developmental Paediatricians or Clinical Psychologists from public or private sectors based on the Fourth Edition of the Diagnostic and Statistical Manual of Mental Disorder (DSM-IV), were invited from 13 rehabilitation-training centres (EETC or SCCC) of Heep Hong Society. Written consent was obtained from their parents. Basic demographic data was collected.

At current, there is no validated dental hygiene questionnaire available in Hong Kong. As stated in the Dental Survey 2001, the enquired questions were also constructed base on the 3 recommendations on tooth brushing habits, dental caries status and yearly dental checkup after aged of 3 years. And therefore, in this survey, we adopted a parent-administered questionnaire in addressing all these 3 important recommendations. Ethics were approved by The Chinese University of Hong Kong.

Statistics

Data analysis was carried out using descriptive statistics. Descriptive data was presented as percentages for discrete variables and as the mean for continuous variables. The

Pearson's Chi-square test was used to compare the differences of dental visit and caries in terms of family income. All statistical analyses were performed using PASW statistics 18.0 (SPSS Inc., Chicago, IL, USA). All statistical tests were two-sided and a P-value 0.05 was considered statistically significant.

Results

In total, 197 children were invited to participate, and only one declined. The response rate was 99.5%. There were 77.3% males with the mean age of 5.0 years. There was one child aged at 2 and 19 aged at 3 years old. (10%) Basic demographic data was shown on Table 1.

Table 1 Demographic characteristics

	Confirmed ASD (n=125)	Suspected ASD (n=65)	Total
Age (years; mean)	5.0	5.1	5.0
Sex (%)			
Male	79.4	75.0	77.3
Female	20.6	25.0	22.7
Mode of education (%)			
EETC	25.0	54.7	35.2
SCCC	75.0	45.3	64.8
Duration of training (months; median)	21.0	14.0	21.0
Income (HKD; %)			
<15,000 or CSSA	27.7	22.2	26.9
15,000-29,999	32.8	27.0	30.1
30,000-44,999	14.3	25.4	17.7
≥45,000	25.2	25.4	25.3
Mother's education level (%)			
Primary or below	5.6	7.7	6.7
Secondary	56.0	58.5	56.7
Tertiary	38.4	33.8	36.6
Father's education level (%)			
Primary or below	4.0	4.6	4.2
Secondary	49.2	63.1	54.2
Tertiary	46.8	32.3	41.7

ASD: autism spectrum disorder; EETC: Early Educational Training Centres; SCCC: Special Child Care Centres; HKD: Hong Kong dollars; CSSA: Comprehensive Social Security Assistance
Confirmed ASD includes diagnosis of ASD, Pervasive Developmental Disorder and Asperger syndrome

1. Tooth Brushing Habits (Figure 1)

Five of the subjects with the mean age of 4.5 years (3.8 -5.3 years) had never established a regular tooth brushing habit and all of them suffered from dental decay and all had received dental treatment.

One hundred and ninety-one out of 196 (97%) reported that they had tooth brushing habits. Of those, 134 (70%) had the habit of brushing their teeth twice daily. Forty-five (24%) brushed their teeth once daily. Eleven (6%) only brushed their teeth 1 to 6 times a week. There was one whose habit was to brush his teeth less than 4 times a month. The mean age in establishing tooth brushing habits was 2.5 years old. By comparing the Dental Survey conducted in 2001, the rate of tooth brushing more than twice a day were 70% and 54% among the children with ASD and general 5 years old population respectively.

Eighty-three out of 196 parents reported at least one tooth brushing related behavioural problems (Table 2).

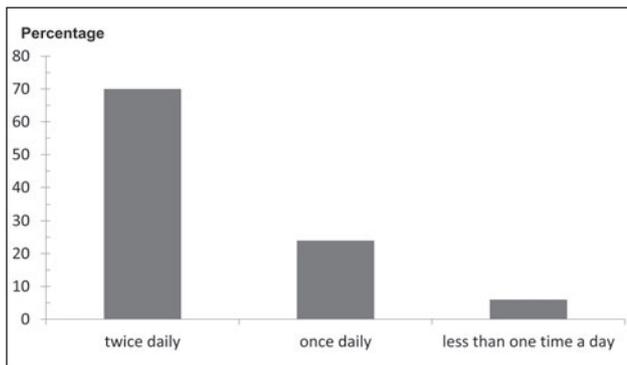


Figure 1 Tooth brushing habit in children with autism spectrum disorder.

