

Burden of Non-Communicable Diseases (Chronic Diseases) in Hong Kong

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Outline

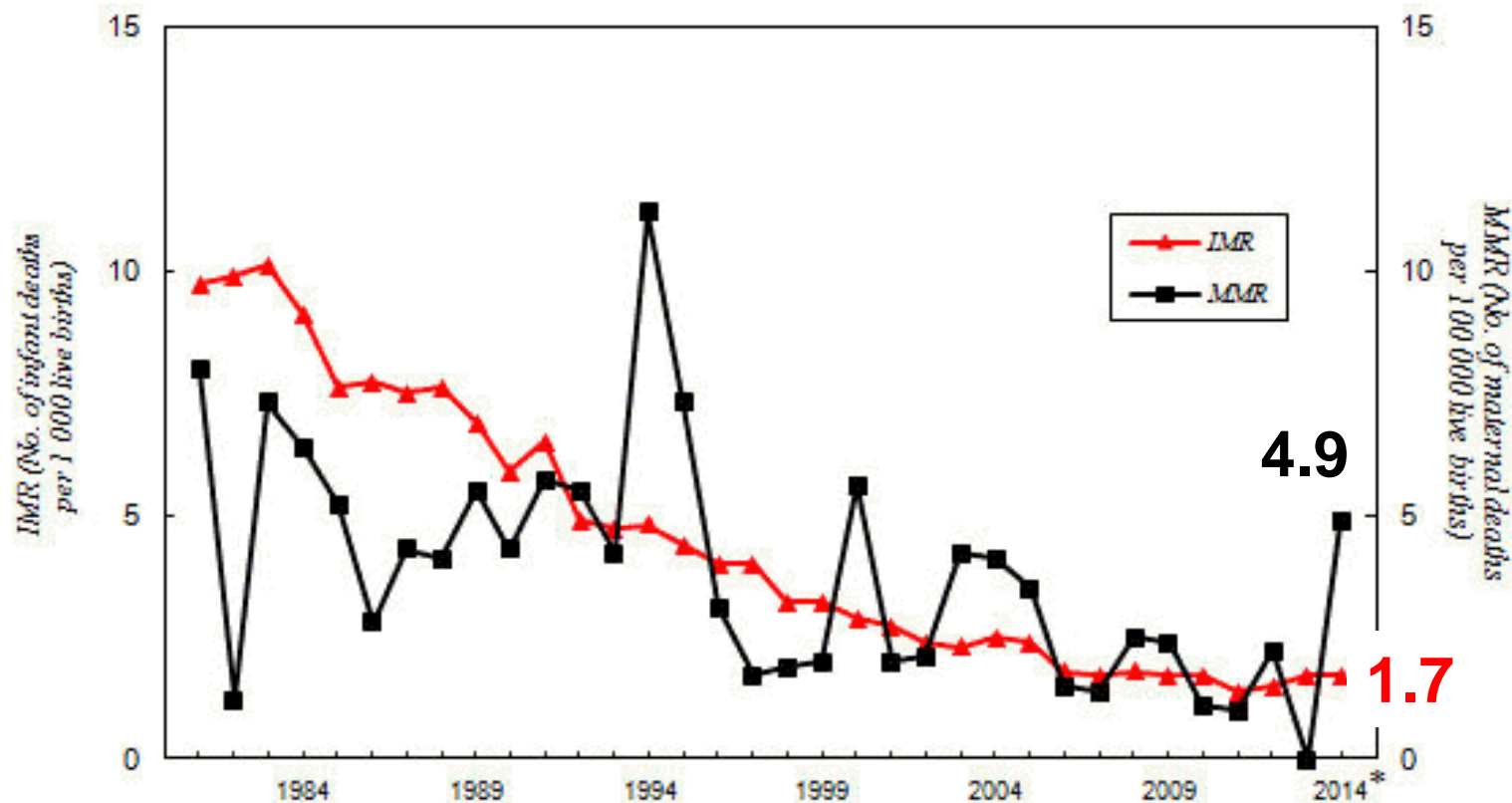
- Our achievements
- Our threats
- Our food choices
- Our opportunities



Our Achievements



Infant Mortality Rate (IMR) and Maternal Mortality Ratio (MMR) in Hong Kong



Hong Kong has achieved a falling and extremely enviable trend of IMR and MMR.

*Provisional figures for year 2014

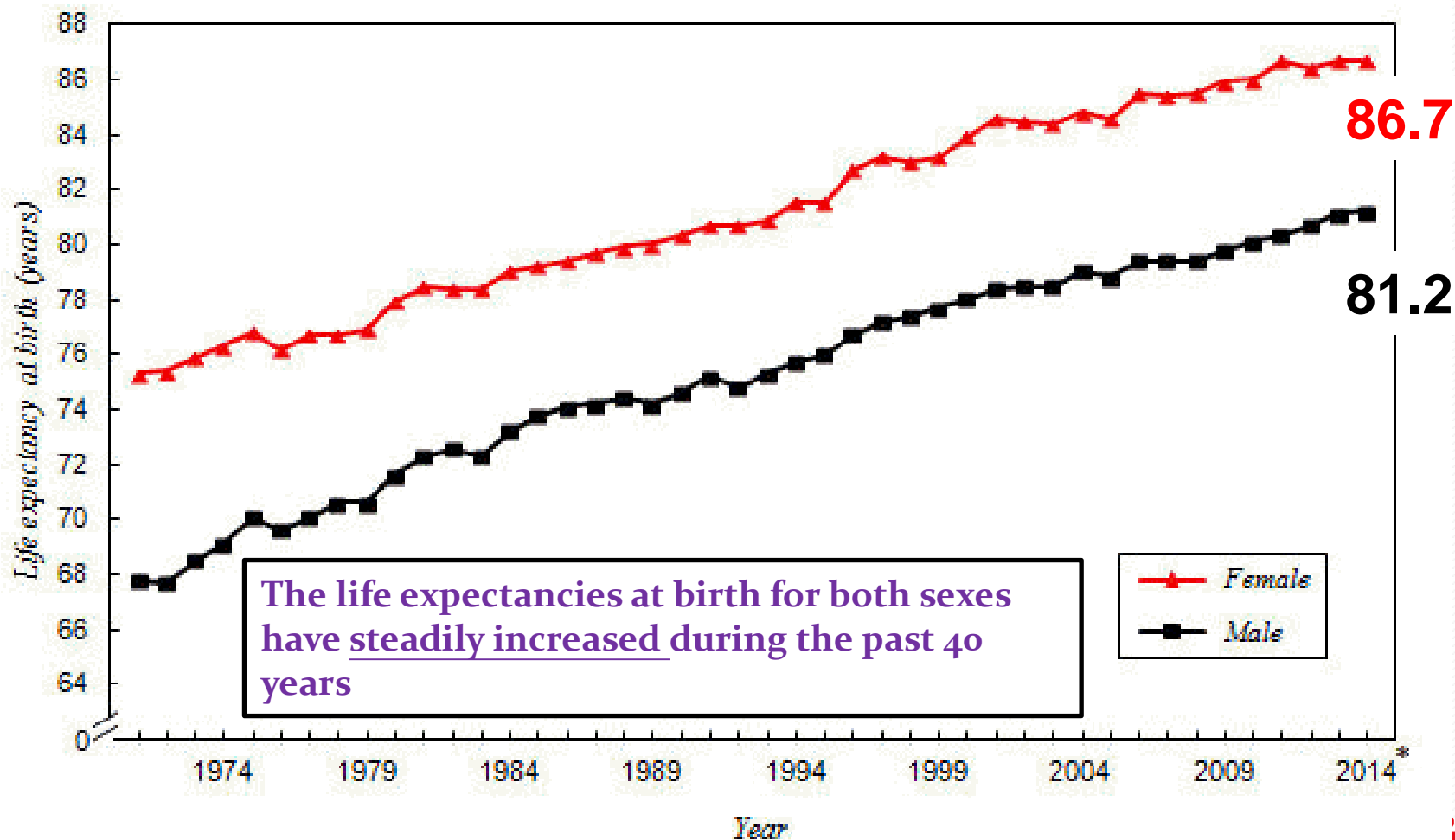
Sources: Department of Health, Census and Statistics Department



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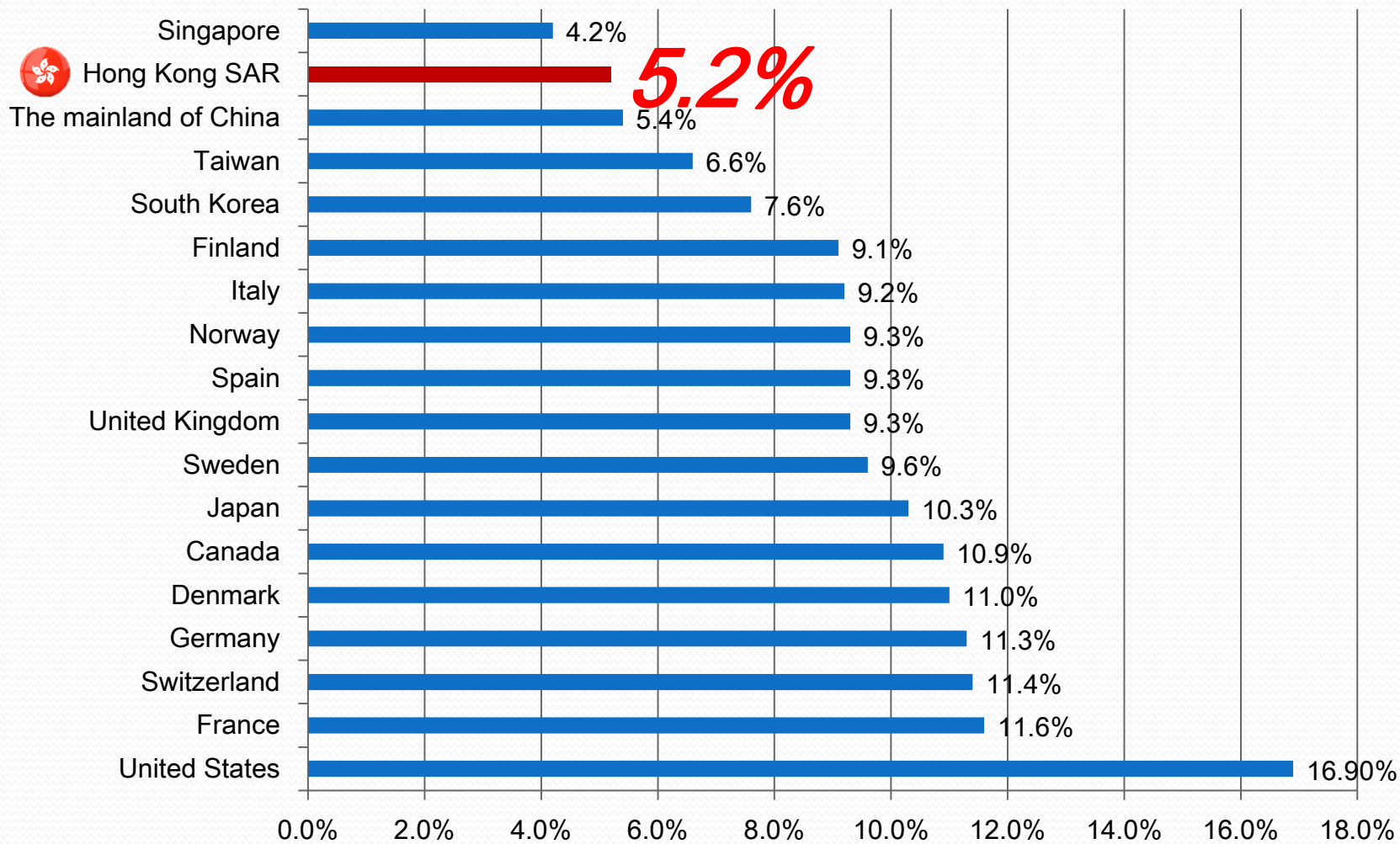
Life Expectancy at Birth in Hong Kong



*Provisional figures for year 2014

Sources: Department of Health, Census and Statistics Department

GDP of Hong Kong invested on healthcare compared with other developed areas of the World in 2012



Sources:

Unless otherwise specified, all figures are from OECD.Stat website;

Hong Kong SAR figures from Hong Kong's Domestic Health Accounts, 1989/90-2011/12.

