

Health Science Research Grants ( Research on Children and Families )  
Research Paper

International Child Care Practices:  
Japan and Hong Kong Report of Japanese SIDS study

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Substance of Research : Sudden infant death syndrome (SIDS), or cot (crib) death, has been a major cause of infant mortality in Western countries. Recent initiatives in various countries, focusing on campaigns to modify child care practices, have been associated with dramatic reductions in SIDS rates of 50% or more .1-4 The main child care practice to be modified following these campaigns has been infant sleep position. In some studies a number of other child care practices have also been associated with SIDS: bed-sharing, lack of breast feeding, use of pillows and not sucking a dummy. Bed sharing and SIDS risk appears to be particularly significant if the mother is a smoker. 5,6 It has also been recognized that the rate of SIDS varies considerably from country to country and this variation cannot be fully explained by differences the prevalence of the risk factors. In the mid- 1980s it was noted that Hong Kong had particularly low rate of SIDS which helped to focus international researchers on the importance of sleep position. During this same period it was noted that the rate of SIDS in Japan appear to have risen from similar low levels. This appeared to be coincident with increasing popularity of the prone sleep position in some areas of Japan. However it is becoming increasingly apparent that sleep position is only part of the issue and that child care is a complex interplay between many cultural factors.

#### A. Introduction

Standardised methods of collecting data from different countries and cultures offer the opportunity to compare and contrast child care practices and other SIDS risk factors. Following the 2nd International Conference on SIDS in Sydney Australia in February 1992, a group of SIDS investigators met with aim of co-ordinating SIDS research. Four working groups (epidemiology, pathology, physiology, and education) were established and the epidemiology group made recommendations for the collection of population-based data on child care practices in as many countries and regions of the world as possible.

This resulted in the International Child Care Practices Study (ICCPs) which has now collected data from 19 different centres. The study was based on child care studies undertaken in southern New Zealand in the 1980s, 7 and a pilot study undertaken in 1992 included southern New Zealand, Japan, and Minnesota. The study protocol was further modified in Hong Kong in 1994.8 This study has provided comparative data on these child care practices and includes information from both low incidence countries (such as Hong Kong and Japan) as well as other western countries which previously had high incidence of SIDS.

#### B. Method

The data from Japan was collected by Prof. Hiroshi

Nishida, Ms. Stephanie Fukui, Dr. Toshiko Sawaguchi, Dr. Ino, Dr. Horiuchi & Dr. Oguchi. The sample was recruited from four hospitals: Tokyo Women's Medical College (n=41) by Dr. Nishida; Seibo Hospital in Tokyo (n=86) by Dr. Ino; St. Marianna Medical University Yokohama (n=96) by Dr. Horiuchi; Kitasato University Hospital in Kanagawa Prefecture, Yokohama (n=66) by Dr. Oguchi. One each of university - affiliated and private hospitals in Tokyo and two University hospitals in Kanagawa were non - randomly selected, based on the fact that individuals who agreed to participate in the survey could readily be identified. A random sample of families in each participating hospital was selected by using lists of randomly generated numbers according to the number of births on any given day. The randomly selected mothers were given information by the investigator about the study and verbal consent was obtained from these mothers who were willing to participate. During November 1996 to early January 1997 the birth questionnaires were distributed to mothers in hospital. The home questionnaires were mailed at the time the baby was 3 months old (January to March 1997). Only the Marianna Medical University Hospital collected information on non-responders (136 completed birth questionnaires and 96 completed home questionnaires).

