

Obesity issue id beyond Personal Health 肥胖症：一個超出個人健康的議題

Enrichment programme for Professional Development for Educators
教師專業培訓課程：新高中通識教育科知識增益課程

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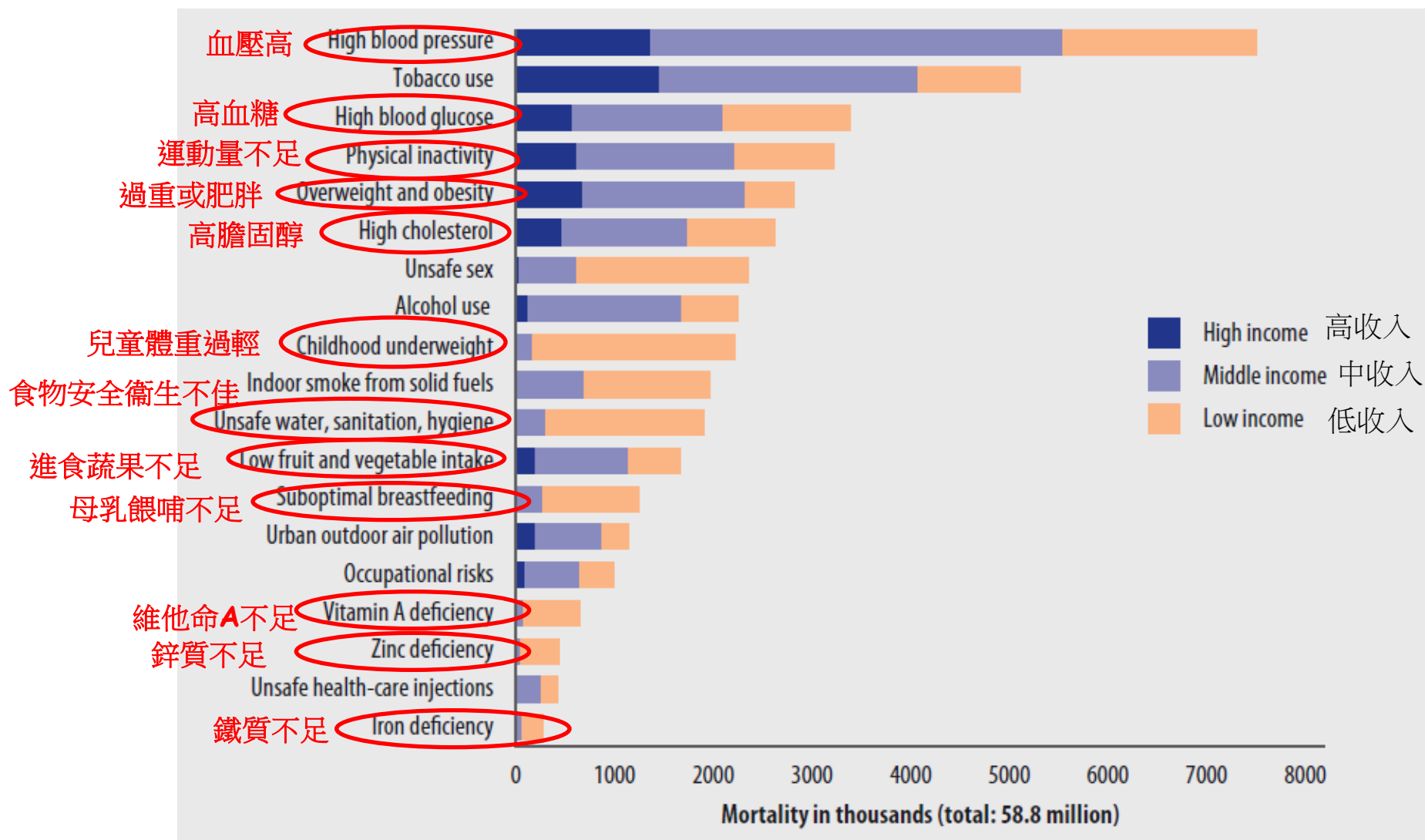


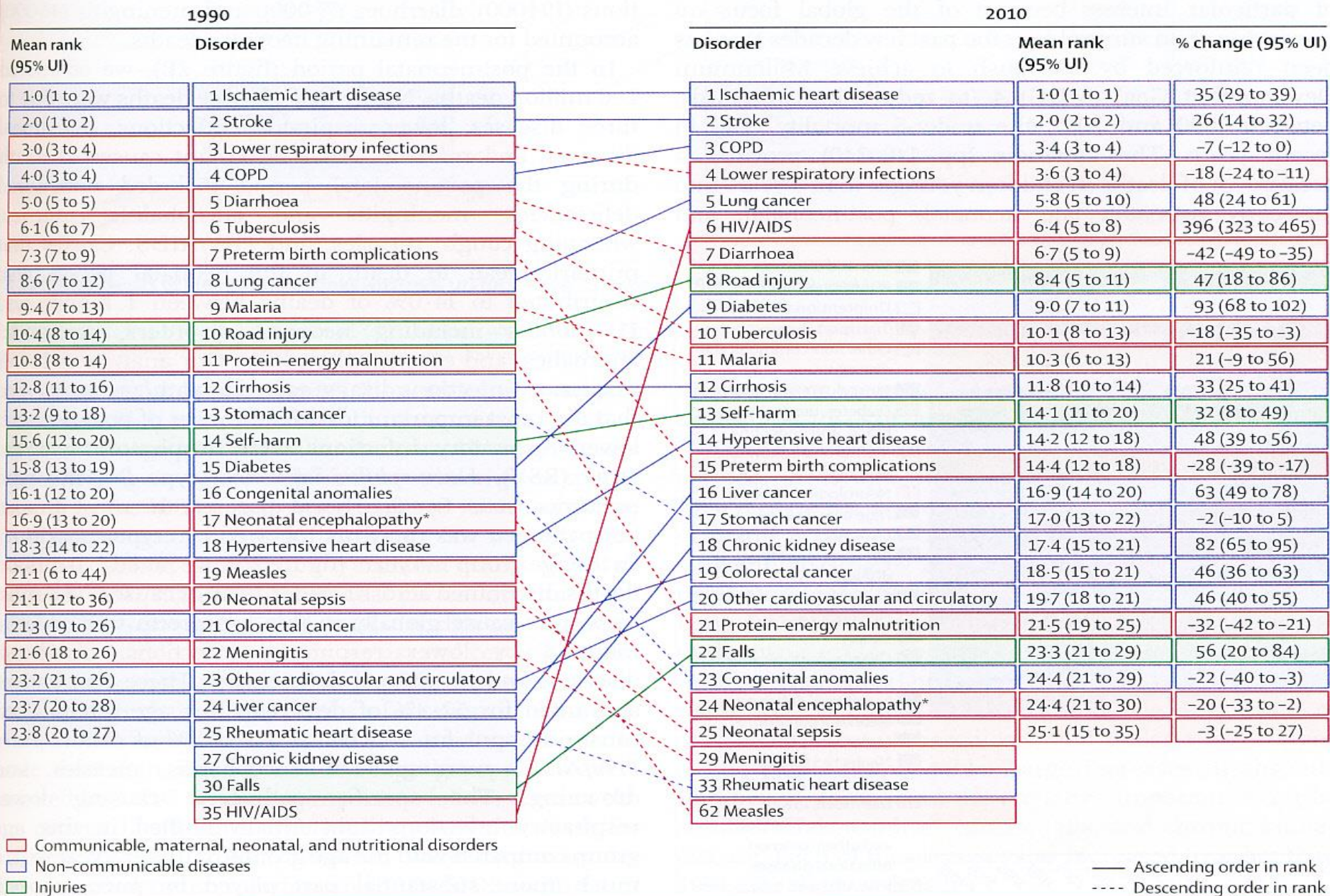
Outline of Presentation

- Obesity- significant risk factor for global burden of diseases
- Epidemics of obesity why???
- Why effective intervention for prevention of obesity needs to be beyond personal health?
- Evidence of effectiveness of school/community based interventions

