



**School of Public Health
Department of Community Medicine
University of Hong Kong**

Smoking Costs Hong Kong Over \$5 Billion Every Year



*The first comprehensive
assessment of the costs of
tobacco in Asia*



A collaborative research project between University of Hong Kong and University of Queensland

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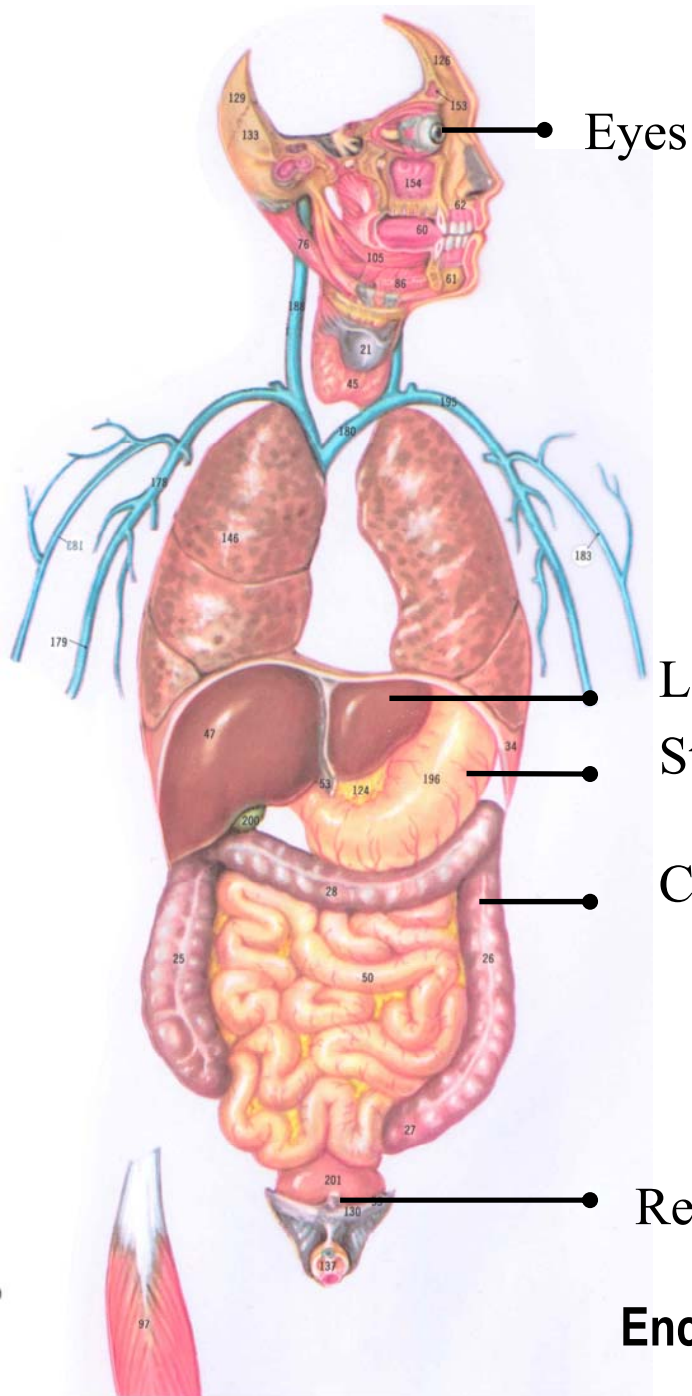
Professor Anthony Hedley

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Why is this topic important?

- Smoking tobacco affects the health of the smoker and those around the smoker
- This effect on health creates costs which are shared by several groups
- Knowing the extent of these costs and who pays for them is essential information for policy decision-making



