



Gen Re | LifeHealth®



A Berkshire Hathaway Company

Dread Disease Survey 2000-2004

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Singapore, 26 June 2008

The Singapore DD market by numbers...

- 125,000 new DD policies a year
- 1.65 million policies
- 92% with life cover
- S\$ 328 million DD claims paid (2000 - 2004)
- Up to 30 diseases covered
- Standardised illness definitions

Agenda

Session One

- Background
- Market Survey Results

Session Two

- Claims Analysis
- Graduated Incidence Rates and A/E Ratios

First product – a simple idea

- Company: Crusader Life
- Reinsurer: Gen Re
- Developer: Dr. Marius Barnard



First product – a simple idea

- First product covered 4 conditions
 - Heart attack
 - Stroke
 - Coronary artery disease requiring surgery
 - Cancer
- These conditions still cover about 90% of all claims
- First product: acceleration of underlying life cover
 - 50% for endowment
 - 25% for term

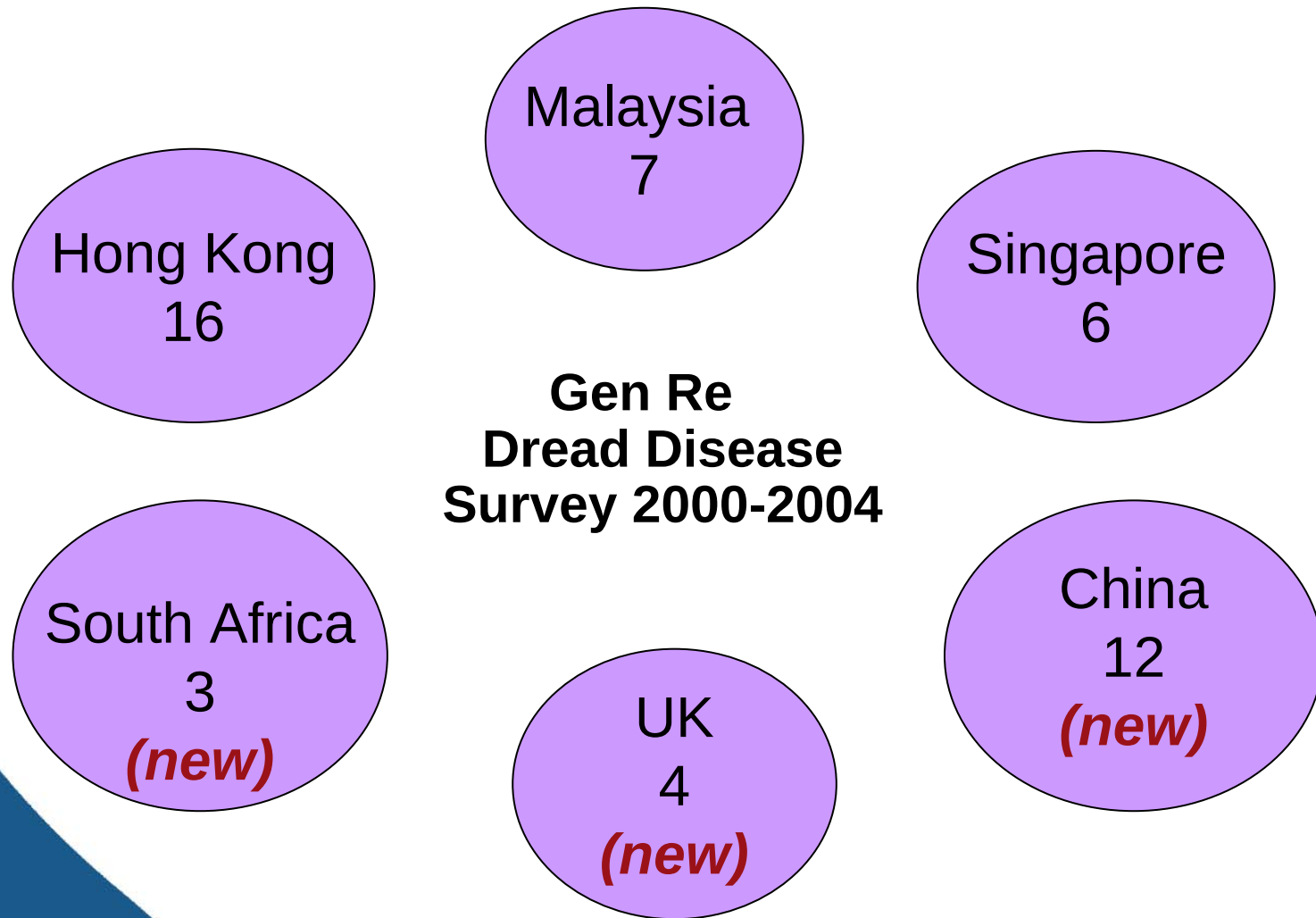
First product – a simple idea

- Aim: To provide for financial needs following severe or life-changing events
- First sale: 1983
- First claim: 1 December 1984
- Cologne Re pricing model published in 1986
 - Using incidence rate statistics from the UK and the US
 - Adjustments based on cause of deaths population data
- No insured lives data available

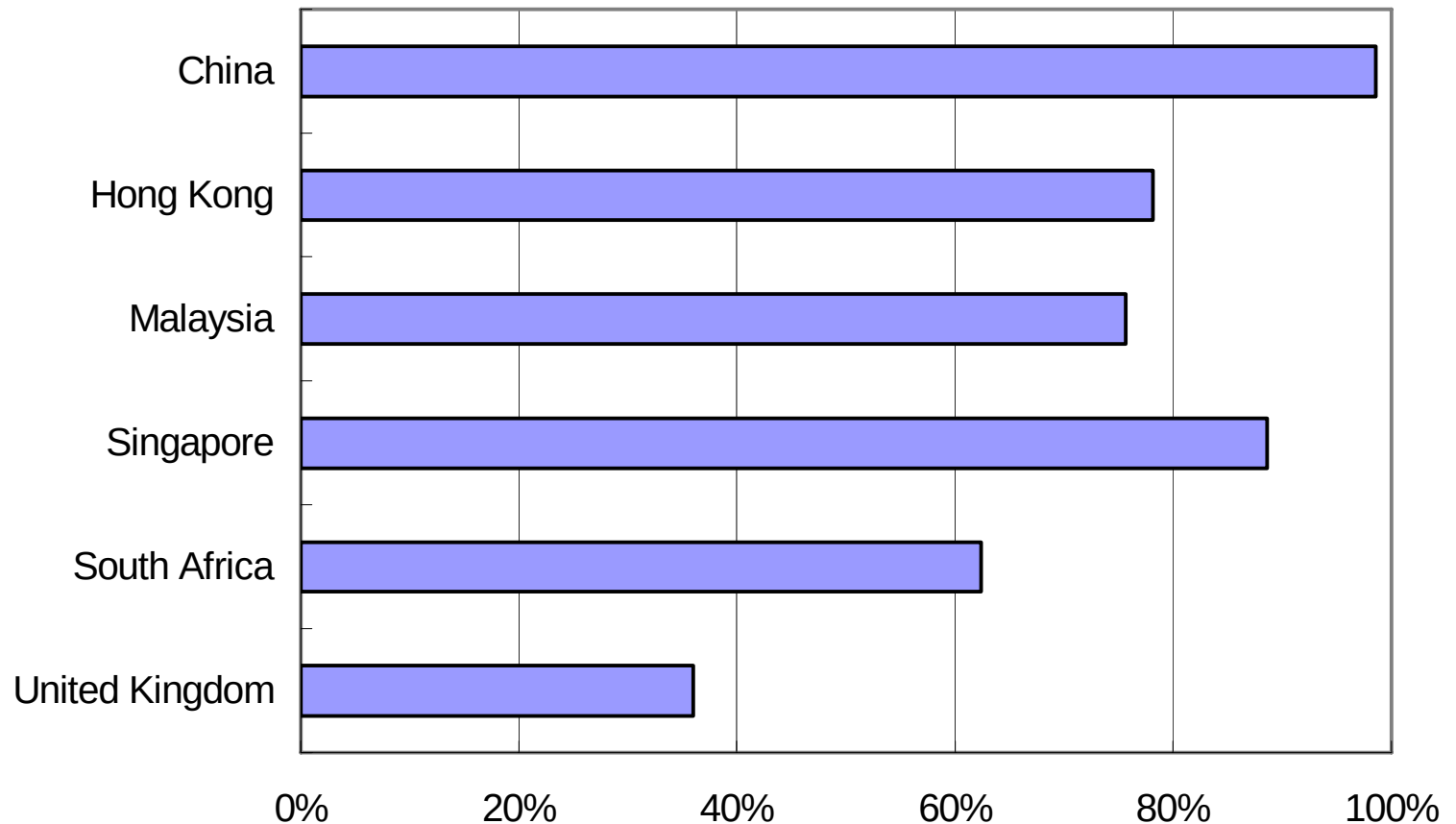
Historical development

- Search for a better actuarial basis
- Experience studies commenced in Asia
- 1st survey 1996 (1990 to 1994) – analysis of available cover and of 4,600 claims from Hong Kong, Malaysia and Singapore
- 2nd survey 2000 (1993 – 1997) – analysis of 7,000 claims and 3 million lives in force from Hong Kong, Malaysia and Singapore ⇒ first insured lives tables
- 3rd survey 2003 (1996 – 2000) – analysis of 16,000 claims and 4 million lives in force from Hong Kong, Malaysia and Singapore ⇒ second insured lives tables
- 4th survey 2007 (2000 – 2004) - analysis of 263,000 claims and 41 million lives in force from Hong Kong, Malaysia, Singapore, the UK, South Africa and China ⇒ third insured lives tables

Number of participating companies



Estimated market coverage



Scope of Gen Re's DD Survey

5 – Year Observation Period

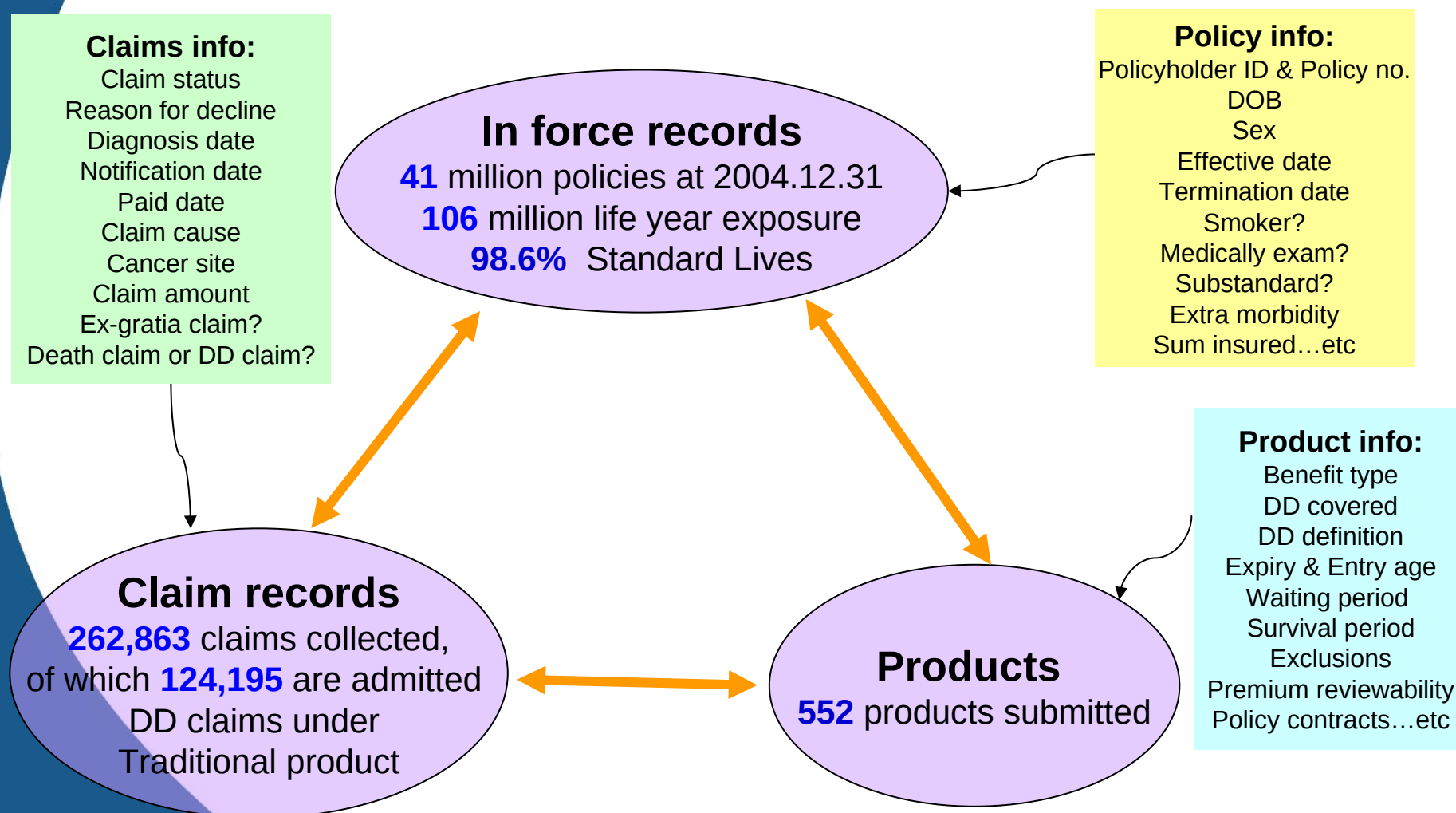


1) Dread Disease Policies in-force at any time during 2000-2004

2) Dread Disease claims and Death claims
diagnosed during 2000-2004

3) Product information

Data collected



Product type

- **Cancer product** – products covering cancer only
- **Female product** – products offered to females only, covering diseases that are more common in females
- **Juvenile product** – products offered to juveniles, covering diseases that are more common in juveniles
- **Traditional product** – products that are none of the above. Usually covering around 20-49 typical DD like cancer, heart attack, stroke, coronary artery disease, kidney failure...etc

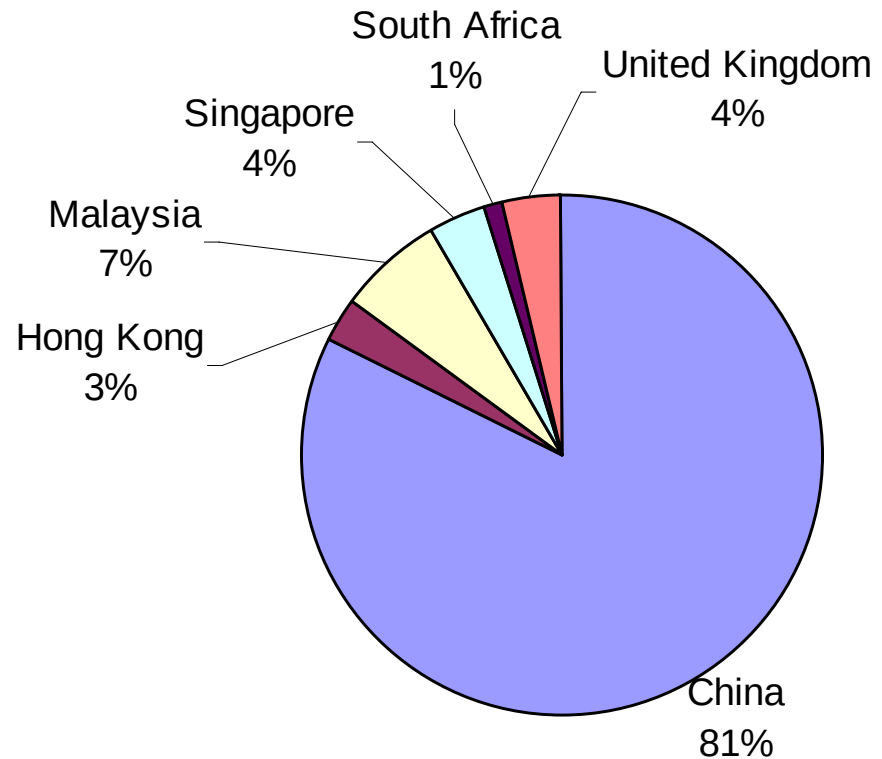
Distribution of Standard Lives In force Policies by Product Type

	Overall	China	Hong Kong	Malaysia	Singapore	South Africa	United Kingdom
Trad	96.5%	96.8%	84.7%	95.4%	97.0%	100.0%	100.0%
Juvenile	1.3%	1.4%	4.1%	0.2%	1.2%	0.0%	0.0%
Female	0.8%	0.2%	11.0%	3.4%	1.8%	0.0%	0.0%
Cancer	1.4%	1.7%	0.2%	1.0%	0.0%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