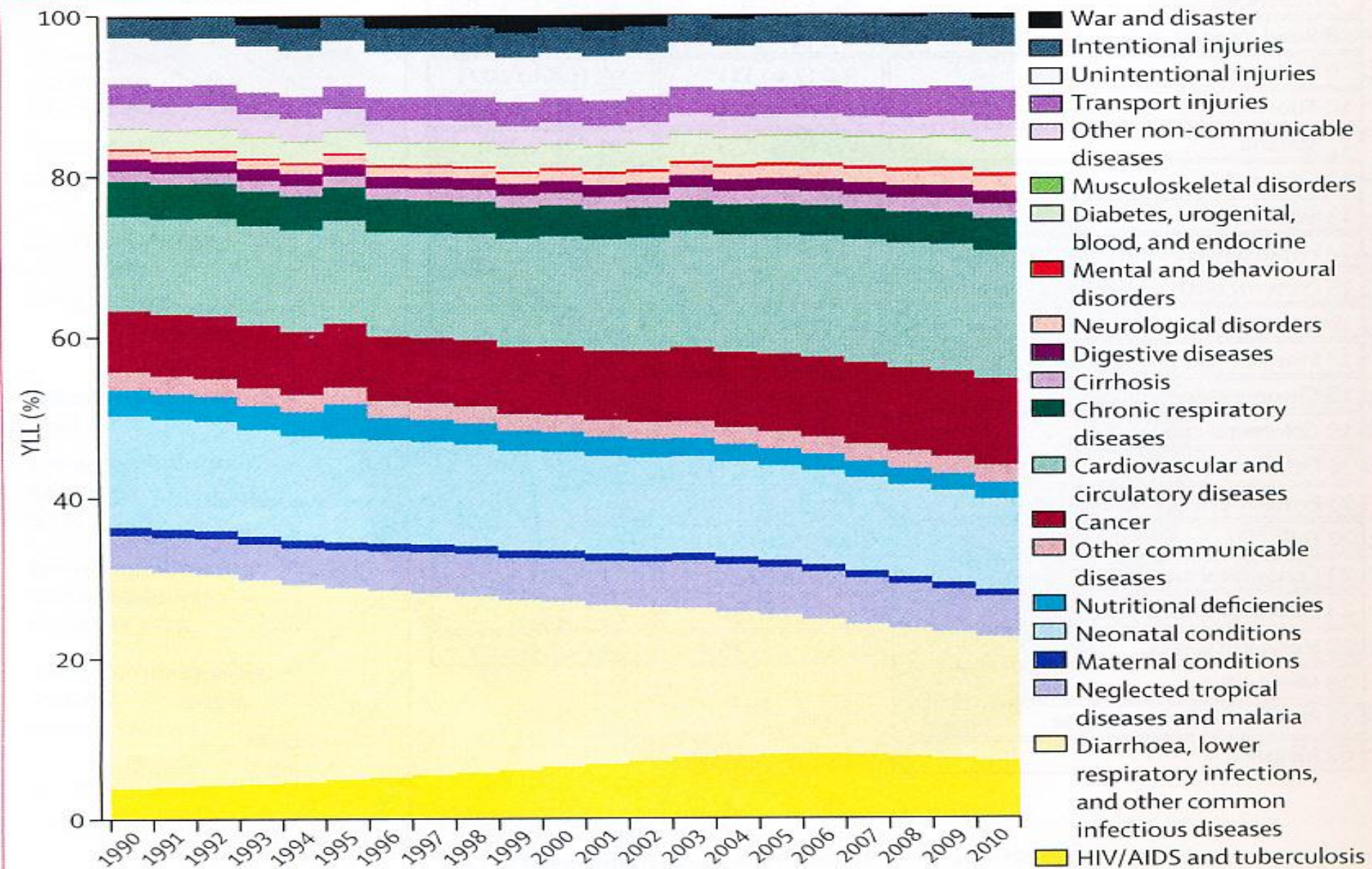
Global distribution of burden of disease attributable to 19 leading selected risk factors

(by country income level, 2004)





Lozano R. et al. a systematic analysis for the Global Burden of Disease Study 2010. Lancet 2012; 380:2095-128

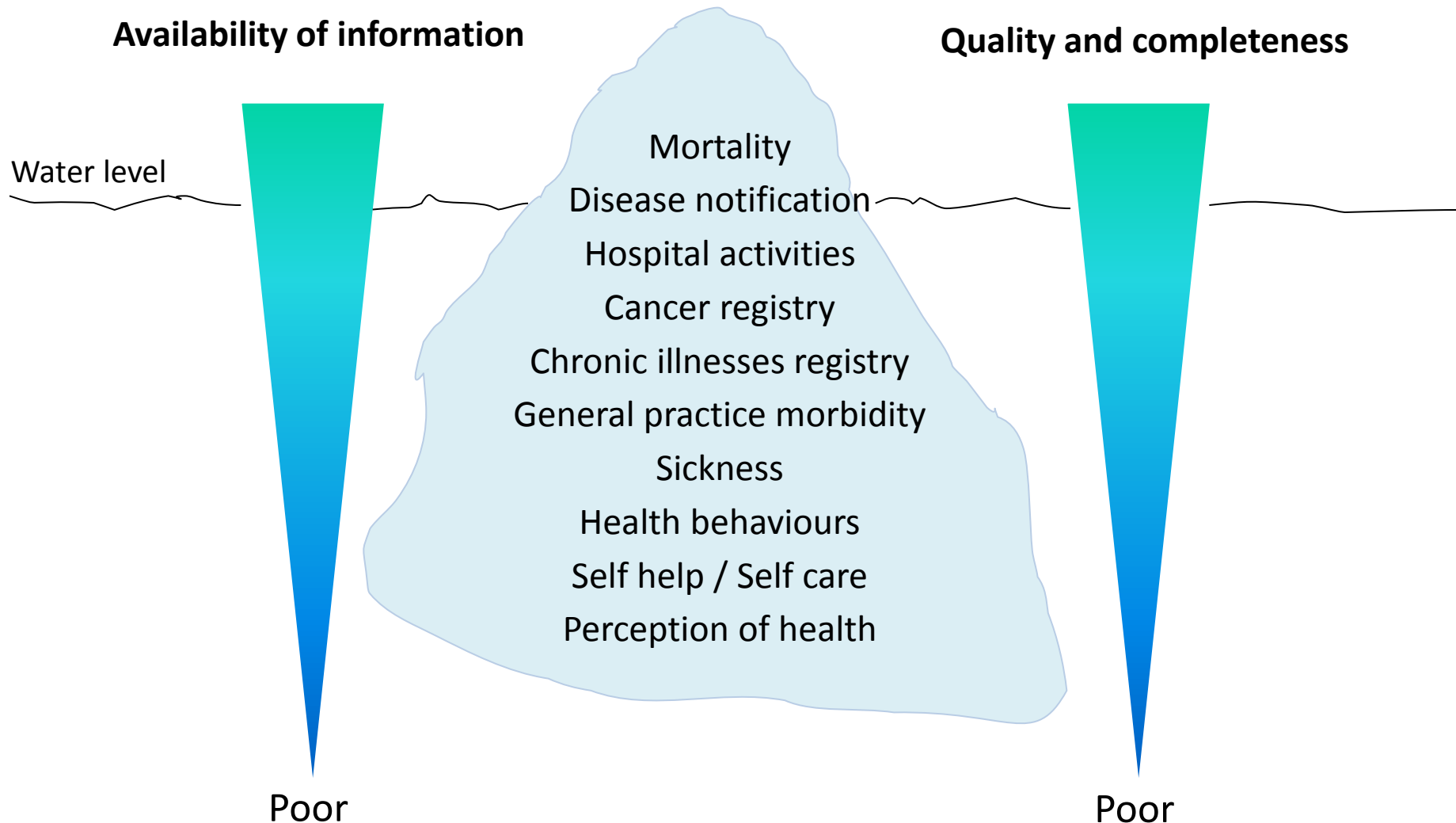


Obesity: Is it a disease or risk factor?

It is can be both.

This makes it more difficult to capture routine data reflecting the size of the problem and also for effective interventions

Routine clinical data only reveal health issues at the tip of Iceberg

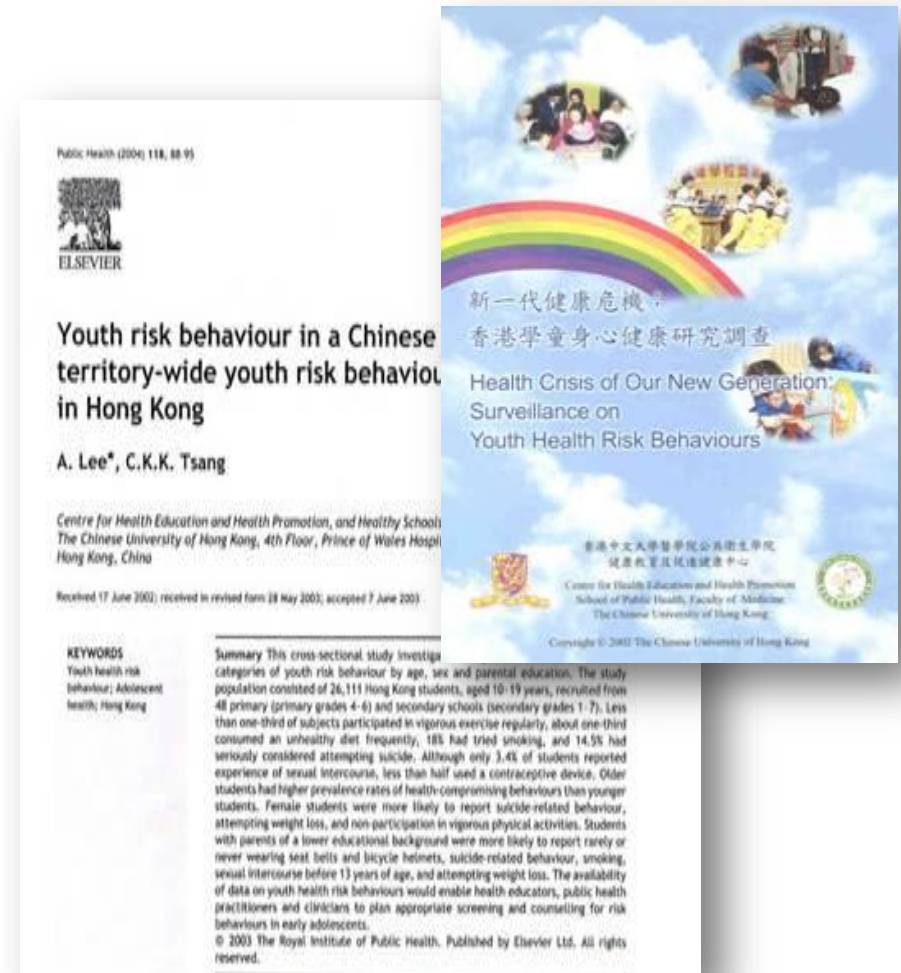


Youth health needs in Hong Kong

Lee A, et al. *Public Health* 2004; 118(2): 88-95;

Lee A, et al. *Journal of Primary Care and Health Promotion* 2005; Special issue; 1-47)

- The youth health surveys in 1999, 2001 and 2003 both revealed that substantial high proportion of our young people **DID NOT** have a **healthy eating habit, not performing exercise regularly** and also emotionally disturbed.
- The 2001 survey found correlation of youth health compromising behaviors with emotional disturbance and life satisfaction.