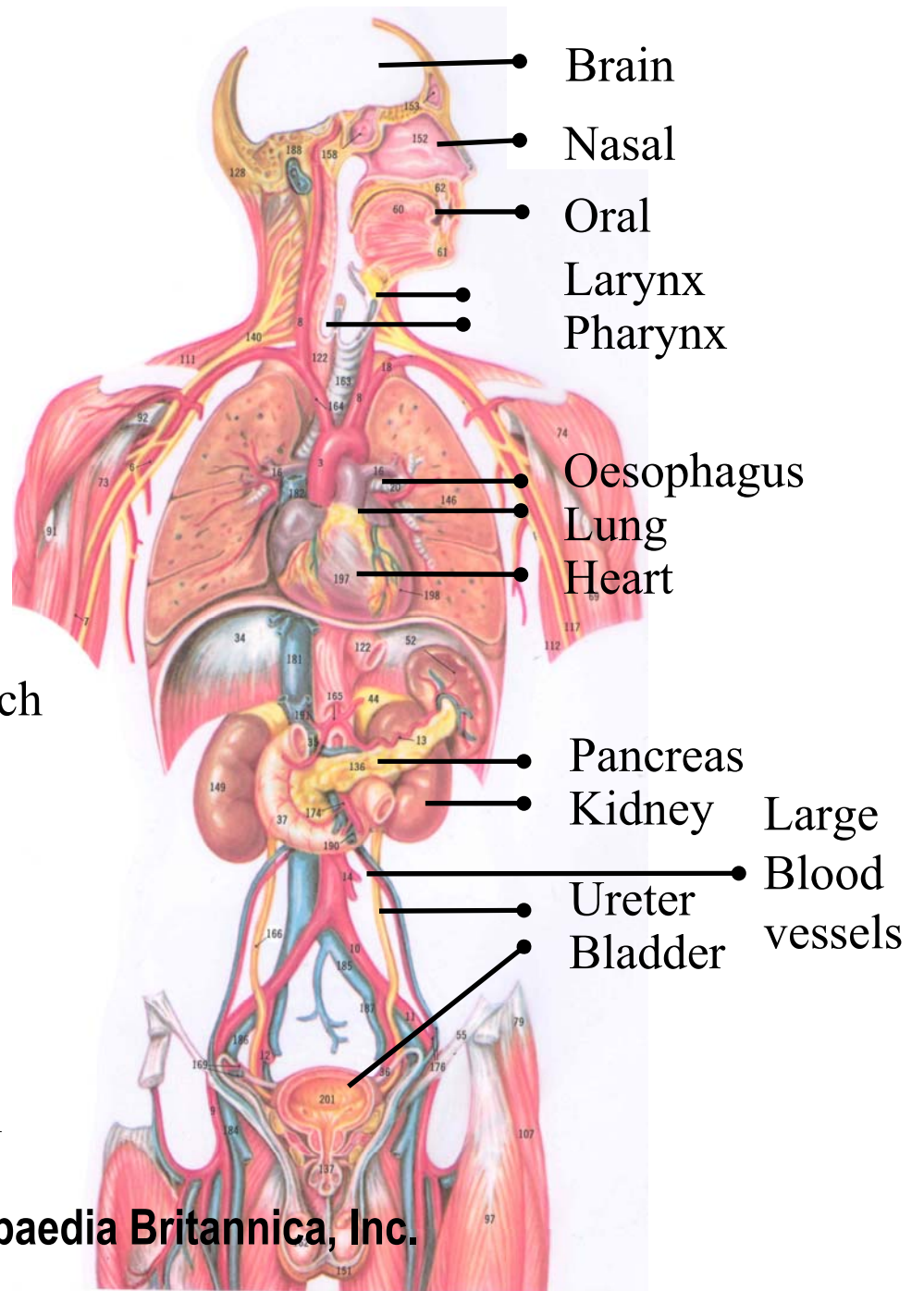
Eyes

Liver

Stomach

Colon

Rectum



Brain

Nasal

Oral

Larynx

Pharynx

Oesophagus

Lung

Heart

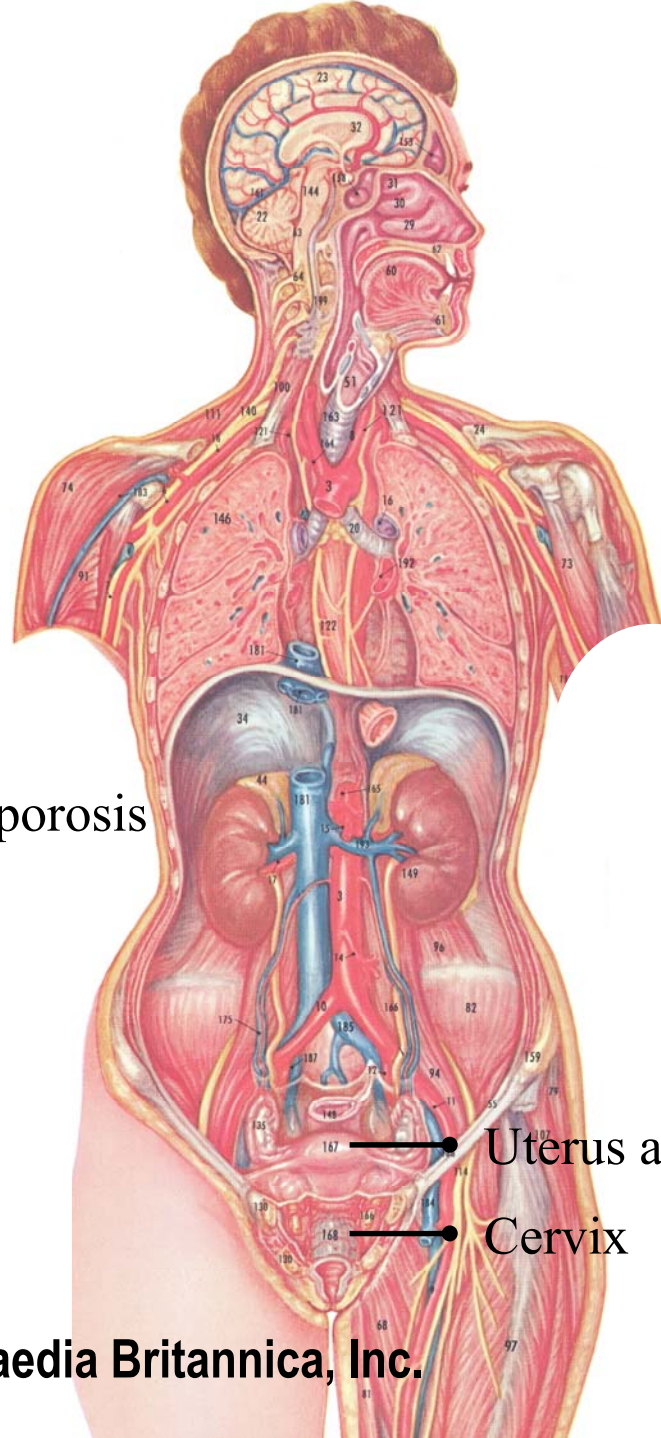
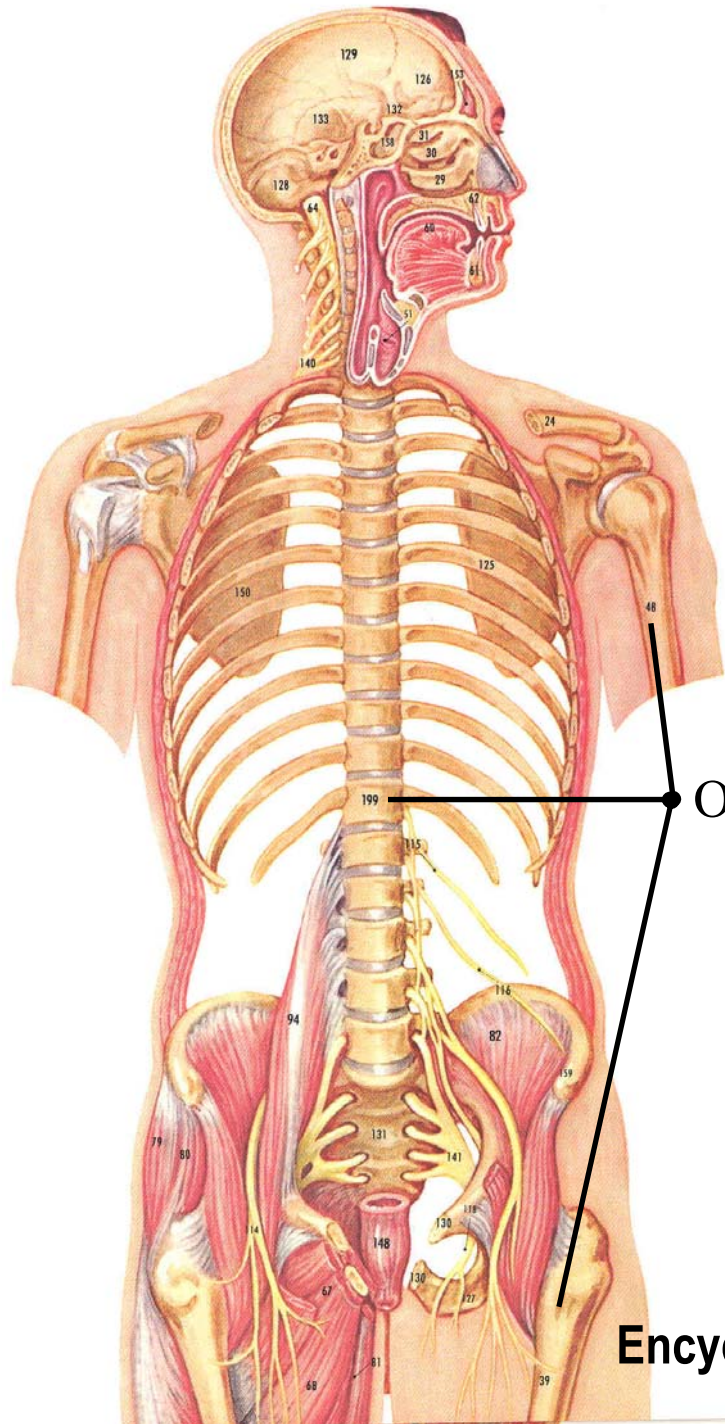
Pancreas