Taiwan figures from Ministry of Health and Welfare, Taiwan website;

Figures for the mainland of China and Singapore are from National Health Accounts, World Health Organization website.



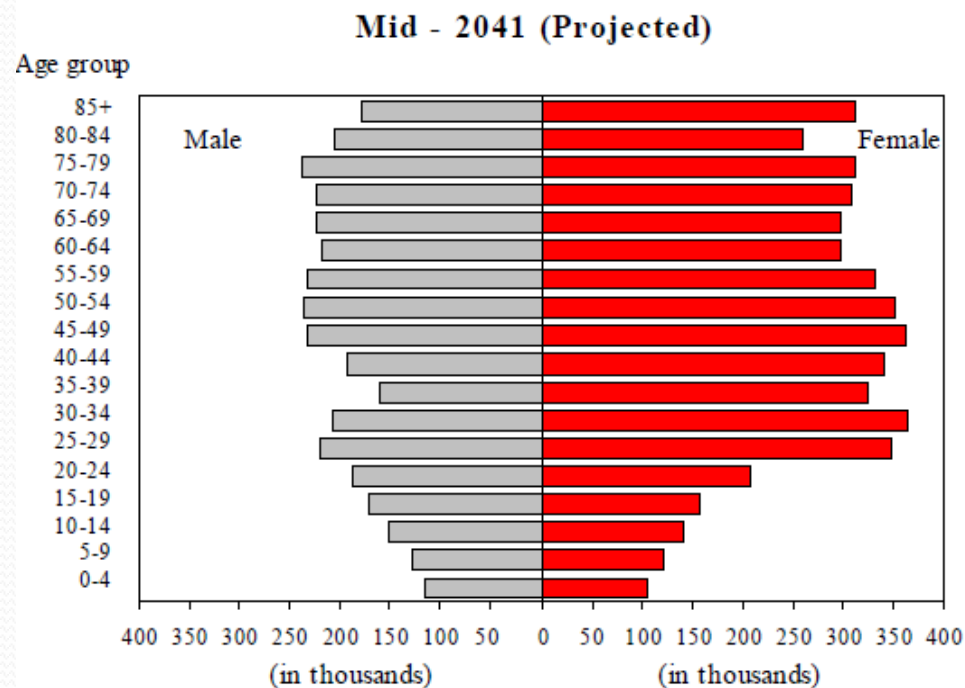
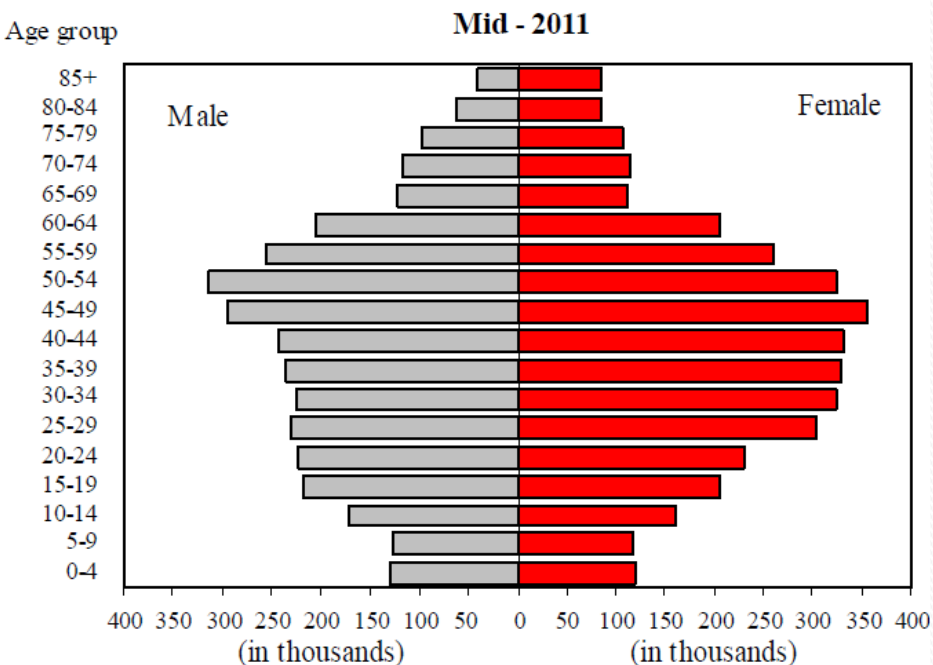
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Our Threats



Hong Kong Population Pyramid



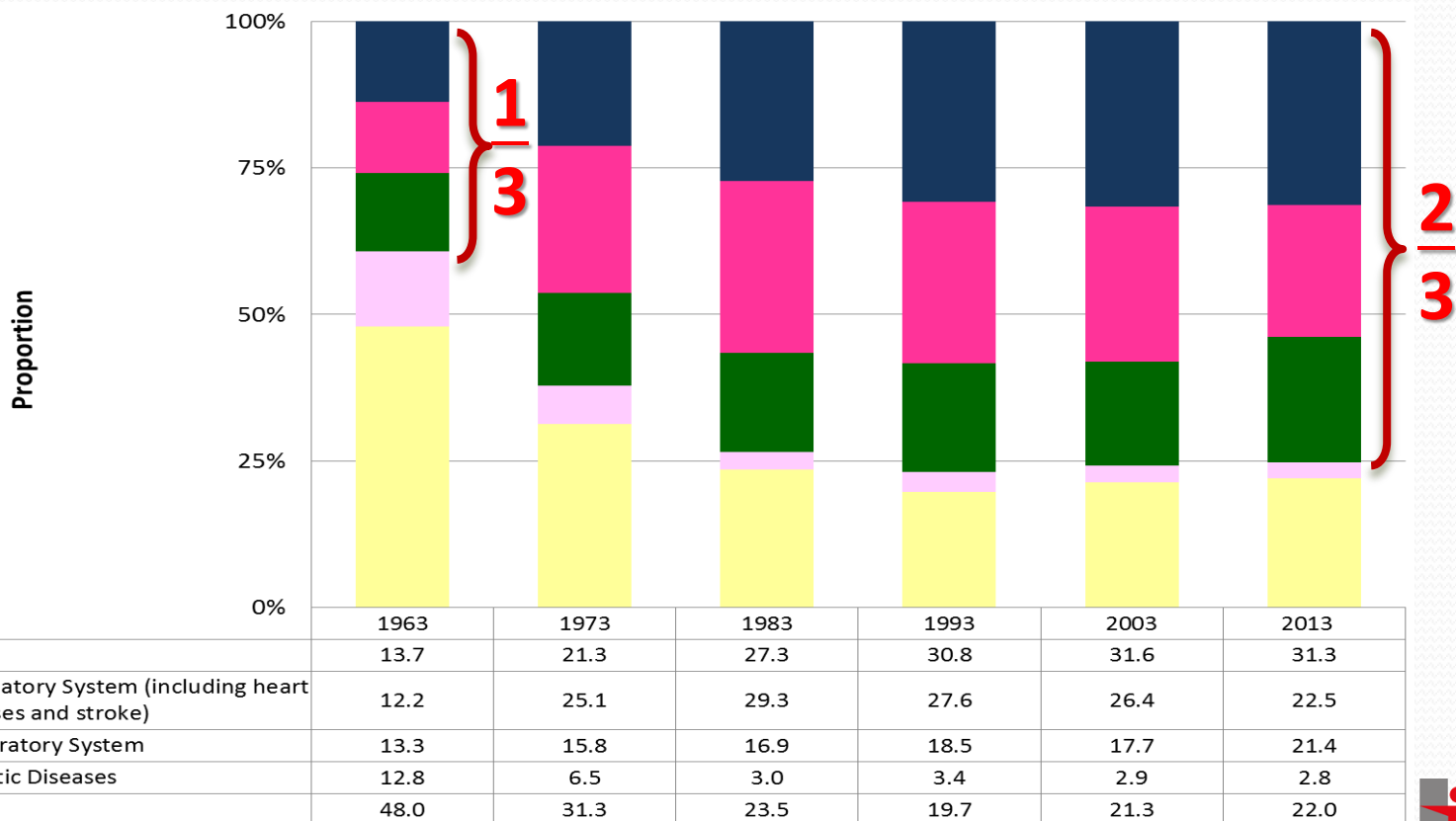
The proportion of population aged 65 and over is projected to rise from 13% in 2011 to 30% in 2041.



Epidemiological Transition in Mortality

- from CDs to NCDs

Proportionate Mortality of CDs and NCDs, 1963 - 2013



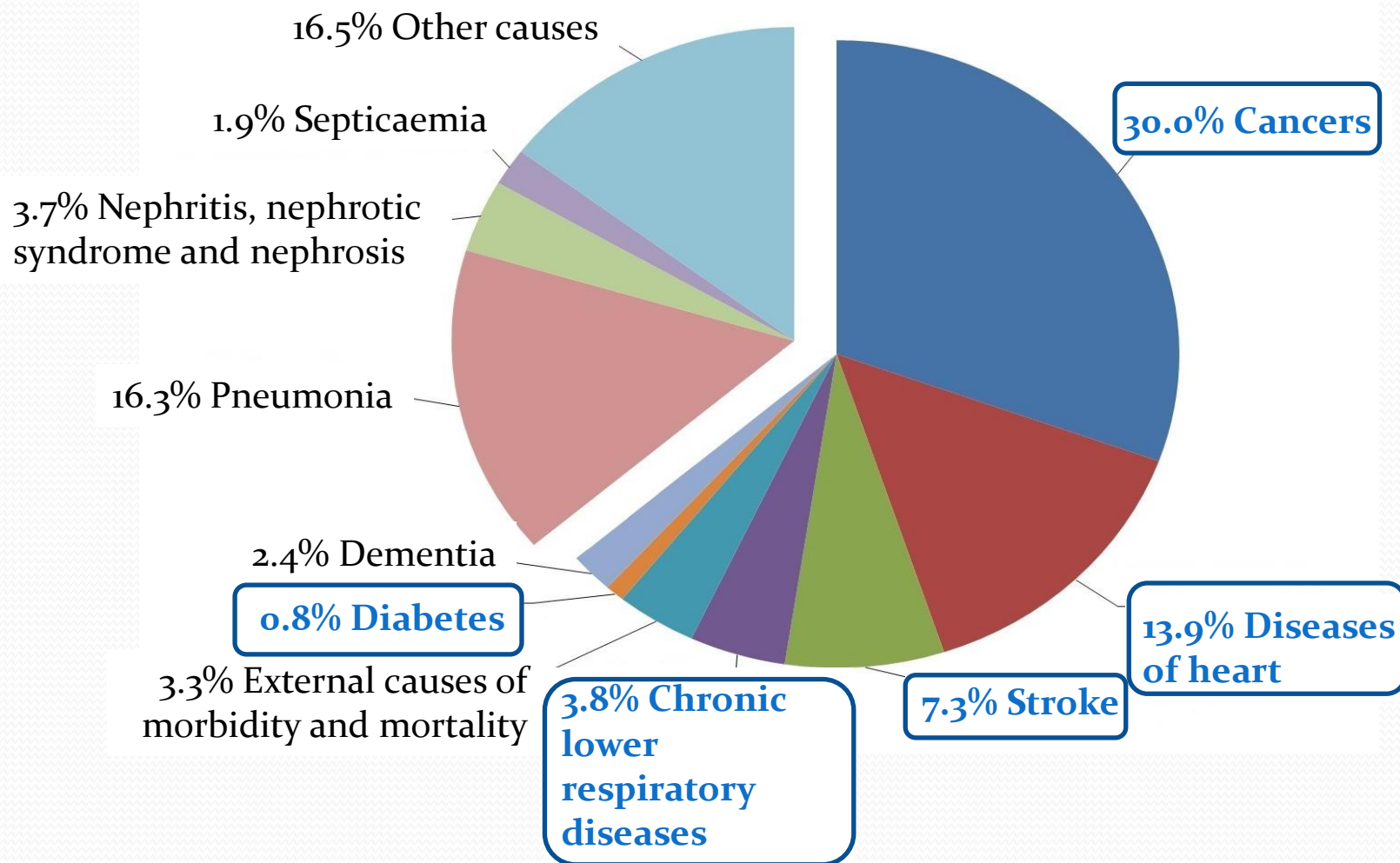
Sources: Department of Health, Census and Statistics Department



