



中華人民共和國香港特別行政區政府總部食物及衛生局
Food and Health Bureau, Government Secretariat
The Government of the Hong Kong Special Administrative Region
The People's Republic of China

Our ref.: FH/H/LEG/25 (08)

Tel no.: 2973 8203

Fax no.: 2840 0467

4 May 2010

Miss Mary SO
Clerk to Panel on Health Services
Legislative Council
Legislative Council Building
8 Jackson Road
Central
Hong Kong

Dear Miss So,

**Meeting of Legislative Council Panel on Health Services on 9 February 2009
Progress report on promoting healthy eating among school children**

At the meeting of the Legislative Council Panel on Health Services on 9 February 2009, the Administration reported on the progress made in promoting healthy eating among primary school students. The Administration was requested to provide findings of two surveys, namely the Child Health Survey and the Food Consumption Survey, once they became available. The Administration's response is as follows.

Child Health Survey

The Department of Health commissioned the Department of Paediatrics and Adolescent Medicine and the School of Public Health of Li Ka Shing Faculty of Medicine, The University of Hong Kong, to conduct the Child Health Survey. The analysis was completed by end of 2009 with the results uploaded onto the website of the Centre for Health Protection (CHP). Attached please find the Executive Summary of the survey report at

Annex A for reference. The full report could be found at CHP's website at: http://www.chp.gov.hk/files/pdf/chs_0506_eng.pdf.

Food Consumption Survey

The Food and Environmental Hygiene Department (FEHD) commissioned the Chinese University of Hong Kong to conduct the Food Consumption Survey in order to investigate the food consumption of Hong Kong adults aged 20-84. Survey result will be utilized in risk assessment exercises to ensure food safety and protect consumers' health. The Survey was conducted in 2005-2007, and the report was uploaded to the website of the Centre for Food Safety (CFS) in April 2010. The Executive Summary of the survey report is attached at **Annex B** for reference. The full report is available from CFS's website at: http://www.cfs.gov.hk/english/programme/programme_firm/programme_fc_s.html

Yours sincerely,



(Ms Shirley LAM)
for Secretary for Food and Health

Encl.

Executive Summary

The Department of Health commissioned the Department of Paediatrics and Adolescent Medicine and the School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, to conduct the Child Health Survey (CHS) in 2005/2006. The aim of the survey was to provide baseline data on the health and well-being of children aged 14 and below in Hong Kong in order to strengthen the Government's information base on the health status of the child population and to support evidence-based decision making in health policy, resources allocation, and provision of health services and programmes.

The fieldwork was carried out from September 2005 to August 2006, with the use of face-to-face interviews and self-administered questionnaires. Households were drawn from the Register of Quarters maintained by the Census and Statistics Department by systematic replicated sampling. The percentage of quarters successfully enumerated (including those without children aged 14 and below) was 73.3%. A total of 7393 land-based non-institutionalized children aged 14 and below in Hong Kong were enumerated, excluding those with non-Cantonese speaking parents and those living in area segments in non-built-up area. The sample represented 884 300 children of the target population.

The survey instrument was developed by the Department of Paediatrics and Adolescent Medicine and the School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, in consultation with the Department of Health and a group of experts. Information was obtained from parent as proxy respondent for children aged 10 and below and from both parent and children for children aged 11 to 14.

The scope of the survey included the followings: 1) general and psychosocial health, 2) physical health, 3) diet and physical activities, 4) risk behaviours, 5) childhood injury and safety practices, 6) parenting, and 7) disease prevention and utilization of health care services.

General and Psychosocial Health

The survey showed that 92.2% of children aged 0 to 5 and 91.9% of children aged 6 to 10 were rated to have "excellent", "very good", or "good" general health status by their parents. On the other hand, 82.9% of children aged 11 to 14 rated their own general health as "excellent", "very good" or "good".