Key findings of the survey

Dietary behaviour (7 days preceding the survey)

Ate desserts or snacks (such as cakes, jelly, chocolates, cookies and ice-cream etc) four times or above	33.9% (8,401)
Ate fried food four times or above	32.5% (7,961)
No consumption of fruit	8.0% (1,964)
No consumption of vegetable	3.2% (779)

Perceived overweight and attempted weight control

Thought they're overweight	7.8% (1,941)
Were attempting weight loss	22.5% (5,585)
Take laxatives or vomited to lose weight or to control weight gain	1.4% (336)
Took diet pills to lose weight or to control weight gain	1.2% (296)
Dieted to lose weight or to control weight gain	35.0% (8,630)
Exercised to lose weight or to control weight gain	54.2% (13,410)

Physical activities

Participated in vigorous physical activities	27.0% (6,716)
Participated in moderate physical activities	8.1% (2,011)
Participated in strengthening exercise	17.4% (4,303)

- 20% of students did not have breakfast with higher proportion amongst older age group.
- Older age group was found to have statistical significant associations with most health risk behaviours including unhealthy dietary behaviour, lack of physical activities
- The consumption of fruits and vegetables were less likely among school children whose parents were from lower educational background.
- School children with parents from a higher educational background tended to use diet and exercise whilst students with parents from a lower educational background tended to use diet pills to loose weight.
- A higher proportion of children from parents with a higher educational background reported participating in all level of physical exercise.

Preliminary prevalence (%) of health promotive dietary behaviors in Youth Risk Behaviour Survey (2003) among secondary school students in selected cities

©Lee A, Kolbe L, Huang SY, Chan S, Ji CY, et al.

Item	Beijing	Jinan	Taipei	Macao	Hong Kong	Los Angeles
Fruit (≥2/day)	18.0	11.4	13.7	15.9	11.2	16.2
Vegetable (≥2/day)	36.6	30.6	28.0	36.8	26.8	Green salad + potato + carrot + other vegetable
Dairy product or soy milk (≥1/day)	52.8	42.7	35.0	21.1	25.7	33.8
Had breakfast	68.2	73.7 for everyday vs. 4.6 never had	9.4 skipped on the day of survey	15.9 skipped on the day of survey	21.4 skipped on the day of survey	N/A



ELSEVIER

Original article

Comparison of Overweight, Weight Perception, and Weight-Related Practices Among High School Students in Three Large Chinese Cities and Two Large U.S. Cities

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Article history: Received March 25, 2010; Accepted July 15, 2010

Keywords: Overweight; Adolescent health; Weight perception; Weight control practices; Physical activity

ABSTRACT

Purpose: The study compared differences in overweight prevalence, weight perception, and weight-related practices among high school students in five large Chinese and U.S. cities, and informed interventions for childhood obesity in China and the U.S.

Methods: The data used was collected in 2003 from a representative sample of high school students in Hong Kong, Macau, Taipei, New York and Los Angeles.

Results: The prevalence of overweight high school students in New York City and Los Angeles was about twice as high as in Hong Kong, Macau, and Taipei; however, the proportion of Chinese students perceiving themselves to be overweight was 15% higher than their U.S. counterparts. Independent of actual weight status, perceived overweight was significantly associated with weight control practices ($p < .05$). U.S. students showed higher levels of moderate and vigorous physical activity, but more hours of watching television than their Chinese counterparts.

Conclusion: The continuing pandemic of overweight among youth fosters weight dissatisfaction, which may increase unhealthy weight control practices. Interventions should be designed to prevent overweight without precipitating unhealthy weight control practices by emphasizing an increase in physical activity and a reduction in time watching television.