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Leading Causes of Death in HK (2014)*



*Provisional figures for year 2014

Sources: Department of Health, Census and Statistics Department



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'Premature' deaths (2013)

(before the age of 70)

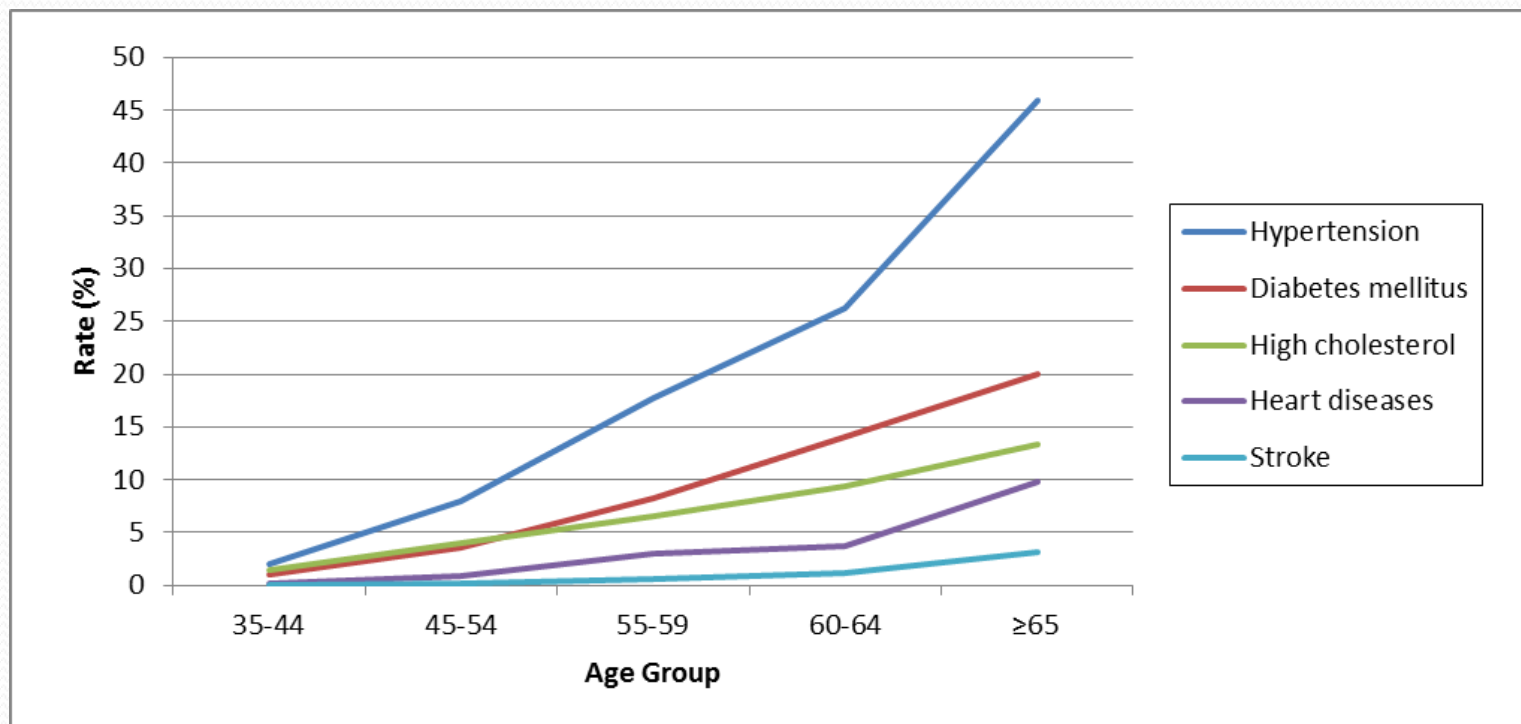
	Number of registered deaths	Proportion of all registered deaths in respective disease/disease groups)	Number of potential years of life lost before the age of 70
Cancers	5 770	42.5%	73 976
Coronary heart disease	929	23.2%	11 427
Stroke	660	20.3%	8 234
Diabetes	89	24.7%	1 179
Hypertensive diseases	77	11.0%	682

Sources: Department of Health, Census and Statistics Department



Comorbidities Increase with Age

Percentage of persons who had chronic health conditions
by type and age, 2011/12



Source: Thematic Household Survey Report No. 50, Census and Statistics Department



By the age of 65 years...



1 in 10 had
heart diseases



1 in 5 had
diabetes mellitus



1 in 2 had
hypertension

Source: Thematic Household Survey Report No. 50, Census and Statistics Department

Comorbidities Increase with Age

Number of doctor-diagnosed chronic diseases by age group, 2011

Age group	Number of doctor-diagnosed chronic diseases		
	None	One	Two or more
18-24	89.8%	8.4%	1.8%
25-34	87.3%	9.2%	3.5%
35-44	77.8%	16.8%	5.4%
45-54	66.3%	23.2%	10.5%
55-64	43.2%	30.8%	26.0%

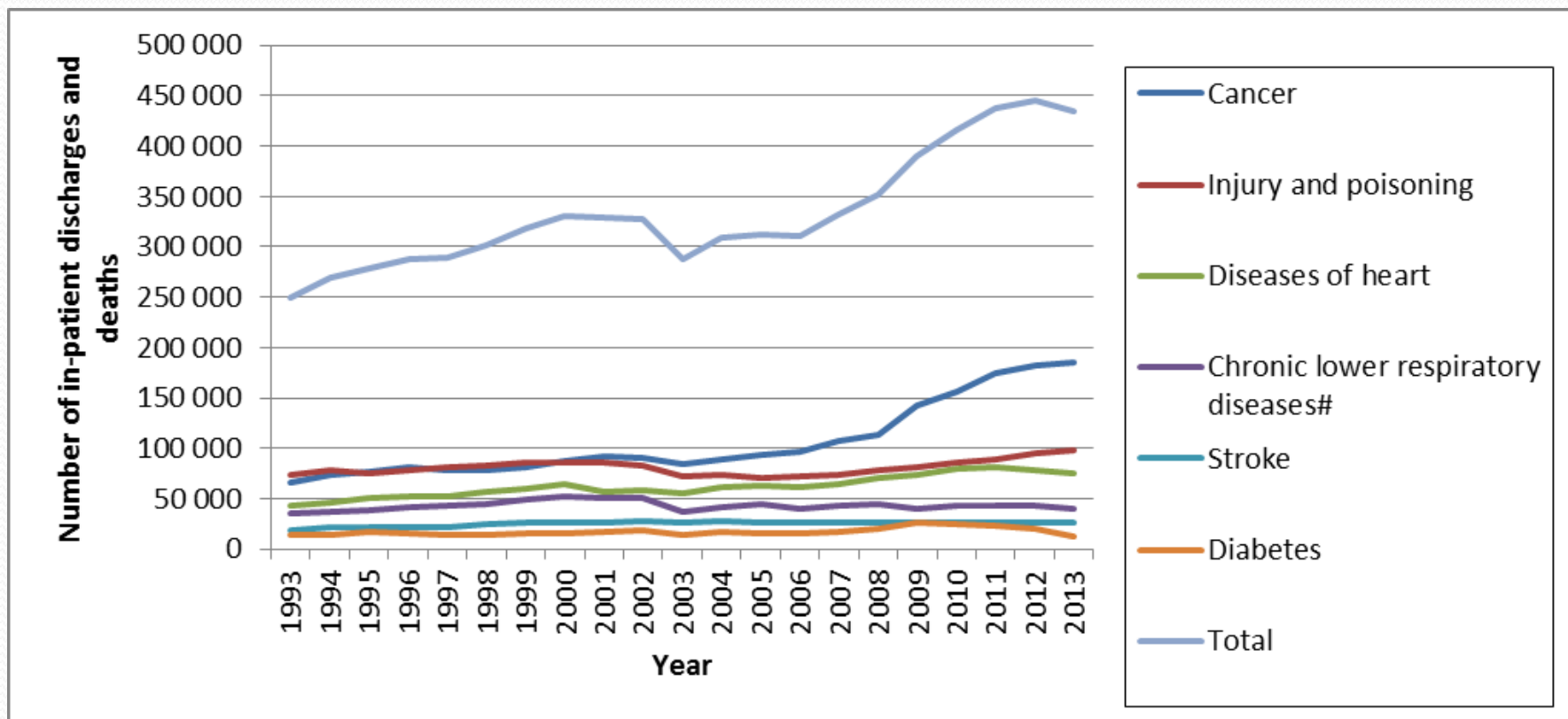
Source: Behavioural Risk Factor Survey. Department of Health.



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Burden of NCDs to Hospital Service

Number of episodes of in-patient discharges and deaths in all hospitals for major chronic diseases, 1993 to 2013



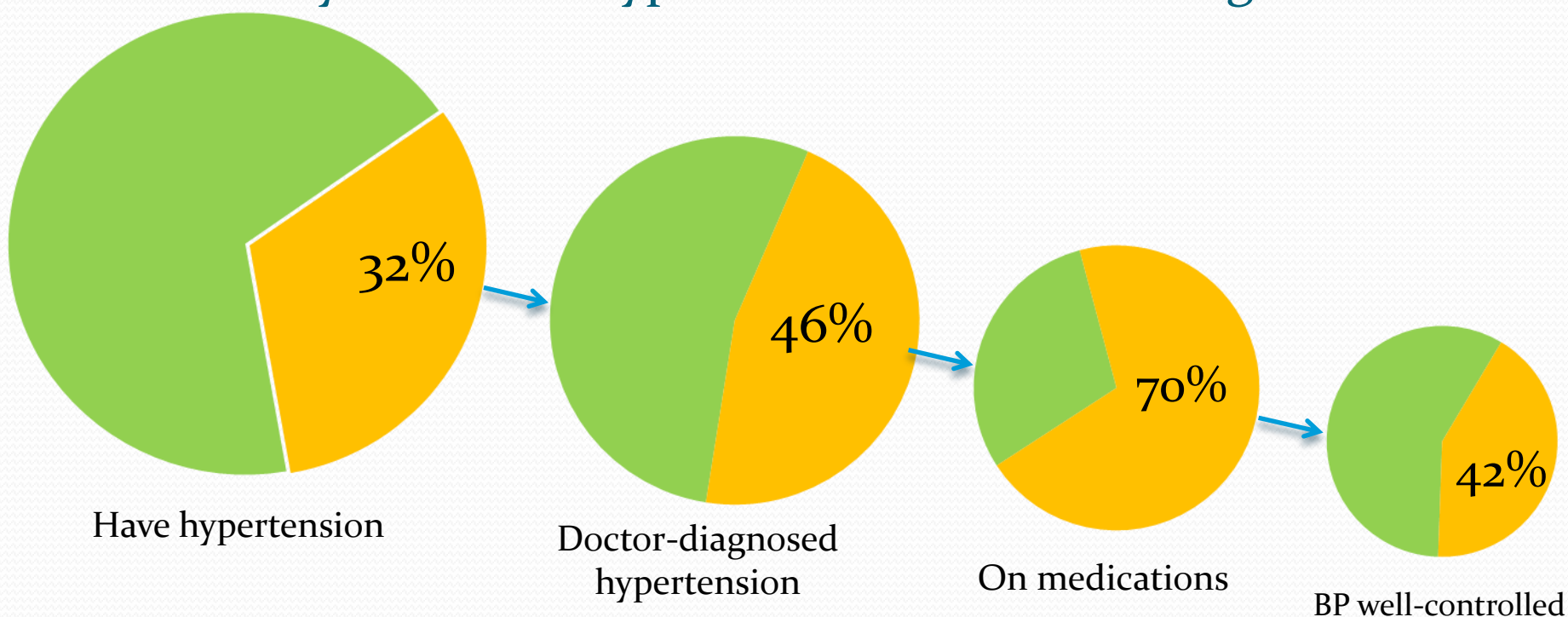
Note: #include ICD-9 code 495 : Extrinsic allergic alveolitis for 1993 to 2000.

