



不可忽略的一環---行為健康

Professor Phoenix Mo BSSc (HKU), MSc (University of Nottingham), Ph.D. (University of Nottingham), CPsychol, AFBPsS, CSci

Associate Professor
School of Public Health and Primary Care
The Chinese University of Hong Kong

香港中文大學醫學院

Faculty of Medicine

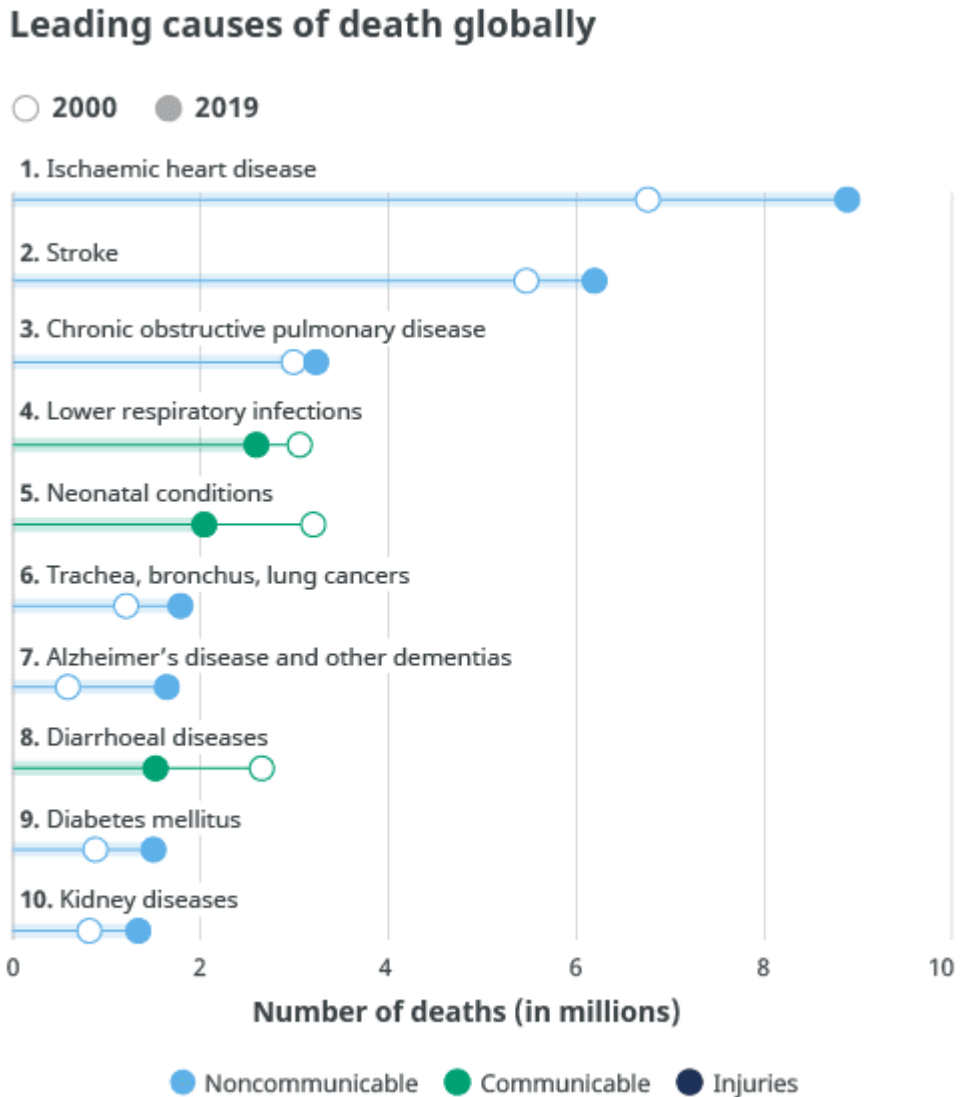
The Chinese University of Hong Kong



Outline

- Burden of noncommunicable diseases
- Importance of behavioral health
- Key behavioral issues
- Multilevel determinants of health behaviors
- Understanding health behaviors from different perspectives

Leading causes of death globally



Source: WHO Global Health Estimates.

- At a global level, 7 of the 10 leading causes of deaths in 2019 were noncommunicable diseases (NCDs).
- These seven causes accounted for 44% of all deaths or 80% of the top 10.
- All noncommunicable diseases together accounted for 74% of deaths globally in 2019.

NCDs – highly preventable by behaviors



- “...an illness that is caused by **something other than a pathogen**. It might result from hereditary factors, improper diet, smoking, or other factors. Those resulting from **lifestyle factors** are sometimes called **diseases of affluence**.”
- **Characteristics of NCDs**
 - Rarely cured completely
 - May have fluctuations in disease course
 - May need add-on therapy with time
 - Lifestyle factors usually play a major role
- **Main NCDs**
 - Cardiovascular diseases, cancer, diabetes, chronic lung diseases