The CHS collected information on ratings of physical and psychosocial well-being in children aged 0 to 14 using the Child Health Questionnaire (CHQ). In CHQ, higher scores indicate better perceived health or psychological well-being. Among the 12 multi-dimensional health concepts of the parent-reported CHQ-Parent Form 50, the highest mean scores in children aged 6 to 10 were bodily pain (96), followed by role or social limitations due to physical health (role/social-physical) (95) and physical functioning (95), while the

lowest mean scores were general health perceptions (69) and self esteem (69), followed by family cohesion (75).

Among the 11 multi-dimensional health concepts of the self-reported CHQ-Child Form 87, the highest mean scores in children aged 11 to 14 were role or social limitations due to physical health (role/social-physical) (93), followed by role or social limitations due to behavioural difficulties (91) and family activities (91), while the lowest mean scores were similarly self esteem (67), family cohesion (68) and general health perceptions (69).

The CHS also collected information on emotional and behavioural problems in children aged 6 to 11 by using the Child Behaviour Checklist (CBCL), and in those aged 12 to 14 by using both the CBCL and Youth Self Report (YSR).

The survey showed that 0.7% and 0.9% of children aged 6 to 11 scored in the clinical range on the Internalizing and Externalizing Problems scales respectively. The specific syndromes most frequently identified in the clinical range were Withdrawn, Anxious/Depressed, Social Problems, Thought Problems, and Attention Problems, with a prevalence of 0.2% for each of these problems.

In children aged 12 to 14, based on the CBCL, 0.8% and 1.0% scored in the clinical range on the Internalizing and Externalizing Problems scales respectively, while the corresponding prevalence was slightly higher when using the YSR at 1.0% and 2.1% respectively. The specific syndromes most frequently identified in the clinical range by both the CBCL and YSR were Somatic Complaints and Delinquent Behaviour.

Physical Health

The five most frequently reported acute health conditions encountered by children aged 14 and below in the 4 weeks preceding the survey were common cold or influenza-like illness (29.6%), snoring (4.8%), persistent cough for more than 2 weeks (2.6%), diarrhoea (2.0%) and vomiting (1.9%). Except for children aged below two, these five conditions were the most frequently reported problems across different age groups. As for children aged below two, the five most frequently reported acute health conditions were common cold or influenza-like illness (24.4%), snoring (2.7%), persistent cough for more than 2 weeks (2.5%), diarrhoea (2.0%) and wheezy attack (1.7%).

The five most frequently reported chronic health conditions in children aged 14 and below were visual problems (27.3%), allergic rhinitis (24.5%), eczema (12.4%), food allergy (5.1%) and asthma (4.1%). The prevalence of visual problems, allergic rhinitis, and asthma generally increased with age, while that of eczema and food allergy generally decreased with age.

Based on the International Study of Asthma and Allergies in Childhood questionnaire, the three most frequently reported allergic conditions or symptoms ever had in children aged 14 and below were allergic rhinitis (24.5%), sneezing or a runny or blocked nose without a cold or flu that suggested allergic rhinitis (14.5%) and eczema (12.4%).

Allergic to food items was reported in 5.1% of children aged 0 to 14. In children reported to have food allergy, the five most frequently reported food items causing food allergy were seafood (38.4%), egg (16.8%), broad bean (13.0%), milk and dairy products (11.4%) and fruit (8.8%), while the five most frequently reported types of allergic reaction were urticaria (30.5%), exacerbation of eczema (23.2%), anaphylaxis (14.9%), diarrhoea (11.9%) and facial edema (7.1%).

Pain is an under-recognized and under-treated health problem in children. Overall, 2.9% of children aged 4 to 14 were reported to have experienced musculoskeletal pain in the 4 weeks preceding the survey.

The prevalence of visual impairment in children aged 0 to 14 was 27.3%. Among these children, the three most frequently reported visual problems were short-sightedness (82.1%), astigmatism (35.8%) and long-sightedness (7.6%), while 83.2% of them were reported to use prescribed glasses or contact lenses.

In children aged 0 to 5, the prevalence of developmental delay was 1.3%, and more than half of them (57.4%) had speech delay.