Sources: Department of Health and Hospital Authority.



Hypertension

The prevalence of doctor-diagnosed hypertension in Hong Kong adult population has increased, but only half of all hypertensive cases were diagnosed



Hypertension

Comparing with other countries,

Prevalence of hypertension in selected countries

Countries	Year	Age group (years)	Prevalence
England ¹	2013	≥16	28.6%
United States ²	2011/12	≥18	29.1%
Australia ³	2011/12	≥18	31.6%
Hong Kong ⁴	2012	≥20	32.0%

Sources: (1) Health Survey for England 2013;

(2) U.S. National Health and Nutrition Examination Survey, 2011–2012;

(3) Australian Health Survey;

(4) FAMILY Project Cohort Study



Stroke

The prevalence of stroke in Hong Kong adult population was 0.6%

Proportion of people aged 15 and above with known stroke as told by practitioners of Western medicine, 2009/10 and 2011/12

Year	Prevalence
2009/10	0.6%
2011/12	0.6%

Source: Thematic Household Surveys 2009/10 and 2011/12, Census and Statistics Department



Stroke

Comparing with other countries,
Prevalence of stroke in selected countries

Countries	Year	Age group (years)	Prevalence
England ¹	2011	≥ 16	2.4%
United States ²	2010	≥ 18	2.6%
Australia ³	2009	≥ 18	1.8%
Hong Kong ⁴	2011/12	≥ 15	0.6%

Sources: (1) Health Survey for England 2011;
(2) MMWR 2012, 61(20):379-82;
(3) Australian Health Survey;
(4) Thematic Household Survey 2011/12



Coronary Heart Disease

The prevalence of doctor-diagnosed coronary heart disease in Hong Kong adult population was 1.6%

Prevalence of doctor-diagnosed coronary heart disease in people aged 15 and above preceding the survey by sex, 2003/04

Sex	Prevalence
Male	2.0%
Female	1.2%
Overall	1.6%

Source: Population Health Survey 2003/04, Department of Health



Coronary Heart Disease

Comparing with other countries,

Prevalence of coronary heart disease in selected countries

Countries	Year	Age group (years)	Prevalence
England ¹	2011	≥16	4.6%
United States ²	2010	≥18	6.0%
Hong Kong ³	2003/04	≥15	1.6%

Sources: (1) Health Survey for England;
(2) MMWR 2011, 60(40):1377-81;
(3) Population Health Survey 2003/04



Early Onset of Non-Communicable Diseases

Table 3. Fitted incidence rates of stroke in Hong Kong by age group, sex and subtype, and IRRs for different periods estimated from Poisson regression

Subtype/ sex	Age group	Fitted incidence rates (per 100,000)			2002–2004 vs.1999–2001		2005–2007 vs.2002–2004	
		1999–2001	2002–2004	2005–2007	IRR	95% CI	IRR	95% CI
<i>Hemorrhagic</i> Male	35–44	11.6	14.7	16.3	1.26	1.15–1.38*	1.11	1.02–1.21*
	45–54	36.1	44.0	44.9	1.22	1.15–1.29*	1.02	0.97–1.07
	55–64	107.4	112.9	104.1	1.05	1.01–1.10*	0.92	0.88–0.96**
	65–74	215.2	234.7	226.7	1.09	1.05–1.13*	0.97	0.93–1.00
	75–84	408.8	451.5	442.7	1.10	1.06–1.15*	0.98	0.95–1.02
	85+	622.2	686.3	676.7	1.10	1.05–1.16*	0.99	0.94–1.03
Female	35–44	5.2	6.2	6.9	1.21	1.10–1.32*	1.10	1.01–1.20*
	45–54	18.0	21.0	21.3	1.17	1.10–1.23*	1.01	0.96–1.07
	55–64	47.3	47.6	43.7	1.01	0.96–1.06	0.92	0.88–0.96**
	65–74	116.9	122.0	117.2	1.04	1.00–1.09*	0.96	0.92–1.00**
	75–84	266.4	281.6	274.6	1.06	1.02–1.10*	0.98	0.94–1.01
	85+	479.0	505.7	495.9	1.06	1.01–1.11*	0.98	0.94–1.02
<i>Ischemic</i> Male	35–44	22.1	22.7	23.5	1.02	0.94–1.12	1.04	0.95–1.13
	45–54	92.1	91.1	87.0	0.99	0.94–1.04	0.95	0.91–1.00
	55–64	425.5	363.6	314.0	0.85	0.82–0.89**	0.86	0.83–0.90**
	65–74	1,053.7	933.9	844.6	0.89	0.86–0.91**	0.90	0.88–0.93**
	75–84	1,908.2	1,713.0	1,572.4	0.90	0.87–0.92**	0.92	0.89–0.94**
	85+	2,471.2	2,215.4	2,045.1	0.90	0.86–0.94**	0.92	0.89–0.96**
Female	35–44	13.2	13.0	13.4	0.98	0.90–1.07	1.03	0.95–1.13
	45–54	61.7	58.5	55.5	0.95	0.90–1.00**	0.95	0.90–1.00**
	55–64	252.6	206.6	177.4	0.82	0.79–0.85**	0.86	0.83–0.89**
	65–74	770.4	653.6	587.8	0.85	0.82–0.87**	0.90	0.87–0.93**
	75–84	1,673.7	1,438.3	1,313.0	0.86	0.84–0.88**	0.91	0.89–0.94**
	85+	2,560.8	2,197.5	2,017.6	0.86	0.83–0.89**	0.92	0.89–0.95**

IRR = Incidence rate ratio; CI = confidence intervals.

IRR significantly greater than 1: * $p < 0.05$; IRR significantly smaller than 1: ** $p < 0.05$.

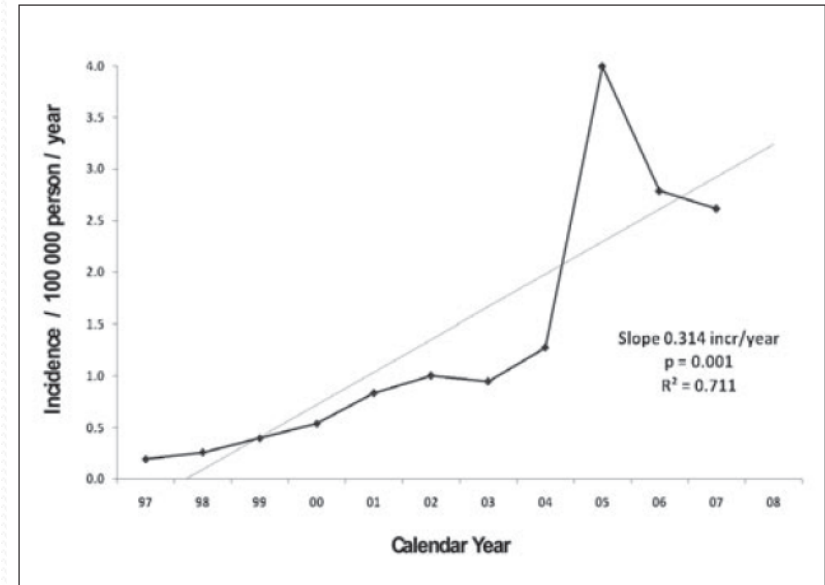


Figure 3 Time trends in incidence of type 2 diabetes for 0-18 year-old in Hong Kong from 1997 to 2007.

Huen KF et al. HK J Paediatr (new series) 2009;14:252-259

Chau PH et al. Cerebrovasc Dis. 2011;31(2):138-46



Age-standardised incidence and mortality rates of the common cancers related to overweight and obesity in 2012

	Incidence	Mortality
	(per 100 000 standard population)	
Colorectum	37.7	14.4
Liver	15.5	12.4
Breast (female)	61.2	9.5
Corpus uteri	14.1	1.3
Pancreas	4.7	4.3
Oesophagus	3.3	2.5

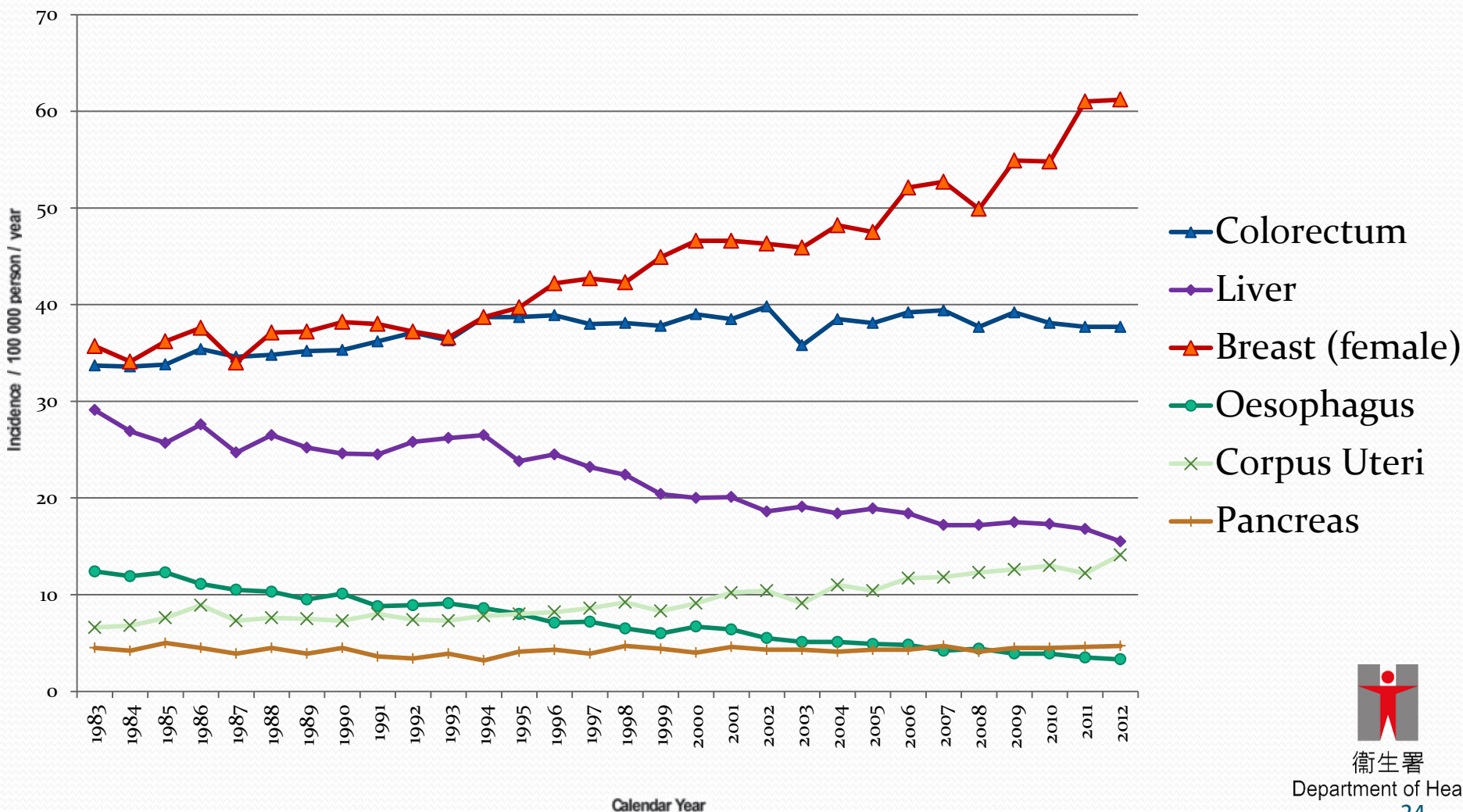
Sources: Department of Health, Census and Statistics Department