Source: <http://www.scribd.com/doc/46165607/Non-Communicable-Disease>

Burden of diseases preventable by behaviors



Table 2. Actual Causes of Death in the United States in 1990 and 2000

Actual Cause	No. (%) in 1990*	No. (%) in 2000
Tobacco	400 000 (19)	435 000 (18.1)
Poor diet and physical inactivity	300 000 (14)	400 000 (16.6)
Alcohol consumption	100 000 (5)	85 000 (3.5)
Microbial agents	90 000 (4)	75 000 (3.1)
Toxic agents	60 000 (3)	55 000 (2.3)
Motor vehicle	25 000 (1)	43 000 (1.8)
Firearms	35 000 (2)	29 000 (1.2)
Sexual behavior	30 000 (1)	20 000 (0.8)
Illicit drug use	20 000 (<1)	17 000 (0.7)
Total	1 060 000 (50)	1 159 000 (48.2)

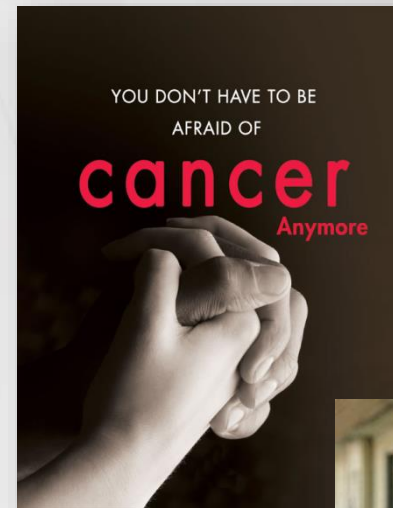
*Data are from McGinnis and Foege.¹ The percentages are for all deaths.

Source: Mokdad AH et al. (2004). Actual Causes of Death in the United States, 2000. JAMA, 291(10): 1238-1245.

Increasing burden of NCDs in Hong Kong

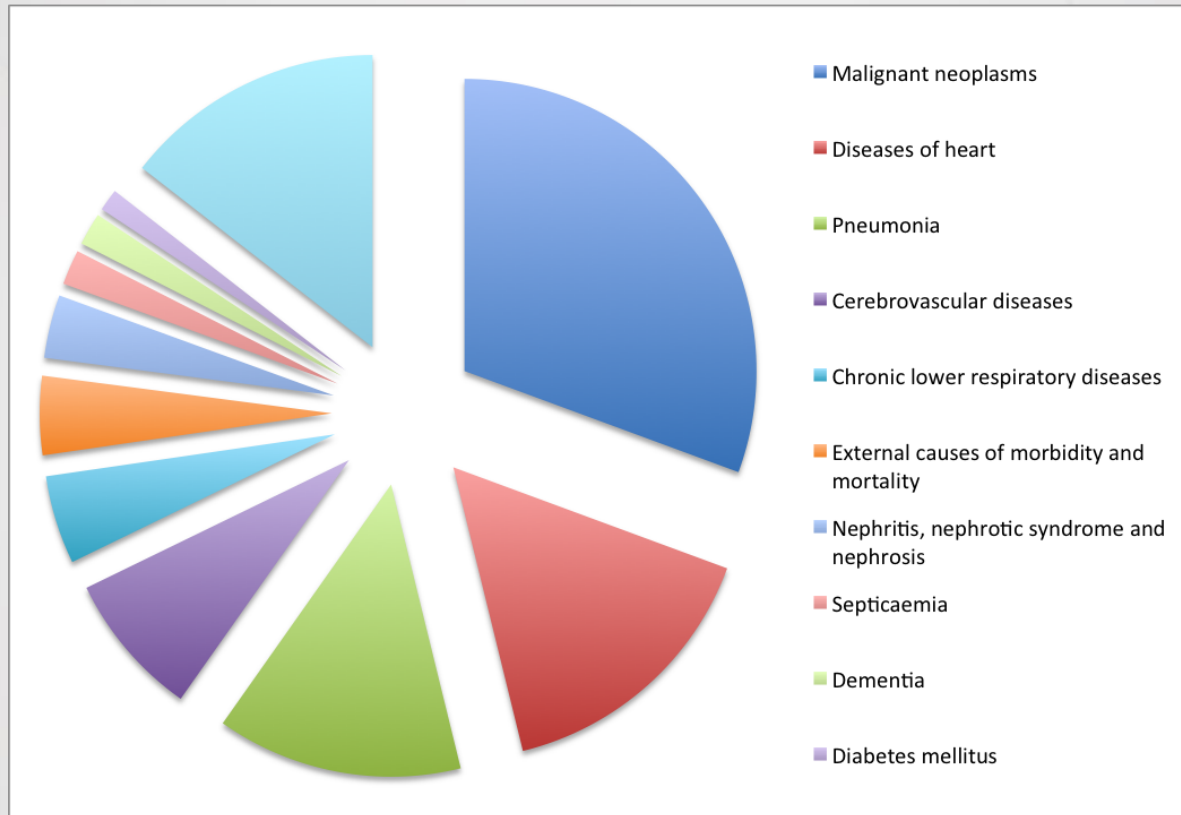


- ~61% of total registered deaths in Hong Kong were attributed to four major preventable NCD
 - cancer (32.3%)
 - heart diseases (15%)
 - stroke (8.8%)
 - chronic lower airway diseases (5.1%)
- NCD are result of our lifestyles such as unhealthy eating, lack of exercises, smoking and alcohol misuse



Source: Promoting Health in Hong Kong: A strategic Framework for Prevention and Control of Non-communicable Diseases, Department of Health, Hong Kong SAR

Number of Deaths by Leading Causes of Death in 2010



Malignant neoplasms (cancers), heart diseases, and pneumonia are the top three causes of death in Hong Kong last year and take up **56%** of the total death rate.