Table 2 The behavioural problems for tooth brushing in 83 children

Behaviours	%
Procedure-related behavioural problems	
Doesn't like the feeling of putting the toothbrush	20.5
Hold the toothbrush in mouth	16.9
Doesn't like the taste or texture of toothpaste	12.3
Doesn't know how to spilt the water	10.3
Worry for the violent	3.1
Behavioural problems unrelated to procedures	
Cry	22.4
Scream	8.7
Bite	3.1
Violent	1.5
Self-harm	0.5

For procedure-related problems: 20.5% reported a "dislike of the felling of putting the toothbrush into the oral cavity"; 17% children would hold the toothbrush in the oral cavity and refused to take it out; 12% dislike of the taste or texture of toothpaste and 10% reported the child was not able to spit out the rinsing water.

Thirty-six percent of the children were reported to exhibit behavioural problems during tooth brushing unrelated to the procedure: 22.4% were crying; close to 9% of children would scream and 5% reported to have aggressive behaviour including self-harm, bite or violence to their care takers. Six parents worried about their child's aggressive behaviour during tooth brushing.

2. Dental Caries (Figure 2)

There were 50 children (26%) with ASD who were reported to have dental caries: 60% of them reported to be suffered from severe dental caries and half of them reported that the caries had lasted for more than a year. Five of them reported that the dental caries significantly affected both the children and parents in daily living activities.

The possible causes as reported by parents for the development of dental caries were: rigidity in choosing foods that cause caries (58%); refusing to brush their teeth (42%); holding food in their oral cavity (24%); and one reported having the wrong tooth brushing method and having a late start in adopting a tooth brushing habit.

The reported behaviours during toothbrushing were not associated with the existence of reported dental caries.

3. Dental Checkup

Twenty of children in this survey were aged under 3 years old. Forty-eight percent of all recruited subjects had visited dental services. Among them, 84% had attended for a dental checkup and the remaining had attended to receive dental treatment. Among all who had not attended dental visit, 60% had no report on dental caries. Eighty-four percent had visited dental services less than or equal

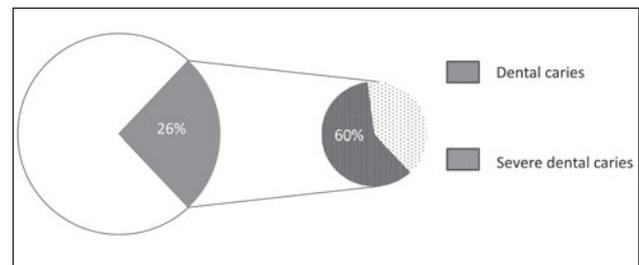


Figure 2 Parents reported dental caries in children with autism spectrum disorder.

to twice. Twenty-three percent had attended more than 3 times, two of whom had attended 10 times for dental treatment. The reported severity of dental caries was significantly associated with the number of dental visits ($p < 0.001$).

For those who did not attend any dental services, the possible reasons were: parents not recognising the need for dental checkups (53%); worrying that their child could not complete the checkup or treatment (50%); and financial issues (dental checkup too expensive) (15%).

Sixteen children with caries were not attending any dental service and half of them were reported to have severe dental caries. All of these parents stated worry their child could not complete the checkup or treatment as a reason for not attending.

Relationship among the three recommendations to family income.

In Hong Kong, the mid-family income is around HKD15,000. In this survey, we categorised low-income families group as family income less than HKD15,000 or families who were receiving Comprehensive Social Security Assistance (CSSA) in comparing with mid-income families had income more than HKD15,000 (Table 3).

There were 50 families in this survey belonged to low-income group. Around 50% of both groups had attended dental visits but over 70% of them from low-income families were not visiting for routine checkup. Reported dental caries was statistically higher in low-income group ($p = 0.001$), which were two-fold higher than the mid-income group (44.9% vs 20.6%).