Kidney

Large Blood vessels

Ureter

Bladder



Osteoporosis

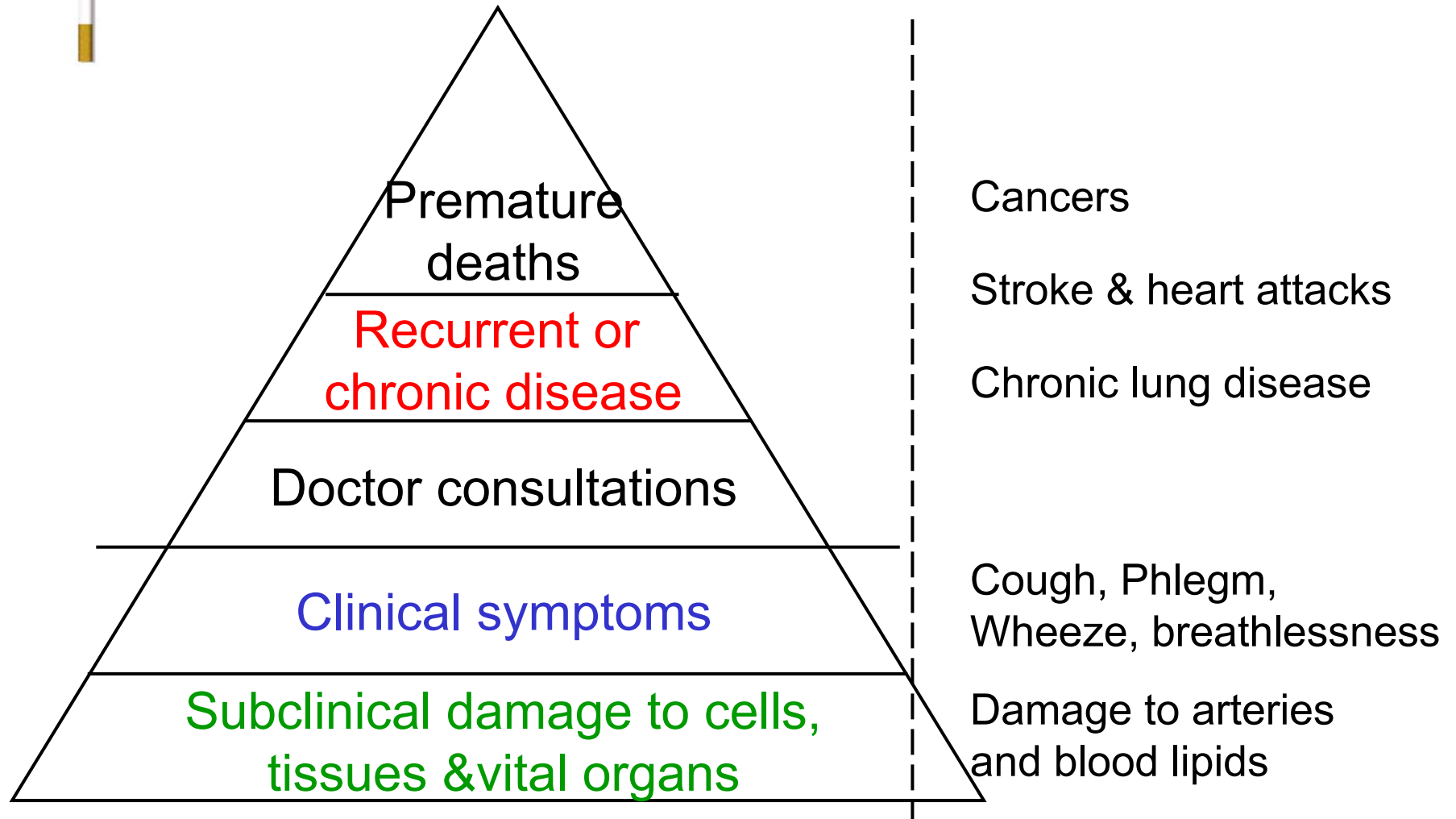
Uterus and pregnancy

Cervix

Encyclopaedia Britannica, Inc.