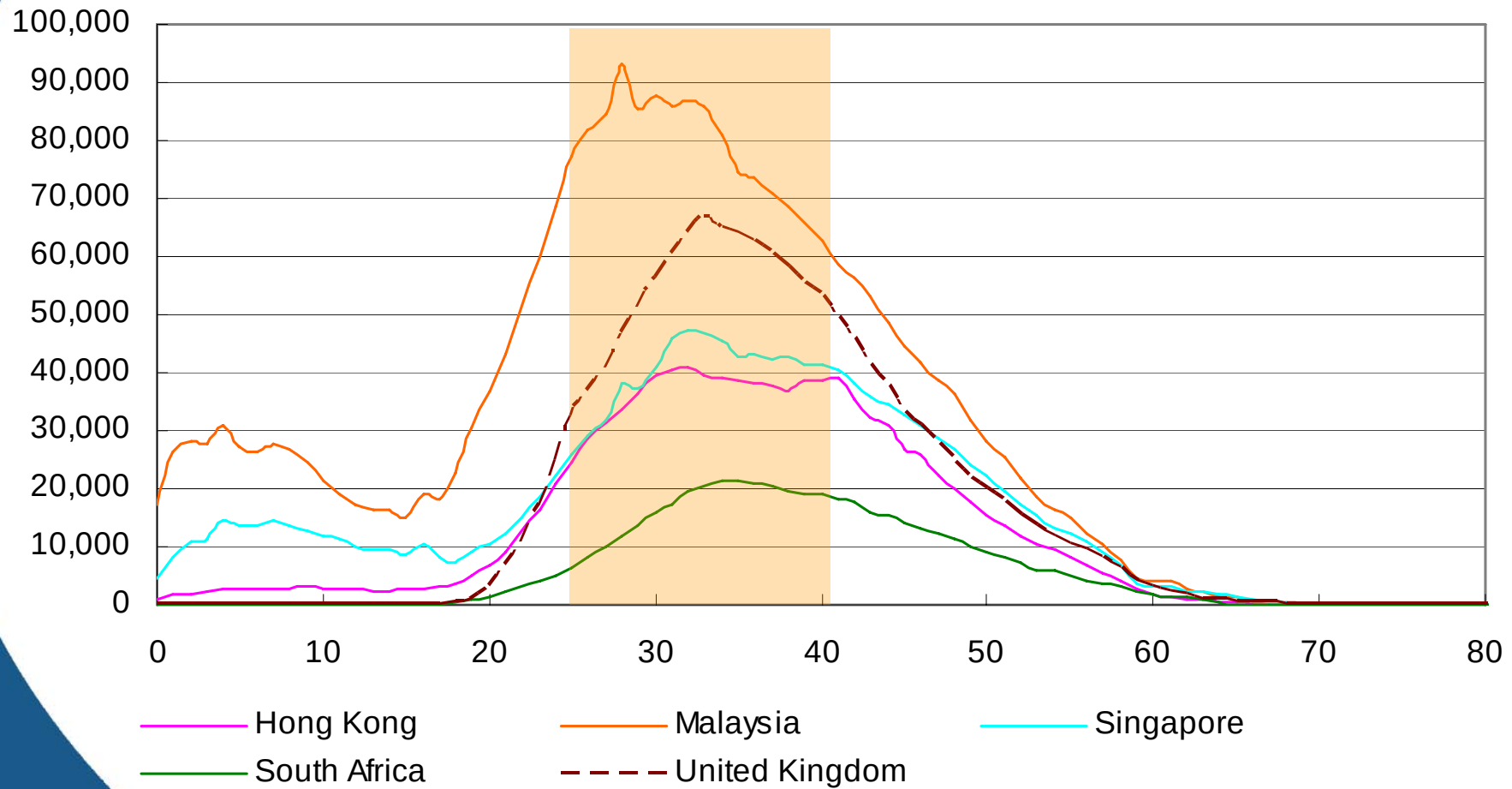
In force Policies by Market

Traditional DD Products, Standard live only

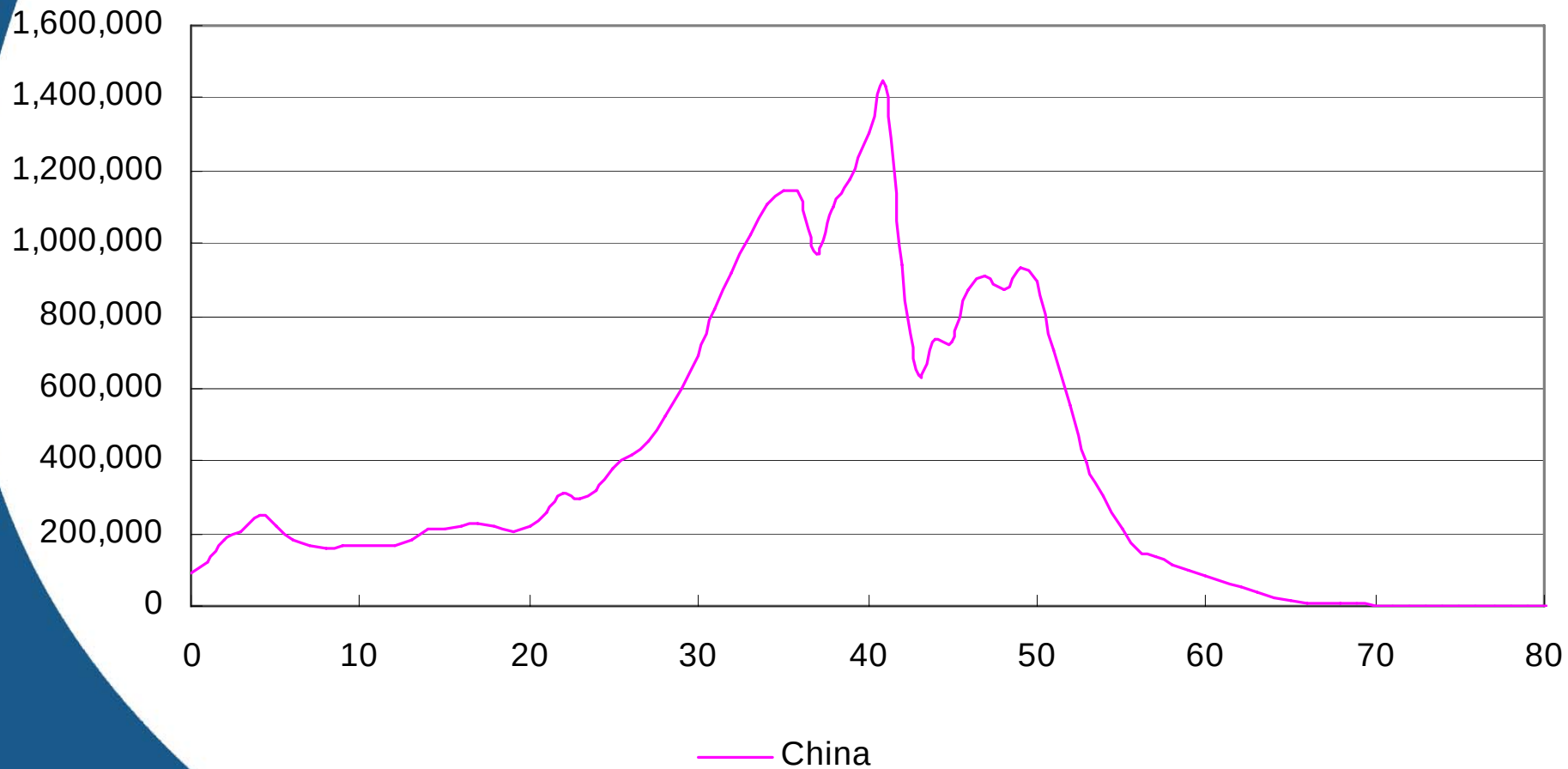
39.0 million in-force policies & 102 million life year exposure for standard lives



In force Policies by Age



In force Policies by Age - China



In force Policies by Age Band

Age group	China	Hong Kong	Malaysia	Singapore	South Africa	United Kingdom
0-19	12%	5%	18%	16%	0%	0%
20-29	12%	21%	27%	18%	14%	20%
30-39	33%	37%	30%	32%	41%	44%
40-49	30%	28%	18%	24%	31%	26%
50-59	12%	8%	6%	9%	12%	8%
60+	1%	1%	1%	1%	1%	1%
	100%	100%	100%	100%	100%	100%
Average Age	35.8	35.7	30.5	33.4	38.8	37.1

Female to Male Ratio - Insured Lives Vs Population

China, Hong Kong, Malaysia, Singapore

Age group	China		Hong Kong		Malaysia		Singapore	
	Insured Lives	Population	Insured Lives	Population	Insured Lives	Population	Insured Lives	Population
0-19	83%	87%	91%	95%	86%	95%	92%	94%
20-29	131%	101%	126%	100%	110%	99%	119%	104%
30-39	122%	99%	130%	118%	106%	101%	125%	104%
40-49	119%	97%	119%	107%	104%	99%	123%	98%
50-59	139%	97%	140%	98%	124%	96%	151%	100%
60+	139%	104%	148%	111%	147%	112%	185%	117%
Overall	118%	96%	125%	104%	104%	98%	120%	101%

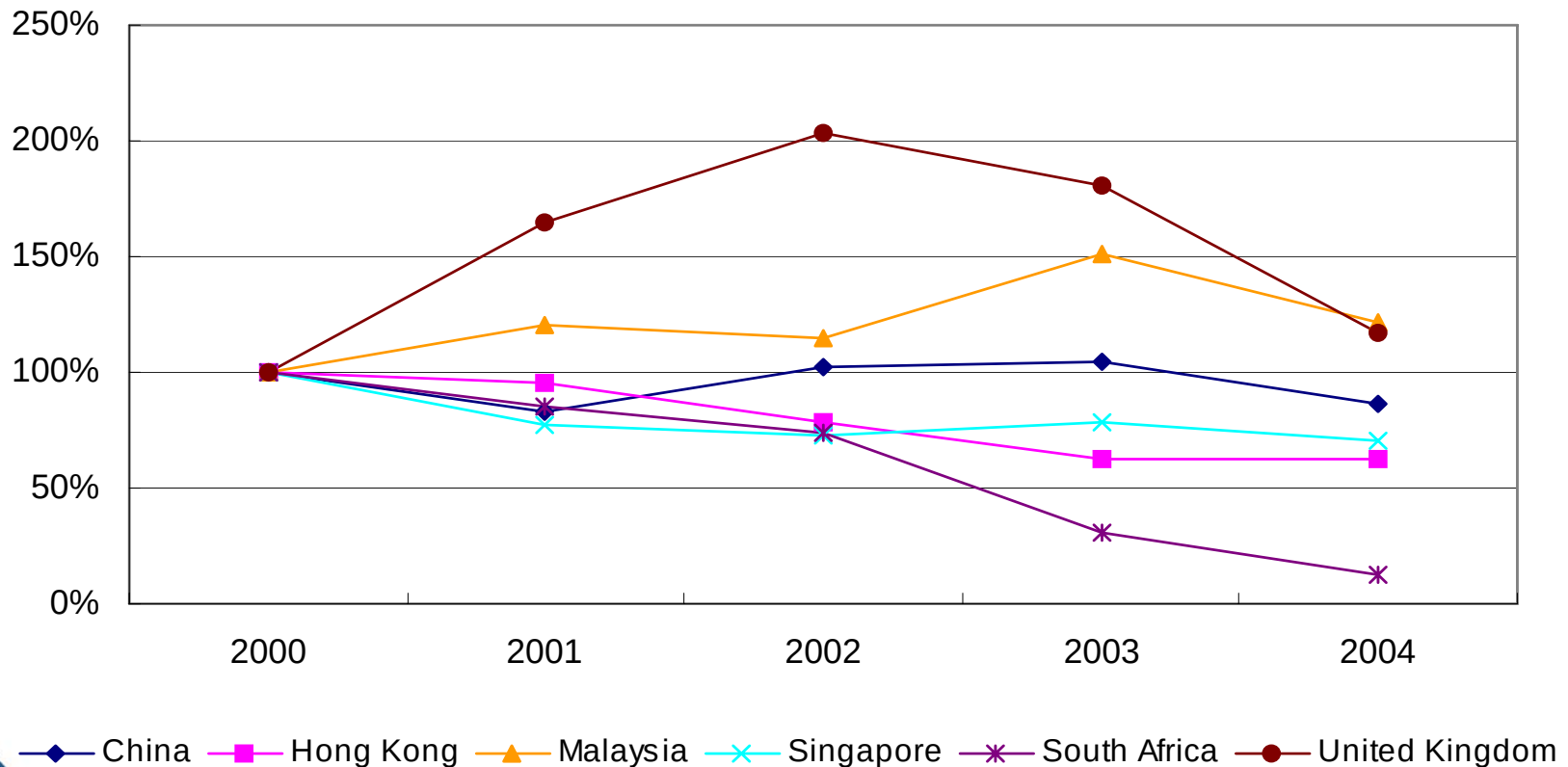
Female to Male Ratio – South Africa, UK

Age group	South Africa		United Kingdom	
	Insured Lives	Population	Insured Lives	Population
0-19	86%	101%	91%	95%
20-29	98%	106%	118%	100%
30-39	93%	111%	92%	102%
40-49	86%	114%	86%	102%
50-59	79%	115%	76%	102%
60+	66%	161%	54%	129%
Overall	89%	109%	93%	105%

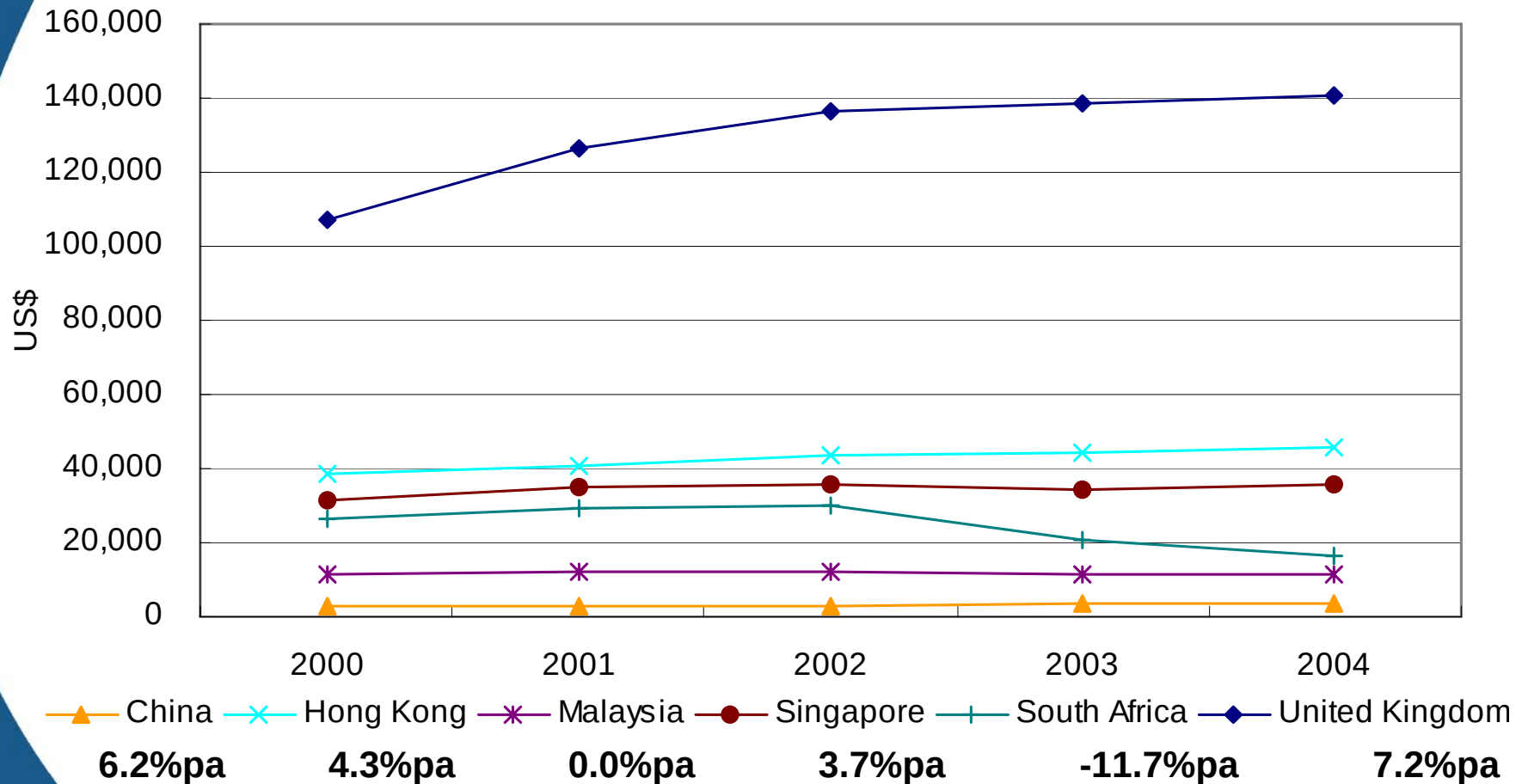
Number of New Policies Written by Year

Number of New Policies Written in Year 2000

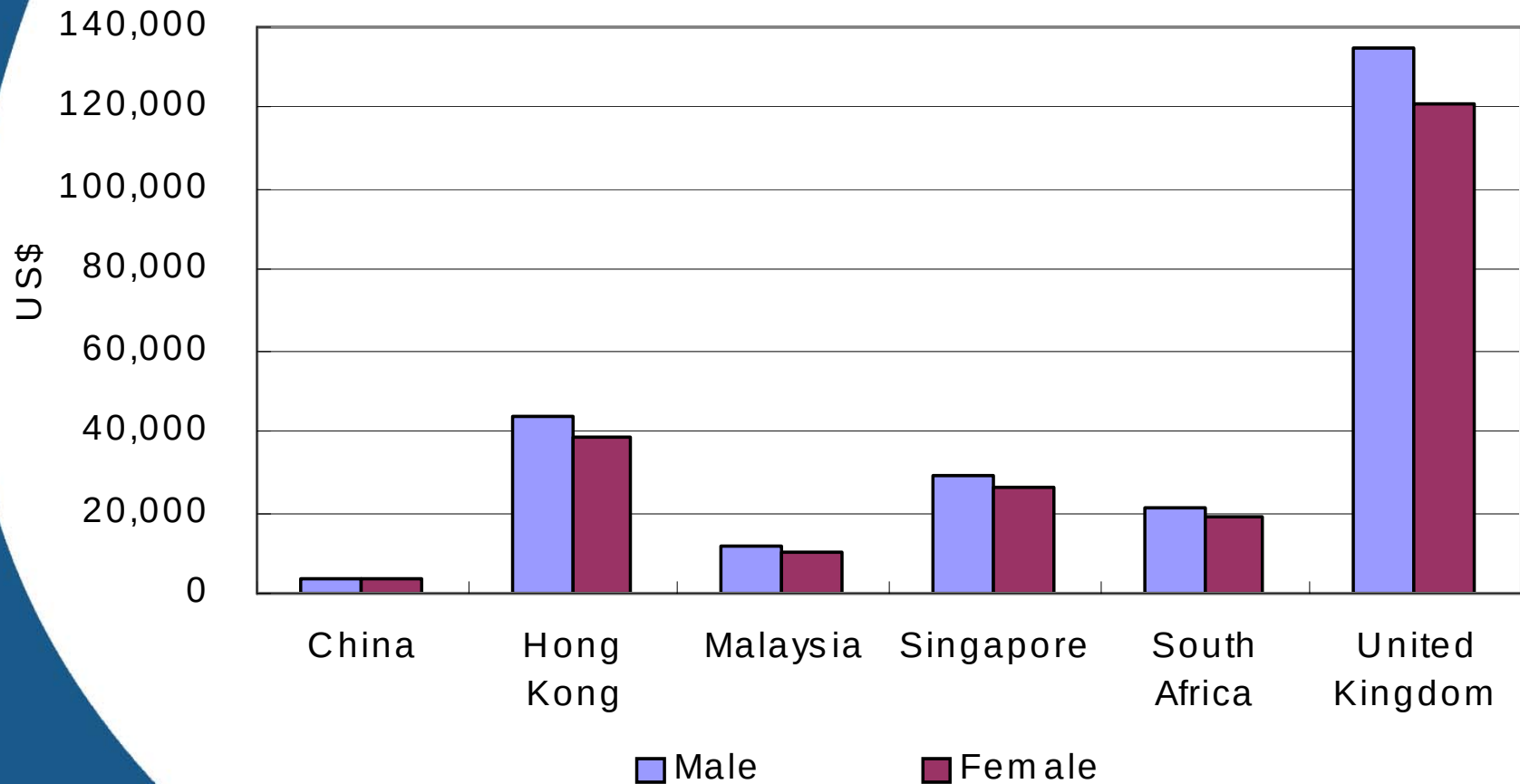
China	Hong Kong	Malaysia	Singapore	South Africa	United Kingdom
6,325,974	214,123	310,666	114,052	72,458	210,991



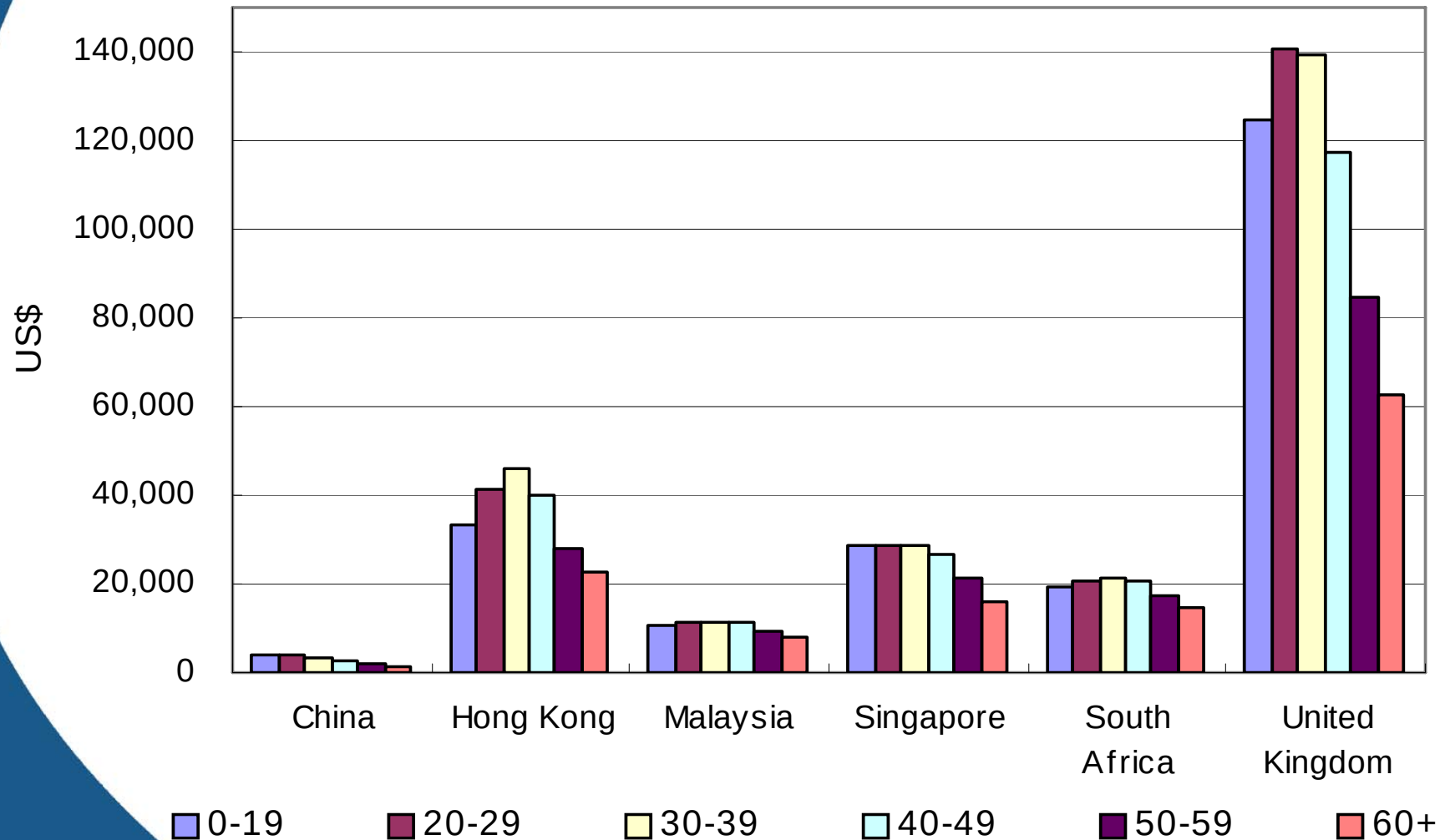
Average Sum Insured (USD) for New Business by Year