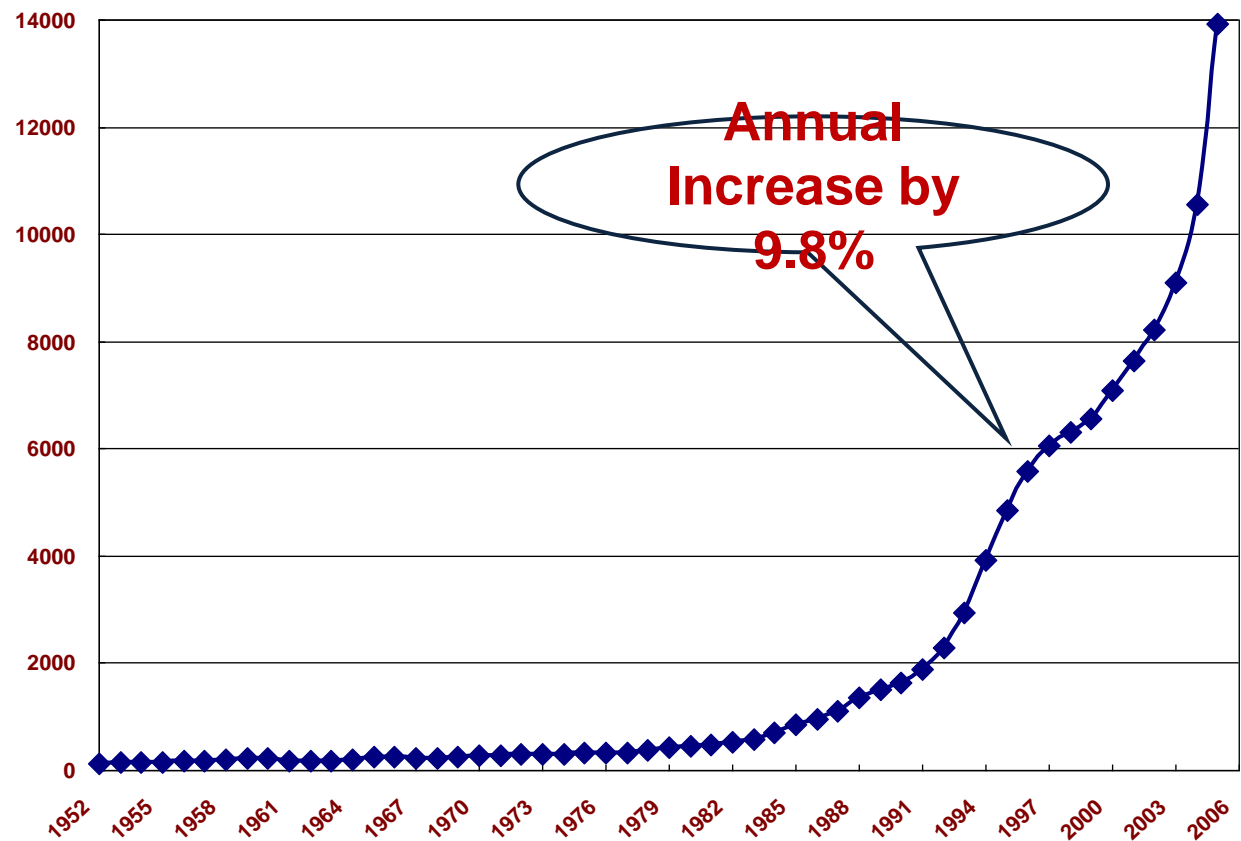
Epidemics of Childhood Obesity

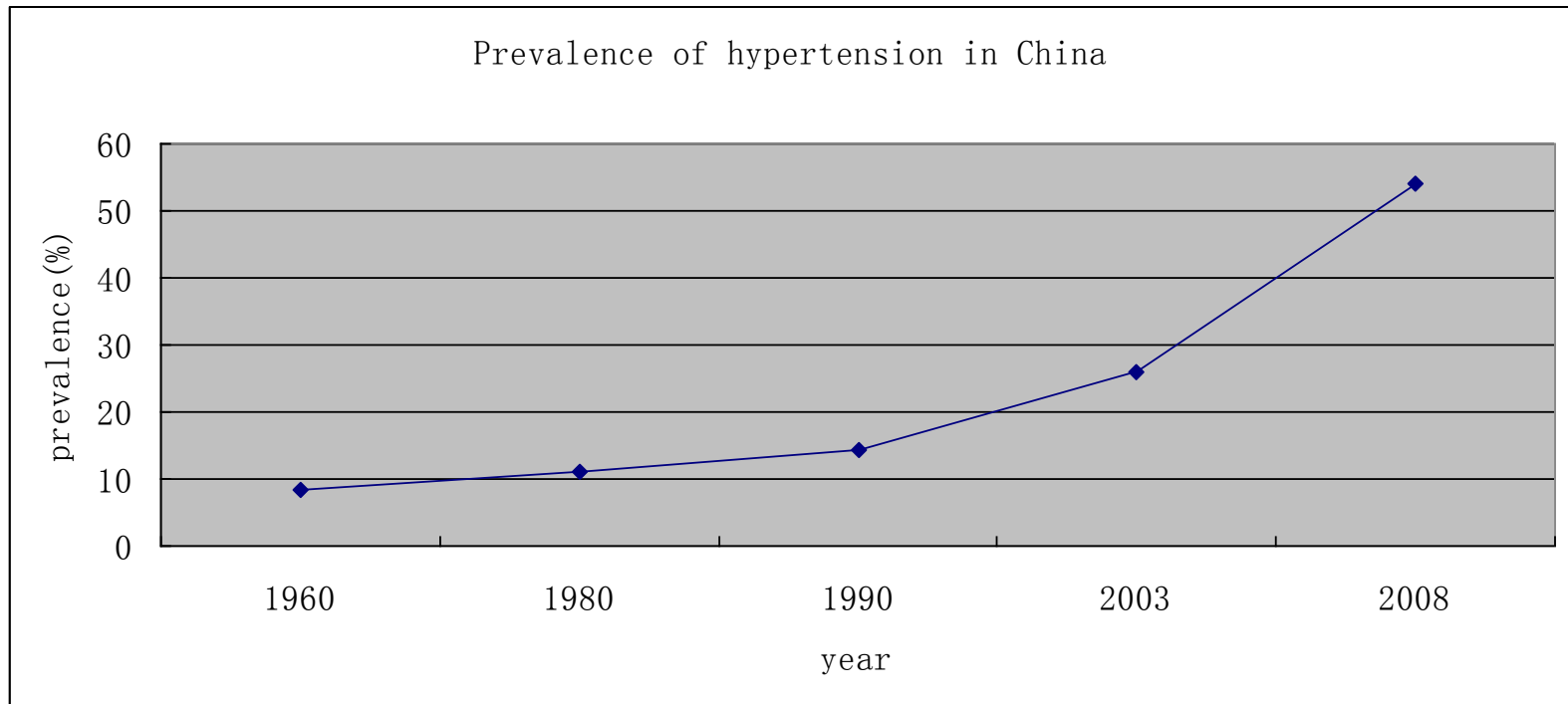
- Obesity prevalence amongst children is rising virtually in all countries with acceleration since 1990 (Wang & Lobstein, *Int J Pediatr Obes* 2006; 1: 11-25).
- With fast growing economy, there is also a worrying trend that the Chinese population elsewhere especially mainland China, is fast catching up with the West in terms of the prevalence of overweight and obesity (Wu, *BMJ*, 2006; 333: 362-3).
- The relation between GDP and mean BMI is positive and linear up to GDP of about US\$5,000 level of prosperity then relationship becomes flat at higher level of GDP. The level of prosperity does not have to be high for obesity to manifest in low income countries (Wang et al. *Lancet* 2011; 378: 815-825)
- It will not be surprising to see the epidemics of obesity in Western Pacific countries

Health Promotion in Mainland China

9% per annum growth
since the late 1970s →
lift several hundred
million people out of
absolute poverty
accounting for over
75% of poverty
reduction in the
developing world
over the last
20 years.


Trend of Capital GDP in China from 1952 to 2005





PK Whelton et al. Prevalence, awareness, treatment and control of hypertension in North America, North Africa and Asia. *Journal of Human Hypertension* (2004) 18, 545–551
National health statistics 2009, Ministry of health, **China**

China

- Prevalence of children aged 7-18 (2000)
 - overweight - 4.5%
 - obesity - 2.1%
 - Overweight:  **28 times** between 1985 and 2000
 - particularly marked in boys

Reference

Yangfeng Wu, **Overweight and obesity in China** *BMJ* 2006;333;362-363

Trends in Taiwan

(Chen et al, *Eur J of Clin Nutr*, 2006; 60(12) ;1367-1375.).

- The overall prevalence of obesity (including overweight) in boys was 19.8% in 1999 and 26.8% in 2001.
- It was lower in girls with 15.2% in 1999 and 16.5% in 2001.

Obesity rate of Hong Kong primary school students

1993/94: 8.9%(female)
and 11.3%(male)

2005/06:

16.8%(female) and
22.5%(male)

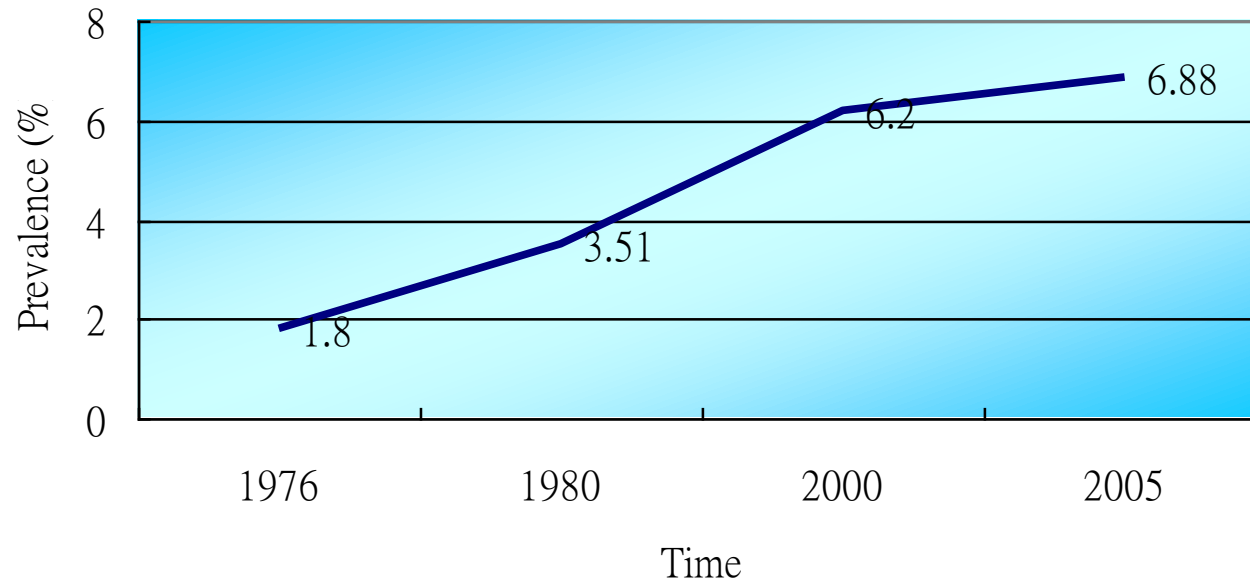
1 out of every 5
primary school
children is obese

(Department of Health Nov
2007)



Singapore

Singapore Childhood Obesity Prevalence



- The prevalence rates have been controlled in recent years

SHORT COMMUNICATION

Global epidemics of childhood obesity is hitting a ‘less industrialized’ corner in Asia: a case study in Macao

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Abstract

Childhood obesity prevalence amongst children is rising virtually in all countries with rapid acceleration in major cities in China. A cross-sectional study was conducted amongst 2,015 primary and secondary students in Macao to investigate the nutritional status and analyzed for the relationship of overweight and other cardio-metabolic risk factors. Subjects were randomly selected in proportion to the gender and age of the population. A total of 26.4% of boys and 13.9% of girls were overweight or obese with the highest prevalence around 40% among boys aged 9–12 and girls aged 10 and 11. Some 18.1% of boys and 20.4% of girls were found to have borderline LDL levels; a further 9.3% and 10.4% were found to have high-risk, respectively. For those students with overweight and obesity, a significant higher proportion of them had cardio-metabolic risk factors. Based on this evidence, there is a concern that obesity and its associated co-morbidity could reach epidemic proportions in the ‘less industrialized’ cities of China.

Key words: *Children, adolescents, obesity, anthropometry, cardio-metabolic risks, China Macao*



Assessment of dietary patterns and nutritional status in Macao school children

(Lee A, et al. Centre for Health Education and Health Promotion, School of Public Health and Primary Care, The Chinese University of Hong Kong, Oct 2009)

- Overall, around 30% of students consumed more than 2 servings of vegetables daily (upper school students = 25.8%, junior secondary school students = 26.7%, senior secondary school students = 32.4%).
- Only 40% of primary school students and 15% of secondary school students were able to meet the recommendation of daily fruits intake.
- Less than 20% of students could follow the principles of a balanced diet and with cereals being consumed as the major portion, followed by vegetables and finally meats in the least amount.
- Only 70% of the primary school students and half of the secondary school students ate breakfast every day. 14.5% of primary school students and 24.3% of secondary school students reported that they skipped breakfast for more than three days in the week prior to the survey.

Weighted school lunch survey

- 3 samples of school lunch were collected and weighed for the amount of grains and cereals, vegetables and meat available.
- All collected school lunch will undergo the physical inspection for the presence of “encouraged”, “limited” or “strongly discouraged” food items as defined by the nutritional guidelines.

76.0% and 56.3% of the lunch samples collected from primary and secondary school sections, respectively, were NOT providing enough vegetables in accordance to the Education and Youth Affairs Bureau's recommendation





Background

Over 20% of young children are obese in Hong Kong?

What is the dietary pattern of young children?

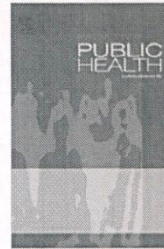
How do parents feed their children?