Prof. H. Nishida and English speaking members of SIDS Family Association in Japan translated the home and birth questionnaires into Japanese. In Japan, infants are very rarely delivered at home (0.1%). There are approximately 1.2 million births annually in Japan (650,000 (55%) in hospital, 530,000 (43.9%) in clinics, and 10,000 (0.9%) in maternity homes). In Tokyo alone, there are approximately 100,000 births annually of which 68,000 occur in hospital (66.8%), 32,000 in clinics (31.7%), and 1,400 in maternity homes (1.4). In Kanagawa, there are approximately 80,000 births annually with about 50,000 in hospital (60.9%), 31,000 in clinics (37.4%), and 1,300 in maternity homes (1.5%). January and February are the coldest months in Japan

with an average temperature of 5.1 and 5.4 . December and March are the second coldest months of the year with averages of 7.7 and 8.1 respectively.

The data from Hong Kong SAR, China was collected by Dr. Tony Nelson. As home births are very uncommon and only babies born in hospital were considered. There are approximately 70,000 births annually in Hong Kong at 20 hospitals. Less than 1% of births occur at Government Clinics. Approximately 30% of deliveries occur in private fee paying hospitals and 70% of deliveries occur in Government Hospitals, which make only a small nominal charge. Two private and three public hospitals were non-randomly selected. Selection of these hospitals was based on the fact that personnel were identified who agreed to participate in data collection. A random sample of families in each participating hospital were selected using lists of random generated numbers according to the number of births on any particular day. The randomly selected mothers were approached by the investigator and given information about the study. Verbal consent was obtained if mothers agreed to participate. Mothers were excluded if they did not speak English or Chinese, if they were from mainland China and due to return there after delivery, or if they were from the Vietnamese Refugee Camps. At the two private hospitals a total of 79 mothers were randomly selected for inclusion. Two mothers did not wish to participate and 1 mother had been discharged prior to interview (n=76 or 30% of final sample). At the three government hospitals a total of 266 were randomly selected for inclusion. Eleven mothers did not wish to participate, 14 mothers had been discharged prior to interview, 37 mothers were not Hong Kong residents, 5 mothers were excluded because of language barriers and 24 excluded for other reasons. (n=175 or 70% of final sample). The total sample was therefore 251 families. No data were collected on the families who refused to participate or were excluded. Recruitment and completion of the birth questionnaire was undertaken during the two month time period of October to

November 1995. The home questionnaire was posted slightly earlier than intended. Non-responders to the home questionnaire were given telephone reminders and further questionnaires posted out if necessary. The response rate for the second questionnaire was 79% (198/251). Translation of the home questionnaires into Chinese were undertaken with the help of several translators to corroborate meanings of questions and then the questionnaire was translated back into English for final checking. In addition to this sample, a subsample of mainly Caucasian mothers delivering at one private hospital was also collected. Details of the other 17 samples will be published elsewhere.

The families were recruited so that the infants would be 3 months of age in the coldest two months of the year. This timing was based on findings from numerous epidemiological studies showing a higher prevalence of SIDS occurring in the winter. Parents were invited to participate in the study during the week after the birth. The place of recruitment took into account local factors including where babies were born. Families were approached individually with a short explanation and information sheet, and given the opportunity to consider participation before consent was obtained. The study was presented as part of a survey of infant child-care practices so SIDS was not specifically mentioned although it could be discussed if asked. The "Birth Questionnaire" was completed at the time of recruitment by interview. This collected mainly socio-demographic data.

The "Home Questionnaire" was posted to participating families when the baby was 12 weeks old. This age was chosen for the following reasons. The main focus of this study was child-care practices. Child care will continue to change as the baby grows, but it was considered that many parents' choices regarding sleeping, bedding, feeding are established to some extent by the age of six weeks. It is after this time that the incidence of SIDS rises to peak between about 8-16 weeks of age. It was therefore decided to survey child care during this high

risk SIDS period when child care patterns are likely to be reasonably stable. A phone reminder was given if the questionnaire was not returned within 1 week and a second questionnaire posted if required. A second phone reminder was given if the questionnaire was still not returned 2 weeks after posting and a third phone reminder at 4 weeks after posting. If there were still no response no further attempt to contact the family was made. Some centres administered the "home questionnaire" by face-to-face interview. The home questionnaire was designed to be completed on the day that it was received with many questions referring to "last night". Individual participating centres kept original questionnaires.