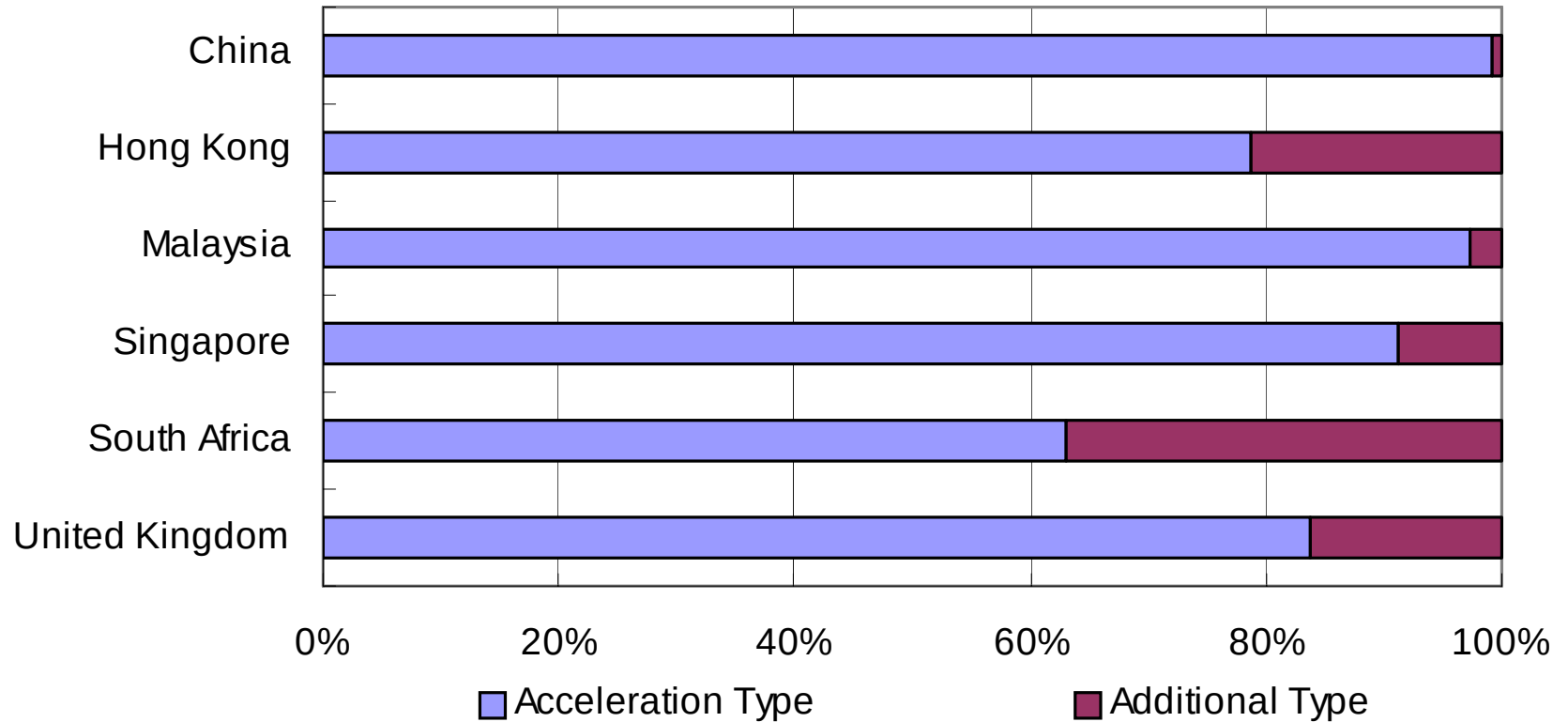
Average Sum Insured (USD) of In force Policies by Sex



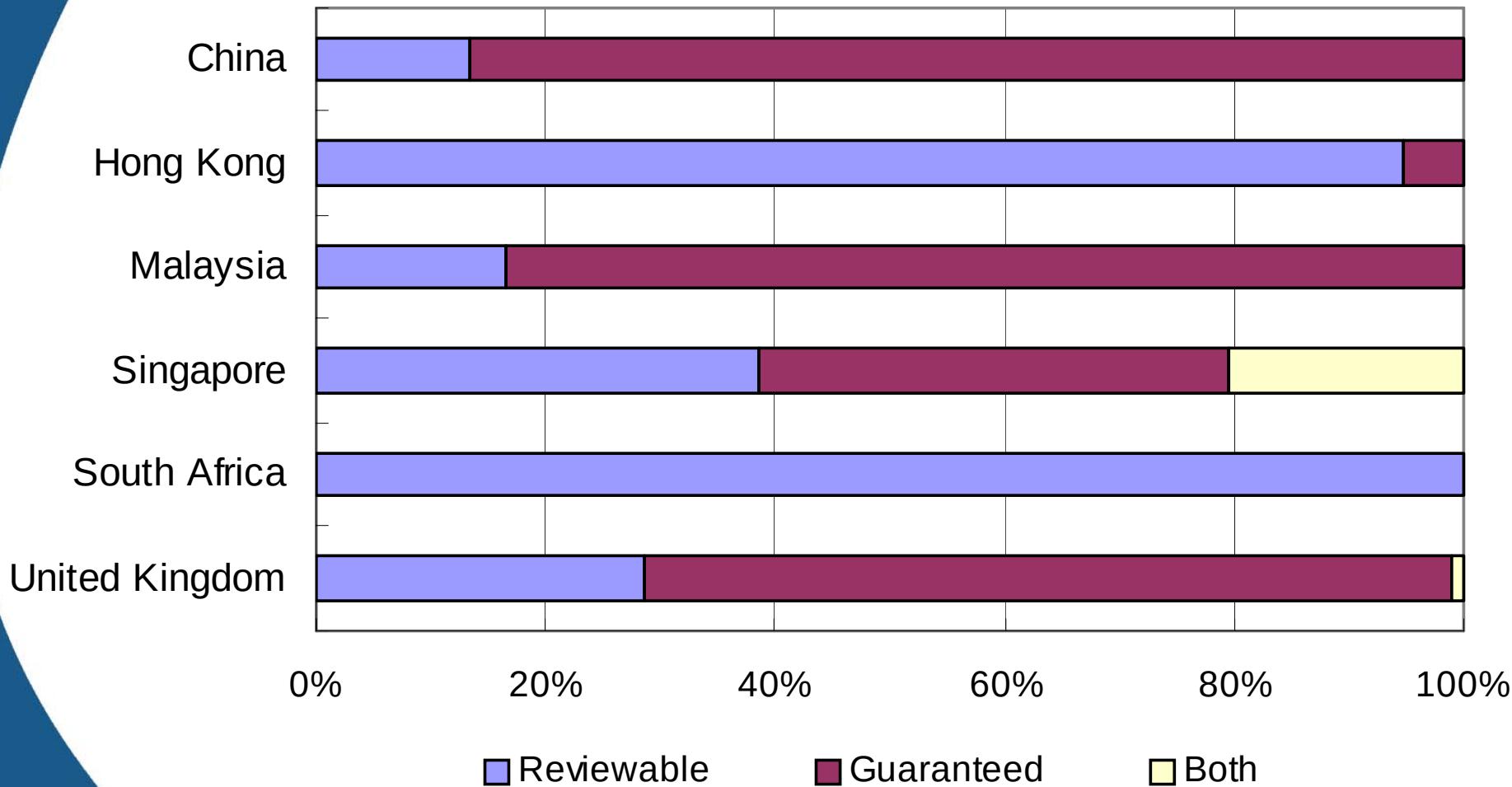
Average Sum Insured (USD) of In force Policies by Age



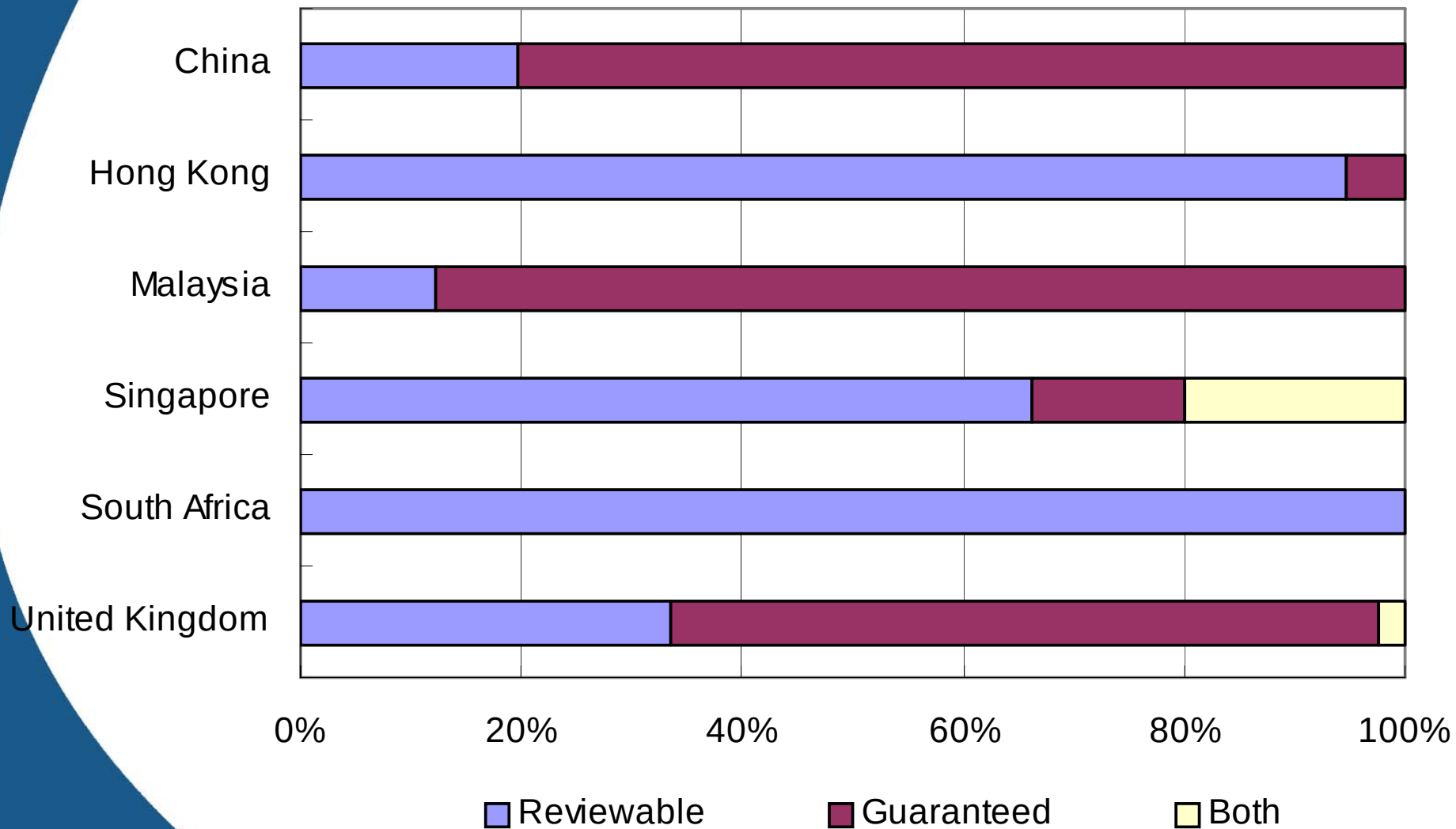
Benefit Type



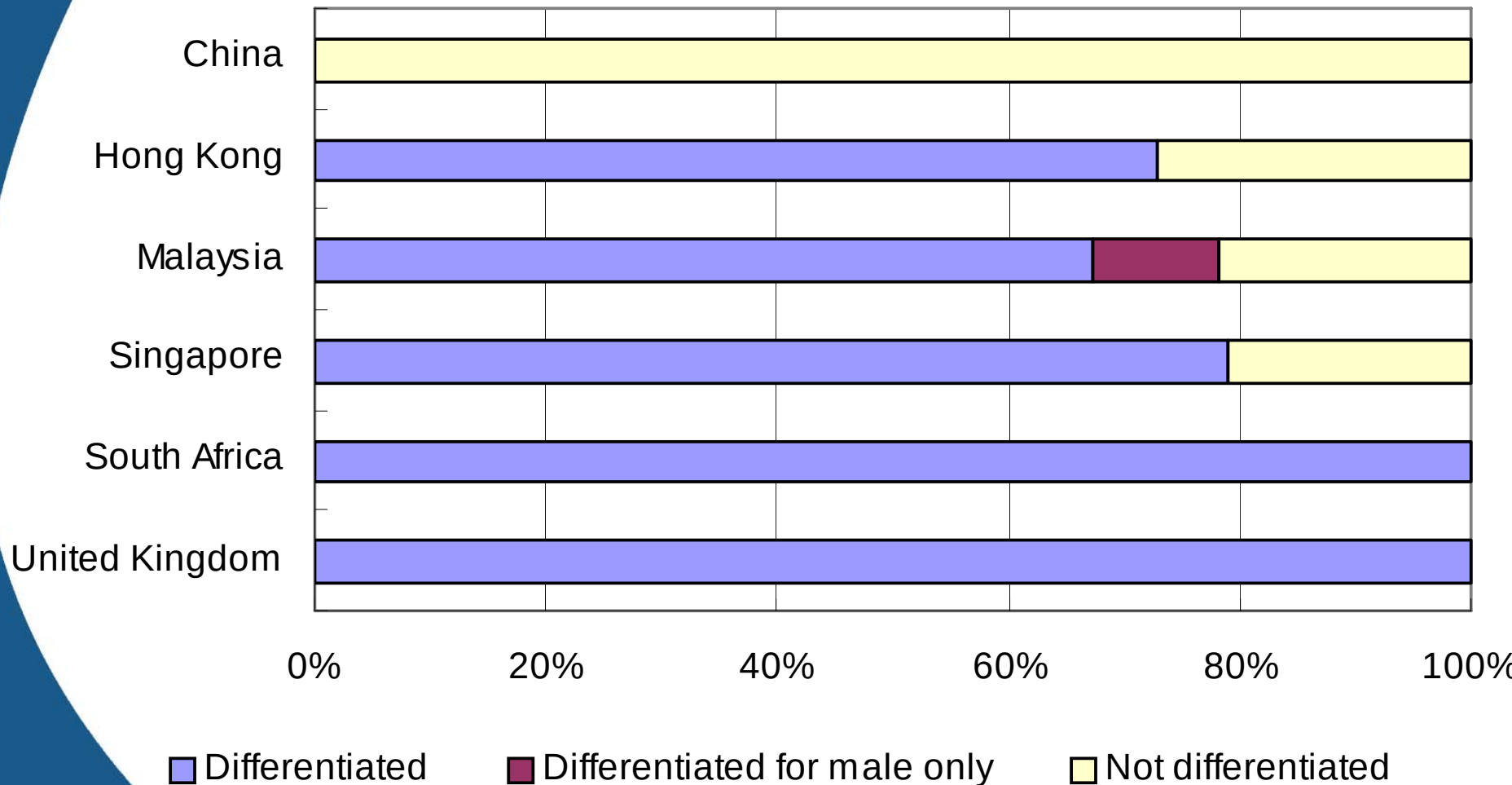
Premium Reviewability – In force Policies