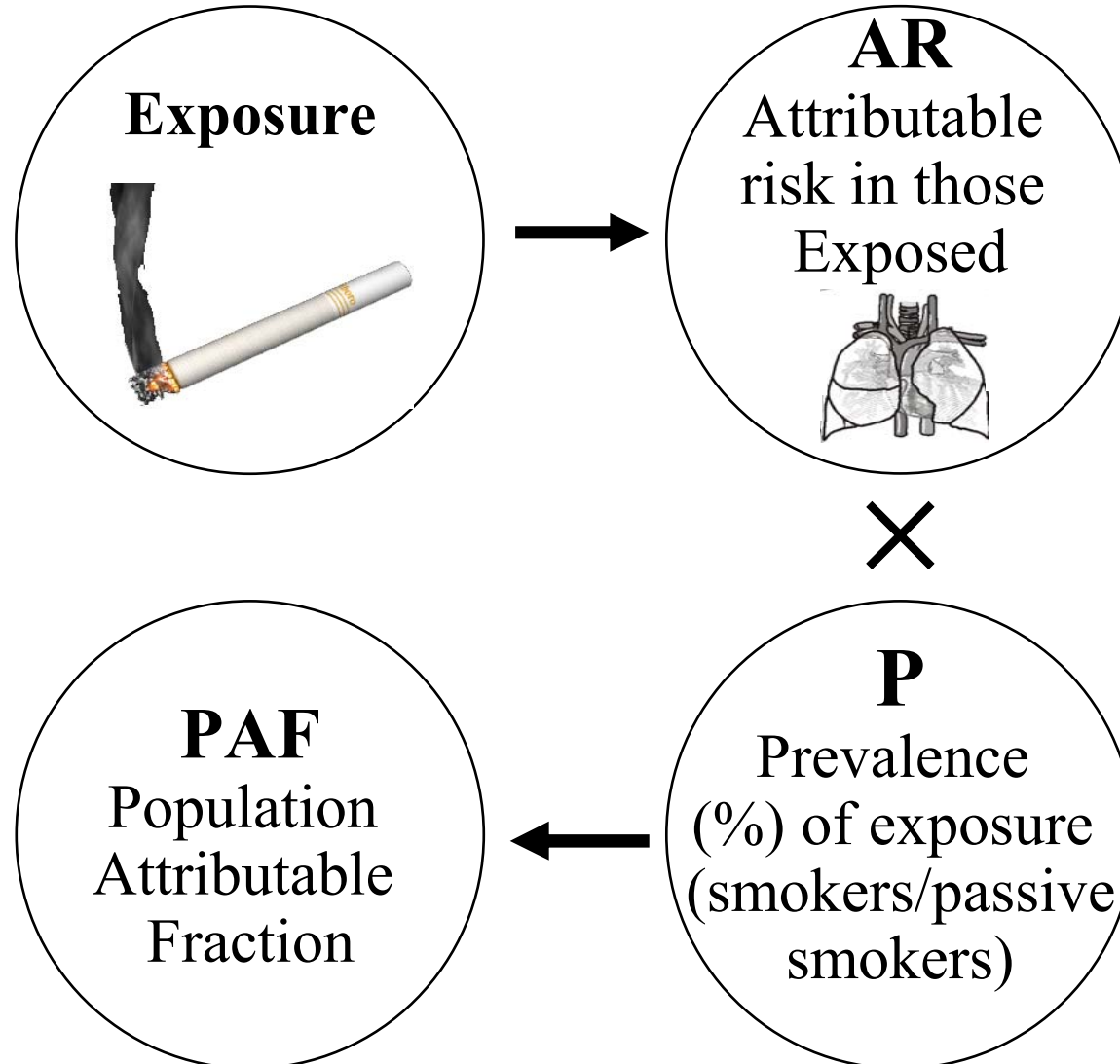
Pyramid of harm caused by *active* and *passive* smoking exposures





The Population Attributable Fraction

$$PAF = AR * P$$





The population attributable fraction

“Is the proportion of disease or deaths which would be avoided if we prevented smoking or passive smoking”

We can now estimate the costs of these avoidable health problems.



What are the health effects included in the costing? – 1

- The impact of *active* smoking on the *smoker*
- It leads to
 - **deaths**
 - **diseases requiring medical care**
 - **time lost from work**
 - **extra use of long term care due to disability**



What are the health effects included in the costing? – 2

- The impact of *passive* smoking on *non-smokers*
- Also leads to
 - **deaths**
 - **diseases requiring medical care**
 - **time lost from work**
 - **extra use of long term care due to disability**
 - *and illness in children*



Are any health effects not yet costed?

- Cost of hospital care for children and young adults 15-35 years
- The cost of family members caring for a sick smoker or sick passive smoker
- The impact of pain and suffering due to disease or death of a family member
- The value of a lost life over and above lost earnings



How is this study different from previous studies?

- This study uses local Hong Kong data on the health effects of tobacco and is more comprehensive than any previous studies
- *Previous estimates in Hong Kong have not included passive smoking*
- The new results cover costs to the health care services but *also* to employers and individuals



What information did we use?

HKU **L**ifestyle and **MOR**tality (**LIMOR**) database provided risks of *active* and *passive* smoking

HKU **H**arvard **H**ousehold **S**urvey (**HHS**) provided information on health care use from *exposure* to active and passive smoking

HKU **P**olice **H**ealth **S**urvey (**PHS**) provided information on health care use and time off work due to passive smoking