Among those 50 children with caries, there were 20 of them belonging to the group of mothers with lower education level and lower family income ($p = 0.006$) (Figure 3).

Discussion

This is the first report in addressing the general dental health of preschool children with Autism Spectrum Disorder in Hong Kong. By primary knowledge of their dental status, more solid rehabilitation with consideration of general health promotion can be formulated.

There were some limitations of this survey as solely based on parents in reporting the dental condition of their children but no formal dentist clinical assessments. Moreover, by only recruiting children under the rehabilitation centers may not enough in representing all

children with ASD as Heep Hong Society is only covering for 30% of children with ASD under training. In addition, according to recent data, more than 5000 preschool children are still waiting for rehabilitation service, whom we have not approached for their conditions. The dental questionnaire used in this survey was not validated and which obviously will limit the validity of this study. Further validating the dental survey questionnaire and recruitment with a group of typical developed children as control group for comparison will be better study design.

Compared with the population of aged 5 in 2001 (54%),¹² the rate of tooth brushing more than twice a day was higher

Table 3 The differences of dental visit and caries in terms of family income

		Family monthly income	
		HKD15,000 or CSSA (n=50)	≥HKD15,000 (n=136)
Dental visit	Yes	44.0%	50.4%
	No	56.0%	49.36%
Dental routine check-up	Yes	27.7%	42.1%
	No	72.3%	57.9%
Caries*	Yes	44.9%	20.6%
	No	55.1%	79.4%

CSSA: Comprehensive Social Security Assistance; HKD: Hong Kong dollars

* p -value=0.001 (Chi-square test)

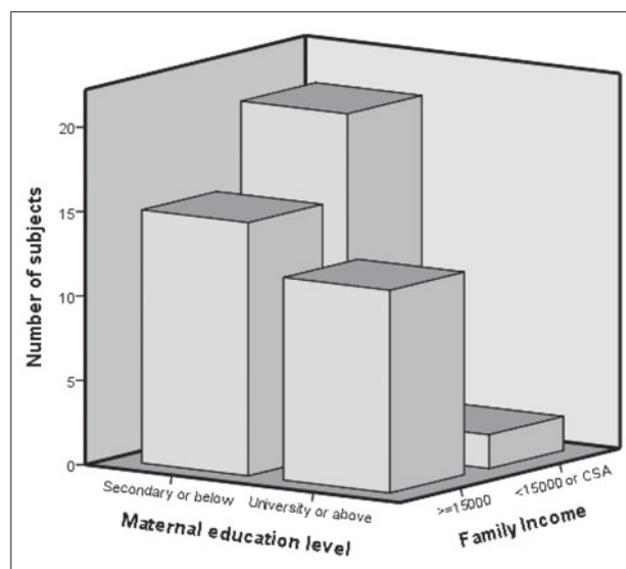


Figure 3 Association between reported dental caries to maternal educational level and family income.

among the ASD group (70%). But the substantial behavioural problems have not been reported in the general population were firstly documented in children with ASD in Hong Kong. The disturbing behaviours like crying and screaming (30%) happened once to twice daily whenever tooth brushing, which must contribute tremendous stress to parents and which might cause them to trade off this important general dental health.

Over 70% of 5 years old in the general population had never attended a dental checkup which seems less pronounced in the ASD group (52%). Among the remaining 30% of children who did not attend for dental visit, 60% did not report for any dental caries. One of the possible of not attending any dental visit may be under-awareness of the dental health status of their children or may not recognise possible caries. Half of the parents who do not opt for dental checkups were worrying their children could not complete the procedures with their unpredictable behavioural response. To ensure the smoothness in adapting and completion of the sensational enriched dental checkup procedures and environment, by improvement of understanding of sensory processing of this group of children of dentists, recommendations had been suggested by Kuhaneck and Chisholm in altering the sensory experience during the dental visits.¹⁴

The dental caries reported rate (26%) in this survey was lower than that (49%) reported in Dental Survey 2001 at aged of 5 years. This point out the limitation of this survey was relied solely on parent reported incident, whereas in 2001 had two dentists participated in assessing over 3000 children aged five.¹² This was likely due to underestimation of dental caries reported by parents in this survey, as over 50% of those who had never attended dental checkup, did not recognise or aware the needs. Over 70% of low income families with children of ASD did not attend routine dental checkup. Moreover, dental caries was significant higher in low income families and low maternal educational level.