Premium Reviewability – NB written in 2004

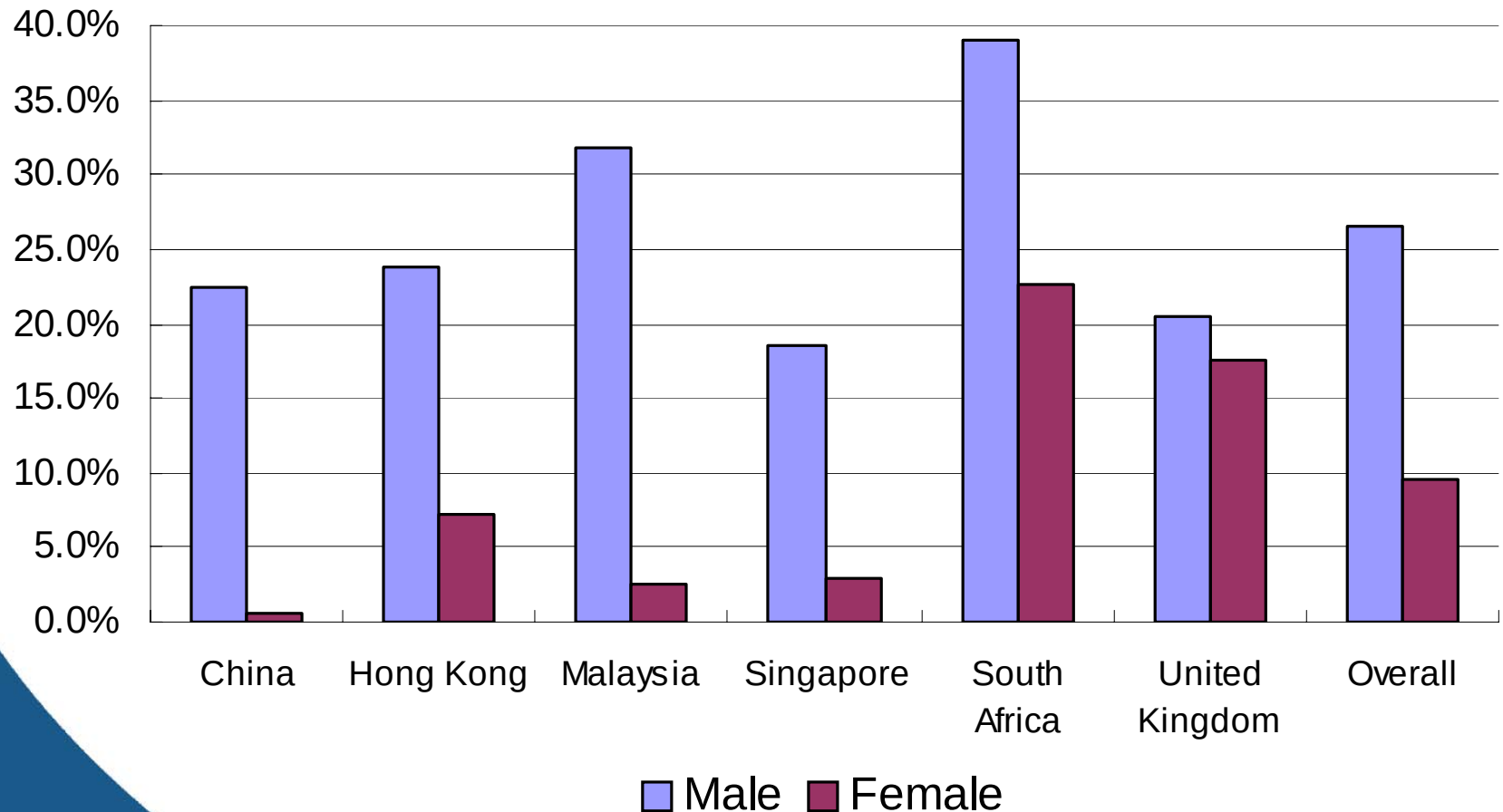


Smoker/Non-smoker Differentiation – In force Policies Over Age 15

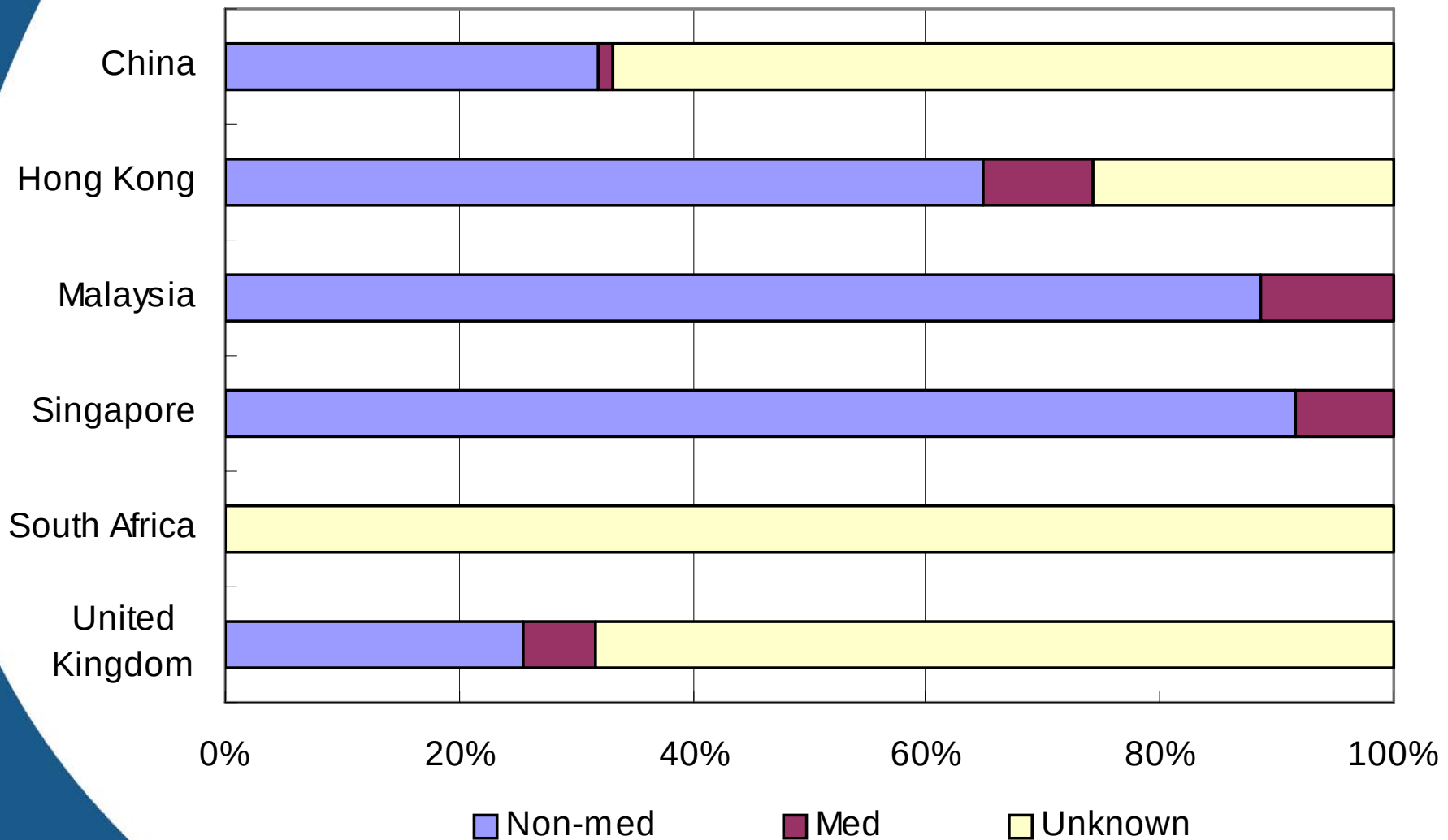


Proportion of Smokers – Over age 15

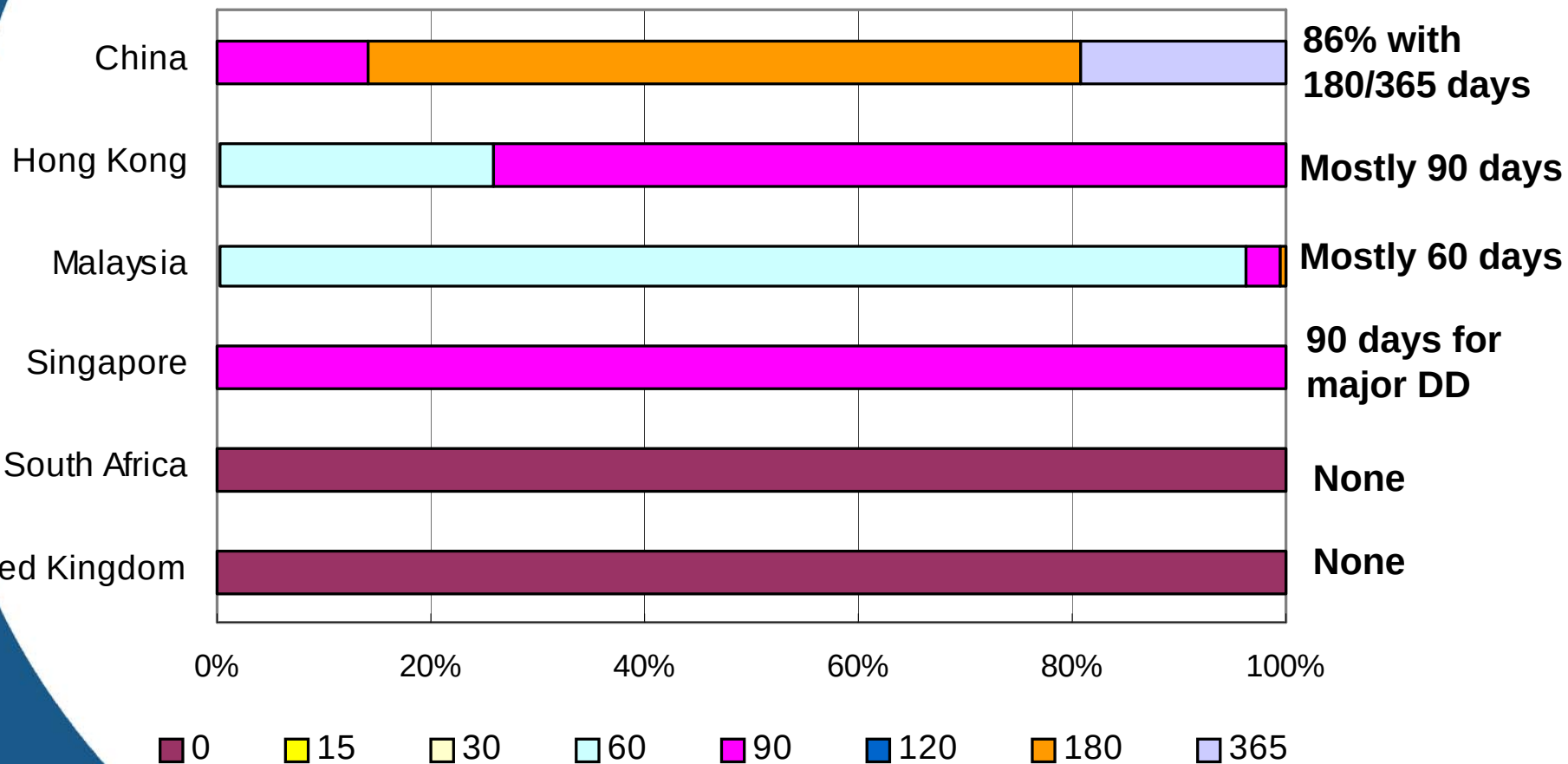
Proportion of Smokers in In-force Policies among smoking differentiated products



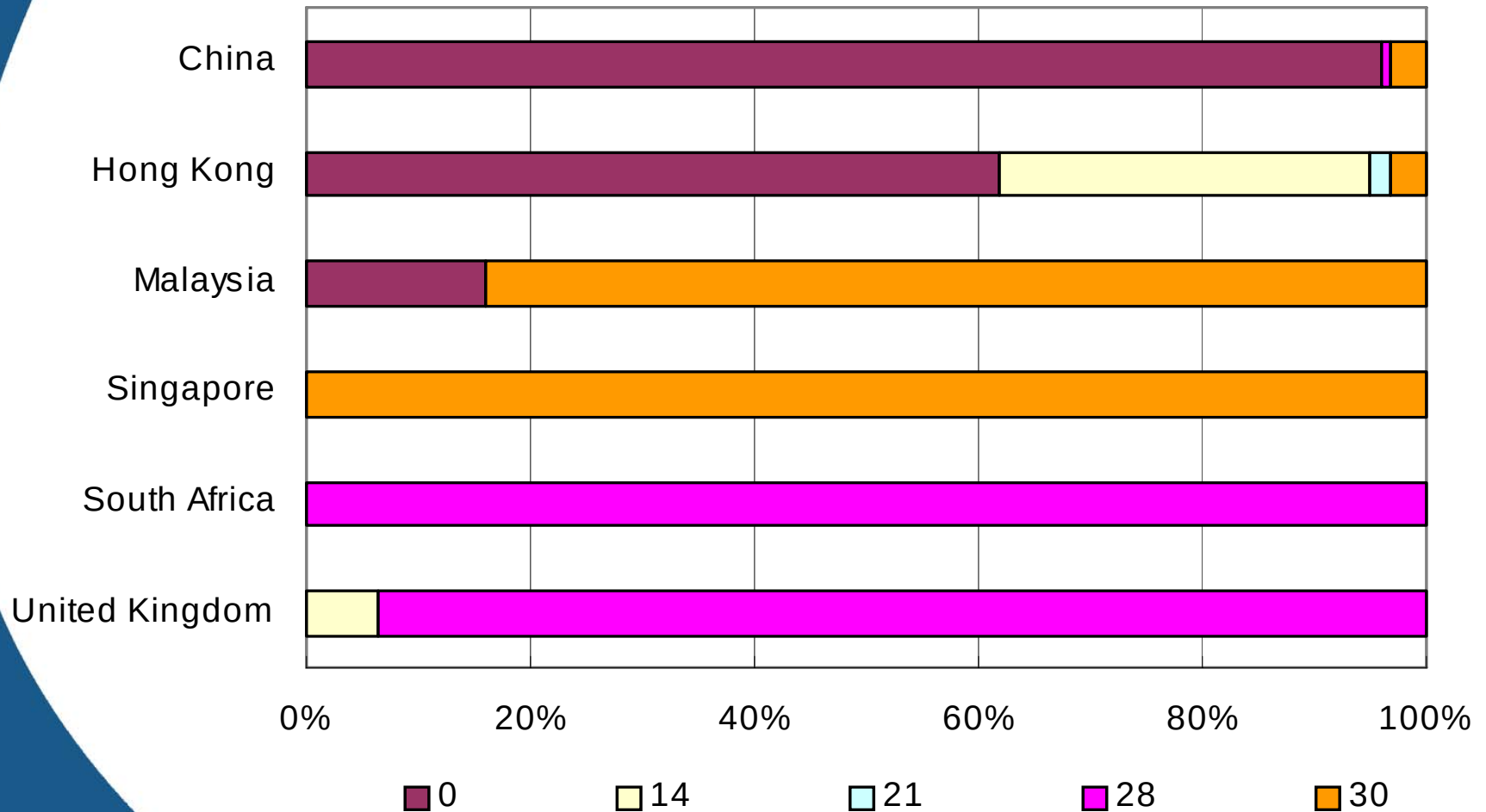
Med/Non-med Distribution



Waiting Period

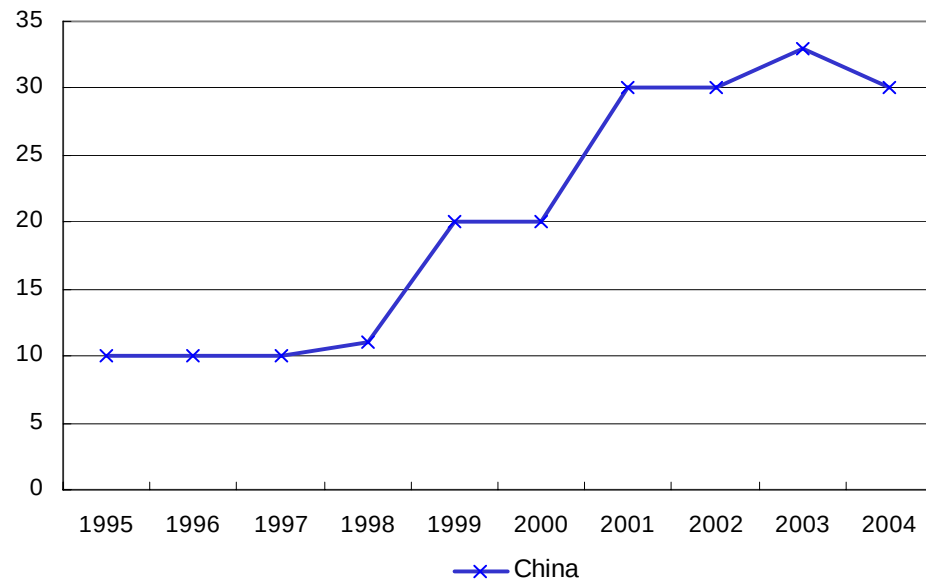


Survival Period for Additional DD Products



Number of covered events

- There has been a trend to compete by adding to the number of diseases covered
- Hong Kong – first DD product launched in 1985, covering only 12 diseases. In 2004 a product covering 49 diseases was launched
- Singapore and Malaysia – this has led to market agreements on the maximum number of diseases that can be covered by a DD policy
- China – follows the same trend. The chart shows the maximum number of events covered by new products launched in each year



Summary – Session One

- NB Sales 00-04 : drop in HK, Singapore
- Average sum insured of NB rise steadily
- Major Age Group: 60% at age 20-49
- More younger lives in China, Malaysia, Singapore
- More females than males in Asia (> 20% in China, HK, Sing), but females have 10%-15% lower sum insured.
- More non-guaranteed products in China and Singapore.
- Some surveyed companies require no survival period for Additional Products.
- More and more covered events in China and HK.

Gen Re Dread Disease Survey 2000-2004

- **Session One**

- Background and Introduction to Gen Re's Dread Disease survey
- Market Survey Results

- **Session Two**

- Claims Analysis**

- Graduated Incidence Rates and A/E Ratio

Agenda

- Claims Analysis

Overview

Declined claims

Time Lag

- Cause of claims
- Cancer claims
- Heart Attack, Stroke and Heart Related Conditions Incidence

Claims Analysis - Overview

- 262,863 claims reported in total
- 141,925 Dread Disease claims, 120,938 Death claims
- The figures above include all product types for both standard and substandard lives
- Number of Admitted Dread Disease claims by product type – Standard lives only

Product Type	Total	China	Hong Kong	Malaysia	Singapore	South Africa	United Kingdom
Trad	124,195	89,871	5,979	9,401	7,354	3,913	7,677
Female	1,014	91	687	168	68	-	-
Juvenile	97	60	24	-	13	-	-
Cancer	1,956	1,934	13	9	-	-	-
Total	127,262	91,956	6,703	9,578	7,435	3,913	7,677

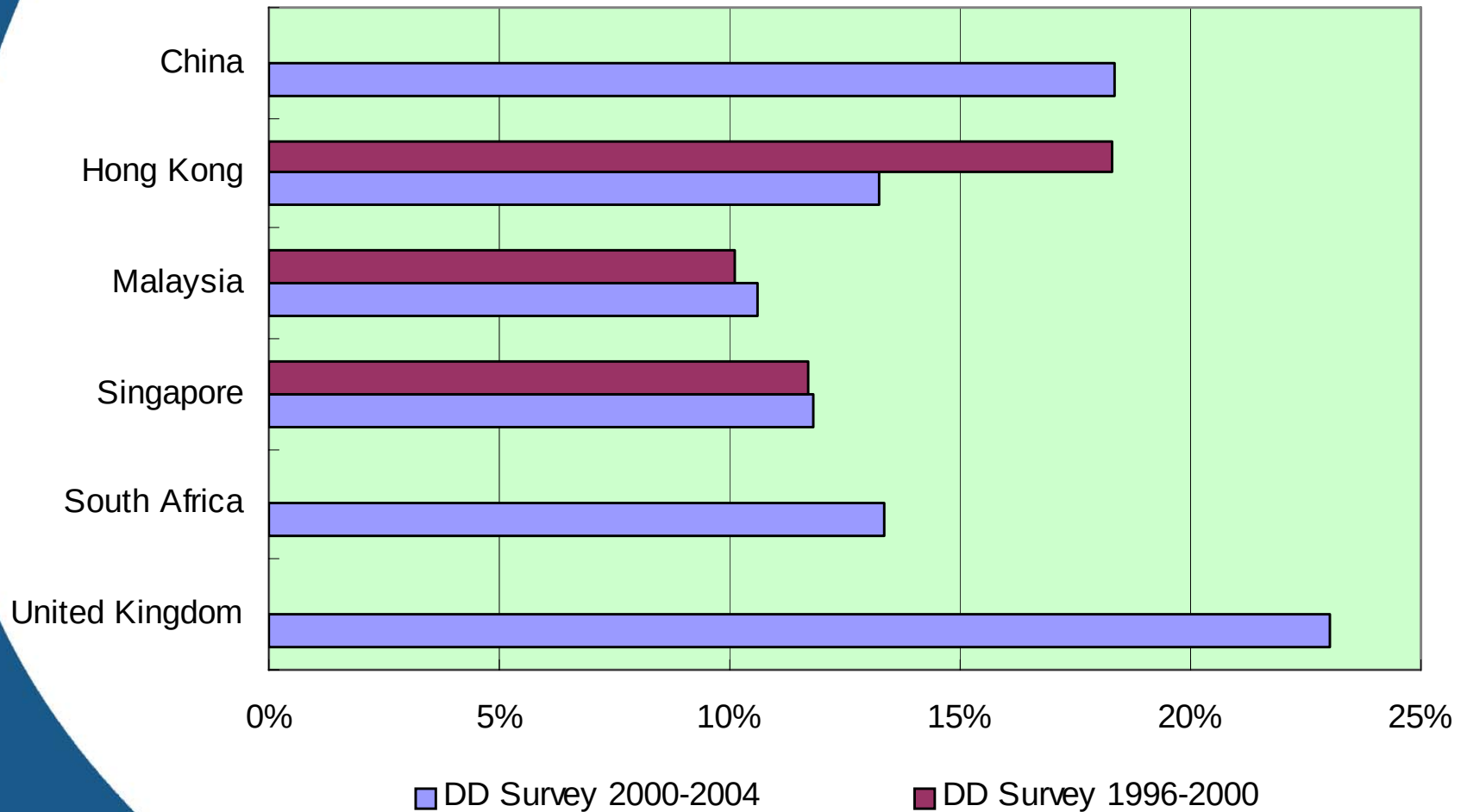
Claims by Claim Status

Number of Dread Disease claims – **Traditional DD products, Standard lives only**

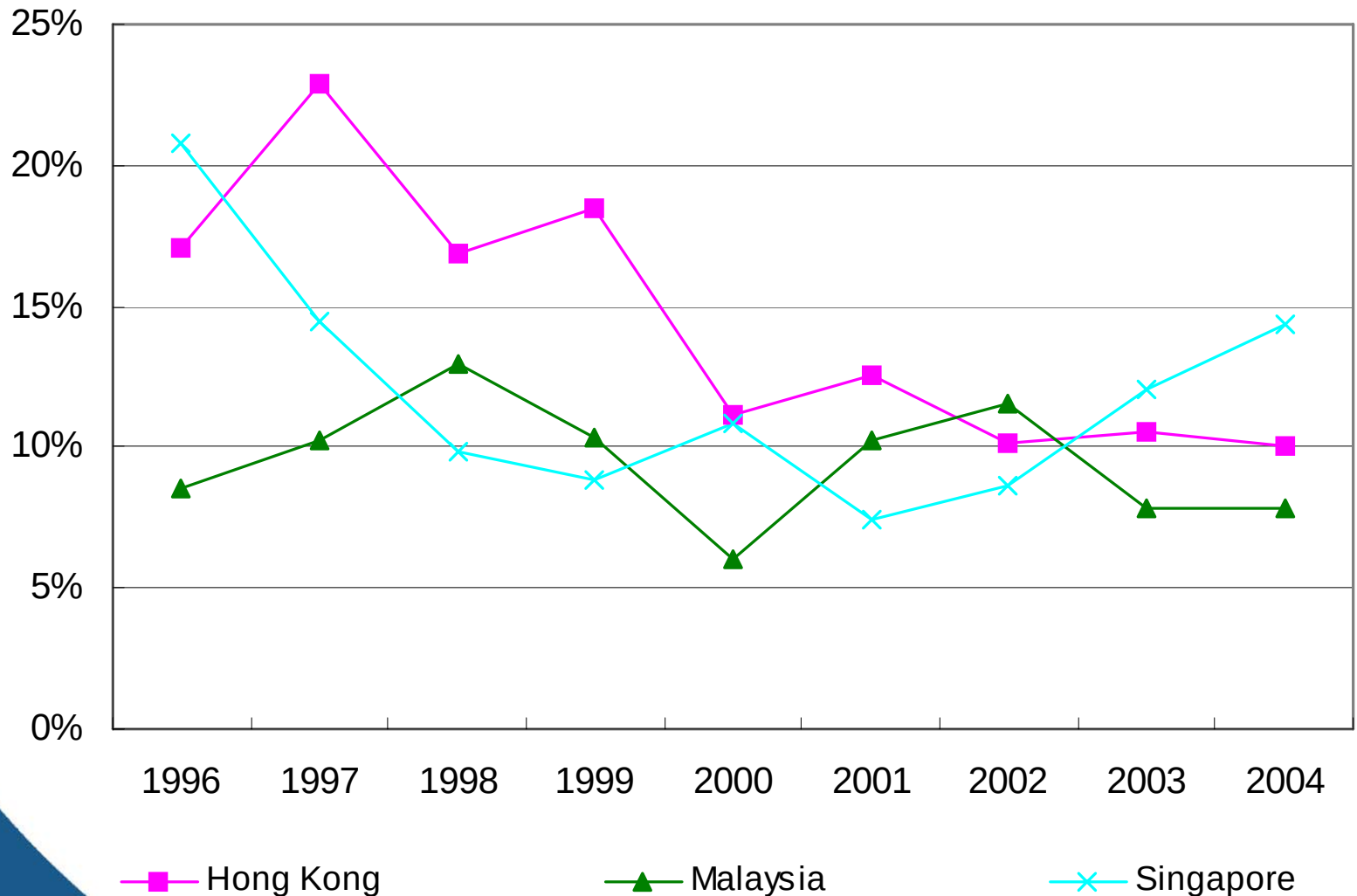
	Total	China	Hong Kong	Malaysia	Singapore	South Africa	United Kingdom
Admitted	124,195	89,871	5,979	9,401	7,354	3,913	7,677
Declined	9,559	4,914	913	1,031	987	306	1,408
Pending	1,517	633	58	586	106	-	134
	135,271	95,418	6,950	11,018	8,447	4,219	9,219

- 92% admitted, 7% declined, 1% pending
- Only companies submitted both admitted and declined claims are included in declinature rate calculation
- In all other analyses only admitted claims under Traditional DD products for standard lives are included.