Source: Department of Health

Importance of social and behavioral sciences



One of the five ASPH key competencies required for public health training:

1. Epidemiology
2. Biostatistics
3. ***Social and Behavioral Sciences***
4. Environmental Health
5. Health policy and management

Source: Associations of Schools of Public Health: <http://www.asph.org/document.cfm?page=851>

Health Behavior: Definition

- **Health behavior** is defined as **the activity undertaken by people** for the purpose of **maintaining or enhancing** their health, **preventing** health problems, or **achieving** a positive body image ([Cockerham 2000](#): 159)

Relationship between common risk factors and major NCD



Disease/ condition	Risk Factors						
	Behavioural				Biomedical		
	Smoking	Physical inactivity	Unhealthy diet	Alcohol misuse	Excess weight	Hyper-tension	Adverse lipid profile
Diseases of the circulatory system	+	+	+	+	+	+	+
Cancer	+	+	+	+	+		
Chronic respiratory diseases	+		?				
Diabetes mellitus	+	+	+		+	#	#
Injuries and Poisoning		+		+	?		
Excess weight	+	+					
High blood pressure	+	+	+	+			
Adverse lipid profile	+	+			+		

Keys: + Established risk factor ? Possible risk factor # Association/Co-morbidity

(Adapted from Brownson et al. Chronic Diseases Epidemiology and Control, 1998; National Public Health Partnership. Preventing Chronic Disease: A Strategic Framework (Background Paper), 2001; WHO. Global Strategy for the Prevention and Control of Non-communicable Diseases, 2000)

Key behavioral issues

- Diet
- Physical activity
- Tobacco
- Alcohol
- Substance abuse
- Injuries
- Sex
- Vaccination
- Face mask
- Hand washing?



Behavioral risk factors in Hong Kong



Level of physical activity by WHO recommendations

Period: April 2016

Questions: During the past 7 days, on how many days did you:

i) do vigorous physical activities for at least 10 minutes at a time? On those days that you have performed vigorous physical activities for at least 10 minutes, how much time on average per day did you usually spend on doing vigorous physical activities?

ii) do moderate physical activities for at least 10 minutes at a time? On those days that you have performed moderate physical activities for at least 10 minutes, how much time on average per day did you usually spend on doing moderate physical activities?

WHO Recommendations: Adults aged 18-64 should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week, or at least 75 minutes of vigorous-intensity physical activity throughout the week, or a combination of moderate- and vigorous-intensity physical activity.

(Source: Global Recommendations on Physical Activity for Health; 2010. Available at <http://www.who.int/en/>)

Meeting WHO's recommendations	Male Number (%)	Female Number (%)	Overall Number (%)
Yes	964 (50.7%)	811 (37.4%)	1 775 (43.6%)
No	927 (48.8%)	1 350 (62.2%)	2 277 (55.9%)
Unknown/Missing/Outliers	9 (0.5%)	10 (0.5%)	19 (0.5%)
Total	1 900 (100.0%)	2 171 (100.0%)	4 071 (100.0%)

Behavioral risk factors in Hong Kong



Body Mass Index (BMI) Distribution



Period: April 2016

Question: What is your height and weight?

BMI Calculation: $\text{Weight (kg)} / [\text{Height (m)}]^2$

Classification of weight status for Chinese adults in Hong Kong

Classification (BMI)	Male Number (%)	Female Number (%)	Overall Number (%)
Underweight (BMI <18.5)	99 (5.2%)	251 (11.6%)	350 (8.6%)
Normal (BMI 18.5-<23.0)	852 (44.9%)	1 200 (55.3%)	2 052 (50.4%)
Overweight (BMI 23.0-<25.0)	384 (20.2%)	354 (16.3%)	738 (18.1%)
Obese (BMI =or>25.0)	532 (28.0%)	309 (14.2%)	841 (20.7%)
Unknown/Missing/Outliers	33 (1.7%)	57 (2.6%)	90 (2.2%)
Total	1 900 (100.0%)	2 171 (100.0%)	4 071 (100.0%)

Behavioral risk factors in Hong Kong



Consumption of five servings of fruit and vegetables per day



Period: April 2016

Questions: On average, how many days do you eat fruit within a week? On the day(s) that you have eaten fruit, how many fruit do you eat? A fruit equals to a medium-sized apple or orange, a banana, two small fruit such as kiwi fruits or plums, or half bowl of small fruit like grapes or strawberries.

On average, how many days do you eat vegetables within a week? On the day(s) that you have eaten vegetables, how many bowls of vegetables do you eat? One bowl refers to the size of a rice bowl.