Other childhood disabilities occurred with a prevalence of less than 1% included hearing impairment in children aged 0 to 14 (0.5%), stammering or stuttering in children 2 to 14 (0.6%), gross motor disability in children aged 6 to 14 (0.4%), fine motor disability in children aged 6 to 14 (0.4%) and mental handicap in children aged 6 to 14 (0.4%).

Diet and Physical Activities

The CHS collected information on diet and physical activities, including nutrition, eating behaviour, breastfeeding, weaning, physical activities and sedentary activities.

A balanced diet is recommended in children aged 2 to 14. Overall, in children aged 2 to 14, 98.3% ate meat, 95.7% ate eggs, 94.8% ate fish, 81.0% ate beans and 48.9% drank one or more cups of milk in the 7 days preceding the survey. With regard to consumption of vegetables, 80.0% of children aged 2 to 14 ate less than 1 bowl per meal, 15.8% ate 1 or more bowls per meal and 3.3% rarely or never ate vegetables in the 7 days preceding the survey. As for fruit intake, 62.8% ate one or more units of fruit per day, 32.1% ate less than 1 unit per day and 4.4% rarely or never ate fruits in the 7 days preceding the survey.

Diet high in sugar, salt or fat is undesirable. The CHS explored the consumption of soft drink, fast food, fried food and junk food by children. Among children aged 2 to 14, 26.0% consumed at least one cup of soft drink each day, 26.7% consumed fast food for at least twice per week, 19.8% consumed fried food in main meals for at least 3 times per week and 14.4% consumed junk food at least once a day.

For consumption of health supplements, 22.5% of children aged 2 to 14 were reported to take vitamins including fish oil and 4.3% were reported to take calorie supplement per week.

With regard to eating habits and behaviours, majority (94.3%) of children aged 2 to 14 had 3 regular meals per day, 0.4% had 3 irregular meals per day, 3.7% omitted breakfast and 0.4% sometimes omitted breakfast. Moreover, about three-quarters (75.2%) of children aged 2 to 14 ate their meals while watching television for 5 days or more per week, 14.8% for 1 to 4 days per week, while 9.2% rarely or never took their meals while watching television.

The World Health Organisation recommends exclusive breastfeeding for the first 6 months of life on a population basis. The CHS included questions to assess breastfeeding practices in children aged 0 to 5. Overall, 45.5% of children aged 0 to 5 had ever been breastfed. Among them, 28.3% had been exclusively breastfed for 6 months or more and the median duration of exclusive breastfeeding was 2.0 months. Among children who had ever been breastfed, 71.3% consumed infant formula milk, 47.0% consumed water or glucose water, 36.7% consumed cow's milk and 36.3% consumed milk substitute before 6 months old. With regard to weaning, 7.4% of children aged 0 to 5 were given solid food regularly before 4 months old, 41.1% between 4 to 6 months old and 39.6% after 6 months old.

The Education Bureau recommended time allocated for Physical Education lessons in Primary 1 to 6 and Secondary 1 to 3 should be 5% to 8% of the whole curriculum, i.e. 2 to 3 sessions per week. The CHS assessed the level of physical activities in children aged 4 to 14. In the 4 weeks preceding the survey, about three-quarters (73.1%) of children aged 4 to 14 had participated in vigorous physical activities outside school hours, being more common in male (78.5%) than female (67.4%) children. The three most commonly reported vigorous physical activities were running (44.8%), racket sports (33.6%) and basketball (21.8%). Among children reported to have engaged in vigorous physical activities in the 4 weeks preceding the survey, the median frequency of engagement was 2 days per week.

Participation in moderate physical activities outside school hours in the 4 weeks preceding the survey was reported in 67.9% of children aged 4 to 14. The three most commonly reported moderate physical activities were jogging (49.1%), housework (28.3%) and leisure cycling (20.2%). Among those children who had engaged in moderate physical activities in the 4 weeks preceding the survey, the median frequency of participation was 2 days per week.

Physical inactivity in children in the 4 weeks preceding the survey was assessed. Overall, 88.0% of children aged 0 to 14 had watched TV or video in the 4 weeks preceding the survey, with a median frequency of 7 days per week and a median duration of 120 minutes per day. Moreover, 70.3% of children aged 4 to 14 had played video game or computer including access to internet in the 4 weeks preceding the survey, with a median frequency of 5 days per week and a median duration of 60 minutes per day.