Declinature rate by market

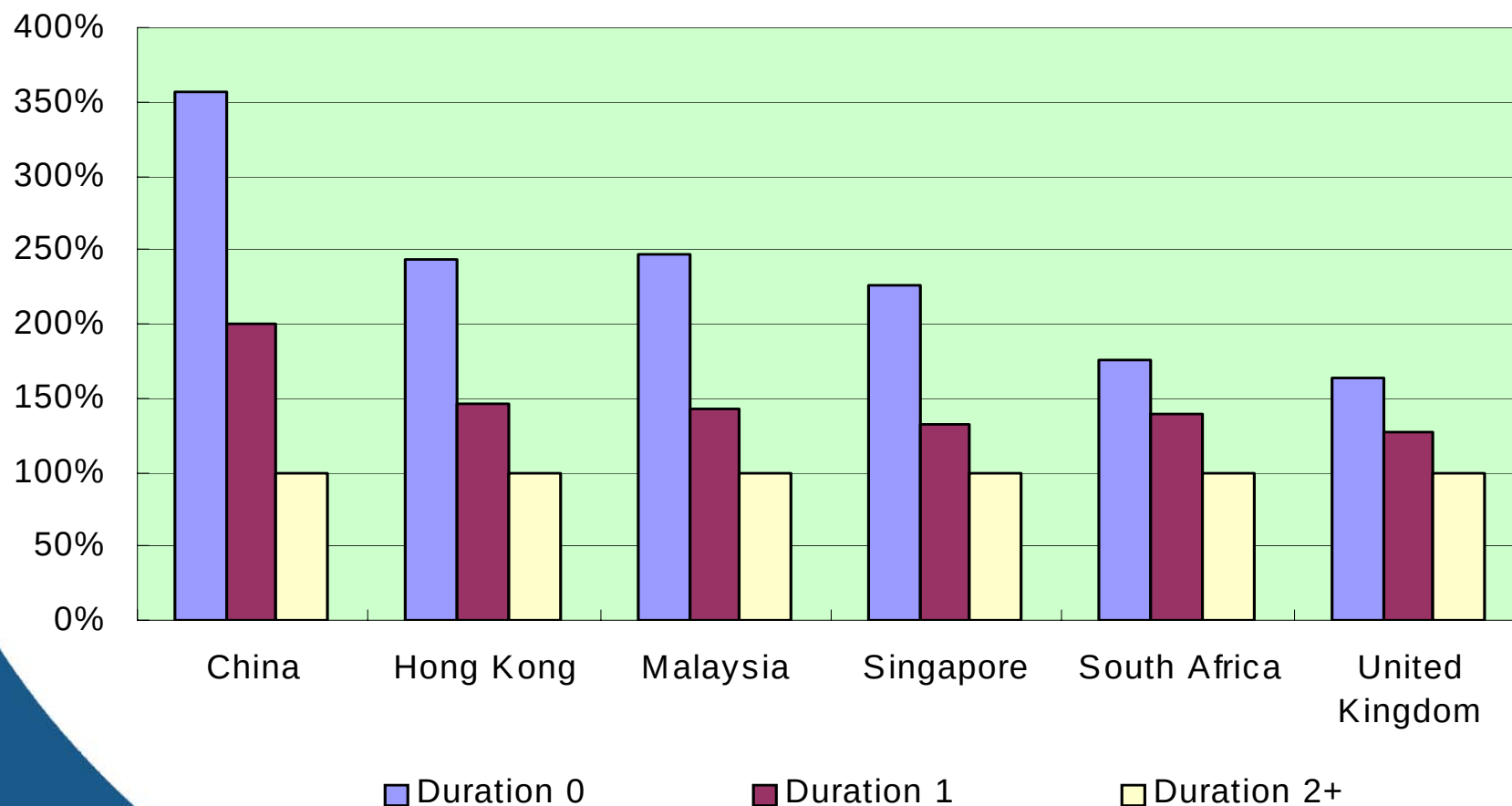


Declinature rate by calendar year

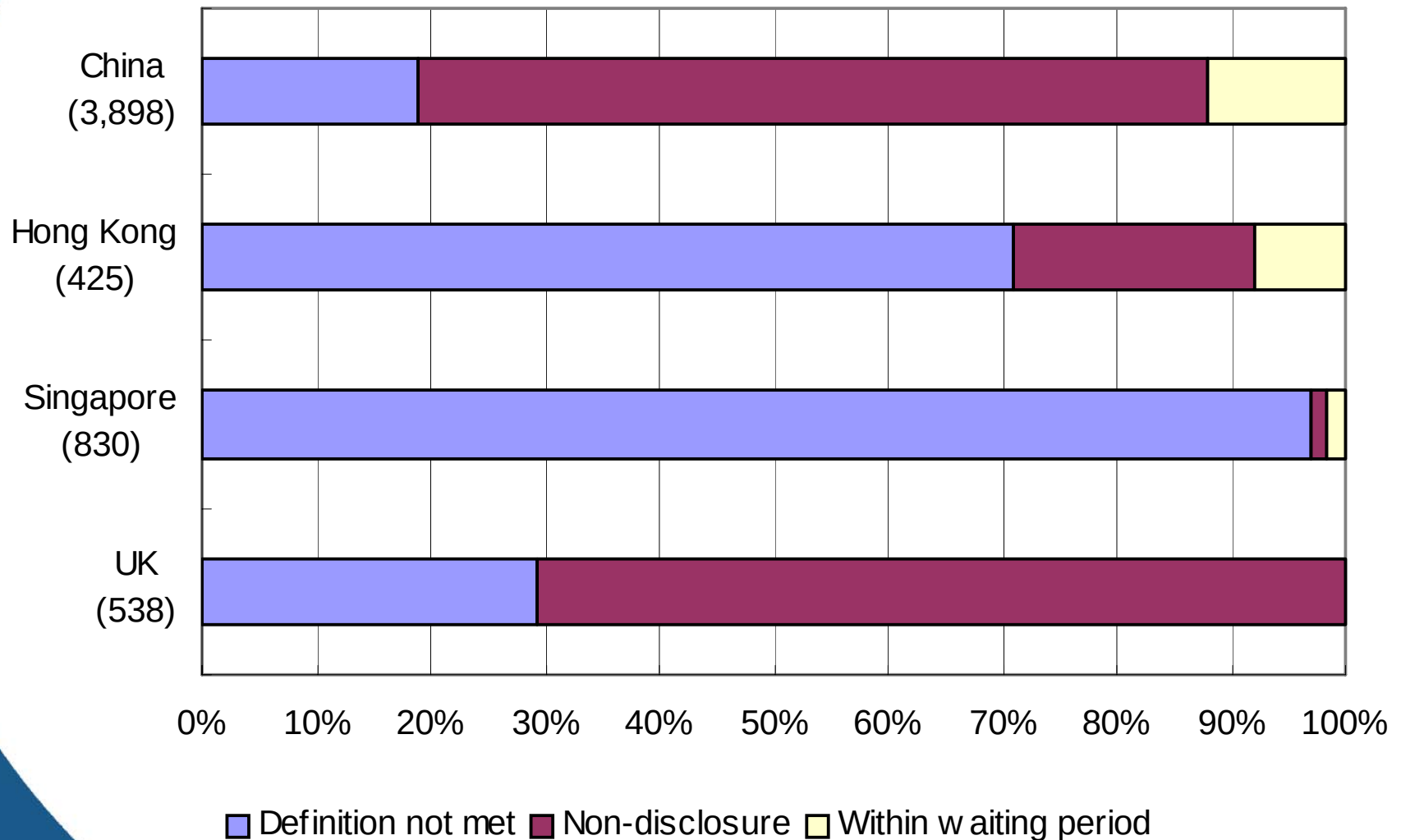


Declinature rate by duration

- Claims submitted in the first policy year are more likely to be declined than ultimately (duration 2+)



Reasons for declinature



Does the product raise unreasonable expectations?

Can we always prove non-disclosure?

Declinature Rate by Causes of Claim – Asia

- Declinature rate for Cancer is lower than overall rate
- Causes with declinature rate >20% or <10% respectively. (only causes with over 100 claims)

rate >20%					
HK, S, M	no. of claims	%	China	no. of claims	%
CIS	147	68%	Kidney Failure	2,959	28%
TPD	277	27%	Fulminant Viral Hep	372	27%
Heart Valve Surgery	193	22%	Stroke	4,688	21%

rate <10%					
HK, S, M	no. of claims	%	China	no. of claims	%
Brain Surgery	154	8%	Cancer	46,030	9%
Cancer	15,528	6%	Paralysis	1,161	2%
			Major Burns	353	1%

Declinature Rate by Causes of Claim – UK

- Declinature rate for Cancer is lower than overall rate
- Causes with declinature rate >20% or <10% respectively. (only causes with over 100 claims)

rate >20%

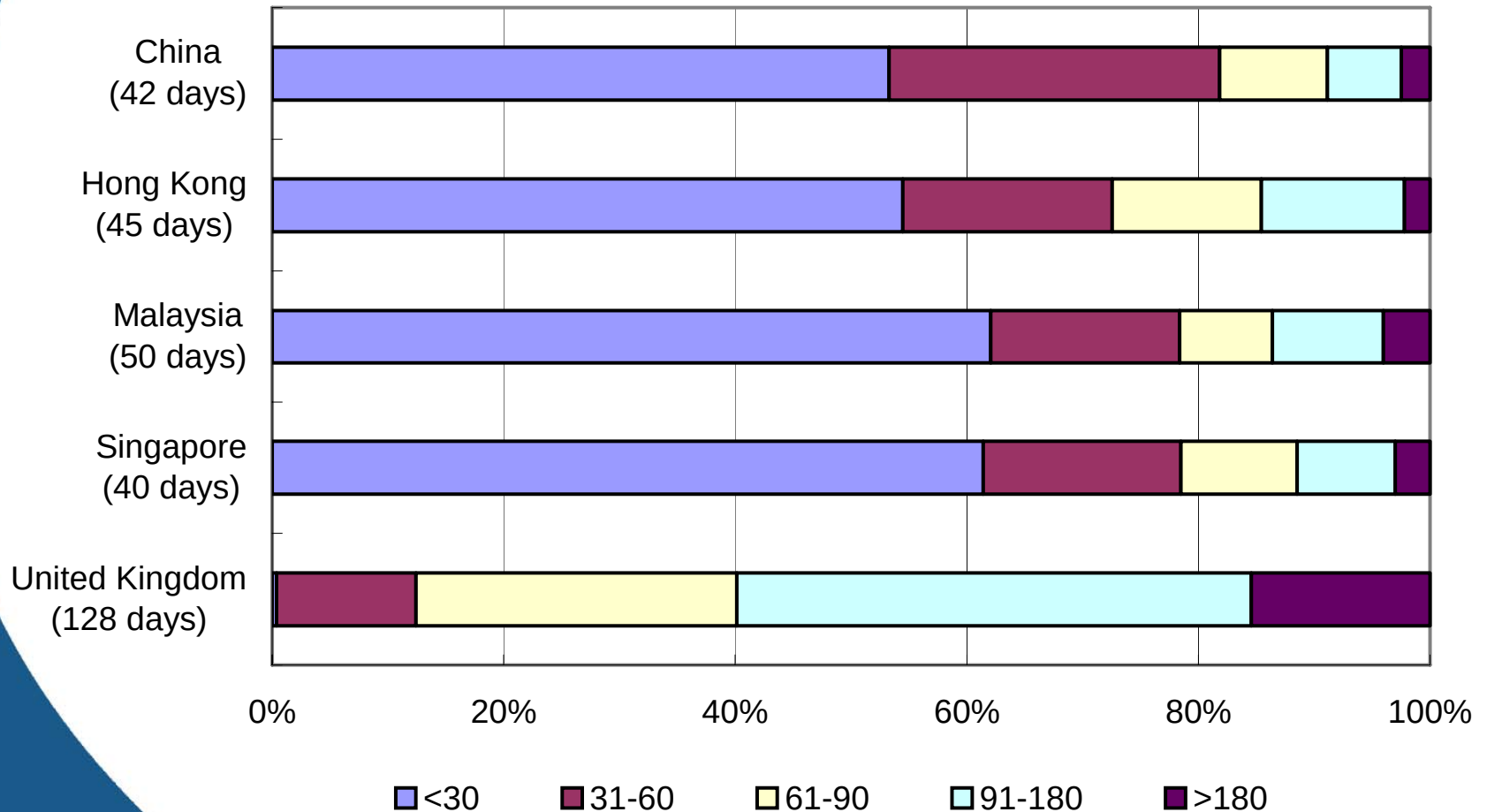
UK	no. of claims	%
LIE	118	87%
TPD	362	76%
Benign Brain Tumour	131	30%
Stroke	481	27%
Multiple Sclerosis	318	26%
Heart Attack	956	21%

rate <10%

UK	no. of claims	%
Nil	Nil	Nil

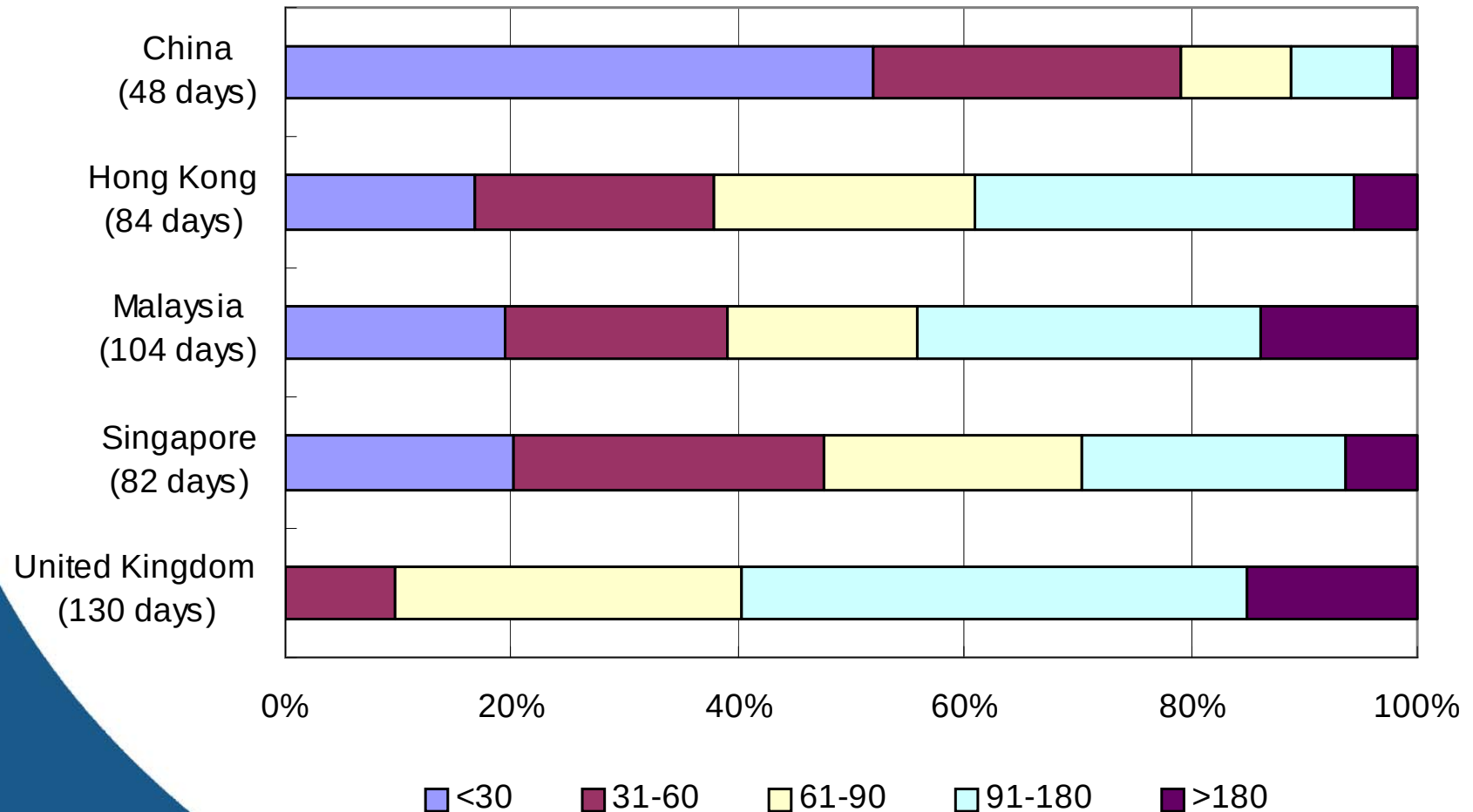
Time from Notification to Benefit Payment - All Admitted Claims

- Average time required: 50 days



Time from Notification to Benefit Payment - Claims Occurred in the First Policy Year (Dur 0)

- Average time required: 78 days



Agenda

- Claims Analysis
 - Overview
 - Declined claims
 - Time Lag

Cause of claims

- Cancer claims
- Heart Attack, Stroke and Heart Related Conditions Incidence

The Five Leading Causes of Claim - Males

Cause of Claim	China		Hong Kong		Malaysia		Singapore		United Kingdom	
	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%
Cancer	1	60.7%	1	68.9%	1	40.2%	1	48.9%	1	47.7%
Heart Attack	2	18.6%	2	7.6%	2	19.5%	2	23.0%	2	24.9%
Stroke	3	6.6%	3	7.5%	4	8.2%	4	7.9%	3	8.4%
Kidney Failure	4	4.9%	5	3.2%	5	3.5%	6	2.2%	9	0.8%
Heart Surgeries Excluding CABS	5	1.6%	7	1.9%	7	2.1%	5	3.1%	6	3.2%
Coronary Artery Bypass Surgery / Other Serious Coronary Disease	6	1.2%	6	3.1%	3	13.8%	3	9.3%	4	5.0%
Benign Brain Tumour	8	0.8%	4	3.2%	9	1.3%	7	1.5%	8	1.6%
Multiple Sclerosis		0.1%		0.1%		0.2%	10	0.4%	5	3.6%
Total of top 5		92.4%		90.4%		85.2%		92.2%		89.6%
Total of top 10		96.5%		97.2%		95.0%		97.3%		98.4%
Total number of claims		41,710		2,458		4,596		2,925		4,302

The Five Leading Causes of Claim - Females

Cause of Claim	China		Hong Kong		Malaysia		Singapore		United Kingdom	
	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%
Cancer	1	84.3%	1	85.5%	1	79.7%	1	86.5%	1	76.1%
Stroke	2	3.9%	2	3.7%	2	4.6%	2	4.4%	3	5.3%
Kidney Failure	3	2.9%	4	1.5%	3	3.0%	5	1.4%	10	0.3%
Heart Attack	4	2.4%	7	0.5%	6	1.4%	4	1.5%	4	4.0%
Heart Surgeries Excluding CABS	5	1.2%	6	1.0%		1.0%		1.1%		
Benign Brain Tumour	6	1.1%	3	3.5%	4	2.7%	3	1.7%	6	1.9%
Carcinoma-In-Situ	8	0.6%	5	1.3%		0.0%		0.0%		0.0%
Coronary Artery Bypass Surgery / Other Serious Coronay Disease	10	0.5%	9	0.4%	5	1.5%	7	0.6%	7	0.8%
Multiple Sclerosis		0.1%	8	0.4%		0.4%	8	0.3%	2	7.0%
Total Permanent Disability		0.0%		0.1%	8	1.3%		0.1%	5	2.6%
Total of top 5		94.7%		95.5%		91.5%		95.5%		95.0%
Total of top 10		97.7%		98.0%		96.9%		97.8%		99.2%
Total number of claims		48,161		3,521		4,805		4,429		3,375

Summary – Claims Analysis

- Declinature rates dropped in HK, stable in Singapore and Malaysia.
- China and UK have higher declinature rate. Major reason of declined are “non-disclosure” and “definitions not met”.
- Claims in duration 0 were declined more often.
- Time to settlement significantly higher in duration 0.
- Cancer is leading cause of claim (>80% F, 40%-60% M).