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Age-standardised incidence of the common cancers related to overweight and obesity from 1983 to 2012

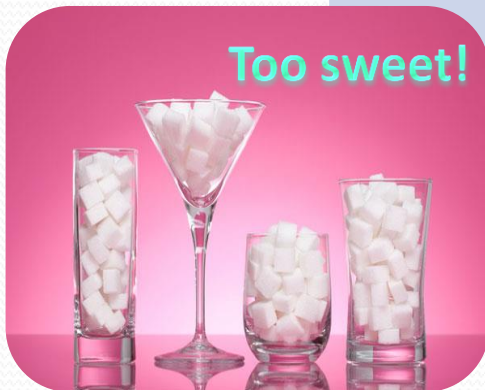


Causation Pathways



Biomedical risk factors

- Raised blood pressure
- Overweight and obesity
- Raised blood glucose
- Abnormal lipid profile



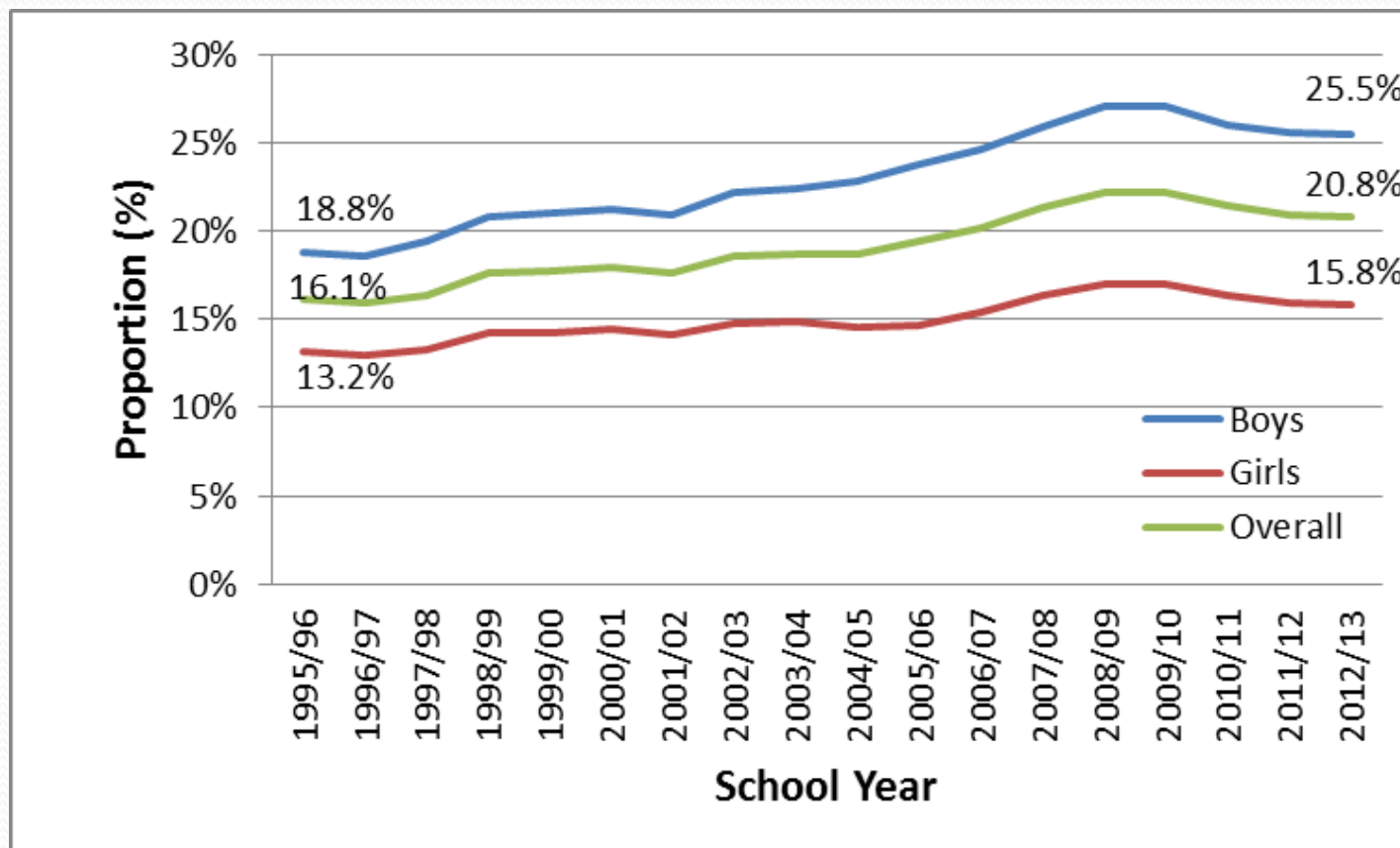
NCDs

- Coronary heart diseases
- Stroke
- Cancers
- Diabetes
- Dental Caries



Overweight and Obesity

Primary school students



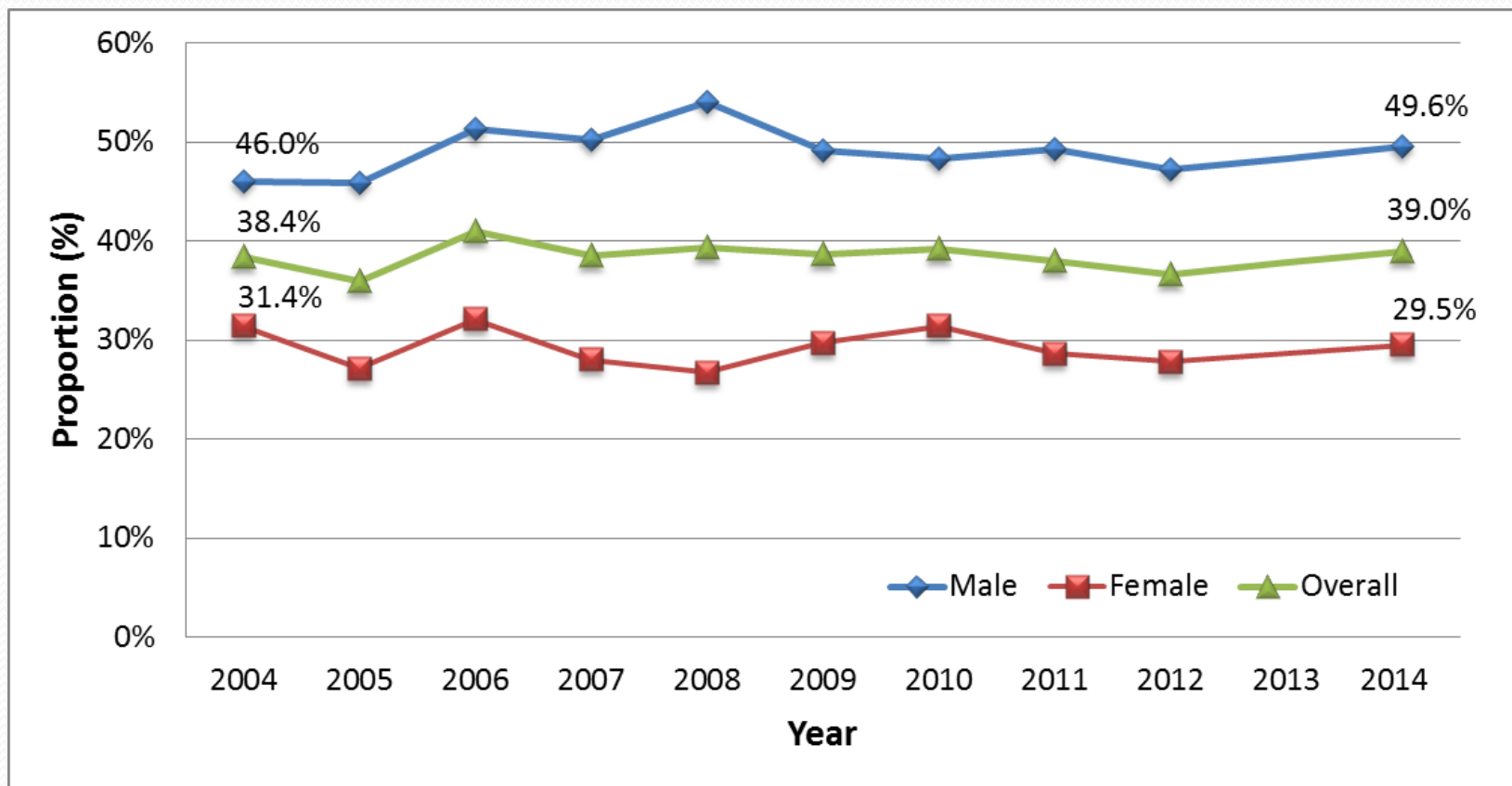
Note: Overweight and obesity is defined as weight exceeding 120% of the median weight for height or BMI ≥ 25 for boys with height $> 175\text{cm}$ and for girls with height $> 165\text{cm}$

Source: Student Health Service, Department of Health



Overweight and Obesity

Adults aged 18-64 (BMI ≥ 23)



Source: Behavioural Risk Factor Surveys, Department of Health



Overweight and Obesity

Comparing with other Asian populations


Prevalence of BMI \geq 25 (crude estimate) in selected countries

Countries	Year	Age (years)	Male	Female	Both sexes
Singapore ¹	2014	18+	39.2%	30.0%	34.6%
Japan ²	2014	18+	30.4%	22.8%	26.5%
Hong Kong ³	2014	18-64	28.4%	14.7%	21.2%

Sources: (1) and (2) WHO Global Health Observatory Data Repository;
(3) Behavioural Risk Factor Survey 2014



How much exercise we need to burn the calories intake from unhealthy (energy dense) food



Unhealthy (energy dense) food	Calories intake (Kcal)	Exercise that needed to burn
3 pieces of marshmallow	69	Strolling for 21 mins
1 small pack of chips	135	Swimming for 23 mins
1 can of soft drinks	135	Cycling for 27 mins
4 pieces of cream sandwich biscuits	234	Stair climbing for 23 mins