With regard to other sedentary activities, 65.7% of children aged 4 to 14, being more common in females (71.9%) than males (59.9%), were reported to have participated outside school hours in the 4 weeks preceding the survey. The three most common activities were arts and crafts (45.2%), singing (36.0%) and playing musical instruments (27.2%). Among those engaged in sedentary activities in the 4 weeks preceding the survey, the median frequency of participation was 2 days per week.

There was 89.3% of children aged 4 to 14 reporting that they had spent time on homework and reading for study or leisure in the 4 weeks preceding the survey with a median frequency of 5 days per week and a median duration of 90 minutes per day, while 28.6% had spent time on after school tutorial with a median frequency of 3 days per week and a median duration of 90 minutes per day.

Risk Behaviours

Adolescents start to experiment health risk behaviours that are interrelated and may continue into adulthood. The CHS collected self-reported information on smoking, exposure to environmental tobacco smoke reported by parent, self-reported alcohol and drug use, dating and sexual experience, suicidal behaviour, violence-related behaviour and gambling in children aged 11 to 14.

The pattern of smoking and the intention to quit smoking were explored. Overall, 2.2% of children aged 11 to 14 reported that they had ever smoked. Among them, 22.1% had their first cigarette at aged 10 or younger, while 60.1% had their first cigarette at aged 11 to 14; and about two-thirds (64.6%) had at least one of their friends smoked. Current smoker, defined as smoking for at least one day in the 30 days preceding the survey, was reported in 0.8% of children aged 11 to 14. Among children who were current smokers, 34.7% had tried to quit smoking in the 12 months preceding the survey.

Adverse effects of exposure to environmental tobacco smoke on fetuses, infants and children were well documented. Maternal exposure to second hand smoking during pregnancy was reported in 31.6%, while maternal smoking during pregnancy was reported in 2.0% of children aged 0 to 14. Regarding the current smoking status of parents, 3.8% of mothers and 23.7% of fathers of children aged 0 to 14 were current smokers. In children aged 0 to 14 whose mothers or fathers were current smokers, 72.0% of mothers and 68.6% of fathers smoked at home. Among children aged 0 to 14 whose mothers or fathers were current

smokers and smoked at home, the proportion of children having mothers or fathers smoked within 10 feet from the children were 59.3% and 68.5% respectively.

The pattern of alcohol use was also explored. Overall, 5.0% of children aged 11 to 14 reported that they had ever drunk alcohol including beer. Among those who had ever drunk alcohol, slightly more than one-third (37.5%) had their first glass or can of alcohol at aged 10 or younger, and 44.3% at aged 11 to 14.

Among children aged 11 to 14, 0.2% reported that they had ever taken psychotropic drugs and 0.2% reported that they had been sold or given psychotropic drugs in the 30 days preceding the survey.

With regard to dating, 8.0% of children aged 11 to 14 reported that they had ever dated. Among them, 20.2% had their first date at aged 10 or younger; while about three-quarters (77.6%) had their first date at aged 11 to 14. Overall, 0.3% of children aged 11 to 14 reported that they had sexual experience.

Regarding suicidal behaviours, 1.3% of children aged 11 to 14 reported that they had suicidal ideation in the 12 months preceding the survey, the prevalence being higher in female (1.6%) than male (0.9%) children. Overall, 1.0% of children aged 11 to 14 reported that they had attempted suicide in the 12 months preceding the survey, with 0.6% having two or more attempts.

Participation in fight in the 12 months preceding the survey was reported in 6.4% of children aged 11 to 14, being significantly more common in males (9.6%) than females (2.9%). Overall, 0.9% of children aged 11 to 14 reported that they had ever been invited or threatened to join triad society.

Youth gambling is of growing concern. Overall, 2.5% of children aged 11 to 14 reported that they had participated in gambling activities involving money in the 12 months preceding the survey. Among children aged 11 to 14, the five most common types of gambling activities reported were poker (1.5%), mahjong (1.2%), sports gambling (0.5%), internet gambling (0.2%) and horse-racing (0.1%).