Agenda

- Claims Analysis

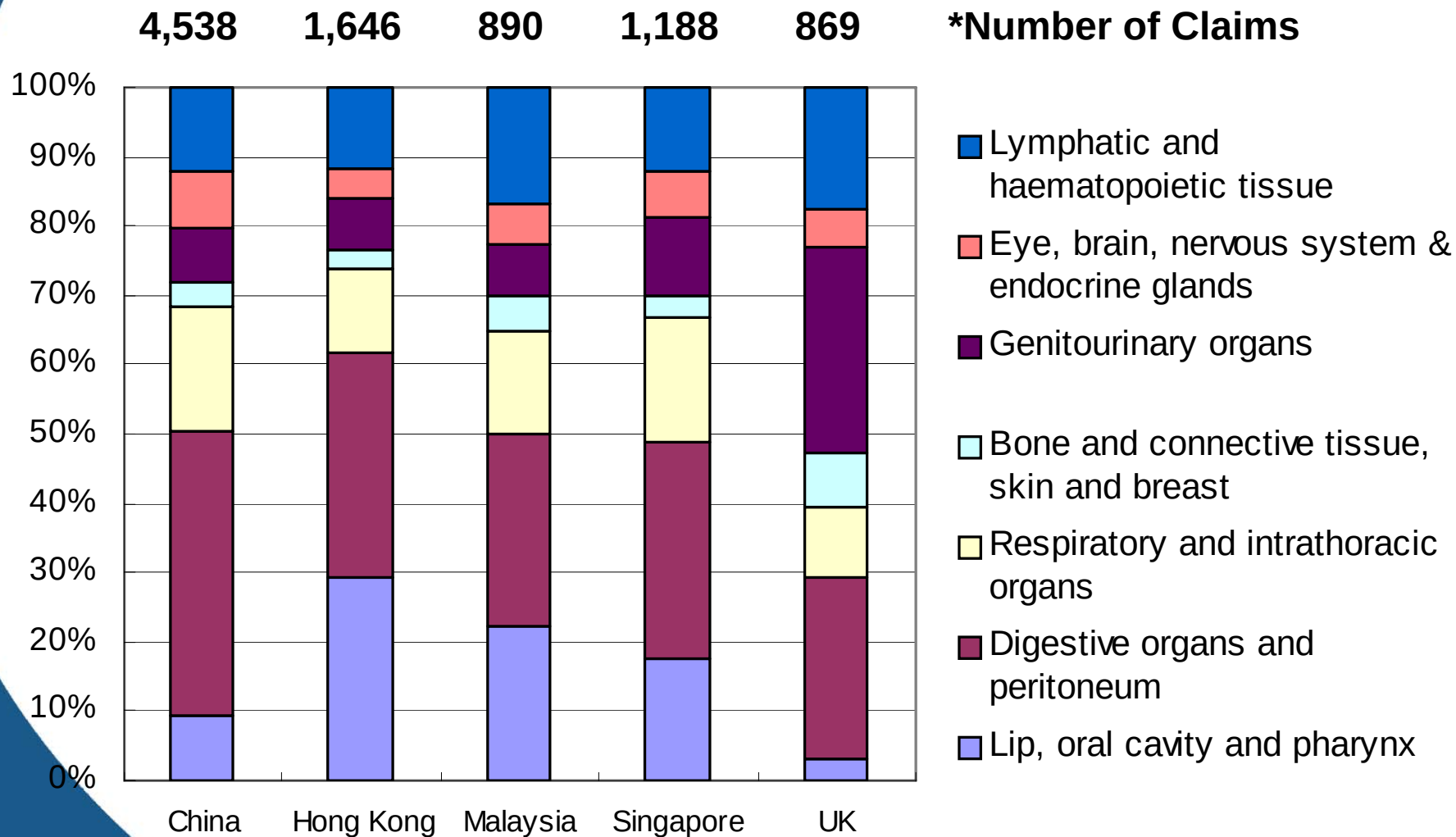
- Overview
- Declined claims
- Time Lag
- Cause of claims

Cancer Claims

Cancer Sites

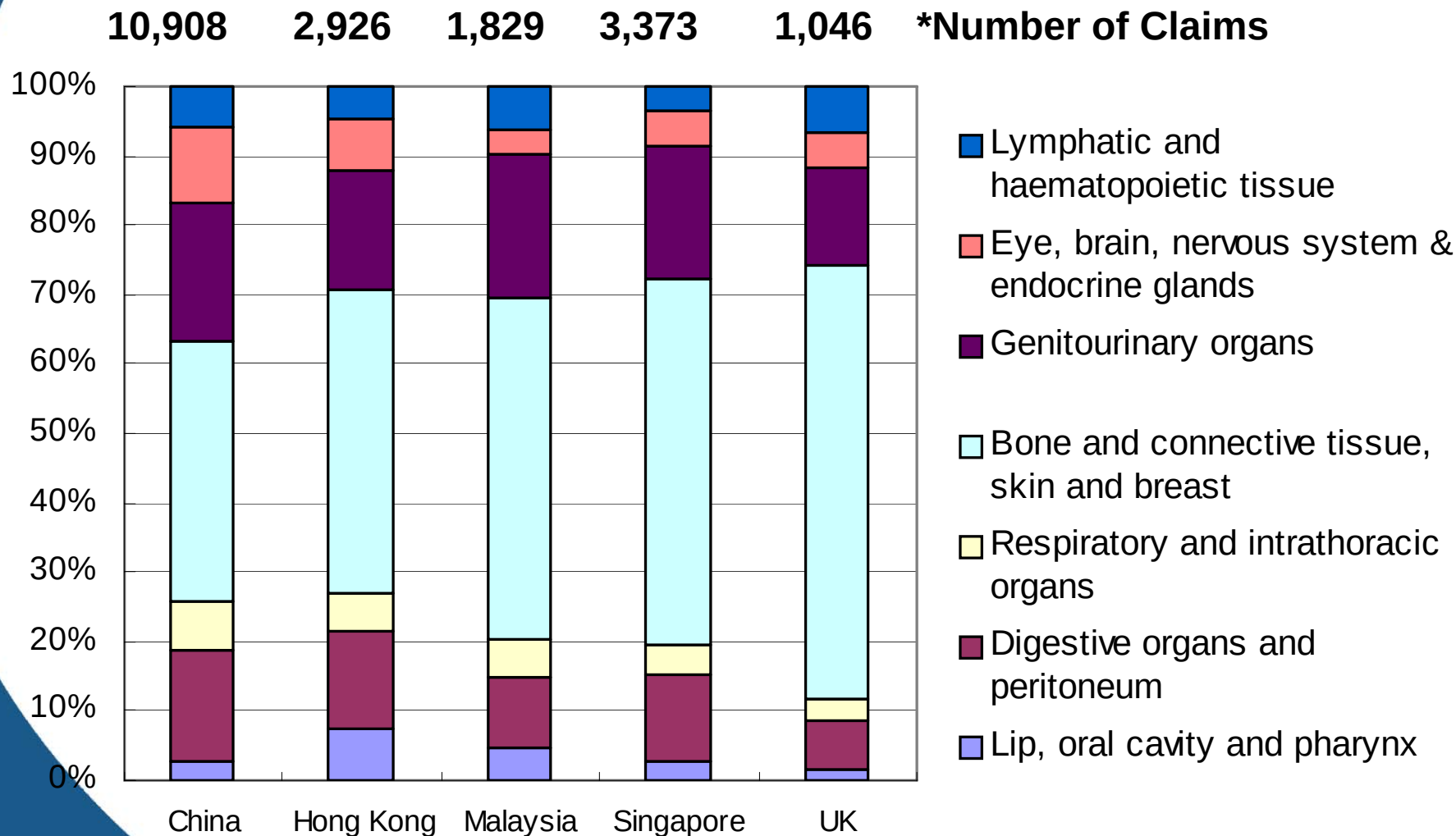
- Incidence Rates
- Trends in Cancer
- Heart Attack, Stroke and Heart Related Conditions Incidence

Cancer Site Distribution for Cancer Claims by Market – Males



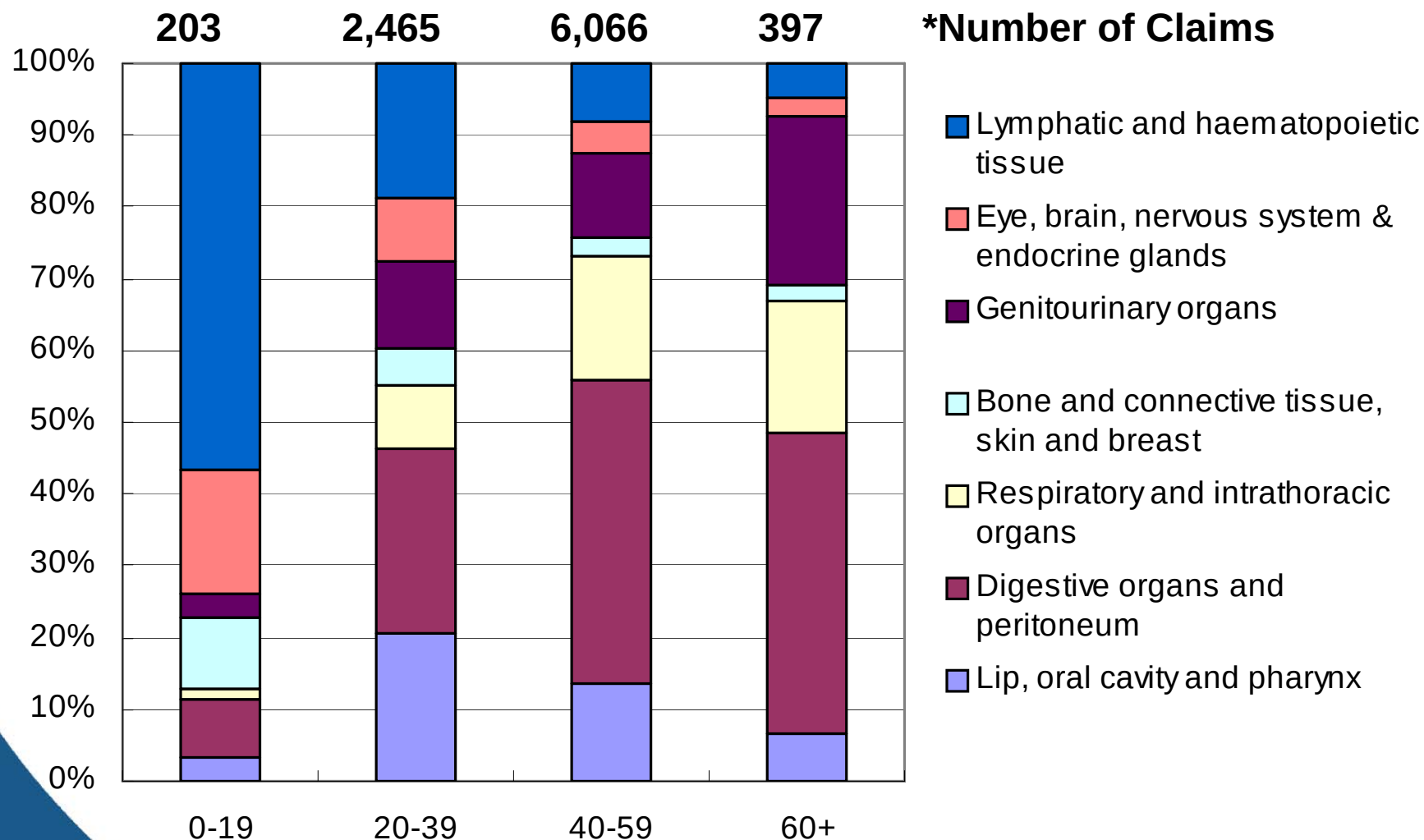
*excluding claims with unknown cancer sites

Cancer Site Distribution for Cancer Claims by Market – Females



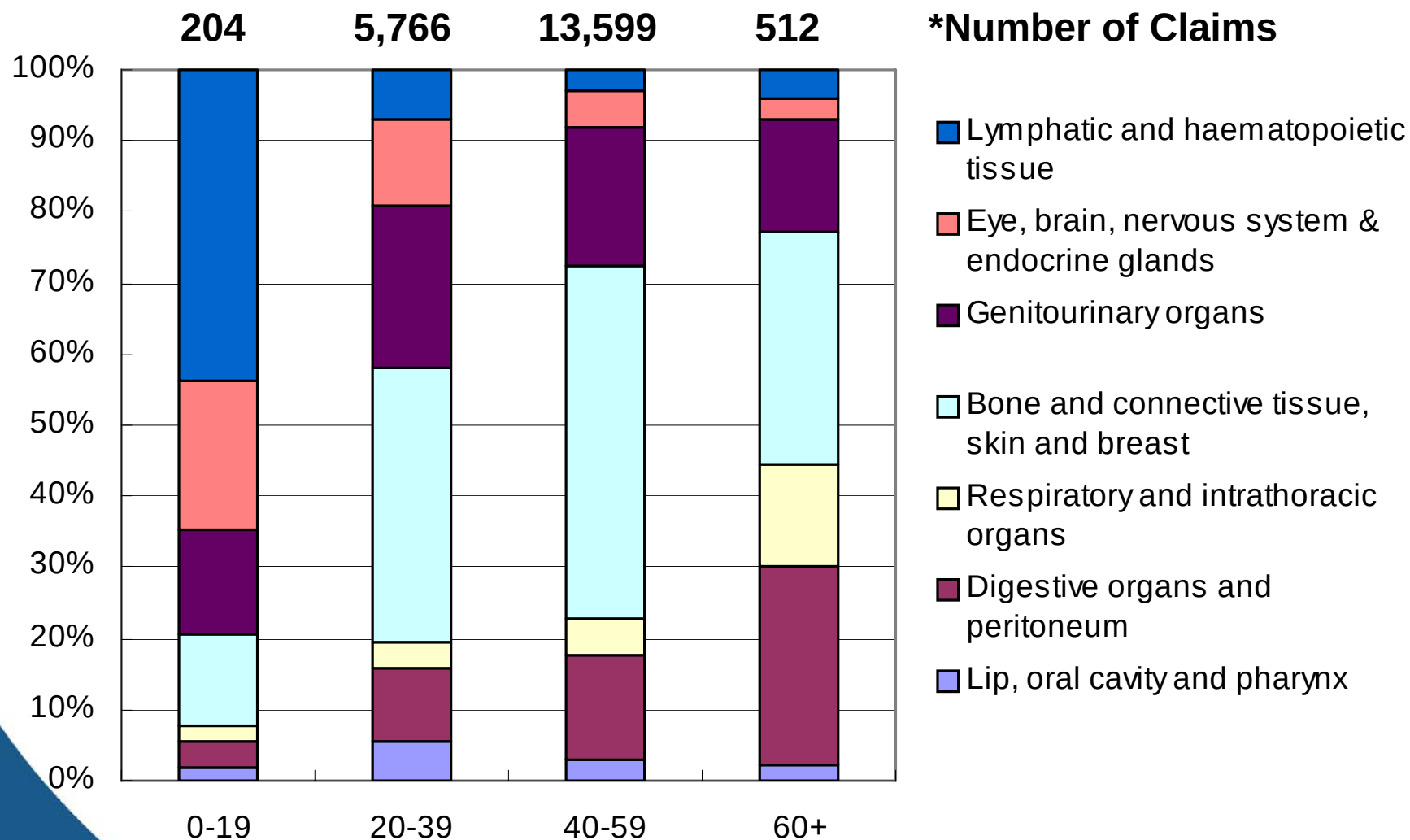
* excluding claims with unknown cancer sites

Cancer Site Distribution by Age Band - Males



* excluding claims with unknown cancer sites

Cancer Site Distribution by Age Band - Females

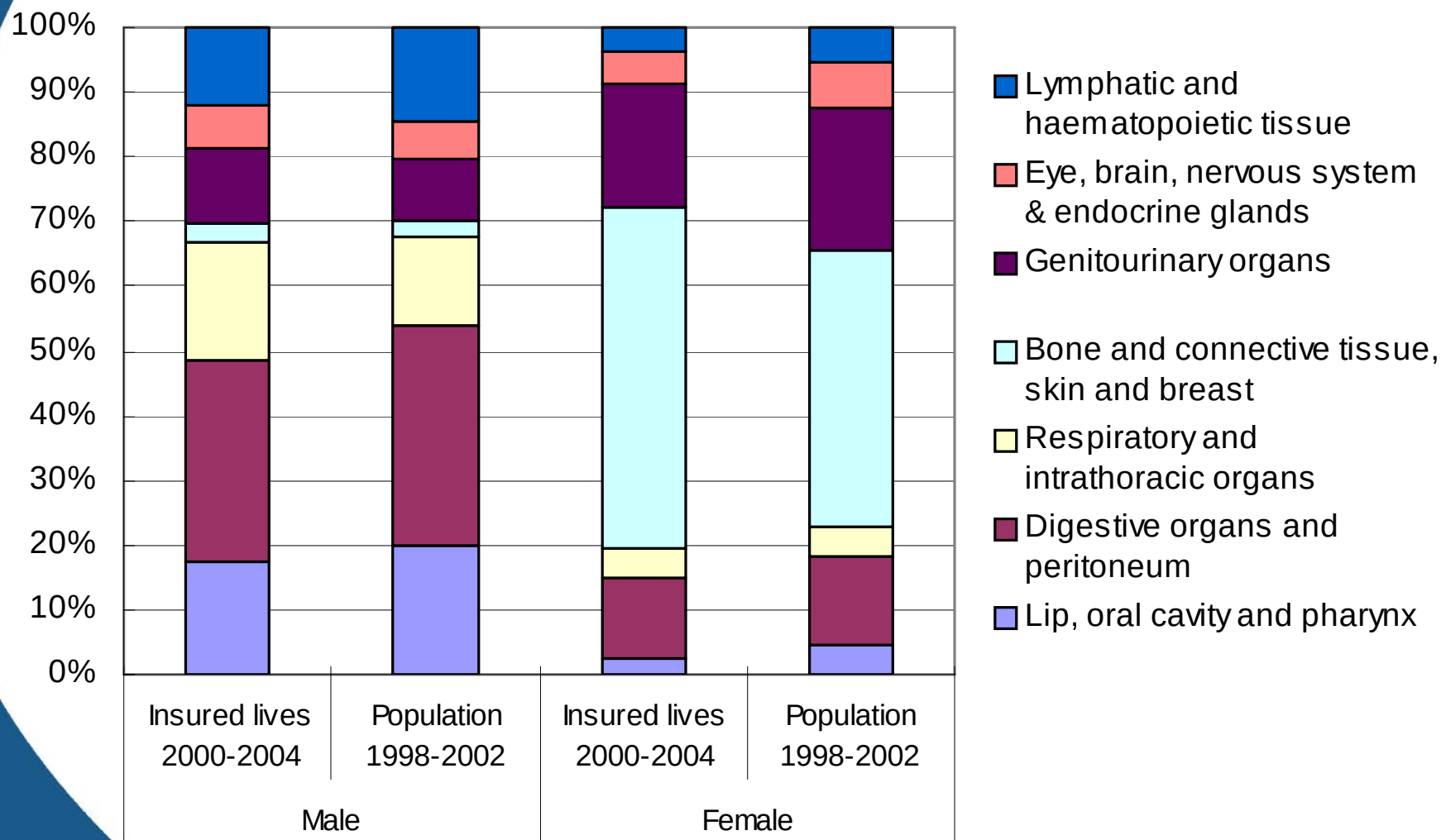


* excluding claims with unknown cancer sites

Comparing Cancer Site Distribution between General Population and Insured Lives

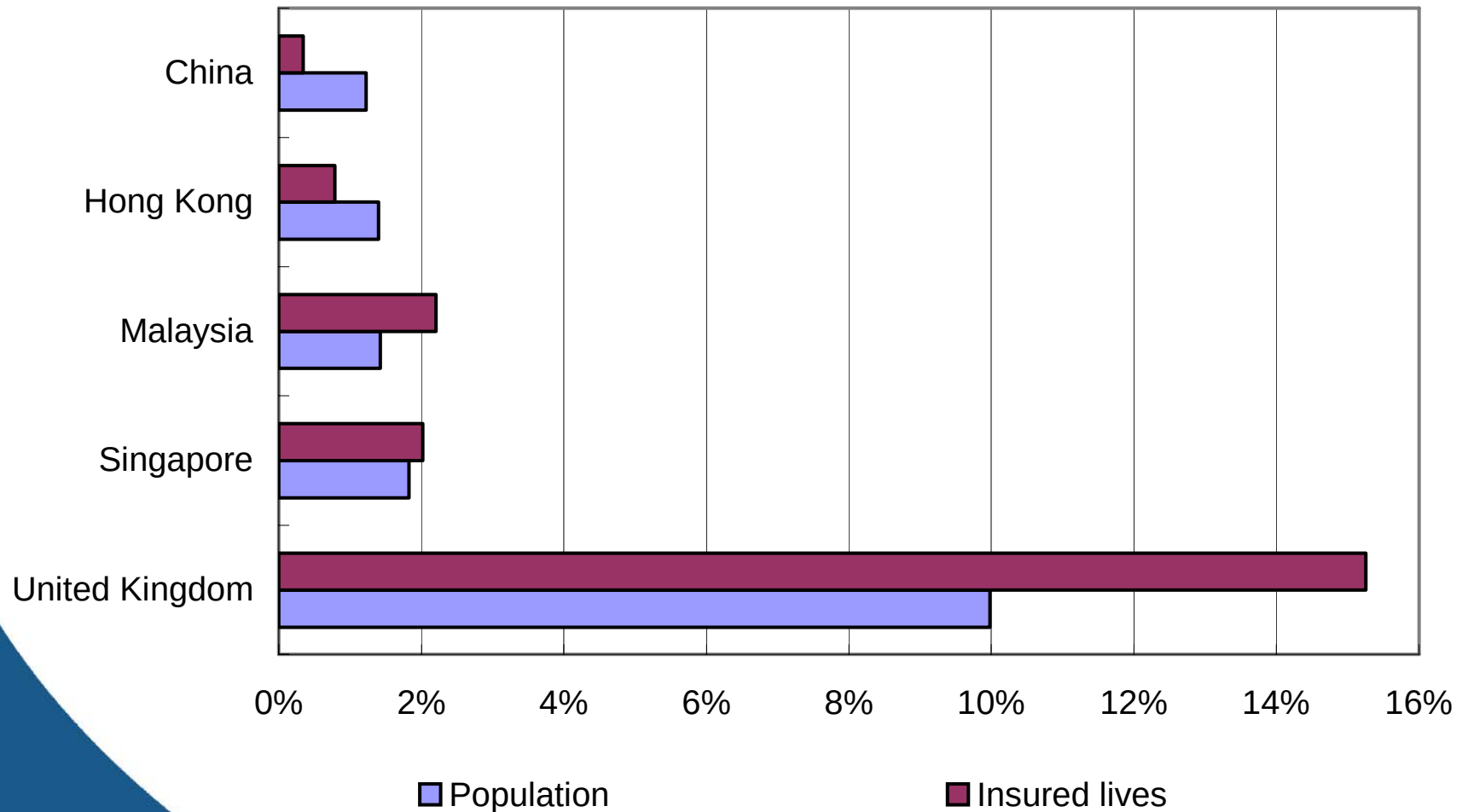
- Comparing insured lives' results with population statistics on cancer site distribution.
- Population statistics are adjusted by claimant's age structure.
- Notes:
 - Population statistics may include more than one primary cancer site
 - Non-melanomatous skin cancers are excluded.
 - Source of population statistics:
 - Hong Kong Cancer Registry – New cancer cases in year 2000-2004
 - Singapore Cancer Registry Report No.6 - New cancer cases in 1998-2002
 - Malaysia National Cancer Registry - New cancer cases in 2002-2004
 - UK Office for National Statistics – Cancer incidence rates in 2003
 - China Cancer Registry – Cancer incidence rates for Beijing, Shanghai, Tianjin, Haerbin and Wuhan in 1993-1997. Note that China statistics are weighted avg of 5 regions (Beijing, Shanghai, Tianjin, Haerbin and Wuhan). Note statistics might be outdated and less credible.