Source: (1) Centre of Food Safety

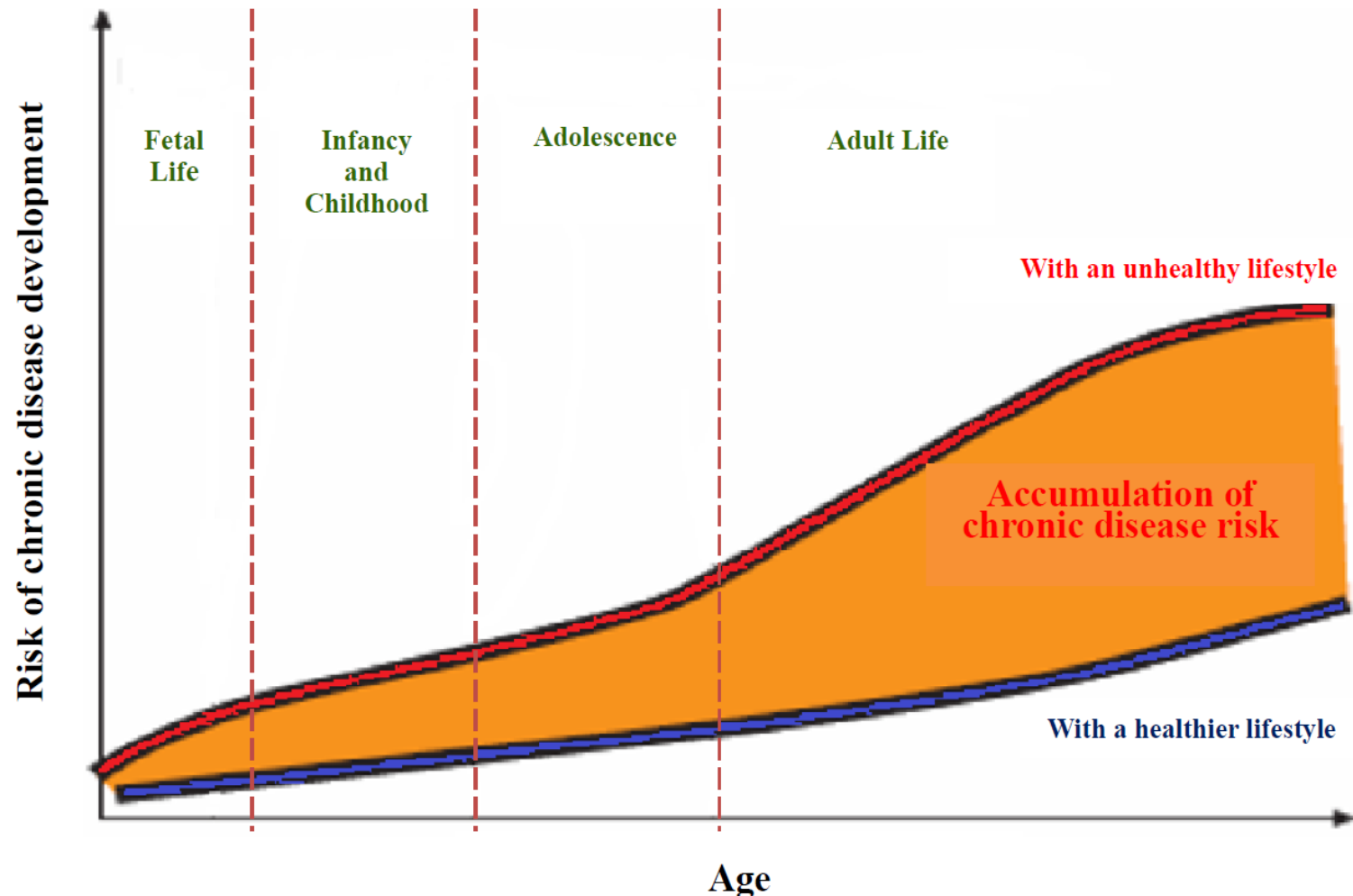
(2) USDA food database

(3) Know Your Physical Activity Level Booklet, Leisure & Cultural Service Department



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Chronic Disease Risk Accumulation



Source: World Health Organization, 2002.





Our food choices – how are we treating our children, ourselves and our future?

Food Issues @ different age groups



Breastfeeding vs Infant Formula

80% took formula milk only among the 0-6 month group



Nearly 50% of the 18-24 months drank **too much milk, mainly formula**



Sources:

A Survey of Infant and Young Child Feeding in Hong Kong: Diet and Nutrient Intake, 2012. Department of Health. 衛生署

A Survey of Infant and Young Child Feeding in Hong Kong: Milk Consumption, 2012. Department of Health. Department of Health

Some pre-primary institutions...



Used monosodium glutamate (MSG), chicken powder, salty seasonings or other ready-made sauces



Used processed or canned meat

Beverage Provision for Students



Used **full-cream or sweetened**
dairy products



Provided **instant drinks**
(other than milk powder)

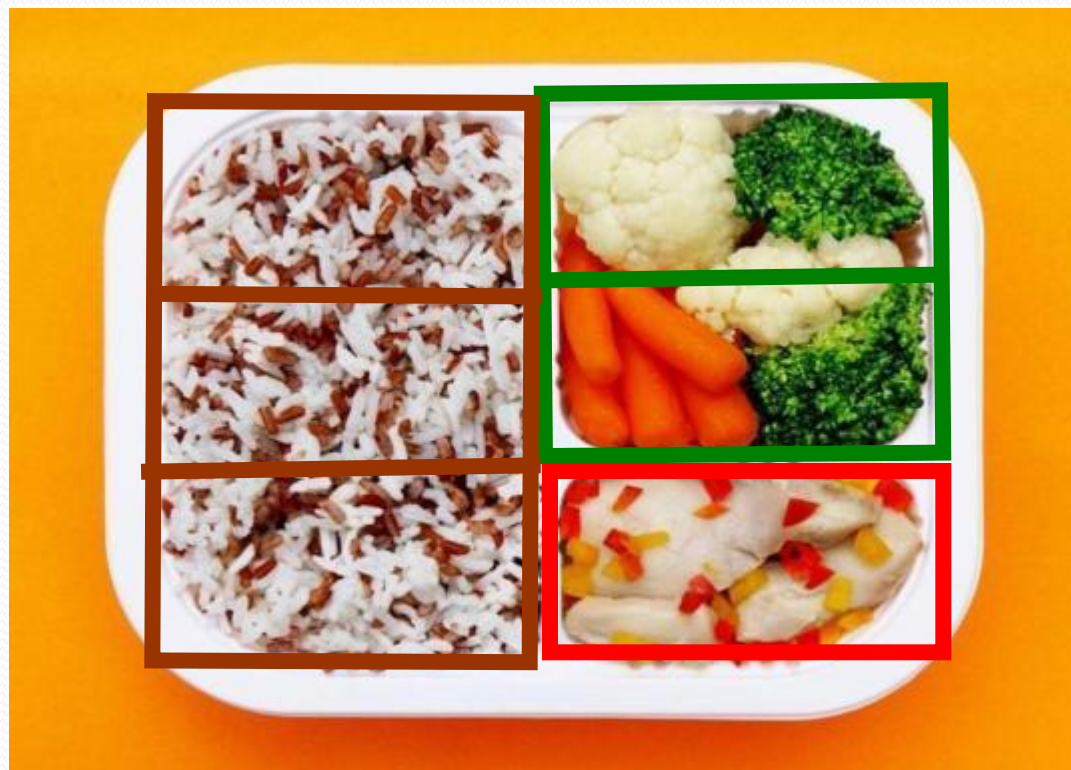
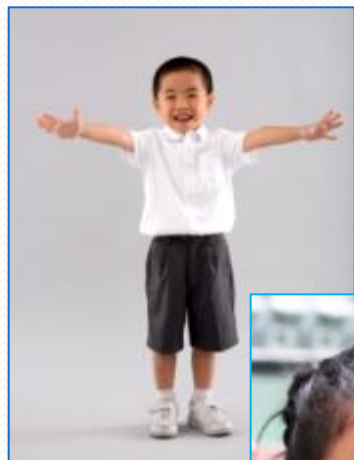
Source: Arrangement of Dietary Practice and Physical Activity in Pre- Primary Institutions, 2013. Department of Health.



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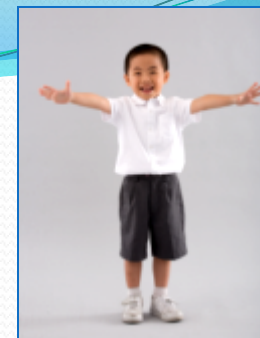
Primary School – Ideal Lunch



Grains:Vegs:Meat = 3:2:1



76% lunch did not meet 3:2:1



Fries
Small amount veggies

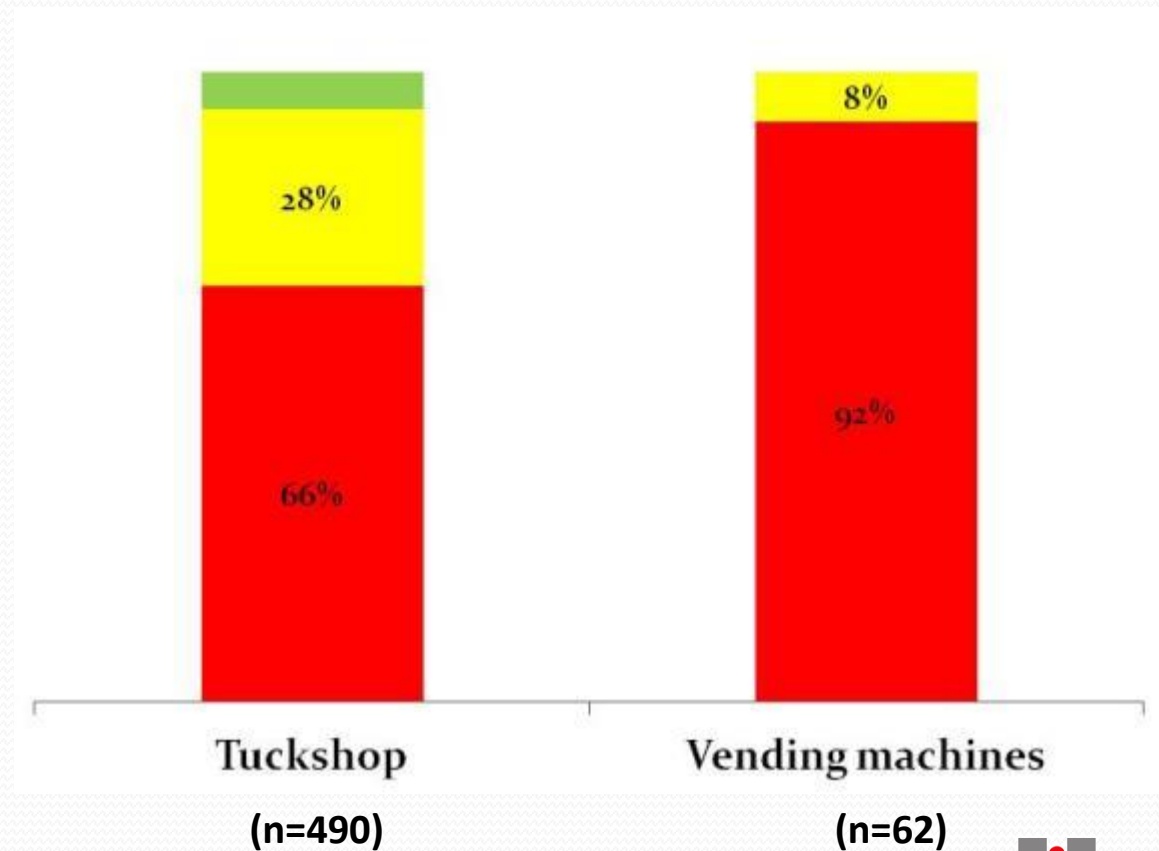
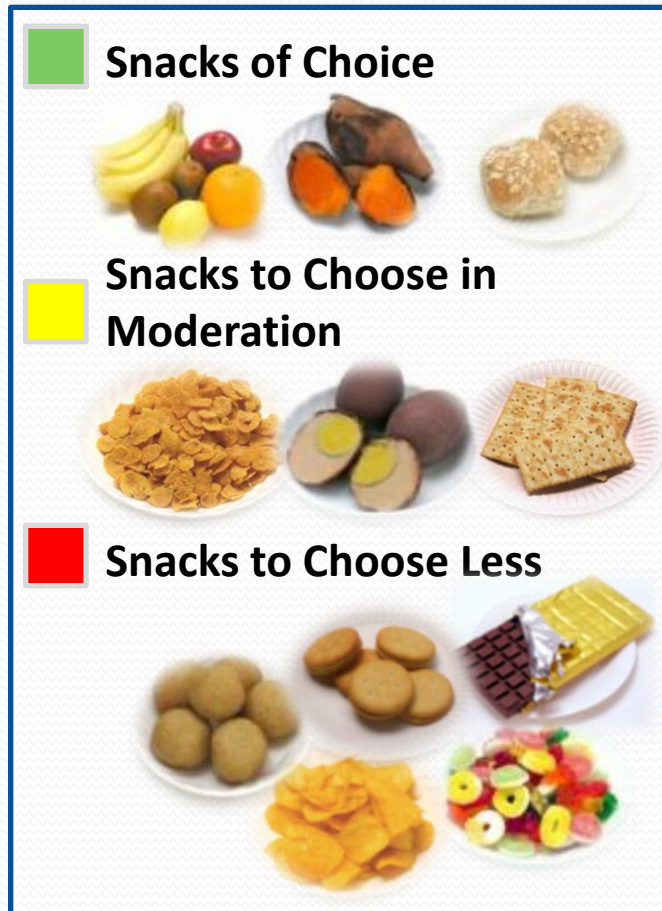