Servings of fruit and vegetables per day*	Male Number (%)	Female Number (%)	Overall Number (%)
Less than 5	1 599 (84.2%)	1 624 (74.8%)	3 223 (79.2%)
5 or more	290 (15.3%)	542 (25.0%)	833 (20.5%)
Unknown/Missing/Outliers	11 (0.6%)	5 (0.2%)	15 (0.4%)
Total	1 900 (100.0%)	2 171 (100.0%)	4 071 (100.0%)

Target to control NCD in HK by 2025



Target 1

A 25% relative reduction in risk of premature mortality from cardiovascular diseases, cancers, diabetes, or chronic respiratory diseases



Target 2

At least 10% relative reduction in the prevalence of binge drinking and harmful use of alcohol (harmful drinking/ alcohol dependence) among adults and in the prevalence of drinking among youth



Target 3

A 10% relative reduction in the prevalence of insufficient physical activity among adolescents and adults



Target 4

A 30% relative reduction in mean population daily intake of salt/sodium



Target 5

A 30% relative reduction in the prevalence of current tobacco use in persons aged 15+ years



Target 6

Contain the prevalence of raised blood pressure



Target 7

Halt the rise in diabetes and obesity



Target 8

Prevent heart attacks and strokes through drug therapy and counselling



Target 9

Improve availability of affordable basic technologies and essential medicines to treat major NCD

Do People Choose Their Own Health?



Determinants

- **Causes of and risk factors** for health events
- Wide range including physiological, psychosocial, behavioral and risk conditions
- Factors that raise or lower the level of health in a population or individual
- Help explain and predict trends in health and explain why some groups have better or worse health than others
- Key to preventing diseases, illness and injury

Determinants: Examples



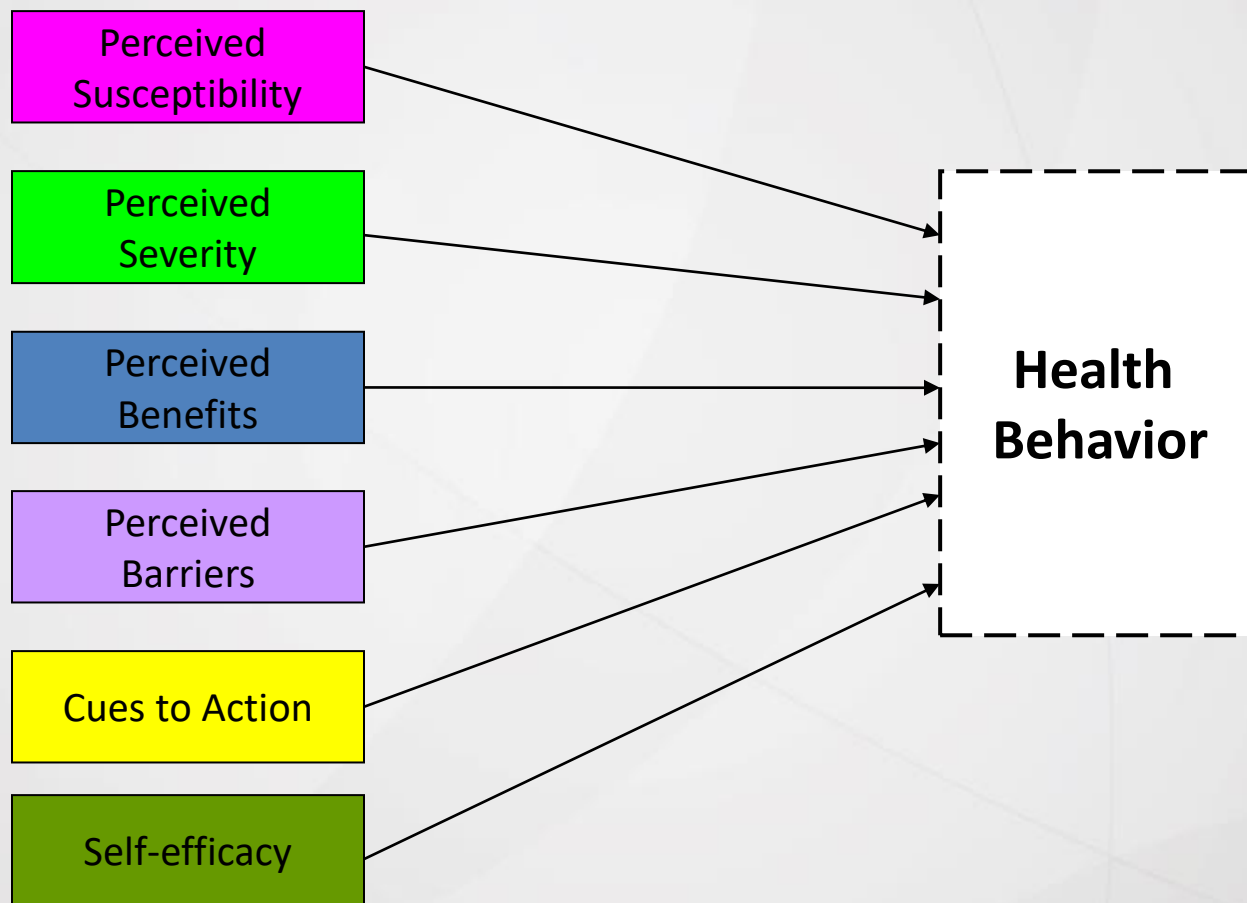
- Living organisms (viruses and bacteria)
- Physical entities (radiation, pollution and dangerous machinery)
- Related to lifestyle (stress and diet)
- Social factors (poverty)
- Genetic factors (specific variants in genes that are inherited at birth or changes occur through one's life)

Health Behavior: Individual Choice?