In Hong Kong, children with ASD in general have to wait for 1-2 years to receive intensive public rehabilitation services (webpage information from Social Welfare Department on Rehabilitation Services). Parents have to exhaust their own capacity to receive consultations and training for private rehabilitation training programs. Subtle health issues such as dental health may not be given first priority by parents when it comes to expenditure. With the lack of public dental services for preschool children, these high-risk children may suffer from severe dental problems

which are not addressed appropriately.

As suggested by the national guidelines of the NHS for the "Prevention and Management of dental decay in preschool children" 2005, there can be community-based prevention through health education and health promotion. Two approaches had been advocated, namely population based approaches by: providing information to all households; and targeting specific groups within a population e.g. preschool child for a school-based oral health education program. The oral health of young children should be promoted through multiple interventions.¹⁵ Internationally, dental screening programs are adopted in different regions or cities in Australia, America and Canada. One example is the region of British Columbia in Canada, which provides health education and also a dental checkup service to preschool children.¹⁶

In evaluating the cost-effectiveness of these two approaches, Jokela and Pienihakkien reported that in Finland the costs per child per 3 years were significantly lower in the risk-based group identified by a screening program than in the conventional prevention group in reducing both costs and dental caries in preschool children.¹⁷ Similar supporting findings were reported in school age children.¹⁸ There was documented decline in dental caries of Japanese children aged of 3 to 12 years with ASD in 1995 when compared to that in 1980, the improvement of the qualitative and quantitative in treatment of caries, more regular visits to dental clinics, improved daily oral hygiene, and changes in dietary pattern might attribute to the decline.¹⁹

Parents of ASD are under the highest stress than from any other documented developmental disorder.²⁰ Guilty feelings were documented in parents whose child had dental decay.²¹ To avoid additional psychological stress to this group of parents, a better dental health service should be provided. To promote the general health of preschool children with ASD and balance between cost effectiveness, a subsidised yearly dental checkup program should be deeply considered for low-income families with children with ASD in Hong Kong.

"Prevention is better than cure!" A primary screening dental checkup service for low-income families with preschool children of ASD through the package of an effective training program should be deeply considered by the Hong Kong Government which would not only promoting health and prevent unnecessary sedation of this group of children, but would also reduce substantial parental stress.

Conclusion

Dental problems are not a minor issue for this group of children with ASD, with the limited resources from the government for dental services and dental education. With substantial difficulty in establishing the healthy oral hygiene of children with ASD, parents are working very hard to achieve it. With the collaboration network which lacks professional and financial support, the ability to sustain this important health scope is in doubt. Therefore, I highly recommend that the dental health education and a yearly dental checkup with treatment for the low-income families with children of ASD should be subsidized by the Hong Kong Government.

Declaration of interest

There is no conflict of interest of all the authors in this study.