Salty fried rice
Fried nuggets
No veggies

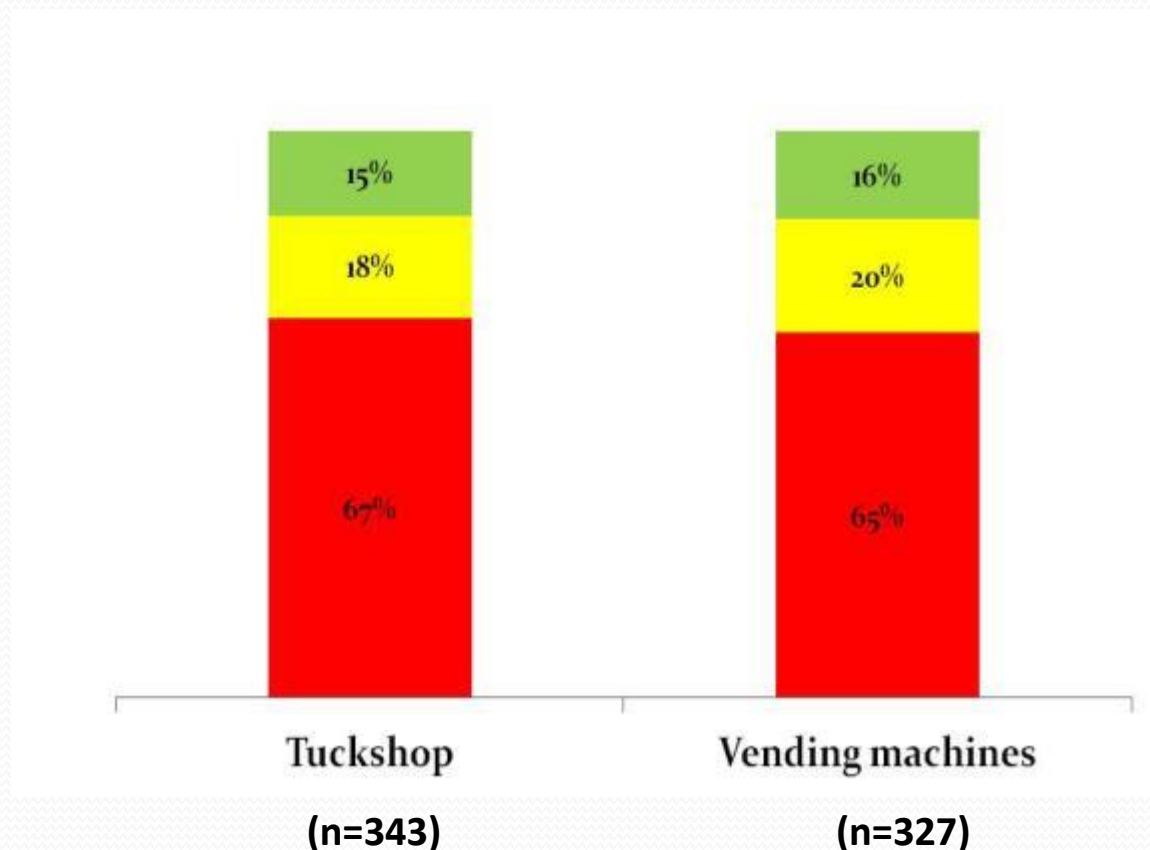


Processed meat
Cake (high in sugar)
Small amount veggies

Food items provided in tuckshops and vending machines at primary schools



Beverages provided in tuckshops and vending machines at primary schools



Dietary Practices among Primary School Students

- 90% snack items taken by students are high fat, high salt or high sugar



Source: Baseline Assessment of Promoting Healthy Eating in Primary Schools: Supplementary Report on Snacks, 2006. Department of Health.



Common high-fat food items @ restaurants



1200kcal, 68g fat, 2500mg Na⁺



1300kcal, 50g fat,
2300mg Na⁺

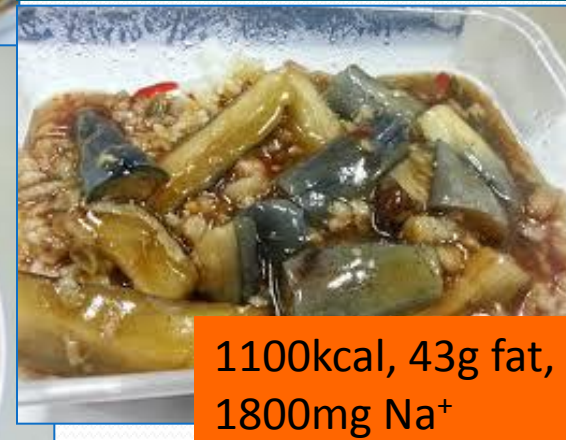
Recommended Daily
Intake for adults:
2000kcal,
60g fat,
2000mg Na⁺



1400kcal, 62g fat,
2000mg Na⁺



1300kcal, 72g fat, 2700mg Na⁺



1100kcal, 43g fat,
1800mg Na⁺

Source of photo: Internet
Nutritional Info.: CFS,
HKSAR Govt.

0-2 years

5-15 years

18-59 years

60+ years



Source : WHO

Our opportunities

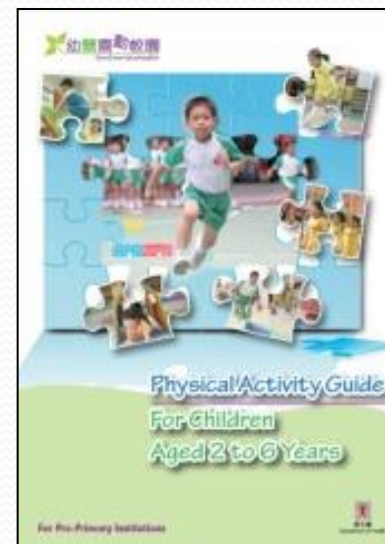
Life-course approach

Population-based strategies

StartSmart@school.hk



- Preprimary education almost universal and are ideal settings for intervention
- Work with teachers, food preparation staff and parents
- Create a supportive learning and living environment for developing good habits of healthy eating and physical activity
- Development of nutrition and physical activity guidelines



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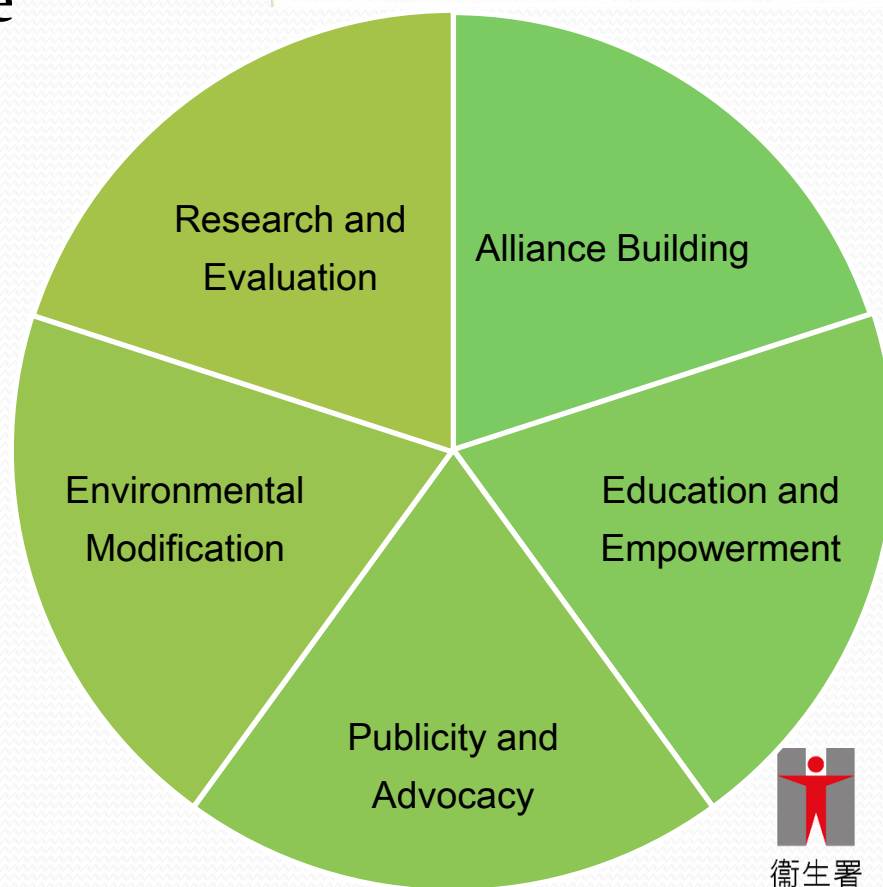
- Launched in January 2012
- Jointly with the Education Bureau, the Leisure and Cultural Services Department & others
- Empower teachers & carers
 - Practical resource kits
 - Training sessions
 - Online resources
- Mass media campaign
- > 55% schools have participated





EatSmart@school.hk

- Rising childhood obesity rate
- A new initiative in 2005-06 Policy Address
 - Promote healthy eating habit among school children to protect the public from life-style diseases
- Launched in the school year 2006/07
- Target schools, parents and food suppliers



EatSmart@school.hk

- EatSmart School Accreditation Scheme (ESAS)
 - Joint venture of Education and Health Departments in 2009/10
 - Formulate school policy on healthy eating
 - Engage and build teachers' and parents' capacity
 - Eliminate “red” food items from schools
 - Stop food marketing in schools