Comparison of Cancer Site Distribution Between General Population and Insured Lives – Singapore



Prostate Cancer Claims

Prostate Cancer as % of All Cancers - Insured Lives Vs Population Age-adjusted



Prostate Cancer

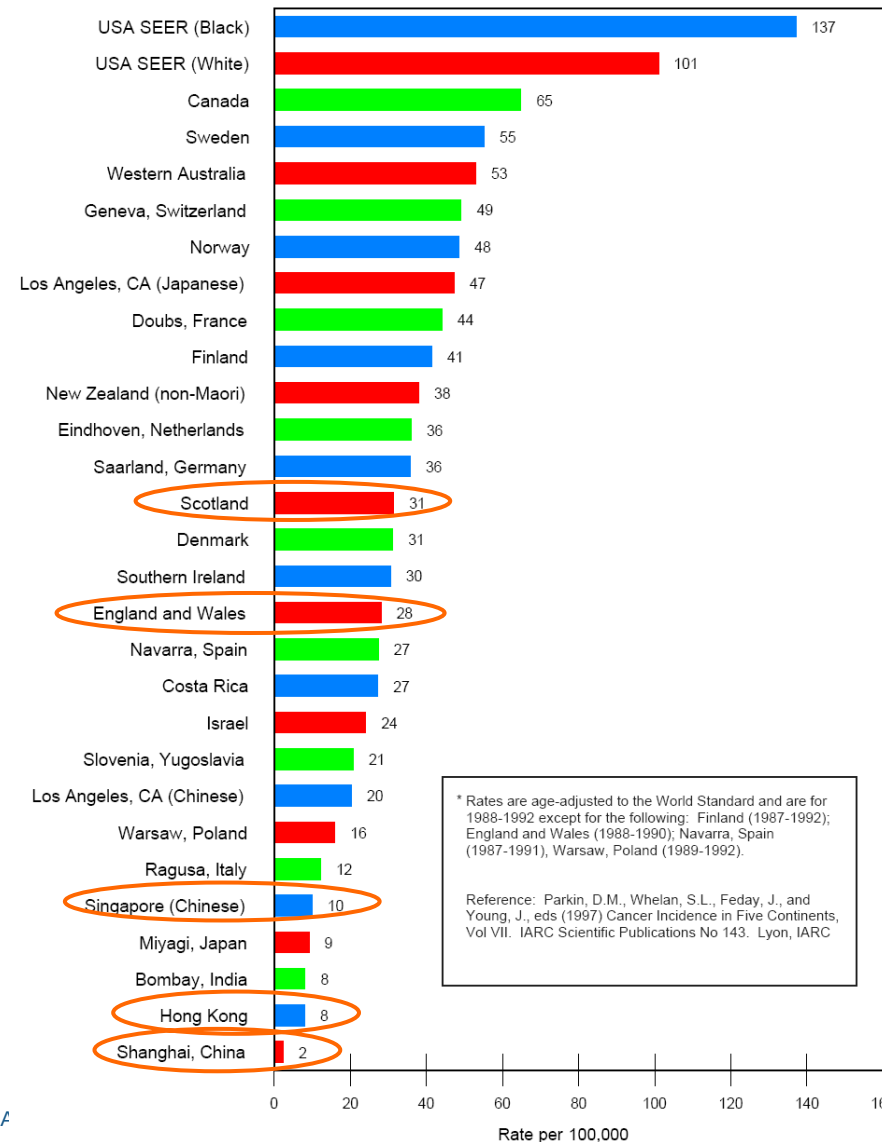
Prostate Cancer SEER Incidence and U.S. Mortality 1988-1992

	Incidence	Mortality
Black	180.6	53.7
Chinese	46.0	6.6
Filipino	69.8	13.5
Hawaiian	57.2	19.9
Japanese	88.0	11.7
Native American*	52.5	16.2
White (Total)	134.7	24.1
White Hispanic	92.8	15.9
White Non-Hispanic	137.9	24.4

Rates are per 100,00 and are age-adjusted to the 1970 U.S. standard. Source: *Racial/Ethnic Patterns of Cancer in the United States, 1988-1992*; NIH Pub. No. 96-4104.

*Based only on data from New Mexico

Prostate Cancer International Incidence Rates*



Admitted Prostate Cancer Claims as % of all Cancers

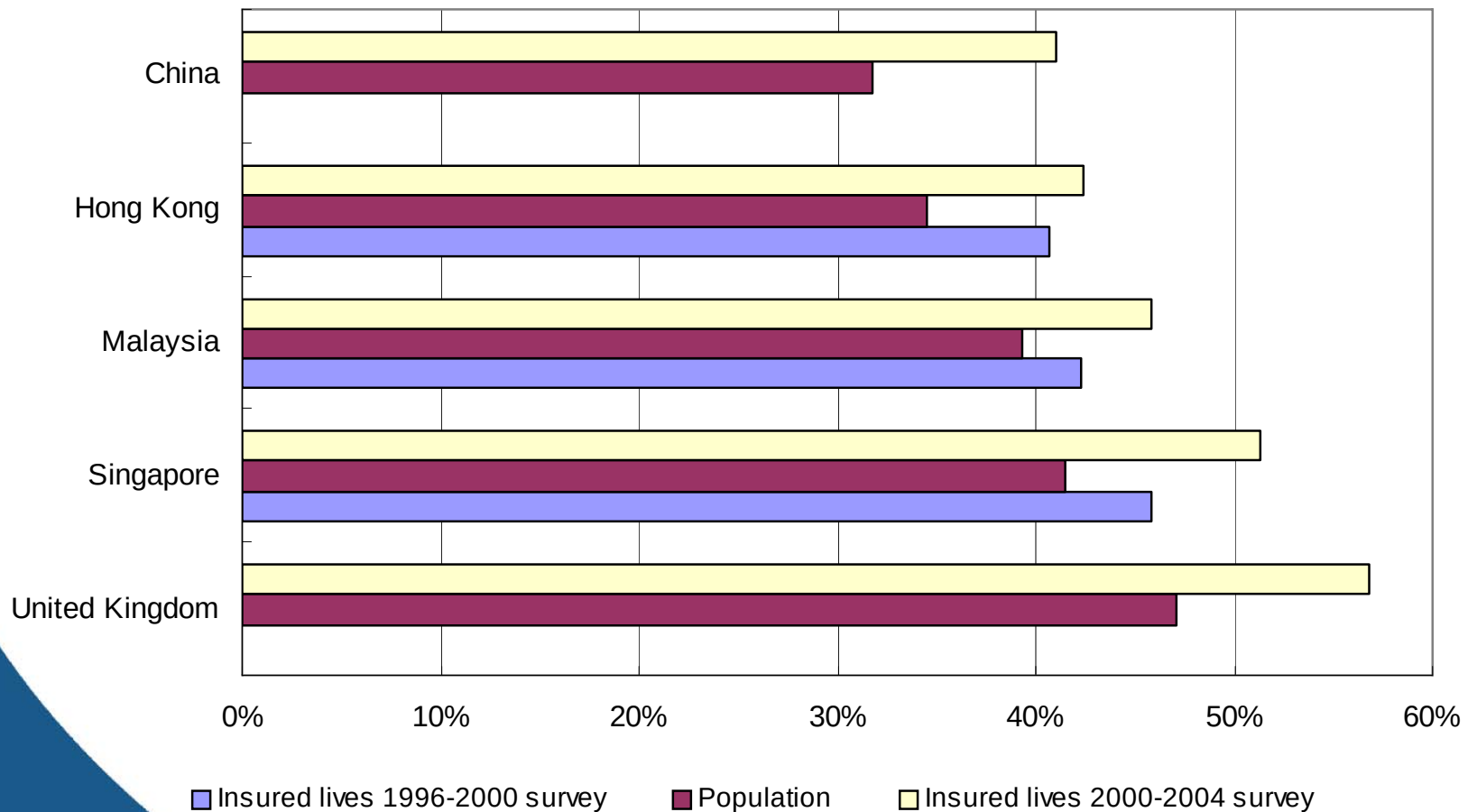
<i>Diagnosis Year</i>	<i>China</i>	<i>Hong Kong</i>	<i>Malaysia</i>	<i>Singapore</i>	<i>United Kingdom</i>
2000	0.0%	0.4%	2.7%	2.2%	10.6%
2001	0.1%	0.0%	1.6%	2.0%	12.7%
2002	0.5%	0.6%	4.1%	0.9%	13.6%
2003	0.3%	1.8%	1.9%	1.7%	16.2%
2004	0.4%	1.0%	1.2%	3.1%	22.6%
2000-2004	0.3%	0.8%	2.2%	2.0%	15.3%

Cancer definition – exclusion of early stage prostate cancer

- **Old ABI Definition (before Dec 2002)**
 - A malignant tumour characterised by the uncontrolled growth and spread of malignant cells and invasion of tissue. The following are excluded:
 - All tumours which are histologically described as pre-malignant, as non-invasive or as cancer in situ
 - All forms of lymphoma in the presence of any Human Immunodeficiency Virus
 - Kaposi's sarcoma in the presence of any Human Immunodeficiency Virus
 - Any skin cancer other than invasive malignant melanoma
- **New Cancer definition revised (after Dec 2002) to read:**
 - Any malignant tumour The term cancer includes leukemia and Hodgkins disease but the following are excluded:
 - ...
 - **All tumours of the prostate unless histologically classified as having a Gleason score greater than 6 or having progressed to at least TNM classification T2N0M0**
 - ...

Breast Cancer Claims

Breast Cancer as % of All Cancers in Females Insured Lives Vs Population



Breast Cancer Claims

Breast Cancer as % of All Cancers in Females Insured Lives Vs Population

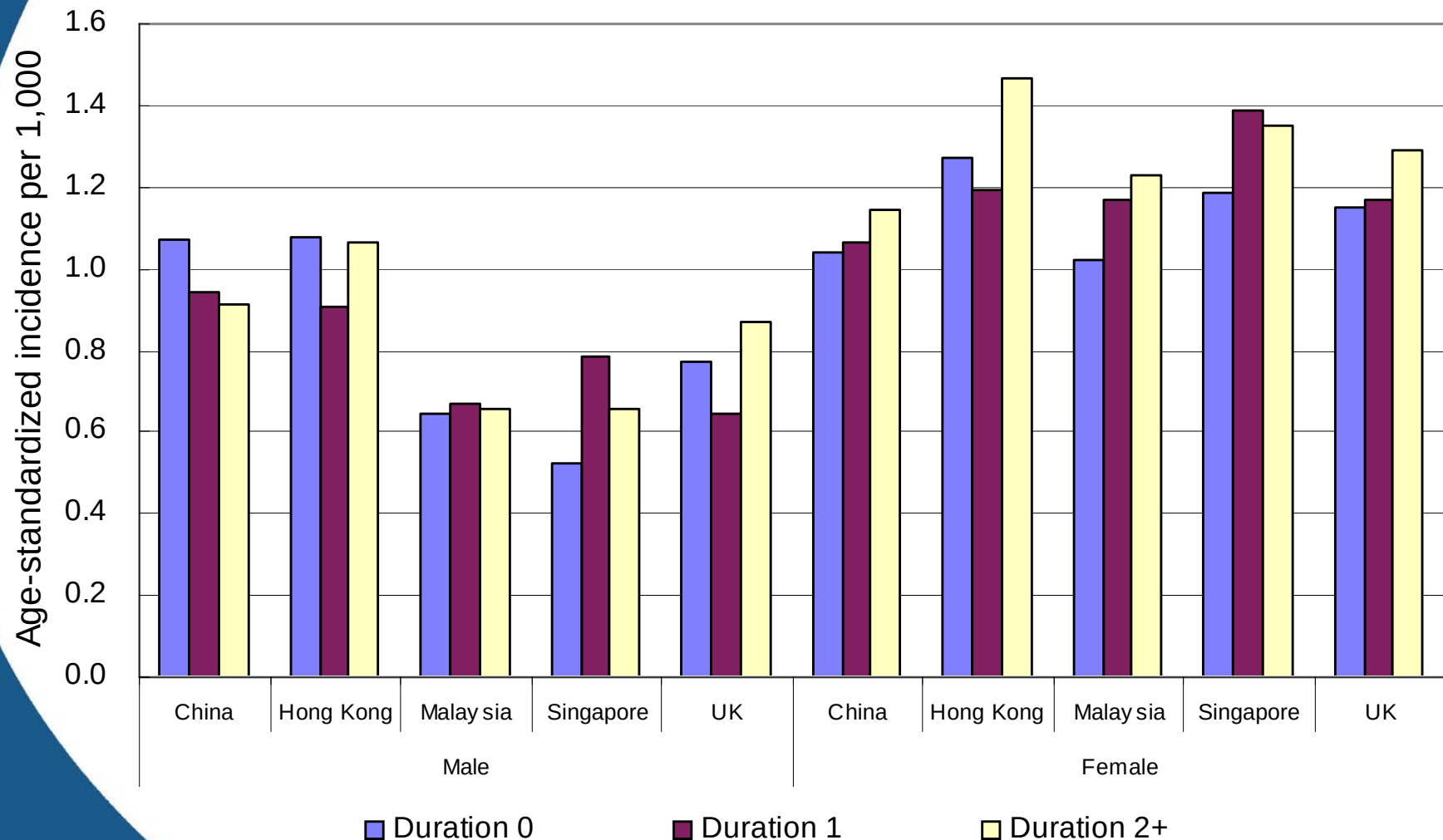
Breast Cancer Incidence Rate (per 1,000)			
	Insured lives 2000-2004 (duration 2+)	Population	Insured Lives/ Population
China	0.449	0.329	137%
Hong Kong	0.635	0.526	121%
Malaysia	0.587	0.634	92%
Singapore	0.699	0.655	107%
UK	0.727	0.819	89%

Agenda

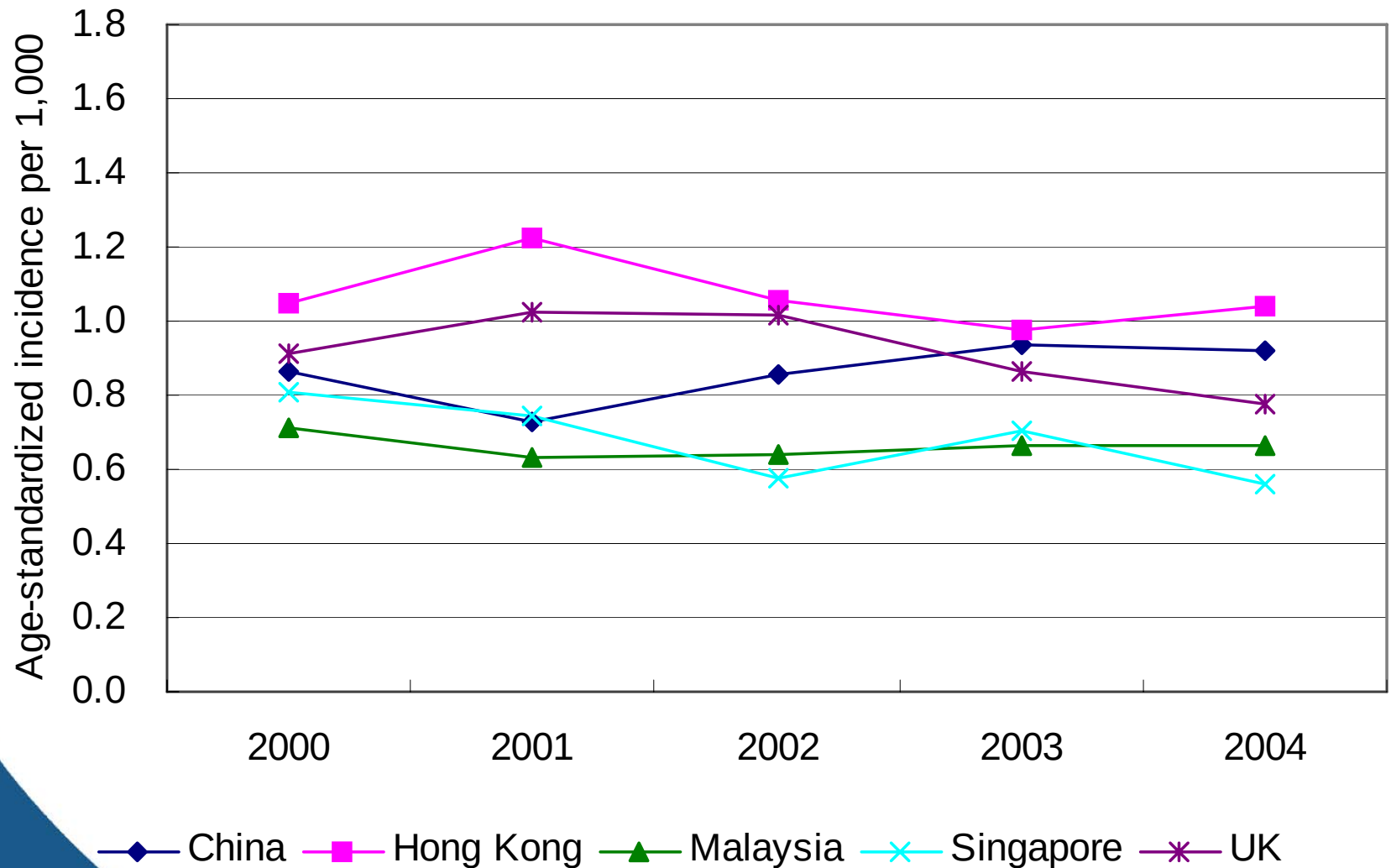
- Claims Analysis
 - Overview
 - Declined claims
 - Time Lag
 - Cause of claims
 - Cancer Claims
 - Cancer Sites
- Incidence Rates

Trends in Cancer
- Heart Attack, Stroke and Heart Related Conditions Incidence

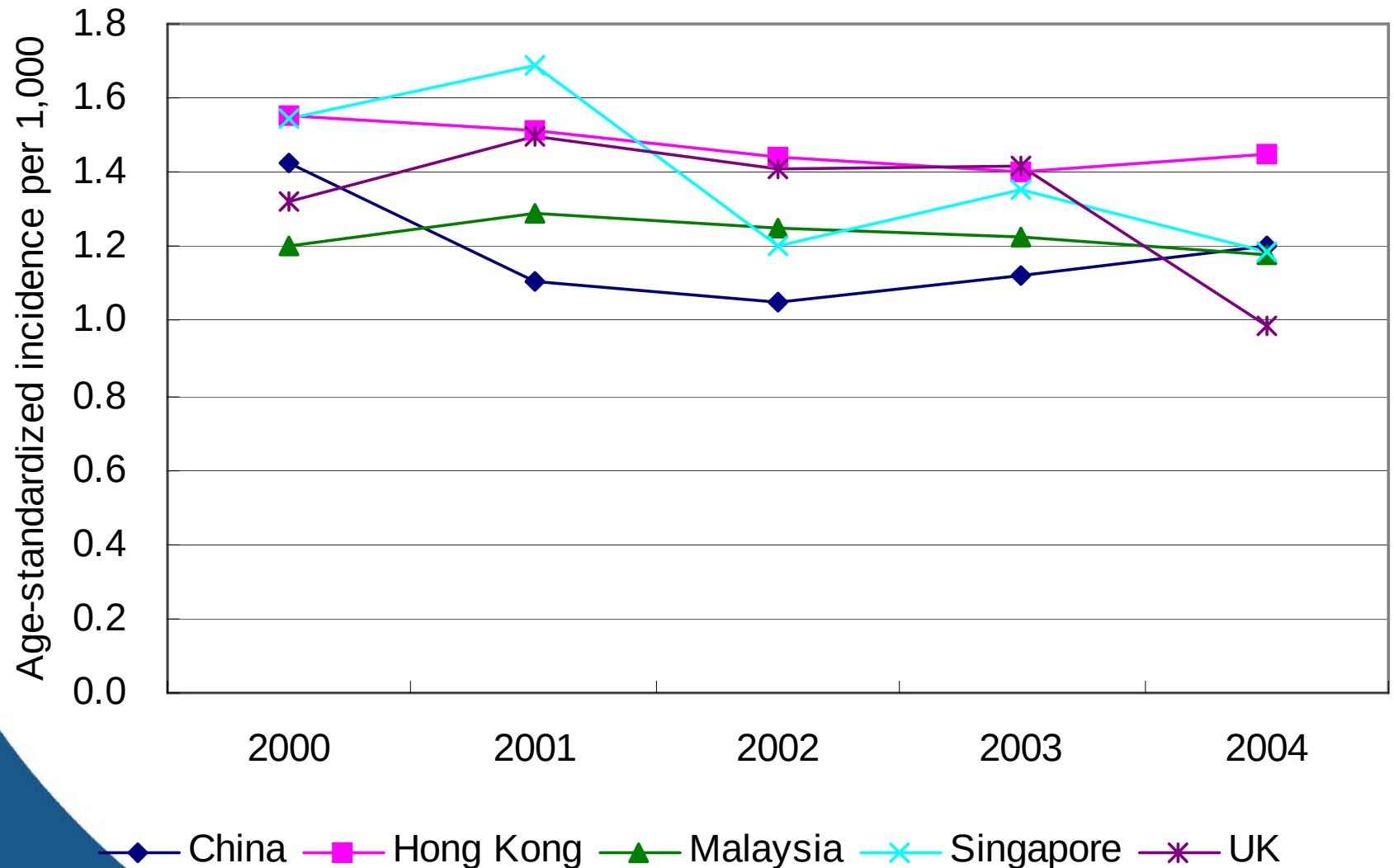
Age Standardised Cancer Incidence Rate by Market and Duration