Childhood Injury and Safety Practices

Injury is a significant health problem in children. The CHS collected information on prevalence and common types of injury in children, as well as the injury prevention behaviours.

The prevalence of injury that needed medical advice or treatment in the 12 months preceding the survey in children aged 0 to 14 was 4.4%, being higher in male (5.4%) than female (3.2%) children. In children reported to have injuries that needed medical advice or treatment in the 12 months preceding the survey, the three commonest types were fall injury (31.6%), sports-related injury (29.3%) and bicycle-related injury (8.5%). In these children, the average number of injuries in the 12 months preceding the survey was 1.9, with those aged 11 to 14 had the highest average number of 2.3.

Among children aged 0 to 14 who had ever ridden a bicycle, only 2.6% reported always or for most of the time wearing a helmet when riding a bicycle.

Among children aged 0 to 10, the prevalence of never being left alone at home or being cared for by elder children aged below 16 was 64.0%.

In more than 80% of children aged 0 to 5, their parents reported the adoption of the following safety practices: keeping sharp objects like knives and scissors out of reach of children or in a locked cabinet (86.2%), keeping medicines out of reach of children or in a locked cabinet (85.5%), keeping matches or fire lighter out of reach of children or in a locked cabinet (82.0%), setting up window guards or other barriers (81.8%), keeping thermal flasks or electric dispensing pot out of reach of children (80.9%), and keeping cleaning agents like detergents and bleach out of reach of children or in a locked cabinet (80.3%).

On the other hand, only about half to two-thirds of children aged 0 to 5 had their parents adopting the following safety practices: lowering the temperature of water heater (68.8%), covering electrical sockets to avoid insertion of fingers or other objects (59.5%), and applying padding around sharp edges like dining table corners (54.8%).

In children aged 0 to 1, 78.8% of children had parents reported not leaving children alone in a bed without railing or on a sofa, and 46.1% had parents set up baby gates for stairs or doors to kitchen and toilets.

Parenting

Families provide support for children and influence their life-style behaviours. Parents and primary carers of children hence play an important role in the child health status. The CHS collected information on parents, primary carers, parenting and parental participation in children's activities.

Mother was the primary carer in about three-quarters (75.5%) of children aged 0 to 14, helpers in 10.6%, father in 6.9% and grandparents in 5.9%. Both father and mother were married in 94.6% and both parents were born in Hong Kong in 53.3% of children aged 0 to 14.

Overall, more than 80% of children aged 0 to 14 had fathers (82.9%) and mothers (84.1%) completed secondary or tertiary education. Slightly less than half of children aged 0 to 14 had both father and mother working (45.3%), and a similar proportion (45.1%) had father working only. Overall, 3.8% of children aged 0 to 14 came from households receiving Comprehensive Social Security Assistance.

With regard to parenting, 94.7% of children aged 0 to 14 had parents felt that they coped very well or quite well with day-to-day demands of parenthood, whereas 68.4% never or rarely felt frustrated with their children's behaviour.

The disciplinary actions most frequently adopted by parents often or occasionally in children aged 0 to 5 was explanation to children why their behaviour was inappropriate (75.0%) while the least frequently adopted one was spanking (23.6%). Raising voice or yelling to discipline children was reported by parents in about half (50.5%) of children aged 0 to 5, giving time-out (i.e. making children refrain from whatever activities they were participating in) in slightly more than one-third (36.9%) and taking away toys in 26.1%.

Concerning parental participation in children's activities, about two-thirds (67.1%) of children aged 0 to 14 engaged in outdoor activities together with either parent, slightly less than half (46.2%) read with either parent and about one-third (32.1%) engaged in leisure activities with either parent in a week.

Disease Prevention and Utilization of Health Care Services

The CHS collected information on the adoption of disease preventive practices, which include routine physical and developmental checkups, immunization, as well as utilization of health care services.