- “The standard approach to the study of health behavior in public health views such behavior as largely a matter of individual choice and targets the individual to change his or her harmful health practices largely through education (Gochman 1997)”

The Health Belief Model



(Janz and Becker, 1984)

Application to health behaviors



Acceptance of the COVID-19 vaccine based on the Health Belief Model: a population-based survey in Hong Kong

Martin CS Wong ^a, Eliza LY Wong ^a, Junjie Huang ^a, Annie WL Cheung ^a, Kevin Law ^a, Marc KC Chong ^a, Rita WY Ng ^b, Christopher KC Lai ^b, Siaw S Boon ^b, Joseph TF Lau ^a, Zigui Chen ^b, Paul KS Chan ^b ✉

Influenza vaccination uptake and associated factors among elderly population in Hong Kong: the application of the Health Belief Model ^{FREE}

P. K. H. Mo, J. T. F. Lau ✉

Health Education Research, Volume 30, Issue 5, October 2015, Pages 706–718,
<https://doi.org/10.1093/her/cyv038>

Can the Health Belief Model and moral responsibility explain influenza vaccination uptake among nurses?

Phoenix K. H. Mo¹ | Candice H. W. Wong¹

Physical Activity in People With Mental Illness in Hong Kong: Application of the Health Belief Model

Phoenix K. H. Mo,¹ Eddie S. K. Chong,² Winnie W. S. Mak,¹
Samuel Y. S. Wong,¹ and Joseph T. F. Lau¹

¹Chinese University of Hong Kong; ²University of Maryland

A scenario for you:



You've seen information on TV and in magazines about the importance of weight management and exercise, and their contribution to health and you decide to make some changes in your lifestyle. You join a fitness club and purchase some fresh fruits and vegetables. All is going well with your plan.

Weight loss?





Second day of change:

Everything is going well with your plan, except when you arrive at school/work, you find that the restaurant has no food that fits in with your diet plan. Chips, hot dogs and greasy food are on offer.

You are very hungry though you made good intentions to start the day well.

English

McLovin' it!

芝蛋脆雞飽 \$13
Chicken & Egg Burger

麥香豬 \$13
Pork Cutlet Burger

細汽水 \$6
Small Soft Drink

蘋果批 \$7
Apple Pie

魚柳飽 \$11
Filet-O-Fish

新地 \$8
Sundae

豬柳蛋漢堡 \$12
Sausage McMuffin with Egg

脆香雞翼 (2件) \$11
McWings (2 pcs)

細薯條 \$6.5
Small Fries

OREO®麥旋風 \$12
OREO® McFlurry

Value Picks

超值選

©2014 McDonald's. All rights reserved. McDonald's, the Golden Arches, and the Golden Arches logo are trademarks of McDonald's. "Coca-Cola" is a registered trademark of The Coca-Cola Company.



Copyright under international conventions and the reproduction, distribution, contents of this lesson are prohibited without the prior written consent of The Jockey Club The Chinese University of Hong Kong.



When you share with your friends your plans for lifestyle change, your friends have not been too supportive and they keep on saying that exercising is hard work and life without good food is “meaningless”

At the same time...you are reading the newspaper and seen an advertisement on surgery to help people reduce weight and you start thinking.....