References

- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington, DC: Author; 1994.
- NCBDDD. CDC-Data and Statistics: Autism Spectrum Disorder. CDC;2012.
- Woo EKF, Lam LL. CAS Epidemiological Data on Autistic Spectrum Disorder from 2003-2005. CASER; 2007. Report No.: 3.
- Wong VC, Hui SL. Epidemiological study of autism spectrum disorder in China. *J Child Neurol* 2008;23:67-72.
- Nelson LP, Getzin A, Graham D, Zhou J, Wagle EM, McQuiston J, et al. Unmet dental needs and barriers to care for children with significant special health care needs. *Pediatr Dent* 2011; 33:29-36.
- Lai B, Milano M, Roberts MW, Hooper SR. Unmet dental needs and barriers to dental care among children with autism spectrum disorders. *J Autism Dev Disord* 2012;42:1294-303.
- Loo CY, Graham RM, Hughes CV. The caries experience and behavior of dental patients with autism spectrum disorder. *J Am Dent Assoc* 2008;139:1518-24.
- Orellana LM, Silvestre FJ, Martínez-Sanchis S, Martínez-Mihi V, Bautista D. Oral manifestations in a group of adults with autism spectrum disorder. *Med Oral Patol Oral Cir Bucal* 2012; 17: e415-9.
- Marshall J, Sheller B, Williams BJ, Mancl L, Cowan C. Cooperation predictors for dental patients with autism. *Pediatr Dent* 2007;29:369-76.
- Jaber MA. Dental caries experience, oral health status and treatment needs of dental patients with autism. *J Appl Oral Sci* 2011;19:212-7.
- U.S. National Institutes of Health, National Institute of Dental and Craniofacial Research. Practical Oral Care for People with Autism, <http://www.nidcr.nih.gov/OralHealth/Topics/DevelopmentalDisabilities/PracticalOralCarePeopleAutism.htm>. Accessed August 10, 2012.
- Oral Health Survey 2001 Report, section 3. Department of Health, Government of the Hong Kong Special Administrative Region. December 2001.
- Kopycka-Kedzierwaski DT, Auinger P. Dental needs and status of autistic children: results from the National Survey of Children's Health. *Pediatr Dent* 2008;30:54-8.
- Kuhaneck HM, Chisholm EC. Improving dental visits for individuals with autism spectrum disorders through an understanding of sensory processing. *Spec Care Dentist* 2012; 32:229-33.
- SIGN. Prevention and management of dental decay in the pre-school child. A national clinical guideline. NHS 2005.
- British Columbia Dental Survey of Kindergarten-Aged Children 2009-2010. A Regional and Provincial Analysis. Available at: <http://www.health.gov.bc.ca/women-and-children/pdf/kindergarten-dental-survey.pdf>.
- Jokela J, Pienihäkkinen K. Economic evaluation of a risk-based caries prevention program in preschool children. *Acta Odontol Scand* 2003;61:110-4.
- Locker D, Frosina C, Murray H, Wiebe D, Wiebe P. Identifying children with dental care needs: evaluation of a targeted school-based dental screening program. *J Public Health Dent* 2004;64: 63-70.
- Takanobu Morinushi, Yasuhiro Ueda, Chihoko Tanaka. Autistic children: experience and severity of dental caries between 1980 and 1995 in Kagoshima City, Japan. *J Clin Pediatr Dent* 2001; 25:323-8.
- Kogan MD, Strickland BB, Blumberg SJ, Singh GK, Perrin JM, van Dyck PC. A National Profile of the Health Care Experiences and Family Impact of Autism Spectrum Disorder Among Children in the United States, 2005-2006. *Pediatrics* 2008;122:e1149-58.
- Carvalho TS, Abanto J, Mendes FM, Raggio DP, Bönecker M. Association between parental guilt and oral health problems in preschool children. *Braz Oral Res* 2012;26:557-63.

Appendix 1. Criteria for admission of rehabilitation service in Hong Kong

Service	Nature
Early Education and Training Centre (EETC)	For disabled children aged 0 to under 6 not currently receiving other pre-school rehabilitation service. It aims at helping parents in training and caring for their disabled children, and provides individual and/or group training for disabled children, family guidance/support to parents and toy library service.
Integrated Programme in Kindergarten-cum-Child Care Centre (IP in KG-cum-CCC)	For disabled children aged 2 to under 6 with suspected or assessed mild grade mental handicap, slight physical handicap, mild to moderate hearing impairment or visual impairment. Individualised training programme is provided within an ordinary full-day child care centre with one additional special child care worker for every six disabled children.
Special Child Care Centre (SCCC)	Intensive training and care for moderately or severely mentally, physically, hearing or visually impaired children aged 2 to under 6. It aims at developing their fundamental developmental skills, sensory, perceptual, motor, cognitive, communication, social and self-care skills.
Special Provision Programme for Autistic Children in Child Care Centre	Extra care and training in SCCC with an additional special child care worker for disabled children aged 2 to under 6 with autistic disorder. It aims at developing their social skills, attention span and the ability to follow instructions and rules so that they can learn and progress through SCCC programme.