Available online at www.sciencedirect.com

Public Health

journal homepage: www.elsevier.com/puhe



Short Communication

Compensation consumption of high-energy-density food among pre-school children leading to suboptimal intake of recommended food groups: Case study in Hong Kong

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^bHong Kong Nutrition Association, PO Box 71290, Kowloon Central Post Office, Hong Kong

- 6,186 questionnaires to 27 kindergartens
- Survey period: 6–17 Dec 2010
- Received 4,533 questionnaires back
- Response rate: 73.6%
- Age range: 2–7 yrs

Geographic distribution

Number of kindergartens

HK Island (Shau Kei Wan, Chai wan)

2

Kowloon (Hung Hom, To Kwa Wan, Ho Man Tin, Shamshuipo, Kwun Tong, Yau Tong)

6

New Territory West (Tuen Mun, Tin Shui Wai)

7

New Territory East (Taipo, Shatin)

3

New Territory South (Tsing Yi, Tsuen Wan, Kwai Chung)

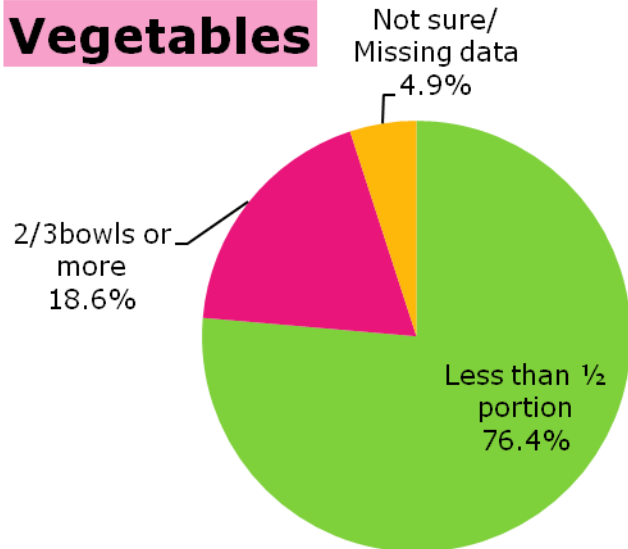
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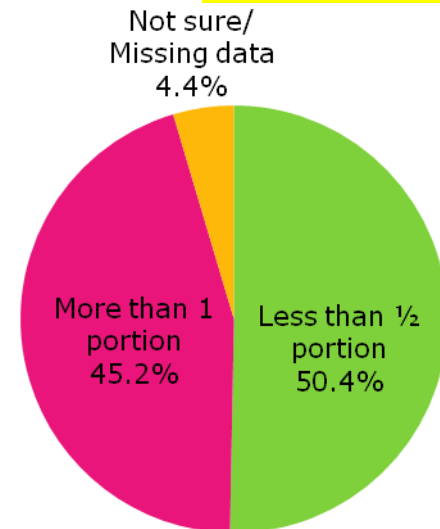
Dietary intake of a 7-day period preceding the surveillance

Vegetables



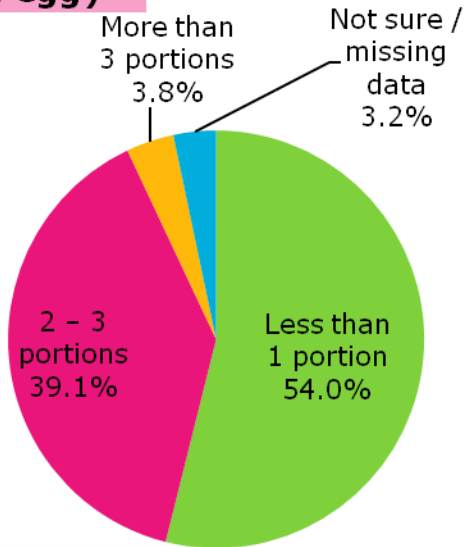
fruits

Total subjects: 4,553

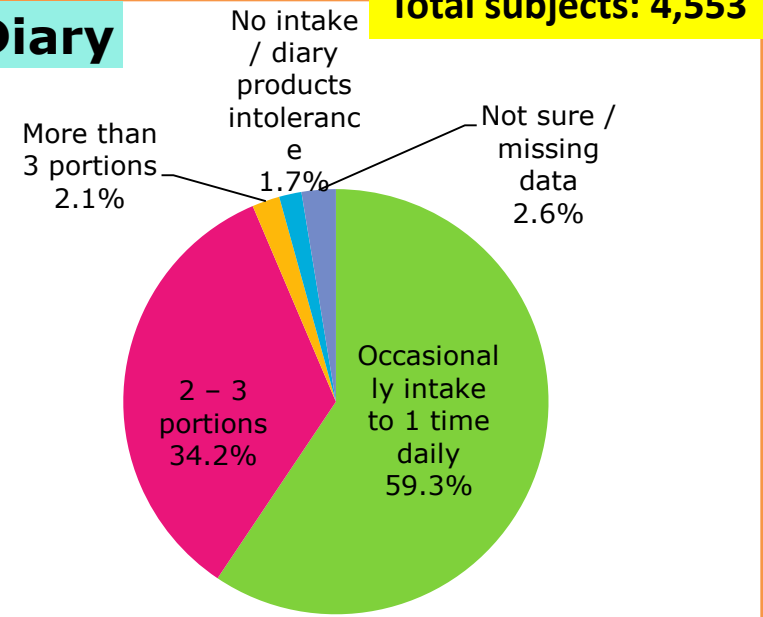


Dietary intake of a 7-day period preceding the surveillance

Protein Group (Meat, fish, egg)



Diary



Total subjects: 4,553



Dietary intake of a 7-day period preceding the surveillance

Snack	None (0 time)	Rare (1–2 times within 7 days)	Occasional to frequent (3 times or more within 7 days)
1. Candies	9.8%	41.0%	47.4%
2. Chips	37.6%	45.1%	14.8%
3. Ice-cream	53.9%	34.7%	8.4%
4. Cakes	15.1%	48.2%	34.4%
5. Biscuits	21.1%	45.6%	30.6%
6. Bread	21.0%	42.6%	34.0%
7. Soft drinks	50.3%	34.7%	13.0%
8. Sugary drinks	20.6%	45.8%	32.1%



Dietary intake of a 7-day period preceding the surveillance

Type of Food	None (0 time)	Rare (1–2 times within 7 days)	Occasional to frequent (3 times or more within 7 days)
1. Deep-fried food	27.8%	58.8%	11.4%
2. Processed or preserved meat	14.6%	57.4%	26.2%
3. Poultry with skin	16.2%	52.3%	29.8%
4. Other higher fat meats (eg, pork ribs, beef brisket, etc.)	29.8%	46.5%	21.9%

(Remarks: Remaining % are “Not sure” or “Missing data”)



Obesity Epidemic

Lobstein T, Baur L, Jackson-Leach R. In Waters E, Swinburn B, Seidell J, Uauy R.
Preventing Childhood Obesity. Wiley Blackwell, 2010

- In more economically developed countries, children in lower SES tends to have higher prevalence of obesity/overweight.
- Countries not economically developed or undergoing economic development, prevalence is higher in higher SES,
- In Brazil, in 2007 14% children overweight (20% in higher SES, 6% in lower SES) and 4% in 1974.
- In Chile, 27% in 2000 and 13% in 1987.
- Association between SES and adiposity in children is becoming predominately inverse based on a systematic review of cross sectional study during 1990-2005. (Shrewbury V, Wardle J. Socio-economic status and adiposity in childhood: a systematic review of cross sectional study 1990-2005. *Obesity* 2008; 16(2): 275-284.)

The adversity of urbanisation on obesity

- In the poorest settings, urban populations are experiencing adverse, 'obesogenic' shifts on dietary composition, which are taking place at much faster speed than the potential benefits.
- While there are **very large increases in animal source foods (ASFs), added sugar, caloric sweeteners, edible oil over a short period of time**, **the supply level of fruit and vegetables changes very little** (Mendez M and Popkin B (2004). *Journal of Agricultural and Development Economics*, 1(2): 220-241.
- The transition would be due to **enhanced access to non-traditional foods as result of low prices, changing production and processing practice, and the rise of supermarkets and hypermarkets** (Dixon J et al. The Health Equity Dimension of Urban Food System. Thematic paper for KNUS 2006 and abridged version *J Urban Health* 2007, 84(3)| 118-129.)

The adversity of urbanisation on obesity

- There is also a shift in consumption of wide game beef or small house/land-holder-reared poultry and pork to industrially-reared beef, pork and chickens **in less than 50 years in post-industrial nations** but **will only take about 25 years in newly industrialised nations** (Dixon et al, 2006).
- The residential density, **neighbourhood safety from crime, traffic, injury**, and increasing reliance on motor cars are factors shifting towards **physical inactivity** in both developed and developing countries (Kjellstrom T & Hinde S. *Car Culture, transport policy and public health*. In: Kawachi I, Wamala S, eds.. *Globalisation and Public Health*. New York, Oxford University Press)

Can you control your weight
solely by personal means?