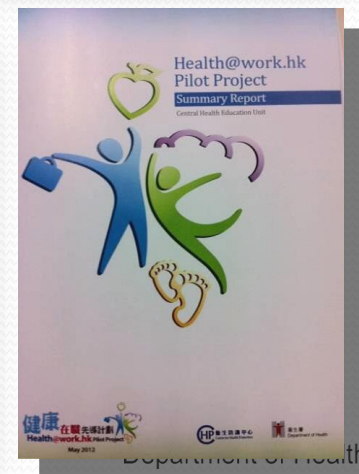
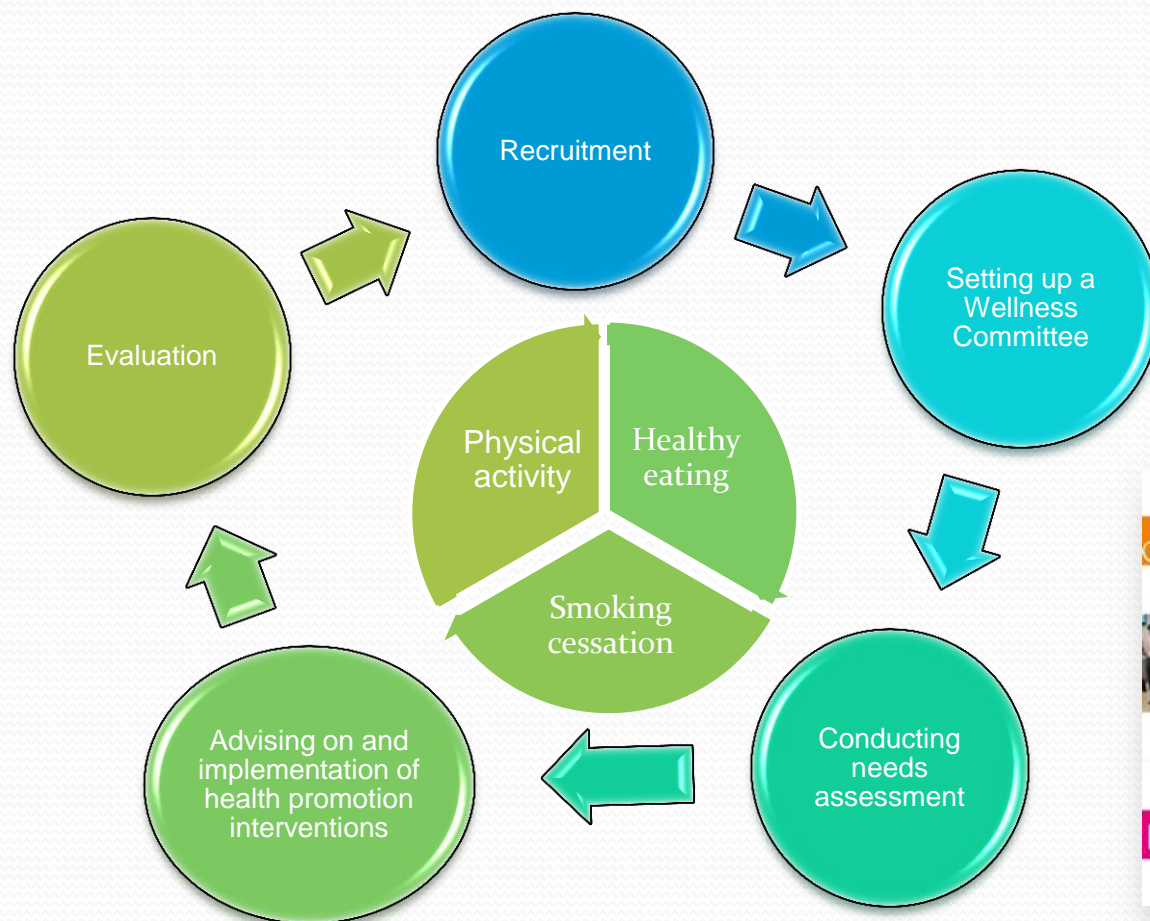
To Become an Ideal EatSmart School by Formulating and Implementing the Healthy Eating Policy



- WHO special award in Oct 2012
- By 31 Jan 2015
 - 231 schools enrolled
 - 104 obtained accreditation status



- Completed a 15-month pilot project between 2010 and 2011
- 19 organisations with positive outcome





Suitability

Applicability

Sustainability

Partnership

THE SECOND PHASE

Organisational
policy
interventions

Lifestyle and
personal
health skills

Supportive
environmental
measures

Main Focus



Healthy eating



Physical activity



Smoking cessation



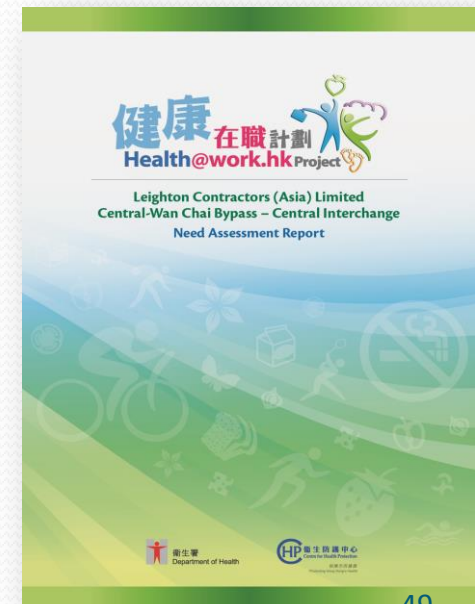
Alcohol use



Baby friendly workplace

Main areas

A 3-pronged approach



EatSmart@restaurant.hk



- Survey (2007)
 - ~30% and ~52% of local adults eat out for breakfast and lunch respectively ≥ 5 x/week
 - Most considered the food items unhealthy
- Launched in 2008
- Work with the catering business and dietetic profession
- ~650 EatSmart restaurants offer at least 5 “More Fruit and Vegetables” and/or “3 Less” Dishes on a regular basis per day



代表菜式以較少脂肪或油分、鹽分及糖分烹調或製作，符合「3少之選」的要求。
Means that the dish has less fat or oil, salt and sugar, meeting the “3 less” requirement.



代表菜式的材料全屬蔬果類或按體積計，蔬果類是肉類的2倍或以上。
Means that either fruit and vegetables are the sole ingredients of the dish, or they occupy at least twice as much the amount of meat present in the dish.



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EatSmart@restaurant.hk

- **BRANDING**

- Delicious
- Trendy
 - TV / Radio publicity
 - Thematic website
 - Offline publications
 - Printed advertorials
 - Cooking demonstrations



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- **BUILD DEMAND**

- Community programme
- Collaborating with Healthy cities and community NGOs

- **GENERATE SUPPLY**

- Free training
- Free resources
- Free publicity
- Promote image

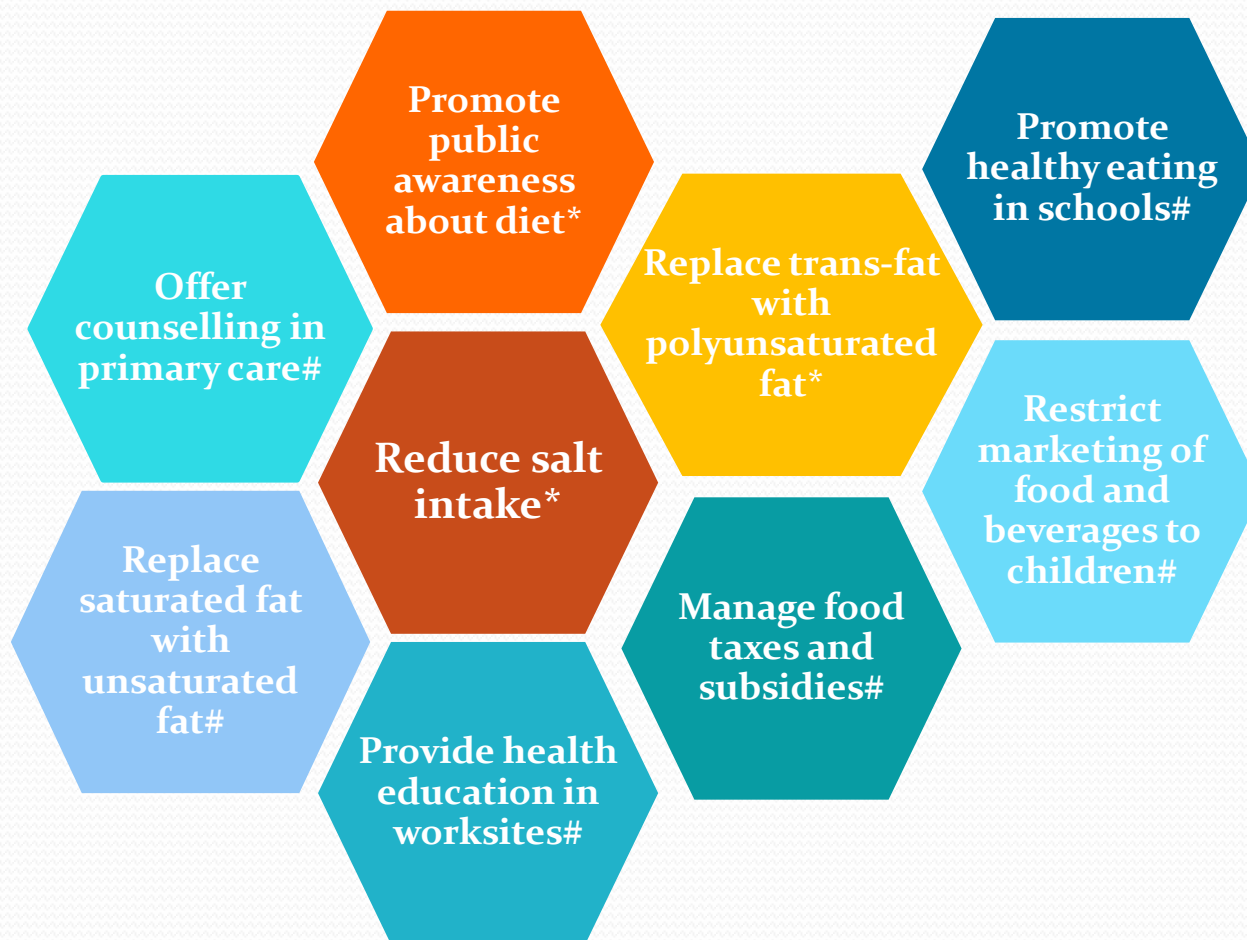


Our opportunities

Life-course approach

Population-based strategies

Population-wide Interventions to Tackle Unhealthy Diet



*Best buys #Good buys

Source: WHO Global status report on noncommunicable diseases 2010



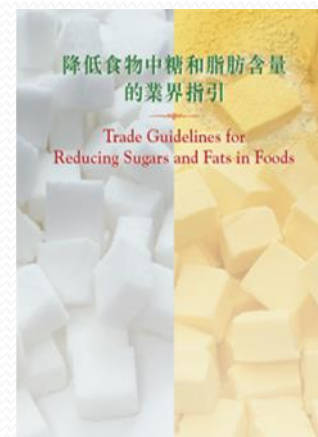
Regulation on Nutrition Labelling (NL)

- Nutrition Labelling Schemes
 - for **general prepackaged food** (enforced since 2010)
 - Mandatory labelling of “1+7” : Energy + 7 nutrients (Protein, CHO, Fat, Sat Fat, Trans fat, Sugars and Sodium)
 - Criteria for making nutrition claims
 - for **formula and foods for infants and young children** (to be enforced in Dec 2015 / June 2016)
 - Infant formula: mandatory labelling of “1+29” (and nutritional composition)
 - Follow-up formula: mandatory labelling of “1+25”
 - Infant and young children food: mandatory labelling of “1+4”
 - nutrition and health claim: under public consultation



Promotion of NL and Healthy Diet

- To consumer
 - Public
 - Schools
- To food trade



The End

Thank you