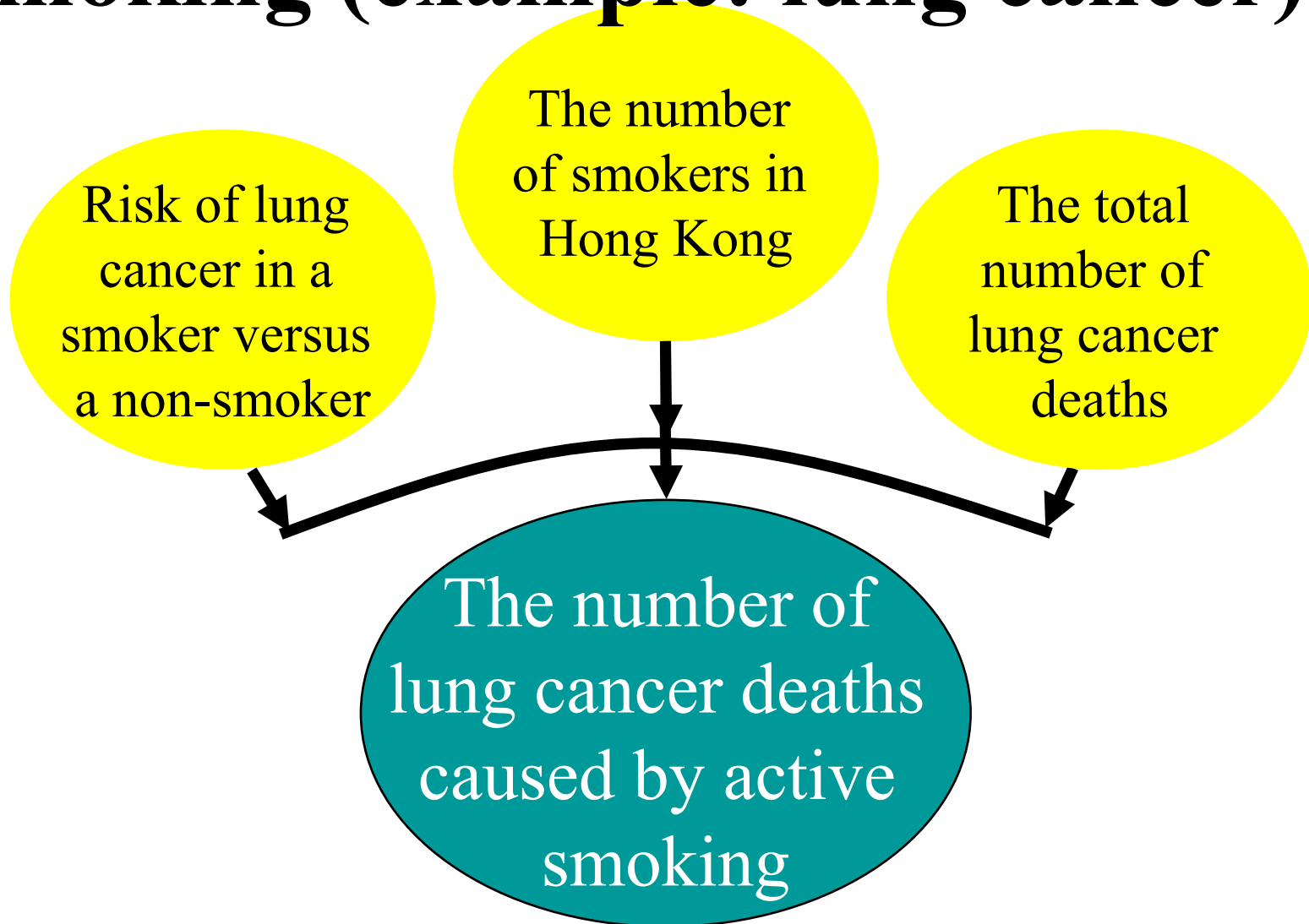
Hospital Authority clinical database provided information on hospital episodes due to specific causes



Examples of important causes of death and conditions needing health care included in the costing

Cancers		Respiratory	Cardiovascular	Other medical
Lung	Pharynx	Upper respiratory complaints	Coronary heart disease	Peptic ulcer
Oesophagus	Larynx	Acute bronchitis	Stroke	
Stomach	Pancreas	Pneumonia	Other vascular disease	
Liver	Rectum	COPD		
Mouth	Bladder	Pulmonary heart disease		
Other malignancies		Tuberculosis		

Estimation of deaths from active smoking (example: lung cancer)



Estimation of deaths from passive smoking (example: lung cancer)

Risk of lung cancer in a passive smoker versus a non passive smoker

The number of passive smokers in Hong Kong

The total number of lung cancer deaths in non-smokers

The number of lung cancer deaths caused by passive smoking



Some attributable fractions for tobacco induced diseases for men

For active smoking:

Lung cancer **70%**

Heart disease **10%**

Stroke **11%**

**Chronic lung
disease** **63%**

For passive smoking:

Lung cancer **18%**

Heart disease **17%**

Stroke **22%**

**Chronic lung
disease** **36%**

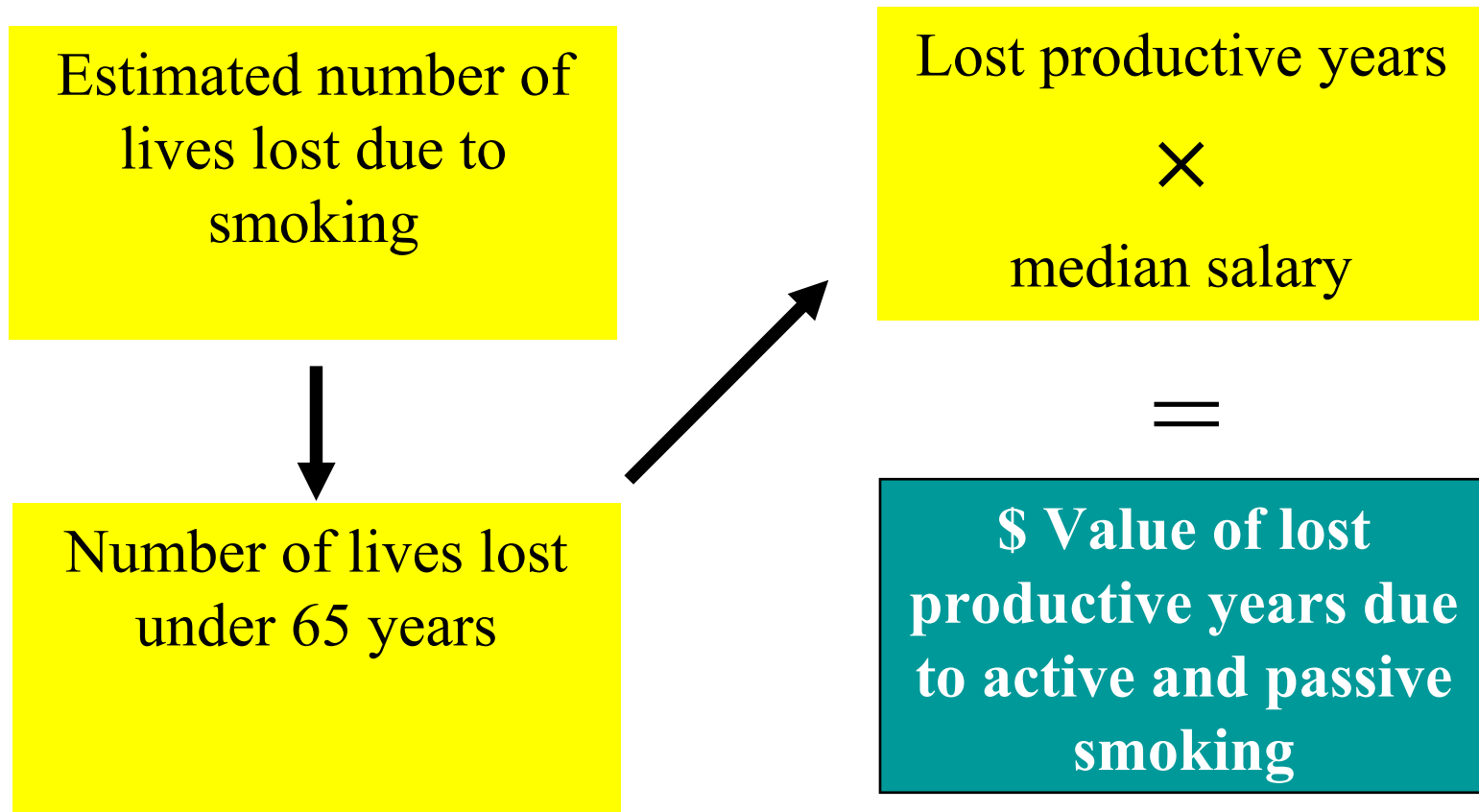


How did we do the costing?