newstar

LIPOSUCTION

複合式抽脂精雕技術

均勻抽脂 剷除多餘脂肪

皮膚緊實度高
 傷口隱痕
 舒適度高
 安全性高
 修復期短
 量身訂製



01 擺脫傳統限制

02 雙重美感

脂肪回填 存活率UP

二代威塑抽脂

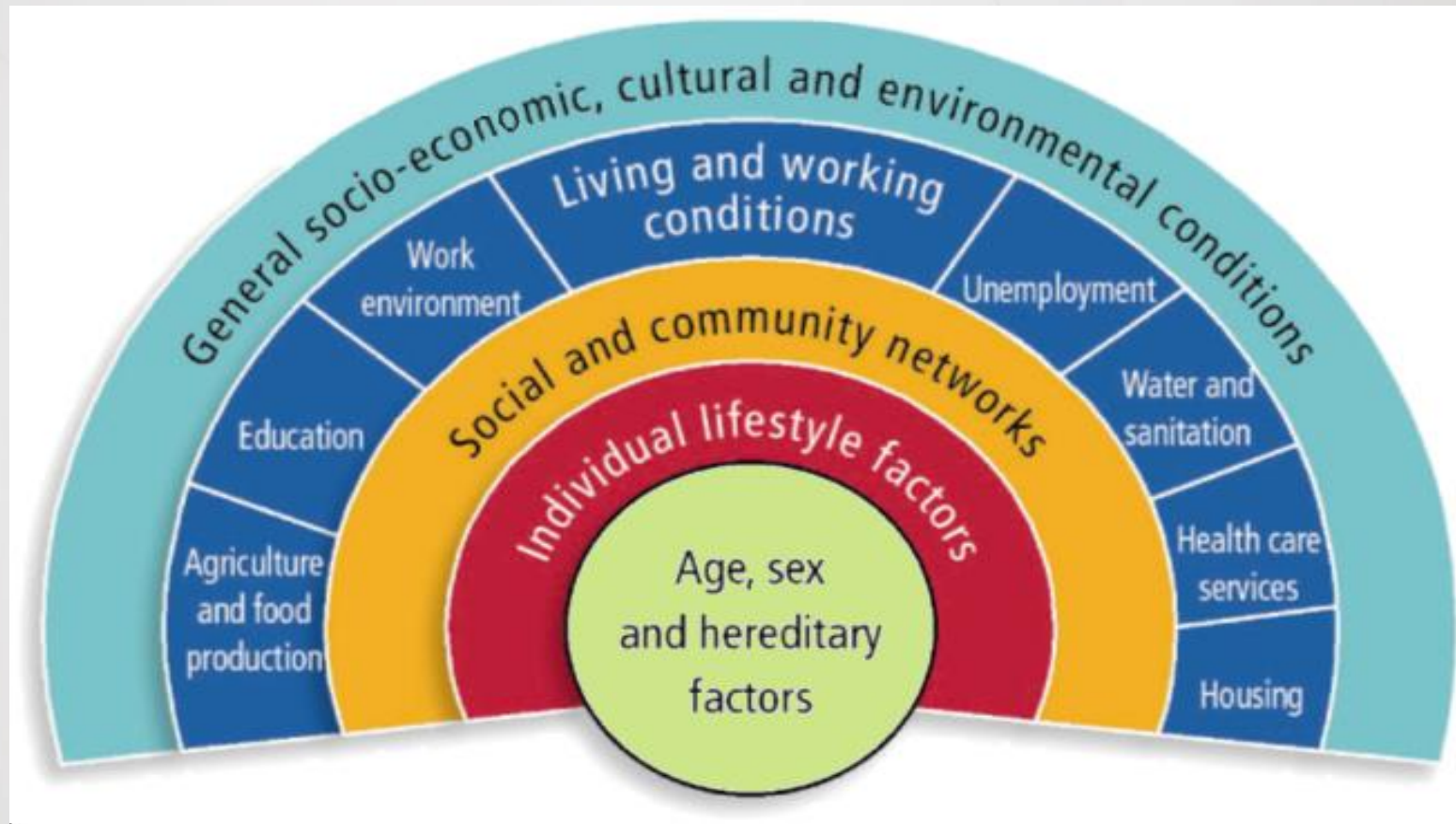
			
治療時間	麻醉方式	恢復時間	術後效果
2-3小時	全身麻醉	3-4日	雕塑身材曲線

What are the determinants of our health?



- *Free choices??*
- Do we have a lot of food choices **in our environment?**
- How do our **surrounding structures** help or discourage us from making good healthy decisions everyday?
- What else are important in **supporting** ourselves to make **healthier choices?**

Determinants of health



(Adapted from Dahlgren and Whitehead 1991)

The contents of this seminar are protected by copyright under international conventions and the reproduction, distribution, republication, and/or re-transmission of the contents of this lesson are prohibited without the prior written consent of The Jockey Club School of Public Health and Primary Care of The Chinese University of Hong Kong.

Fundamental Social Causes



- Societal conditions and institutions shape access to resources that in turn help individuals avoid diseases and negative consequences

Personal choices made in a social context



- Physical activity and fitness
- Diet and nutrition
- Tobacco
- Alcohol
- Illicit drug use
- Seat belt use

All to a certain extent individual decisions-but set within societal conditions

Sociological perspective on health behavior



- analyze health behavior as a **social phenomenon** that goes **beyond the psychology of the individual**
- the **norms, practices, and values of groups, social classes, and society** at large that influence the individual
- address **macro-level conditions** like poverty, the stress of economic recessions, and environmental pollution, over which **the individual has little or no control** but **must cope** with because of his or her **social circumstances**
- These conditions not only cause **unhealthy living situations**, but also **promote unhealthy behavior** when heavy alcohol use, smoking, inattention to diet, and the like are the response.

WHO determinants of health

1. Social gradient
2. Stress
3. Early life
4. Social exclusion
5. Work
6. Unemployment
7. Social Support
8. Addiction
9. Food
10. Transport