About half (46.5%) of children aged 0 to 14 had regular physical checkup in the 12 months preceding the survey in the absence of any symptom or discomfort. Among these children, the majority (88.5%) attended the public sector service.

In children aged 0 to 5, slightly more than one-third (36.8%) had regular developmental checkup in the absence of suspected developmental problems in the 12 months preceding the survey. Among these children, about three-quarters (77.5%) attended the public sector service.

With regard to immunization, 93.6% of children aged 0 to 14 had received vaccinations according to the recommended immunization schedule. Among all children aged 0 to 14, the majority (92.7%) attended the public sector service, while 3.5% attended the private sector for vaccination. Moreover, 16.5% of children aged 0 to 14 received vaccines other than those in the recommended immunization schedule in the 12 months preceding the survey. The three most common types of non-routine vaccine were influenza (68.6%), chickenpox (28.2%) and hepatitis A (6.0%) at the time of the survey.

Most (90.8%) of the children aged 0 to 14 usually consulted western medicine practitioners only, 7.5% consulted both western and Chinese medicine practitioners and 1.4% consulted Chinese medicine practitioners only when they were sick. Among those who consulted western medicine practitioners only or both western and Chinese medicine practitioners, about two-thirds (68.6%) visited western medical practitioners in private clinics, while 13.3% attended the public clinics.

About one-third (36.0%) of children aged 0 to 14 had experienced symptoms in the 4 weeks preceding the survey. Among these children, about two-thirds (66.1%) visited private general practitioners' clinics, 12.5%

visited doctors or family physicians in public clinics or hospitals including staff clinics, and 6.0% did not have medical consultation and just ignored it.

Hospital admission in the 12 months preceding the survey was reported in 2.2% of children aged 0 to 14. The prevalence of hospital admission decreased with increasing age from 6.3% in children aged 0 to 1 to 0.8% in those aged 11 to 14. More male (3.1%) than female (1.4%) children required hospital admission in the 12 months preceding the survey. Among these children, 65.3% were admitted to hospitals under Hospital Authority only, 24.6% to private hospitals only, and 6.5% to both types of hospitals. As for the number of times of hospital admission, 74.0% were admitted once, 17.2% were admitted twice and 4.0% were admitted three times or more.

Regarding the need for follow up of special health problems in children aged 0 to 14, 2.5% required regular follow up for physical problems by doctors, 0.5% for motor or speech problems by allied health professionals and 0.2% for mental problems by mental health professionals.

The majority (98.7%) of children aged 0 to 14 had parents reporting that they did not consider their children being failed to be treated properly or delayed in receiving treatment. The median satisfaction score of health care services of the private sector was 80 and that of the public sector was 65, with 0 being the lowest and 100 being the highest level of satisfaction.

For health insurance coverage, 41.2% of children aged 0 to 14 were covered by one or more of the following: medical insurance coverage provided by parents' current employer, family medical insurance policy and child's personal medical insurance policy.

Conclusion

This survey revealed that our children population aged 0 to 14 had generally enjoyed good health prior to the study period. Nevertheless, there were areas that required improvement, including short-sightedness, eating behaviour, activity level and risk taking behaviours.

This survey has provided a rich body of information on a number of health issues concerning the child population in Hong Kong. The results should have significant reference value and served as baseline information for subsequent surveys. As such, the population based child health survey should be conducted regularly to strengthen and update the Government's information base on health status of child population, in order to support evidence-based decision making in health policy, resources allocation and provision of health services and programmes.

Executive Summary

1. This report presents the findings of the first territory-wide food consumption survey (Survey) conducted in Hong Kong in 2005-2007 to investigate the food consumption of Hong Kong adults aged 20 to 84 years. The Chinese University of Hong Kong was commissioned by the Food and Environmental Hygiene Department (FEHD) for the work of the Centre for Food Safety (CFS) to utilize in its risk assessment work to enable it to provide adequate protection of consumer health and food safety.

2. This Survey aimed to obtain up-to-date food consumption information (for example, the types and amounts of food consumed) among individuals in Hong Kong; collect weight measurements among individuals in Hong Kong; identify dishes consumed among individuals in Hong Kong; and develop recipes for the dishes identified. All objectives were achieved through three interviews and subsequent data management and analyses.