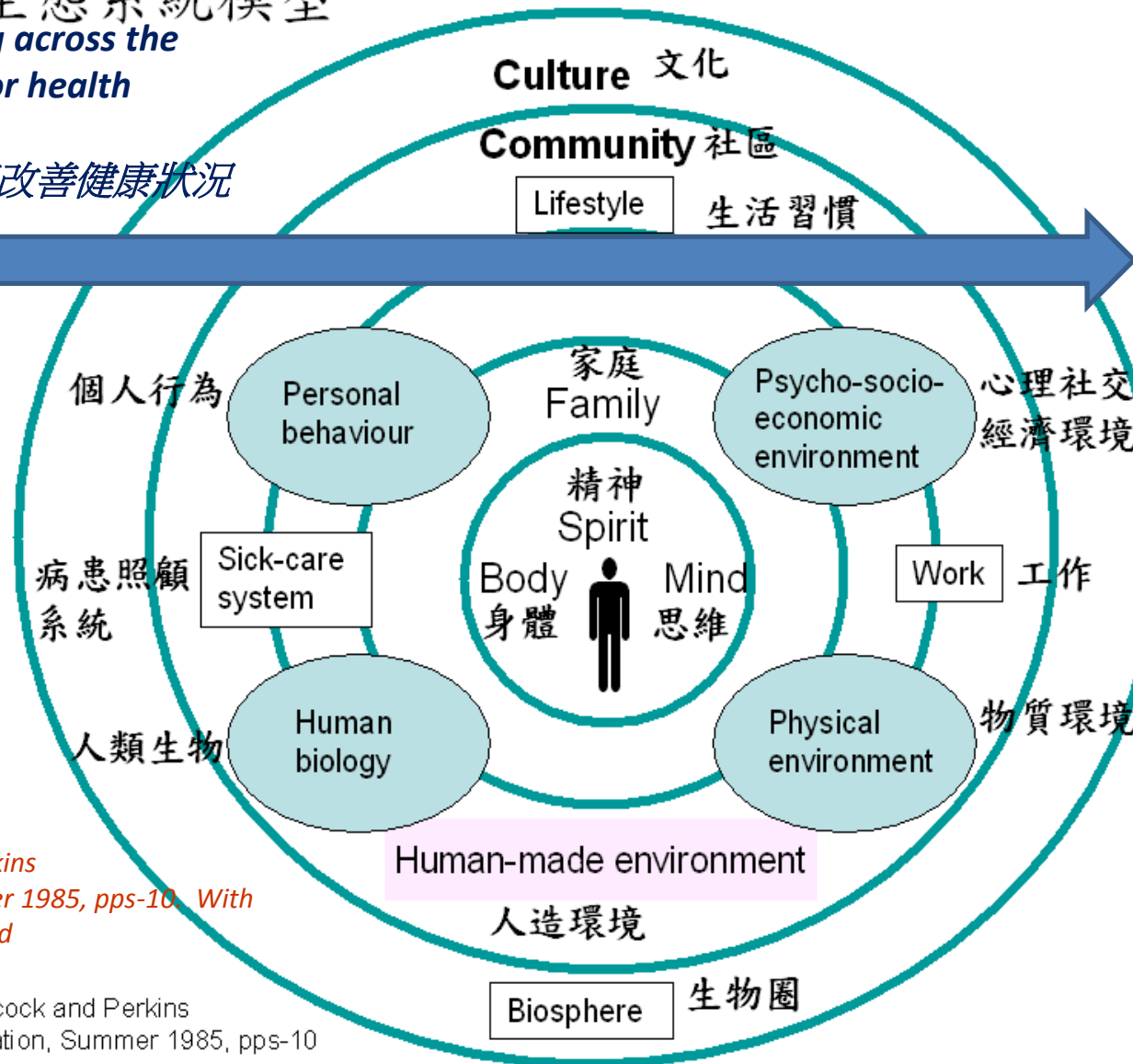
If we examine the ecology of health, tackling obesity
and many other chronic health problems needs to go
beyond personal health.

Mandala of Health: a model of the human ecosystem 人類生態系統模型

Intervention cutting across the ecology of health for health improvement

橫跨干預生態健康改善健康狀況

Health Promotion Interventions



Outcomes 成果

-Infra-structure for health improvement, health actions in community
基礎結構改善健康狀況，社區中的衛生行動

-- Attitudes, health literacy, social norm, policies in place
態度、健康素養、社會規範、到位的政策

-Risk factors, (behaviours, environment, services)
風險因素(行為、環境、服務)

- Disease pattern ,well-being, quality of life
疾病模式、生活品質

Source: Hancock and Perkins
Health Education, Summer 1985, pps-10. With
kind permission to be used
for teaching and training

Source: Hancock and Perkins
Health Education, Summer 1985, pps-10



Figure 1 Ecological model of predictors of childhood overweight. *=Child risk factors (shown in upper case lettering) refer to child behaviours associated with the development of overweight. Characteristics of the child (shown in italic lettering) interact with child risk factors and contextual factors to influence the development of overweight (i.e. moderator variables). This review is organized around child risk factors and the influence of child family, and community characteristics is discussed for each child risk factor.

The WHO Commission on Social Determinants of Health (CSDH, 2008) recognised the importance of the urban setting as a social determinant of health. Its Knowledge Network on Urban Settings (KNUS, 2008) recommended a broad spectrum of interventions, including:

- building social cohesion, 社會的結合
- improving environments for health, 改善環境健康
- accessible primary health care for all, 基層醫療
- healthy settings as vehicles, 日常生活的場所促進健康
- proactive and coordinated urban planning, and good urban governance. 主動和協調城市規劃，和良好的城市治理

Tord Kjellstrom (Chair and Lead Writer). **Drafting Team:** Susan Mercado.....**Albert Lee**....., *Our cities, our health, our future: Acting on social determinants for health equity in urban settings*. Report of the Knowledge Network on Urban Settings, WHO Commission on Social Determinants of Health. WHO Centre for Health Development, Kobe, Japan – 2007.
http://www.who.int/social_determinants/resources/knus_report_16jul07.pdf

Energy imbalance

- Change of energy intake of 10 Kcal per day would lead to an eventual body weight of change about 1 pound (10Kcal per day per pound) with half of the weight change within first year and 95% in about 3 years. (Hall et al. Lancet 2011: 378: 826-837) (**250 ml of soft drink ~102 Kcal; 79 minutes of housework would burn off around 250 Kcal**)
- Between 1990 and 2007-08, the average bodyweight had risen by 9-18 kg in USA and UK corresponding to 200-400 Kcal per day difference in energy intake or expenditure sustained for 3 years.

Challenge of Prevention of Obesity

- Nowhere has the obesity epidemics reserved by public health means unlike smoking and cardiovascular diseases epidemics (Swinburn et al. *Lancet* 2011; 378: 804-14).
- The reasons for failure are changes in global food supply systems and concomitant environmental change requiring less energy expenditure (King D. *Lancet* 2011; 378: 743-44).
- Collaborative societal changes in many aspects of our environment with global political leadership across public policy boarder than health policy and better monitoring.
- Mainstream social and economic development in the 21st century is not focusing on social equity

Significant reversal of risk factors and reduction of mortality from NCD

(Norum KR. Some aspects of Norwegian nutrition and food policy. In: Shetty P, MMcPherson K, eds. Nutrition and Chronic Disease: Lessons From Contrasting Worlds. London: John Wiley & Son 1997; 72-86.

- Public and professional education and information
- Setting consumer and producer price and income subsidies, ensuring low prices for healthy food
- Avoidance of low price for sugar, butter and margarine
- Marketing of regulation to promote provision of healthy foods by retail stores, street vendors and institutions
- Regulation of food processing and labelling

Images of Foodscapes

Mikkelsen BE. Images of foodscapes: Introduction to foodscape studies and their application in the study of healthy eating out-of-home environments. *Perspectives in Public Health* 2011; 131(5): 209-216

- - scape is studying how people, spaces and food *interact* and how this interaction *influences* our food behaviour.
- Signs, text and pictures would influence eating behaviours
- When people are exposed to images of appetizing food, their brains automatically and reflexively secrete dopamine, activating at least 5 separate reward centers in the brain leading to food craving. (Beaver ID, et al. Individual differences in reward drive predict neural response to images of food. *J Neurosci* 2006; 26(19): 5160-66)
- This physiological pathway in response to food images involve similar neural pathways associated with drug addictions. (Volkow ND, Wise RA. How can drug addiction help us to understand obesity? *Nat Neurosci* 2005; 26(19): 5160-66.)
- Paper by Potenza has discussed how multiple factors would influence decisions to use drugs or engage in addictive behaviours.

Approaches to promote Healthy Eating and Physical Activities in Adolescents

Uauy R, Caleyachetty R, Swinburn B. In Waters E, Swinburn B, Seidell J, Uauy R. Eds. *Preventing Childhood Obesity*. Wiley Blackwell, 2010

- Modifying the environment to enhance physical activities in school and communities
- Creating more opportunities for family interaction, e.g., family meals
- Limiting aggressive marketing practices of energy-dense micro-nutrient-poor foods
- Providing necessary information and skills to make better food choices
- Parental education for disadvantaged communities: overweight \neq good health
- School driven initiatives together with policy changes would be effective to promote healthy eating and physical activity in adolescents (Lee A., Ho M., Keung V. Healthy Setting as an ecological model for prevention of childhood obesity. *Research in Sports Medicine: An International Journal* 2010; 18 (1): 49-61.)