Each centre coded and entered their data using the Epiinfo data entry and analysis programmes provided (Epiinfo statistical software version 6.0, Center Disease Control, Atlanta). All available data was entered when questionnaires were incomplete and no re-coding of data was undertaken on the original record file. Statistical analysis was undertaken with Epiinfo. ANOVA was used for normally distributed data and Kruskal-Wallis one way analysis of variance for non-normally distributed data. Chi square tests were used to compare nominal data variables.

### C.Results

Each centre was asked to provide information on mortality data for the geographical area from which the study population was recruited for each year from at least 1985. Where possible information included total live births (number); number of deaths from 29 to 365 days (postneonatal); number of deaths from 29 to 182 days (1-5 month) ; number of SIDS deaths from 29 to 365 day; number of SIDS deaths from 29 to 182 days. This data for Hong Kong are presented in Tables 1 and Table 2. summaries the data received, and shows the size of the samples and details of data collection methods. Table 3. summaries the demographic information for the Japan and Hong Kong samples.

Table 1. Hong Kong Mortality Data

year	births	PN n	1-5 n	PN SIDS n	1-5 SIDS n	PND Rate	1-5 Rate	PN SIDS Rate	1-5 SIDS Rate
1985	76126	200	137	5	5	2.6	1.8	0.1	0.1
1986	71620	175	131	4	4	2.4	1.8	0.1	0.1
1987	69958	175	115	6	6	2.5	1.6	0.1	0.1
1988	75412	210	136	4	4	2.8	1.8	0.1	0.1
1989	69621	184	123	11	11	2.6	1.8	0.2	0.2
1990	67731	158	110	11	9	2.3	1.6	0.2	0.1
1991	68281	155	114	8	6	2.3	1.7	0.1	0.1
1992	70949	138	92	10	9	1.9	1.3	0.1	0.1
1993	70451	133	98	4	4	1.9	1.4	0.1	0.1
1994	71646	130	97	5	5	1.8	1.4	0.1	0.1
1995	68637	137	92	9	9	2.0	1.3	0.1	0.1

PN = postneonatal

1-5 = 1-5 month age(29-182 days)

Rate = Rate per 1000 live births

Table 2. Samples included in the International Child Care Practices Study

CITY/PROVINCE	COUNTRY	REFERENCE POPULATION
Buenos Aires	Argentina	All births mothers were recruited at the Italian Hospital (neonatal unit admissions excluded)
Brisbane	Australia	All births in Brisbane South Health region at the Mater and Logan maternity hospitals
Graz	Austria	Self-selected sample from Dept. Obstetrics and Gynaecology, University Hospital, Graz
Vienna/Innsbruck	Austria	Self-selected sample from General Hospital, Vienna; Wilhelminenspital, Vienna; Universitaetsklinik, Innsbruck
Manitoba province	Canada	All births in Manitoba, Canada (sample randomly selected from postpartum database which is 94% complete)
Santiago	Chile	All births San Juan de Dios Hospital, in Western Metropolitan Santiago (approximately 6,000 deliveries per annum)
Beijing	China	All births from Changqiao, PUMC Hospital, Dongsu Women Hospital, Beijing Women Hospital.
Chongqing	China	All attendees of 5 maternal and child health clinics
Hong Kong(1)	China	All births from 5 hospitals (2 private, 3 government)
Hong Kong(2)	China	All births from 1 private hospital catering for upper social class mainly Caucasian clientele
Copenhagen	Denmark	All births from 1 community hospital
Hannover	Germany	All births from Hannover University Hospital (neonatal unit admissions excluded)
Budapest & 6 counties	Hungary	Self-selected sample from birth register of health visitors
Dublin	Ireland	All births from three maternity hospitals in Dublin (catering for one third of all births in the Republic of Ireland)
Florence, Naples	Italy	All births from University Hospital in Florence and Lourdes Hospital in Naples
Tokyo, Yokohama	Japan	All births from 4 hospitals: Tokyo Women's Medical College, Seibo Hospital (Tokyo), St.Marianna Medical University Hospital and Kitasato University Hospital (Yokohama)
Dunedin	New Zealand	All births in Dunedin
Istanbul	Turkey	-
3 cities	Scotland	All births from 3 non-randomly selected Scottish hospitals in Aberdeen, Edinburgh, and Glasgow.
Karolinska Inst.	Sweden	All births from Karolinska Institute (low risk from North - western Stockholm & high risk pregnancies from the entire region)