3. The three interviews and body weight measurement were conducted by trained interviewers. Interviewers used two non-consecutive days of 24-hour dietary intake (24-hr recall) questionnaires and a 110-item food frequency questionnaire (FFQ) to obtain food consumption estimates. Respondents' food knowledge and behavior were obtained through the food behavior questionnaire (FBQ). Socio-demographic information of the respondents was also collected.

4. The sample for the Survey was selected using two-stage stratified random sampling with quotas by age and gender. A total of 5,008 adults participated in the Survey, representing 48.1% of those originally selected as eligible. Not all respondents permitted a weight measurement, which was achieved among 4,971 or 99.3% of the respondents. At the end of the Survey, a food consumption database was developed, including a Food and Recipe Database with 1,706 foods, of which 1,429 were consumed by respondents of this Survey, along with 1,591 recipes. Data collected during the Survey was analyzed, and the results presented in this report have been age- and gender- weighted and represent a population of about 5,394,000 Hong Kong residents aged 20-84.

Key Findings

Food Consumption Pattern from 24-hr Recall

5. Information on food consumption amounts were collected and analyzed. The main findings are presented in this report. The analyses resulted in several key findings. Concerning food consumption, the average of total daily consumption of solid food was found to be about 1.12 kg. Liquid food intake was about 1,860 ml per day on average, of which 57.3% (1,065.62ml) was from water. Fluids intake, which include water and other non-alcoholic beverages, soup, milk and milk beverages, but excluding water used for cooking, was found to be 1,787.11 ml and contributed to about 96% of the total liquid food intake.

6. Cereals and grains products were consumed in the amount of 488.75 g/day, 60.8% (297.16 g/day) of which was from the rice subgroup, which included items

such as white rice, congee and brown rice. Wheat products made up another 33.5% of the cereals and grains products group. It was estimated that 8.65 g of this group were consumed as whole grains.

7. Vegetables and fruits were consumed in the amount of 176.96 g/day and 146.81 g/day respectively. Two thirds (68.4%) of the vegetables consumed were those of the leafy/stalk/shoot vegetables and brassica group. Soybeans and their products, with 8.62 g/day consumed on average, made up over half (61.0%) of the daily legume consumption of 14.13 g. When tubers such as potato and taro (about 8.05 g/day) were not included in the calculation, vegetables consumption was found to be 168.91 g/day. Only 2.58 g of the nuts and seeds group were consumed.

8. A total of 112.50 g/day of meat group, poultry group, and game group items was consumed. Meat was consumed in the amount of 74.23 g/day, 72.5% of which was from pork (53.81g/day). From the poultry group, chicken was consumed in the amount of 32.90 g/day, making up 88.0% of the total poultry consumption of 37.38 g/day. Only 0.89 g of the game group was consumed.

9. Fish and other aquatic animal (i.e. crustaceans and molluscs) consumption was found to be 70.78 g/day in total. The average daily fish consumption was 57.48 g, while crustaceans and molluscs (such as oyster and cuttlefish) were consumed in the amounts of 7.35 g/day and 5.95 g/day, respectively.

10. The consumption of egg and egg products was 15.18 g/day, more than 90% of which was from chicken eggs. Together with the legumes, meat, poultry, fish and aquatic animals mentioned above, as well as nuts, seeds and game, a total of 215.17 g of meat and meat alternatives were eaten daily, with more than 90% (198.46 g/day; 92.2%) from animal sources, and the remaining 7.8% from the plant sources such as legumes, nuts and seeds.

11. Milk and milk products were consumed in an amount of 34.23 g/day on average, of which about three-quarters (74.6%) was made up of the milk subgroup.

12. Dim sum, a group of local favorites, was consumed on average in the amount of 44.75g of per day. Additionally, the average daily consumption amounts for the sashimi and sushi group (4.68 g/day) and the burgers group (4.74 g/day) were only one-tenth each of the consumption of the dim sum group.