五彩蔬果計劃

Colourful and Bright Fruits and Vegetables Project

學童飲食行為研究報告

Report on Eating Behaviour in School Children



香港中文大學醫學院
健康教育及促進健康中心
Centre for Health Education and Health Promotion
Faculty of Medicine
The Chinese University of Hong Kong



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Research in Sports Medicine

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Healthy School as an Ecological Model for Prevention of Childhood Obesity

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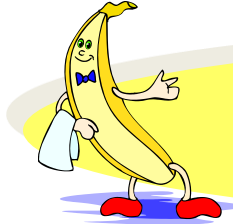
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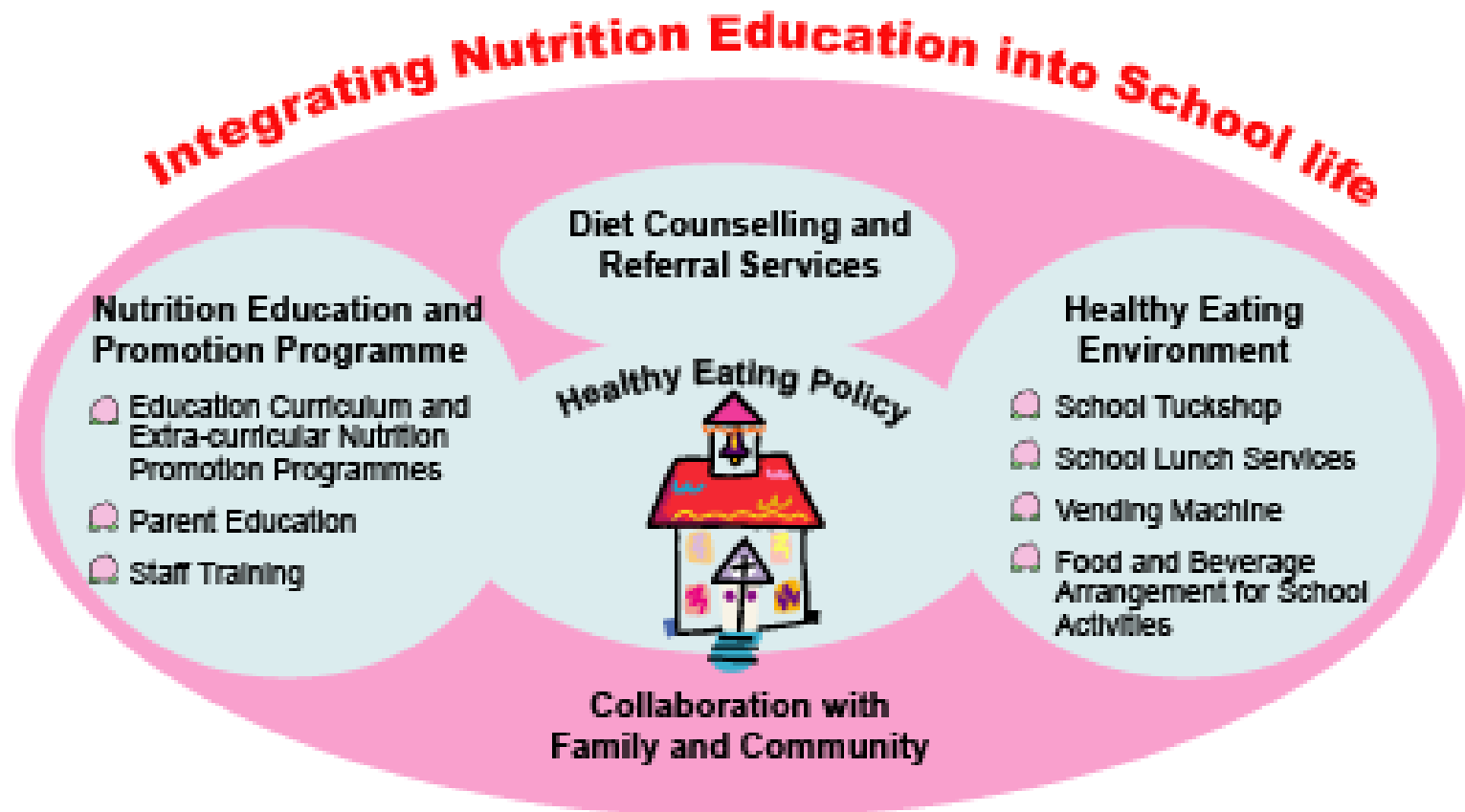
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Lee A., Ho M., Keung V. Healthy School as an ecological model for prevention of childhood obesity. *Research in Sports Medicine: An International Journal* 2010; 18 (1): 49-61.



Characteristics

An integrated approach, entailing a comprehensive needs assessment, improved **school eating policies and eating environment**, involvement of **family and community**, along with a comprehensive **nutrition education programme** and the active involvement of students.



Key findings

- Significant improvement was observed in knowledge, attitudes and eating behaviours of students. Lee A., Ho M., Keung V. *Research in Sports Medicine: An International Journal* 2010; 18 (1): 49-61.
- **Maternal knowledge, attitudes and knowledge has significant impact on consumption of fruit and vegetables by primary students** Yung T., Lee A(PI)., Ho M., Keung V., Lee J. Maternal influences on fruit and vegetable consumption of school children: Case study in Hong Kong. *Maternal and Child Nutrition* 2010; 6(2): 190-195 DOI: 10.1111/j.1740-8709.2009.00198.x

Action to Combat Childhood Obesity

School-based Fitness Programme

Summary findings

- A significantly more students from the intervention group expressed that they like doing exercise
- More parents reported that their children were eager to do exercise or doing housework everyday, AND more sport activities.
- A significant difference in the change of mean BMI between intervention and control group was observed. Both the BMI and body fat percentage of the intervention group students stabilized during the intervention period while that of the control group increased significantly.
- The post-test results taken at 4 months after the completion of intervention programme showed a statistically significant drop of mean body fat among the intervention group.

Adolescent Neuro-development and dietary habit

Linda Spear, 2011.

- Sensitivity to basic awards such as sweet substances was higher for aged 11 to 15 than late adolescence and early adulthood. (Desor JA & Beauchamp GK. Longitudinal changes in sweet preferences in humans. *Physiology & Behavior*. 1987; 52(3): 216-224).
- However adolescents often appear less ‘harm avoidant’ than adults responding to aversive stimuli, threats and penalties. This would lead to over-indulging in overeating of high energy density food and overdrinking of beverage and alcohol, sedentary life style and even drugs and tobacco as they would feel the immediate pleasure with enhanced sensitivity but less responsive to the adverse consequence such as obesity, decline in physical fitness, impaired co-ordination.

Adolescent Neuro-development and dietary habit

Linda Spear, 2011.

- Taking into account of the plasticity of brain development during adolescence, future research should focus on modulating their enhanced sensitivity to rewards and attenuation in aversive sensitivity.
- Adolescent brain is sensitive to environmental manipulations and programs should aim to reduce stress levels within typical contexts of adolescence by increasing their capacity to cope with stressors and reducing the exhibition of ‘hot’ cognition suggested by Spear’s papers.

‘Early Life Origins of Chronic Diseases’

Wang et al, 2011

- Integrating multi-factoral variables, i.e., environment, genetic and epigenetics with particular focus on epigenetics as it remains as important missing piece of puzzle in explaining the early life origins of chronic diseases including obesity.
- Many current interventions on unhealthy eating and weight control have been on lifestyle modification later on in life neglecting the difficulty of neuro-endocrine programming to return to originally set point.
- During adolescence, unhealthy diet, physical inactivity, stress, smoking, drug abuse, exposure to environmental toxins, sleep disturbance, genetics were found as importing contributing epidemiological risk factors.

- Understanding of health promoting setting especially HPS as ecological model for improvement of healthy eating,
- focusing on epigenetics and possibilities of restoring 'normal epigenome,
- and modulating the neuro-development taking into account of the plasticity of brain in enhancement of sensitivity to rewards and attenuation in aversive sensitivity through modification of environment and lifestyle would lead to new angles for research in addressing the following issues leading to policies and programs development:

- Reversing the obesogenic environment by tackling the determinant factors: distal vs proximal
- The influence of national wealth, government policies, cultural norms, the built environment, genetic, epigenetic mechanism, biological bases for food preferences
- Understanding of the health promotion theory to develop an ecological model at school and community level for prevention of overconsumption and addiction to food
- Modulation of peri-natal and early postnatal environment to avoid adverse developmental programming of neuro-endocrine systems leading to obesity later on in life

- Non-dieting approach enhancing neuro-development to healthy eating
- Application of dynamic simulation models in predicting individual weight change resulting from energy balance intervention, estimation of the magnitude of the maintenance energy gap determining the increase energy intake needed to maintain higher average body weights as result of obesity epidemics
- Which strategy is more likely to be success in low and middle income countries: Policies and regulation in controlling the food system and food industry OR empowerment of individuals, families and communities to improve health literacy in making rational choices?

Stewart-Brown, S. (2006). *What is the evidence on school health promotion in improving school health or preventing disease and specifically what is the effectiveness of the health promoting schools approach?*. Copenhagen: World Health Organization.

Patton, G. Bond, L., Carlin, J., Thomas, L. Butler, H., Glover, S., Catalano, R. & Bowes, G. (2006). Promoting social inclusion in schools: A group-randomized trial on student health risk behaviour and well-being. *American Journal of Public Health*, 96, pp 9.

Blum, R. McNeely, C. & Rinehart, P. (2002). *Improving the odds: The untapped power of schools to improve the health of teens*. Center for Adolescent Health and Development, University of Minnesota

- Recent evidence suggests that the way the school is led and managed, the experiences students have to participate and take responsibility for shaping policies, how teachers relate to and treat students and how school engages local community and parents, build many protective factors for health and reduces health risk behavior Stewart-Brown, 2006. **Blum** et al.2002, Patton et al 2006).