How did we do the costing? – 1

Value of lives lost <65 years

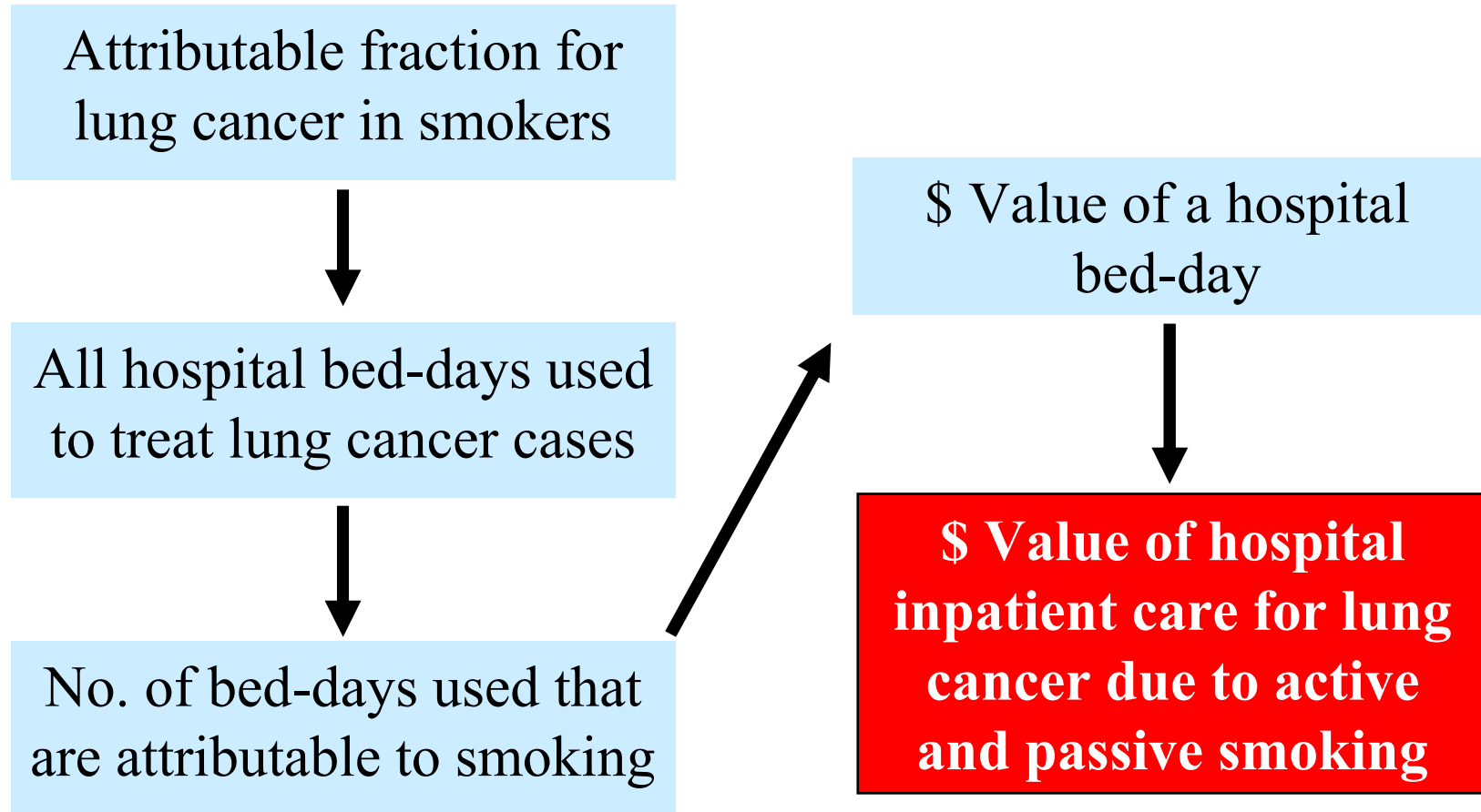


Note: All cost data was based on 1998 values



How did we do the costing? – 2

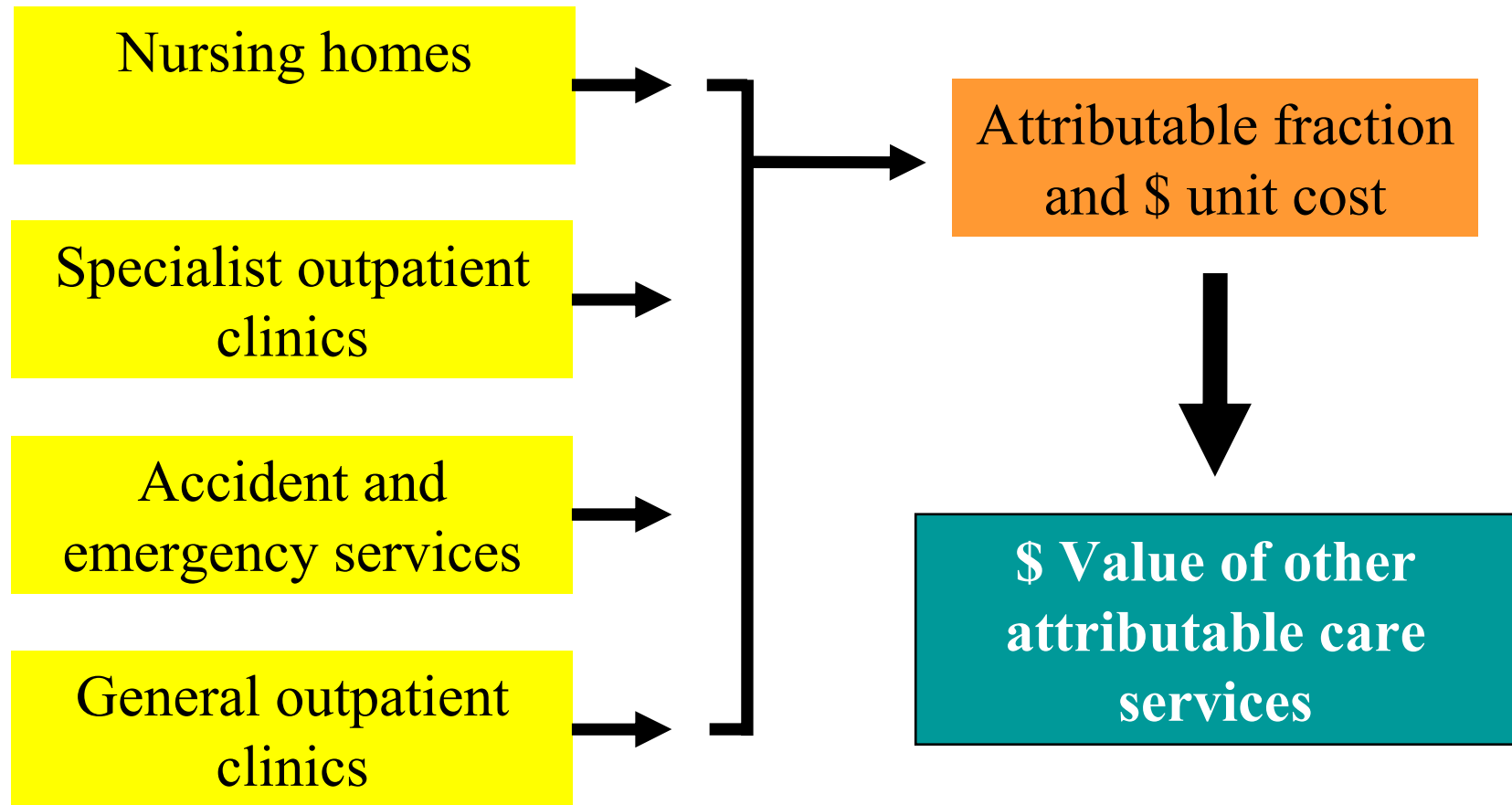
Value of smoking-related hospital admissions (example: lung cancer)





How did we do the costing? – 3

Value of other smoking-related public health care use





How did we do the costing? – 4

Value of smoking-related private care and time off work

Extra GP visits made by a smoker - from a CUHK and HKU study; unit cost from the HKU HHS study

Estimated costs of private hospital care – from BUPA(Asia) Ltd data

Domestic help at home for older people – from LIMOR and census data

Time off work due to illness - from PHS and census data; costed at median salary

Other health-related costs for active smoking



How did we do the costing? – 5

Value of smoking-related care for children and adult workers

Cost of extra health care use by infant passive smokers under 1 year – from HKU birth cohort study

Costs of extra GP visits by child passive smokers aged 1 to 15, from HKU study on 8-12 year olds

Extra GP visits by passive smokers at work – from PHS study

Other health care costs of passive smoking



What are the findings on costs?



How many deaths every year are caused by active and passive smoking?

6,920 deaths in total

3,927 before age 75 years

1,707 under 65 years



What are the productivity losses due to active and passive smoking in Hong Kong?