Source: WHO (2003) Social determinants of health – the Solid Facts

Ecological Model of Health

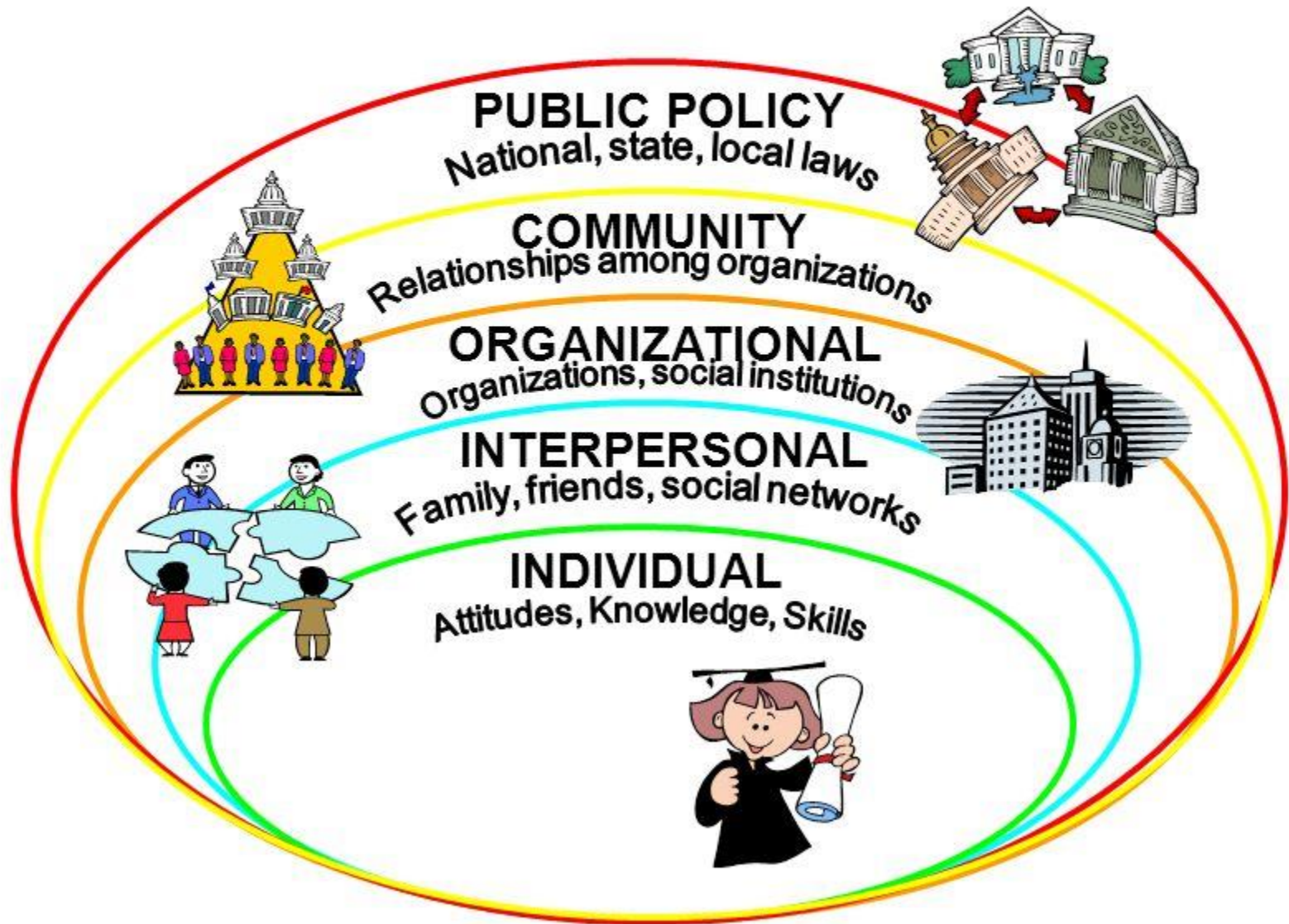
- **Behavior has multiple levels of influences**, often including intrapersonal (biological, psychological), interpersonal (social, cultural), organizational, community, physical environmental, and policy.
- **Emphasize the environmental and policy contexts of behavior, while incorporating social and psychological influences**



Example

- The “Chinese style of road crossing”
 - Who is to blame?

Social-Ecological Model



Different levels of intervention



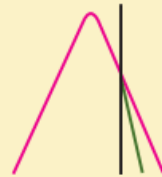
Level	Target of change	Intervention focus
Individual level	Individual person	Characteristics of the individual E.g. knowledge, attitudes, skills, beliefs
Interpersonal level	Social influences E.g., family, work group, friendship network	Nature of social relationships E.g., social norms, access to diverse & supportive networks/influences
Organizational level	Organization/Institution E.g., worksites, schools, agencies, churches...	Organizational culture E.g., norms, rules & regulations, incentives & benefits, structures
Community level	Social environment	Community norms, values, attitudes, & power structures
Population level	Local, state, & national laws & policies	Government regulations & other regulatory processes, procedures, or laws to protect health

Individual-based and population-wide approach to health



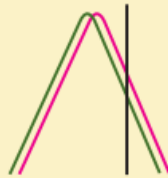
Original distribution

The level of risk factors is normally distributed within the population as illustrated by the red curve — It means that majority of people have risk factor level below the threshold, while minority are above the threshold.



Individual-based approach

This approach concentrates its efforts on the high-risk individuals with risk factor level above a certain threshold. When preventive measures are targeted at these identified people at high-risk, the distribution of risk factor level can only shift a little to the low level direction as indicated by the green curve.