- 最近研究證據顯示，學校領導及管理；學生的投入；老師對學生態度；學生如何令社區及家長參與都可幫助建立保護學童健康的因素及減低高危因素。



Hong Kong Healthy Schools Award Scheme

香港健康學校獎勵計劃



Education Bureau,
HKSAR
香港特別行政區政府
教育局



WHO Western Pacific
Region
世界衛生組織西太平洋區



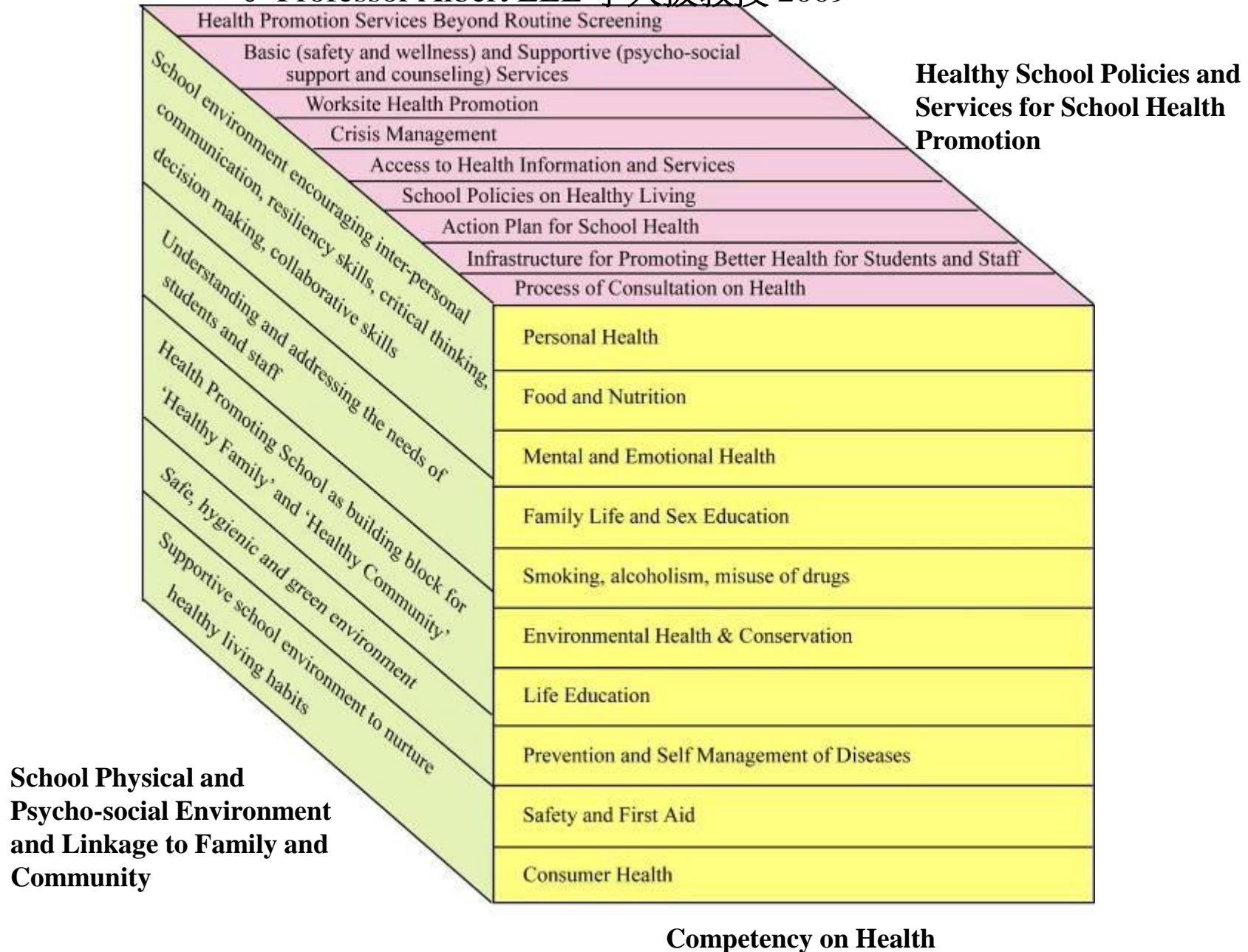
Healthy Schools (Pre-school) Award Scheme 健康幼稚園獎勵計劃

Education Bureau, HKSAR
香港特別行政區政府
教育局

WHO Western Pacific
Region
世界衛生組織西太平洋區

Integrated Framework for Health Promoting School

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- Missing out richness of school health activities by evaluating a narrow set of pre-determined outcomes determined outcomes. 狹隘的預先訂定的成果失去很多健康狀態 資料。
- Outcome should include resources for living and have many components that have different degrees of importance to people as they go through life.
- There is the need, in addition to assessing standard outcomes for school health promotion interventions, to look at what constitutes successful outcomes and increased input from students, teachers and parents. 在評估學校健康促進干預，看看什麼是成功的結果，從學生、教師和家長投入在確定他們的結局
- A more holistic appreciation and understanding of all the effects of school based health promotion. 更全面的讚賞和理解

Home

- Avoid using unhealthy food e.g. sweets, soft drink as rewards on positive behaviours and withdrawing as punishment
- Create a joyful and rewarding environment to be physical active, eating healthy food products, outdoor activities
- Rewards for buying healthy food products and restriction of 'pocket money' to buy unhealthy food
- Bonus systems for eating healthy, physical active
- Withdraw rewards on excess time on TV/internet and sedentary lifestyle, and over-consumption of 'junk' food
- Attentive to hunger/satiety cues with appropriate feeding time and food quantity

School

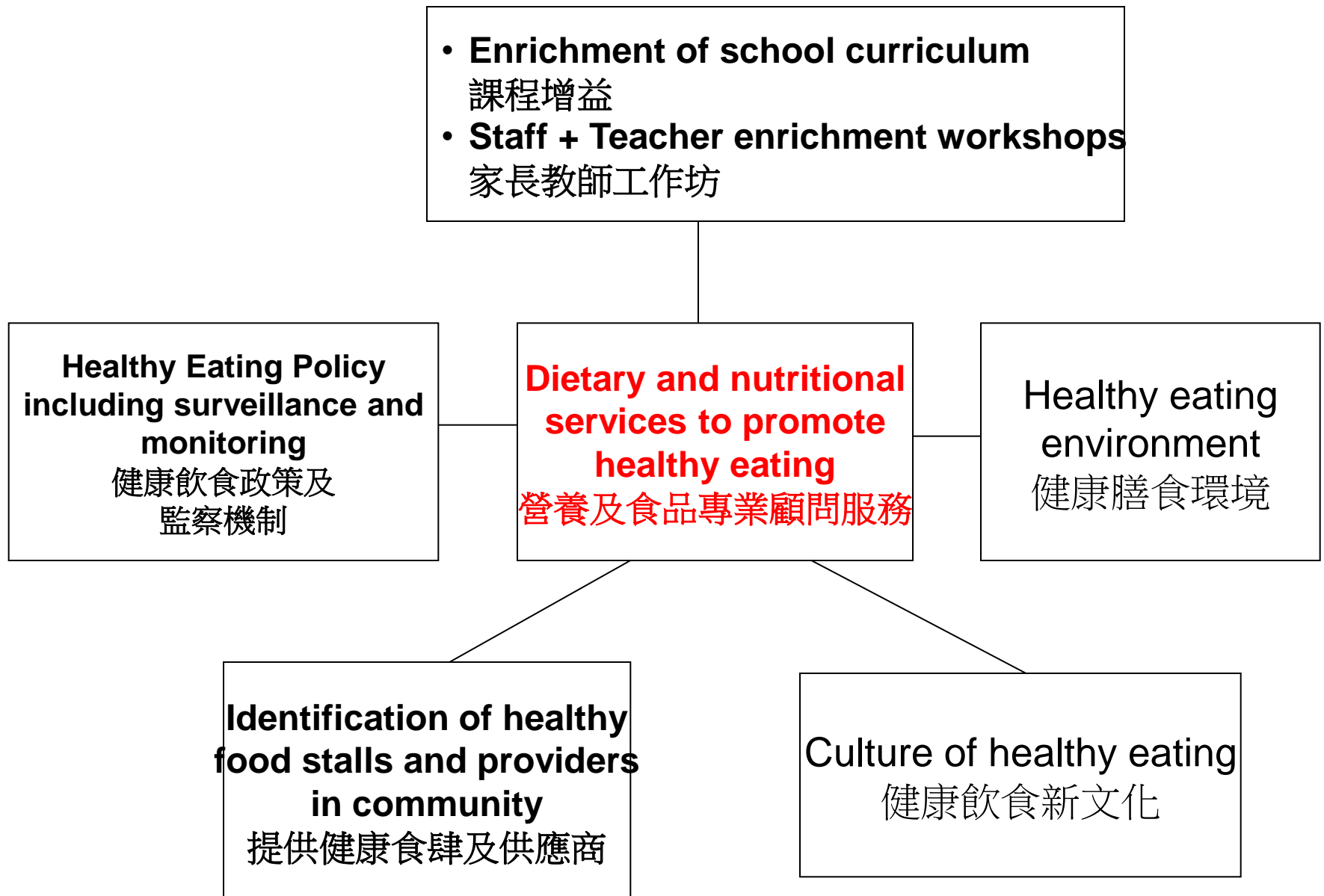
- Rewards on healthy eating and participation in exercise with log diary to maintain record
- Creating opportunities for students to gain pleasure from healthy eating and outdoor activities e.g. visit to Orchard for fresh fruits tasting, camping
- Research linking unhealthy eating, physical in activity and obesity to impairing learning
- School positive culture for healthy eating with teachers and parents as role models
- Health literacy as important learning outcomes

Community

- Awards for healthy eating places
- Price incentive for consuming healthy food
- Incentive for selling healthy food
- Proper nutritional labeling with warnings on unhealthy ingredients
- Media coverage on benefits of healthy eating
- Bonus points for redemption on buying healthy food products
- Healthy food only for community activities
- Making unhealthy food, difficult choice

Home-School-Community Model to enhance Positive Adolescent Neuro-development on Diet and Exercise

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Health on public agenda
公共政策關注健康

- Empowerment of healthy living skills of parents
增強家長健康生活技能
- Advocacy for health
倡導健康

Enrichment of School Health Curriculum
增強學本健康教育課程

Great care for people with special needs
提升關注特別需要組群

Improve uptake of preventive health service
提升預防服務使用

Improving and sustaining safe, hygienic and healthy environment
提升及維持安全、衛生及健康社區環境