Working time lost due to death before 65 years

\$1,353 million

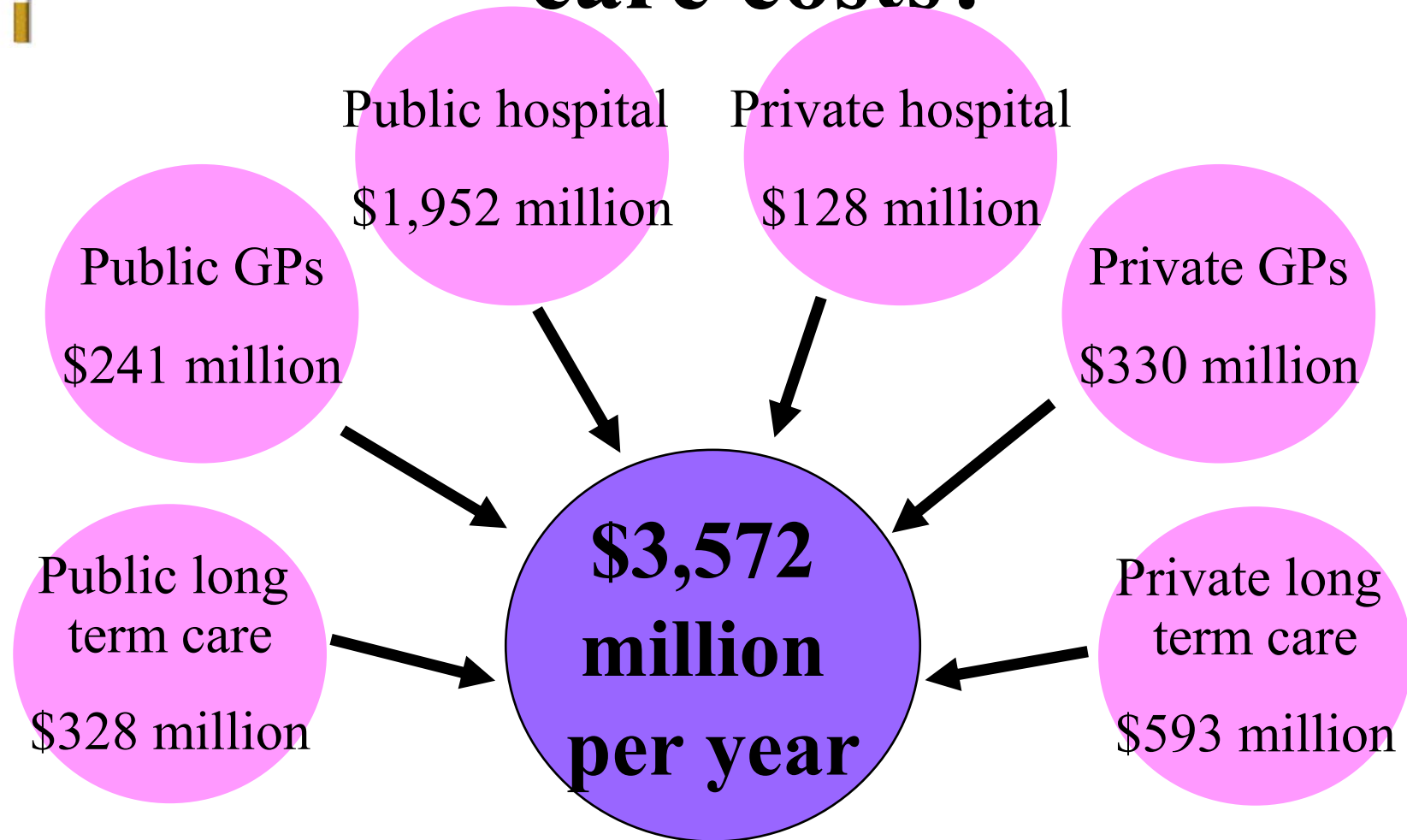
Time lost from work due to illness

\$420 million

\$1,773 million per year



What are the total direct health care and long term care costs?





What is the grand total of health related costs to the community?

**\$5.3 billion
per year**

about 28% health care cost due to passive smoking

about 82% of *health care* costs are in public sector

about 50% of all costs fall on public sector



How does the new estimate compare with previous analyses?

The previously quoted figures of HK\$700-
HK\$900 million are only based on Hospital
Authority bed-days for three diseases

- Lung Cancer
- Coronary Heart Disease
- Chronic Obstructive Lung Disease



What can we learn from other international studies?



Australian studies



- A comprehensive assessment of the social and health care costs of active and passive smoking has been carried out in Australia
- It included *tangible* and *intangible* costs



*Tangible and **intangible** costs*

- *Tangible costs*, when reduced, release resources for consumption or investment
- Valuation is relatively easy because markets exist for the resources released
- *Intangible costs* (for example pain and suffering) do not release resources and are difficult to value
- Nevertheless intangibles are important



Examples of tangible costs

1. Health care costs from

- Hospital services (e.g. inpatient, outpatient)
- Long term care (e.g. nursing homes)
- Medical services (e.g. primary care doctor visits)
- Prescription & non-prescription drugs
- Allied health services (e.g. physiotherapists)



Examples of tangible costs

2. Production losses resulting from

- Death
- Sickness
- Reduced productivity
 - eg time for smoking, reduced health status of smokers



Examples of tangible costs

3. Welfare provision
4. Fires
5. Pollution and Litter



Examples of *in*tangible costs

Loss of life by

- Smokers
- Passive smokers

Pain & suffering of

- Smokers
- Passive smokers
- Others



Tobacco attributable net *health care* costs, Australia, 1998/9

	Medical \$Am	Hospitals \$Am	Nursing homes \$Am	Pharma- ceuticals \$Am	Total \$Am
Tobacco	209	309	381	196	1,095

Tobacco costs are 4 to 18 times greater than alcohol and other drugs



Total social costs of tobacco, Australia, 1998/9

	<i>Tobacco \$Am</i>
<i>Tangible</i>	7,587
<i>Intangible</i>	13,476
<i>Total</i>	21,063



Benefit-cost ratios for public health programmes in Australia

- Coronary Heart Disease 11.5
- HIV/AIDS 5.2
- Road trauma 1.8
- Tobacco 49



Avoidable costs

Costs which are amenable to policy initiatives and behaviour changes

Unavoidable costs

Costs which are currently borne relating to past abuse

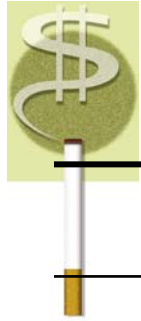
and

Costs incurred by the proportion of the population who will continue to smoke



How do the social costs of tobacco compare with government's revenue from tobacco duty?

- *Total cost of tobacco is \$5.3 billion per year*
- Total direct health care costs are 3.6 billion
- *Government revenue from tobacco duty is only \$2.5 billion per year*



How does the Hong Kong estimate of costs compare with Australia and United States?

	Adjusted for Hong Kong			
	Overall country cost HK\$	Population (for 6.8M)	Smoking (half)*	Comments
Hong Kong	5.3 Billion	5.3 Billion	5.3 Billion	<ul style="list-style-type: none">• No fire damage• Passive smoking
Australia ¹	46.6 Billion	15.5 Billion	7.7 Billion	<ul style="list-style-type: none">• Fire damage• Passive smoking
United States ²	570 Billion	13.2 Billion	6.6 Billion	<ul style="list-style-type: none">• No fire damage• No passive smoking

1 DJ Collins, HM Lapsley. The Cancer Council. Western Australia Monograph Series Number 4, July 2004.

2 LS Miller, X Zhang, DP Rice, W Max. Public Health Report 1998; 113:447-58.

* Adjusted by current smoking rates



THE CRASHING ANNUAL TOLL FROM TOBACCO

The death toll from active and passive smoking in Hong Kong is equivalent to 20 aeroplanes each with 350 people crashing each year



25 KING SIZE FILTER 25 FILTER KING SIZE

Health warning!!!

CIGARETTES SERIOUSLY DAMAGE THE BUDGET

Brand X

The grand total of ***\$5.3 billion/year*** does not include the value of the lives lost

So the price of this pack of cigarettes does not reflect the true cost of smoking in Hong Kong

DUTY
PAID
TAX
MARK



無價之苦

This costing is very conservative and it does not include the costs of :

- hospital care for children and adults 15-35 years*
- value of family care for a sick smoker or sick passive smoker*
- value of pain and suffering due to illness*
- full value of the lives lost.*



Acknowledgements

- Health Care and Promotion Fund (212919)
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