13. With regard to fluid consumption, non-alcoholic beverages were consumed in a total volume of 1,616.97 ml/day. Soups were consumed in the amount of 170.78 g/day. Among all fluids, water (1,065.62 ml) and tea (376.36 ml) made up by far the bulk of the total fluid consumption.

Anthropometry and Reported Health Status

14. A total of 47.1% of the population (54.2% of the males and 40.6% of the females) were overweight or obese according to the World Health Organization proposed classification of weight by BMI in adult Asians. Another 8.5% was underweight, with females in the youngest age group (20-29 years) making up 29.8%

of the underweight individuals. Hypertension was the most commonly reported diagnosed disease (12.5%), and 4.7% of the population reported to have diabetes.

Food Knowledge and Behavior

15. The FBQ revealed some 'health-driven' behaviors among the population. More than half of the women and more than one-third of the men did not eat meat fat or poultry fat or skin when eating these meats. About one-fifth of the population took nutritional supplements, mostly vitamins or minerals. A similar proportion took Chinese or other herbal medicines. Washing fruits and vegetables before consumption was almost universal. However, less than half (about 40%) of the population reported 'never' looking for nutrition information on food labels when purchasing biscuits, bread, canned food and beverages, while only a bit more than one-fourth (about 30%) of the population reported 'often/always' doing so.

16. Among the younger population aged 20 through 59 years, food safety was found to be 'very important' to 57.7% of the male and 68.7% of the female. Somewhat fewer, but again more than half of the males and females, also found 'how well the food keeps' to be 'very important'. Less than half of the population found the other factors, i.e., taste, nutrition, price and ease of preparation, to be 'very important'. However, this population's behavior showed a general lack of attention to nutrition labels.

17. This subgroup aged 20 to 59 years was further asked how many servings of fruits and vegetables were needed for good health. Most (62.7%) of the females reported that two or more servings of fruits (one serving equals to the size of a medium orange or a handful of grapes) were needed. A similar proportion (61.1%) thought that two or more servings of vegetables (one serving in this Survey equals to a medium rice bowlful of cooked vegetable per serving) should be eaten daily, with only 32.3% believing that only one or less of these servings were needed. However, only 48.4% of the males reported that two or more servings of fruits should be eaten, while similarly only 46.9% thought that two or more servings of vegetables were required, and 44.5% of them thought that one serving or less of vegetable was needed.

18. Finally, this same younger subgroup of population was asked about important diet/nutrient and disease relationships. While more than half of them could mention relationships between calcium and bone problems, sugar and diabetes, and fiber and digestive problems, only just less than half of them could mention relationships between dietary fat and heart problems, being overweight and heart problems, and dietary cholesterol and heart problems.

Conclusions and Recommendations

19. Food consumption information collected in this Survey will be useful in risk assessment work, including total diet studies. This report also summarized findings, including the measured weights of the population and the food behavior and knowledge information. These will be useful for public health policy formulation and for epidemiological and clinical work of a wide variety of professionals.

20. The adult population needs to become much more aware of the effects of their diets on their health. The forthcoming nutrition labeling scheme is a step in the right direction, and has the potential to become a key source of nutrition information for the public. However, from the results of this Survey, people will have to be much more motivated to use them as well as be effectively and appropriately educated in how to use them. At the same time, promotion of balanced diet should continue. Specific promotions using effective communications promoting whole grain could be considered, while also continuing to promote the '2 fruits plus 3 vegetables' message.

21. In order to obtain updated information of the population's food consumption pattern, which is essential for risk assessment on food safety and public health, it is suggested that food consumption trends be monitored every five to ten years. This is also useful for evaluating any food safety and healthy eating campaigns that may be undertaken. Continually changing food prices, food supplies and population demographics also warrant this exercise.

22. Additionally, since children and youth who are more susceptible to food risk have different food consumption behavior than adults, and eating behavior is developed during early childhood and youth, a food consumption survey of the younger generation under age 20 is suggested to be conducted soon. By doing so, the food consumption pattern of this population group thus captured could facilitate risk assessment work as well as the adoption of evidence-based comprehensive life course strategies on healthy eating.