Table 3. International Child Care Practices Study : Demographic details of Japan and Hong Kong samples

	Japan sample			Hong Kong sample		
	n	Mean	SD	n	Mean	SD
Age at Home Questionnaire	285	3.3	.68	186	2.8	.35
Birth Weight	280	3027	416	186	3160	444
Gestation	273	39.1	1.42	184	39	1.50
	n	(%)		n	(%)	
Female sex	145/289	(50%)		126/250	(50%)	
Multiple birth	7/280	(2.5%)		3/251	(1.2%)	
NICU admission	11/277	(4.0%)		16/249	(6.4%)	
Presentation	n=262			n=249		
-Vertex	254	(96.9%)		235	(94.4%)	
-Breech	7	(2.7%)		14	(5.6%)	
-Other	1	(0.4%)		0	(0%)	
Delivery Type	n=284			n=251		
-Normal	209	(73.6%)	133		(53%)	
-Forceps	3	(1.1%)		4	(1.6%)	
-vacuum	29	(10.2%)	50		(19.9%)	
-elective caesarean	21	(7.4%)		29	(11.6%)	
-emergency caesarean	16	(5.6%)		33	(13.1%)	
-Other	6	(2.1%)		2	(0.8%)	

SD = Standard deviation of mean

## D . Presentation of research

### 1 . Presentation in academic meetings

#### INVITED LECTURES

- 1 . Nelson EAS. Safe infant sleeping: beyond risk factors. International Child Care Practices Study. 5th SIDS International Conference. Rouen, April 1998.
- 2 . Nelson EAS. SIDS epidemiology: low versus high incidence countries. 5<sup>th</sup> SIDS International Conference. Rouen, April 1998.
- 3 . Nelson EAS. International comparison of child care practices: Dunedin in a world context. In: 50 Years of Paediatrics in Dunedin. A Festschrift in honour of Associate Professor David Holdaway and Professor Graham Mortimer. Dunedin, December 1997
- 4 . Nelson EAS. International Child Care Practices Study and cot death risk factors. Hong Kong College of Physicians and Hong Kong College of Paediatricians Joint Scientific Meeting. Hong Kong, November 1997.

#### ABSTRACTS AND PRESENTATIONS AT CONFERENCES

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- 2 . Nelson EAS, Yim L. Rolling over in Chinese infants. XXII International Congress of Pediatrics. Amsterdam, August 1998.
- 3 . Nelson EAS, Ji Xiaocheng, Li Haiqi. Chinese child care and sudden infant death. Second Guangdong-Hong Kong Paediatric Exchange Conference. Guangzhou, June 1998.
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### 2 . Papers published in academic journal

- 1 . Sawaguchi T, Nelson EAS, Fujita T, Sawaguchi A, Knight B. Is the incidence of SIDS increasing in Asia? *International Journal of Legal Medicine* 1998; 111: 278-280.
- 2 . Nelson EAS, M McDonnell. Report from the Epidemiology Working Group. *Journal of SIDS & Infant Mortality* 1997; 2(1): 49-53.
- 3 . Nelson EAS. Child care and cot death. *Pacific Health Dialog* 1997; 4(2): 84-89.

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3. Fleming PJ, Blair PS, Bacon C, et al. Environment of infants during sleep and risk of the sudden infant

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