Population-wide approach

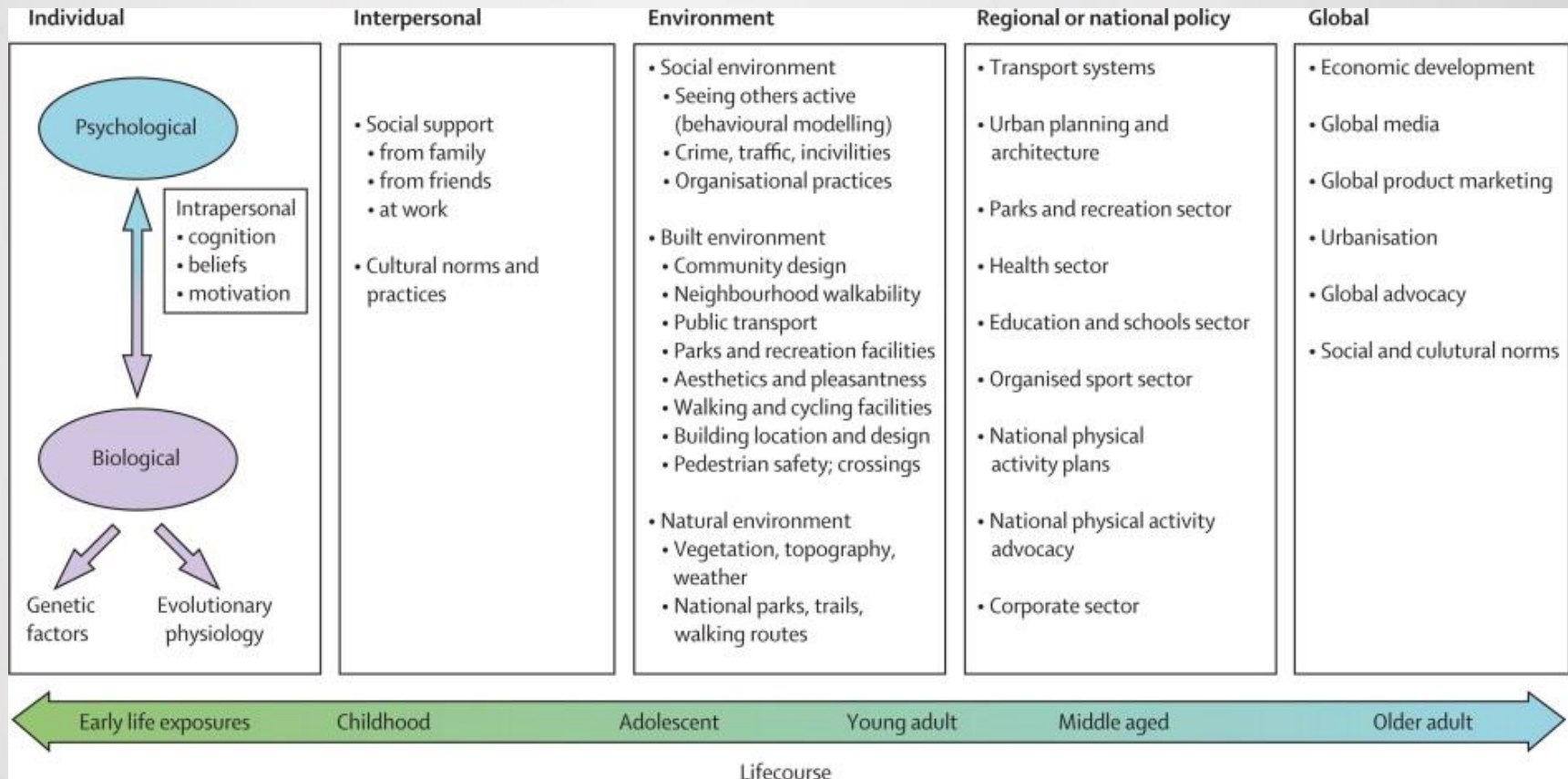
This strategy seeks to shift the whole distribution of risk factor level to the low level. The whole distribution of risk factor level, as indicated by the shifted green curve towards left to lower values.



Combined strategies

Therefore, combining individual-based and population-wide approach will shift the distribution of risk factor level to a lower range that yield better health outcome among the whole population.

Ecological model of the determinants of physical activity



(Bauman et al., 2012)

Ten Tips For Better Health – Liam Donaldson, 1999



1. Don't smoke. If you can, stop. If you can't, cut down.
2. Follow a balanced diet with plenty of fruit and vegetables.
3. Keep physically active.
4. Manage stress by, for example, talking things through and making time to relax.
5. If you drink alcohol, do so in moderation.
6. Cover up in the sun, and protect children from sunburn.
7. Practice safer sex.
8. Take up cancer screening opportunities.
9. Be safe on the roads: follow the Highway Code.
10. Learn the First Aid ABC : airways, breathing, circulation.

Alternative Ten Tips for Health



1. Don't be poor. If you can, stop. If you can't, try not to be poor for long.
2. Don't live in a deprived area, if you do, move.
3. Be able to afford to own a car
4. Don't work in a stressful, low paid manual job.
5. Don't live in damp, low quality housing or be homeless
6. Be able to afford to go on an annual holiday.
7. Don't be a lone parent.
8. Claim all benefits to which you are entitled
9. Don't live next to a busy major road or near a polluting factory.
10. Use education to improve your socio-economic position

Take home message

1. **Unhealthy health behavior** contributes significantly to the epidemic of **non-communicable disease** which is a big global public health problem
2. **Interventions on health behaviors** are needed and should take both **individual (e.g. psychological) and ecological approach** (social environment, policy etc.) since both are **determinants** of health behaviors

Thank you!