Age Standardised Cancer Incidence (Duration 2+) by Year and Market – Males



Age Standardised Cancer Incidence (Duration 2+) by Year and Market – Females



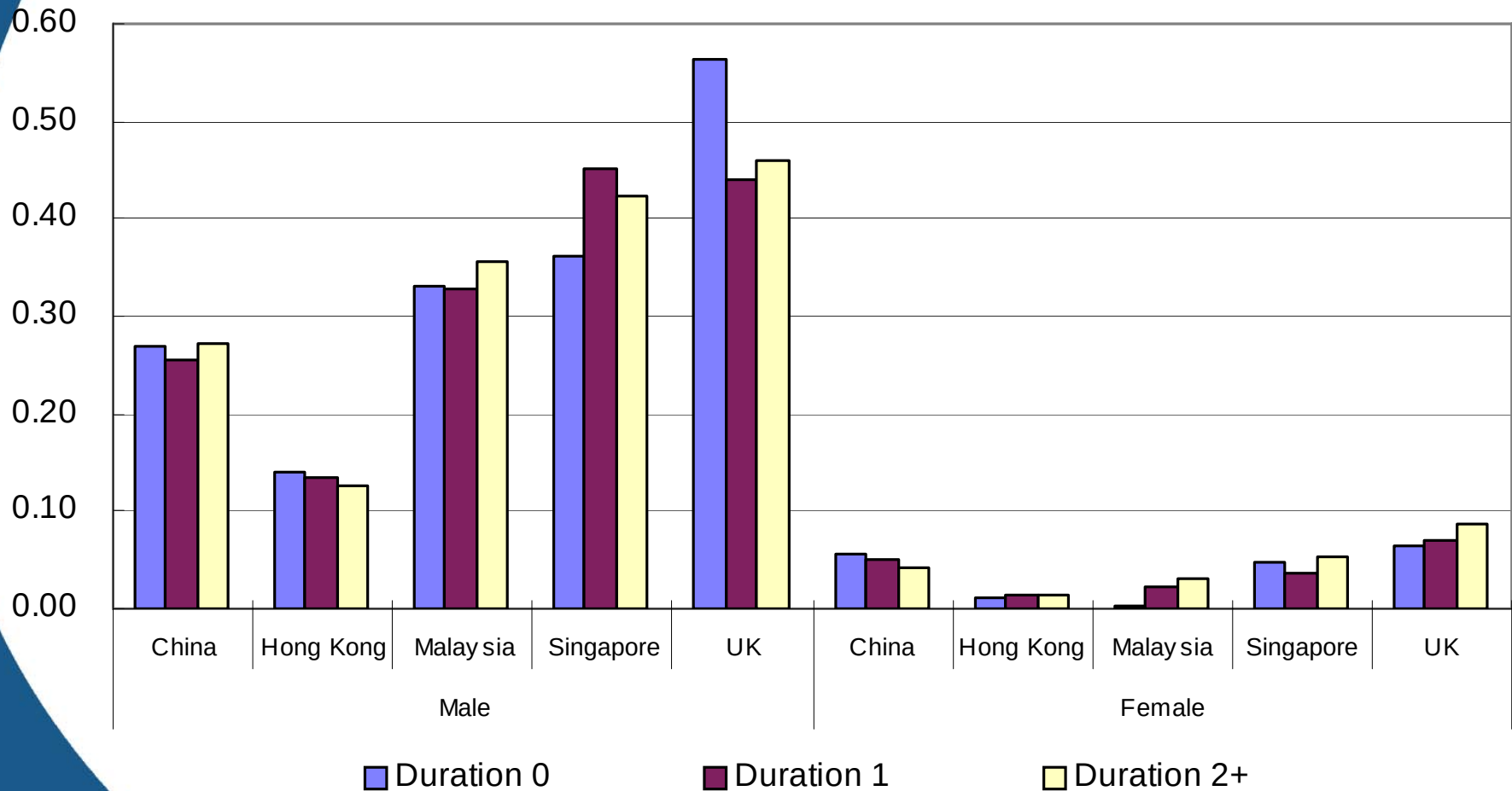
Agenda

- Claims Analysis
 - Overview
 - Declined claims
 - Time Lag
 - Cause of claims
 - Cancer claims

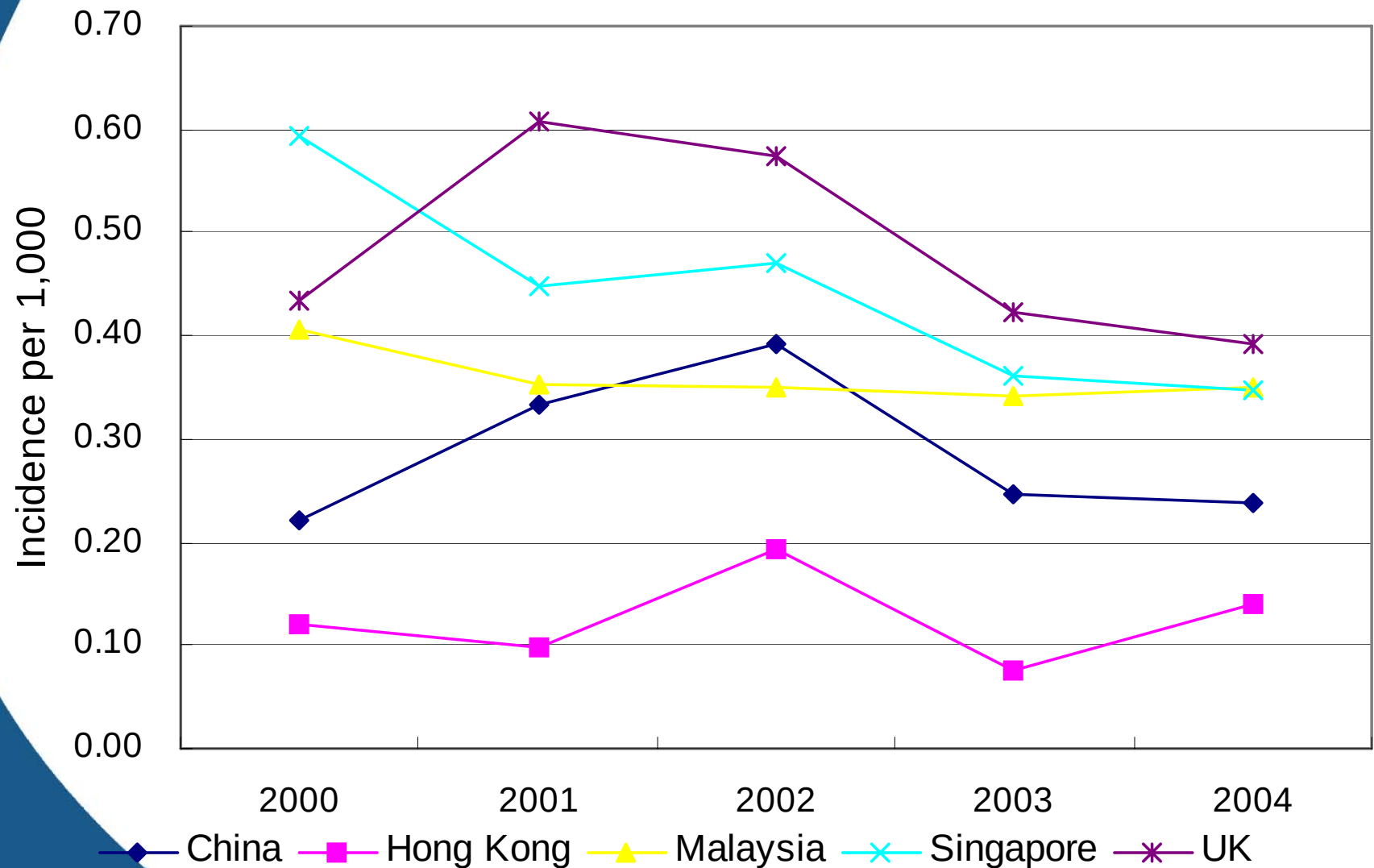
Incidence of Heart Attack, Heart Related Conditions, Stroke

- Graduated Incidence Rates and A/E Ratios

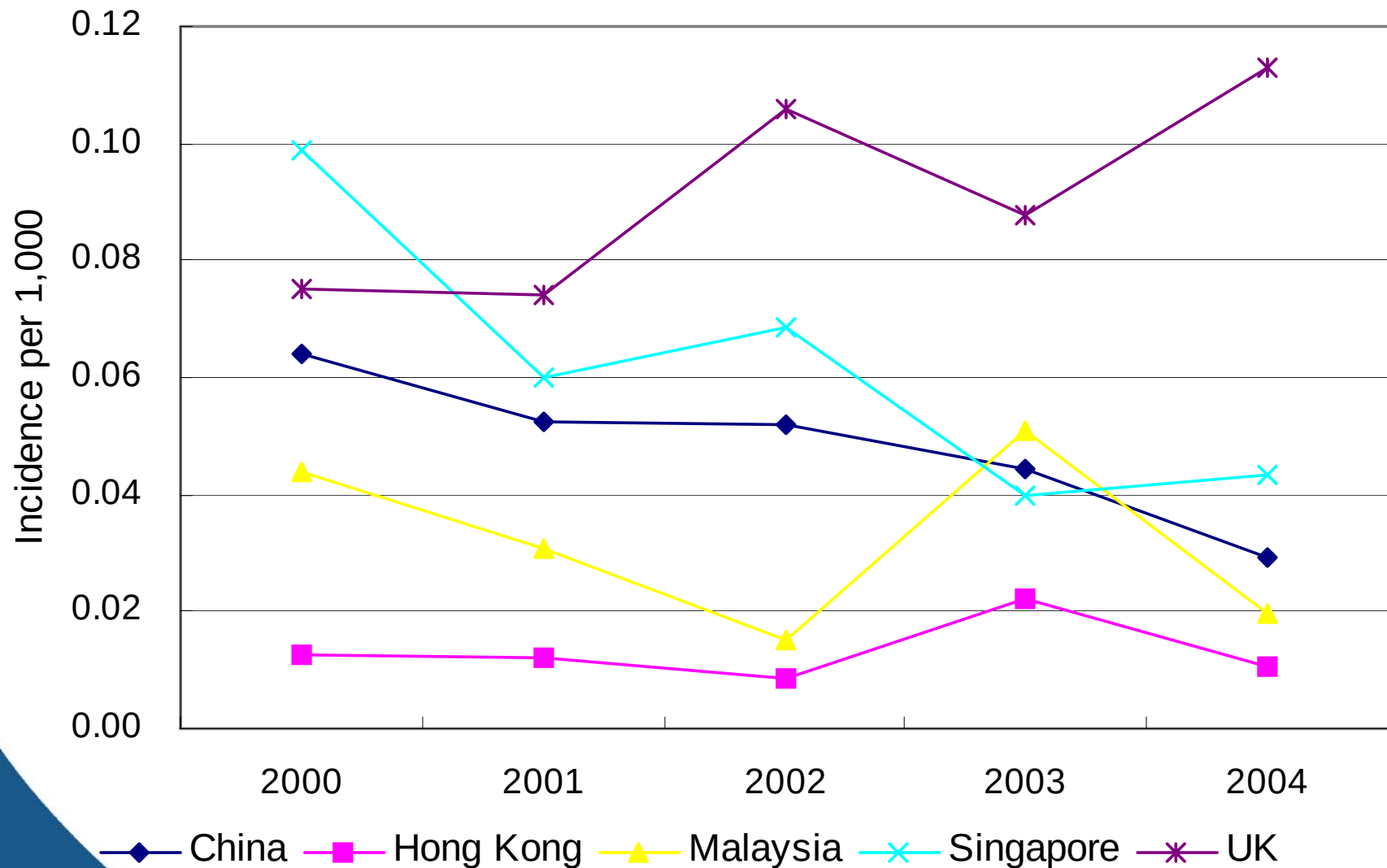
Age Standardised Heart Attack Incidence Rate (per 1,000) by Market and Duration



Age Standardised Heart Attack Incidence (Duration 2+) by Year and Market – Males

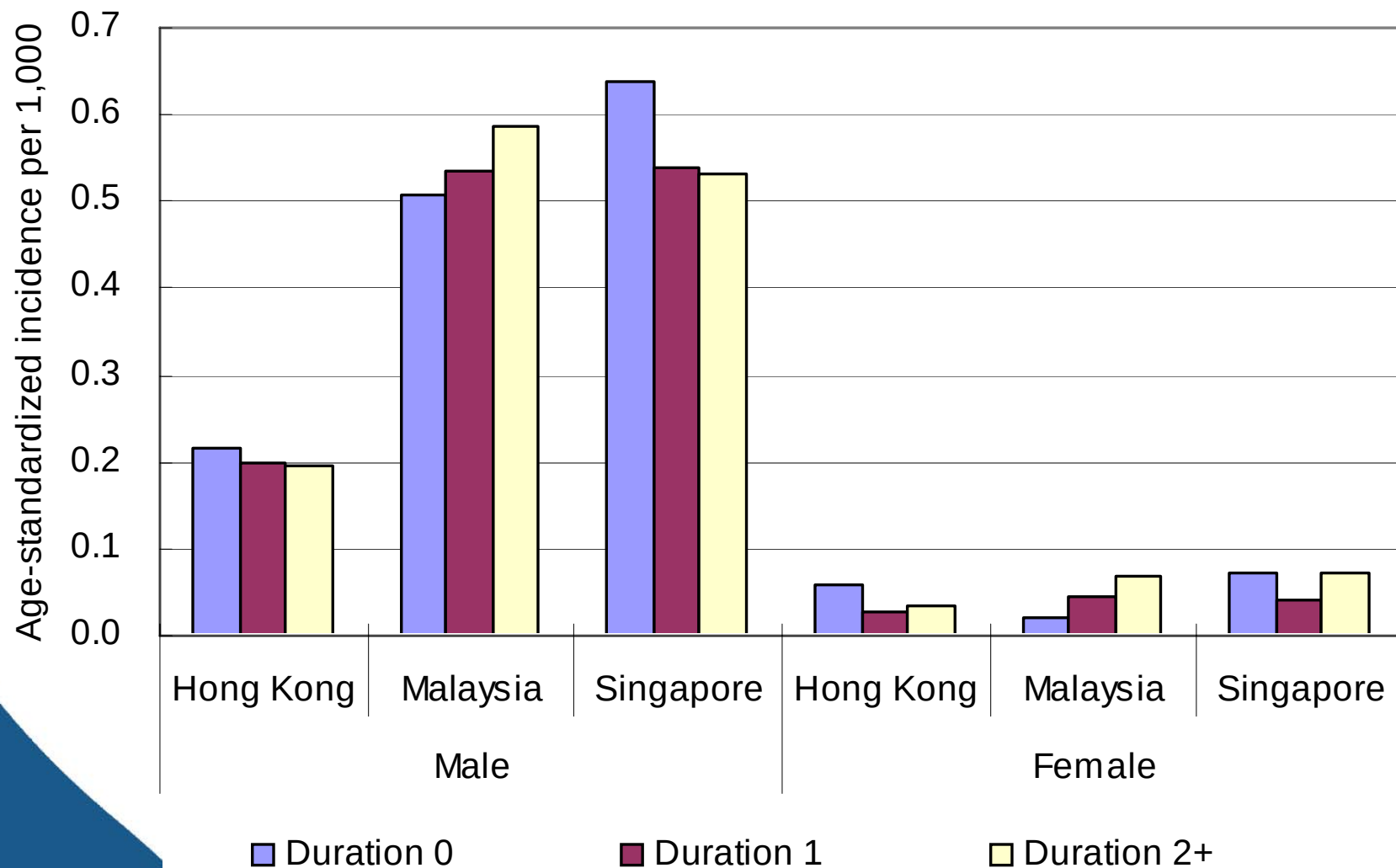


Age Standardised Heart Attack Incidence (Duration 2+) by Year and Market – Females

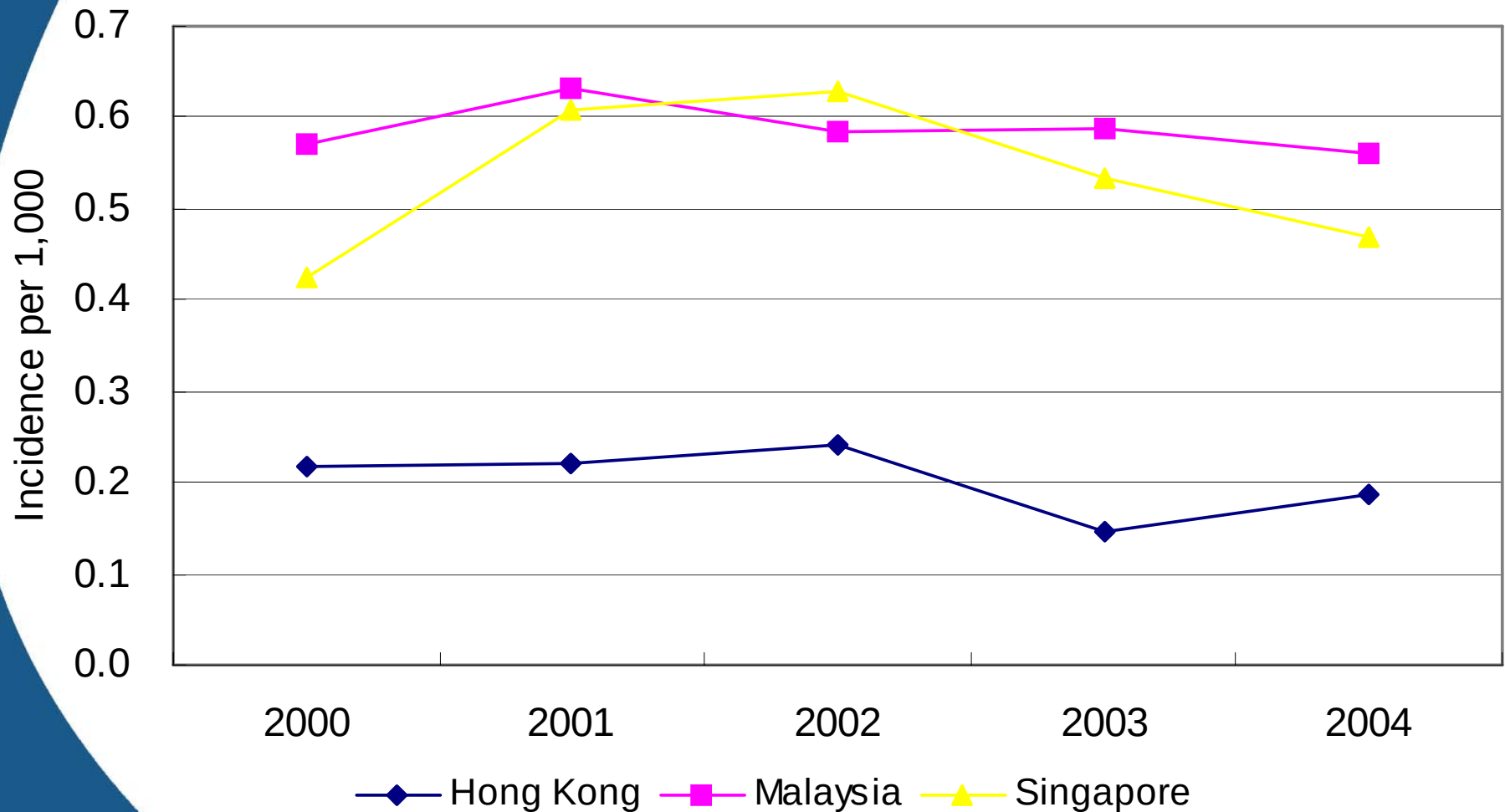


Age Standardised Incidence Rate of Heart Related Conditions by Market and Duration

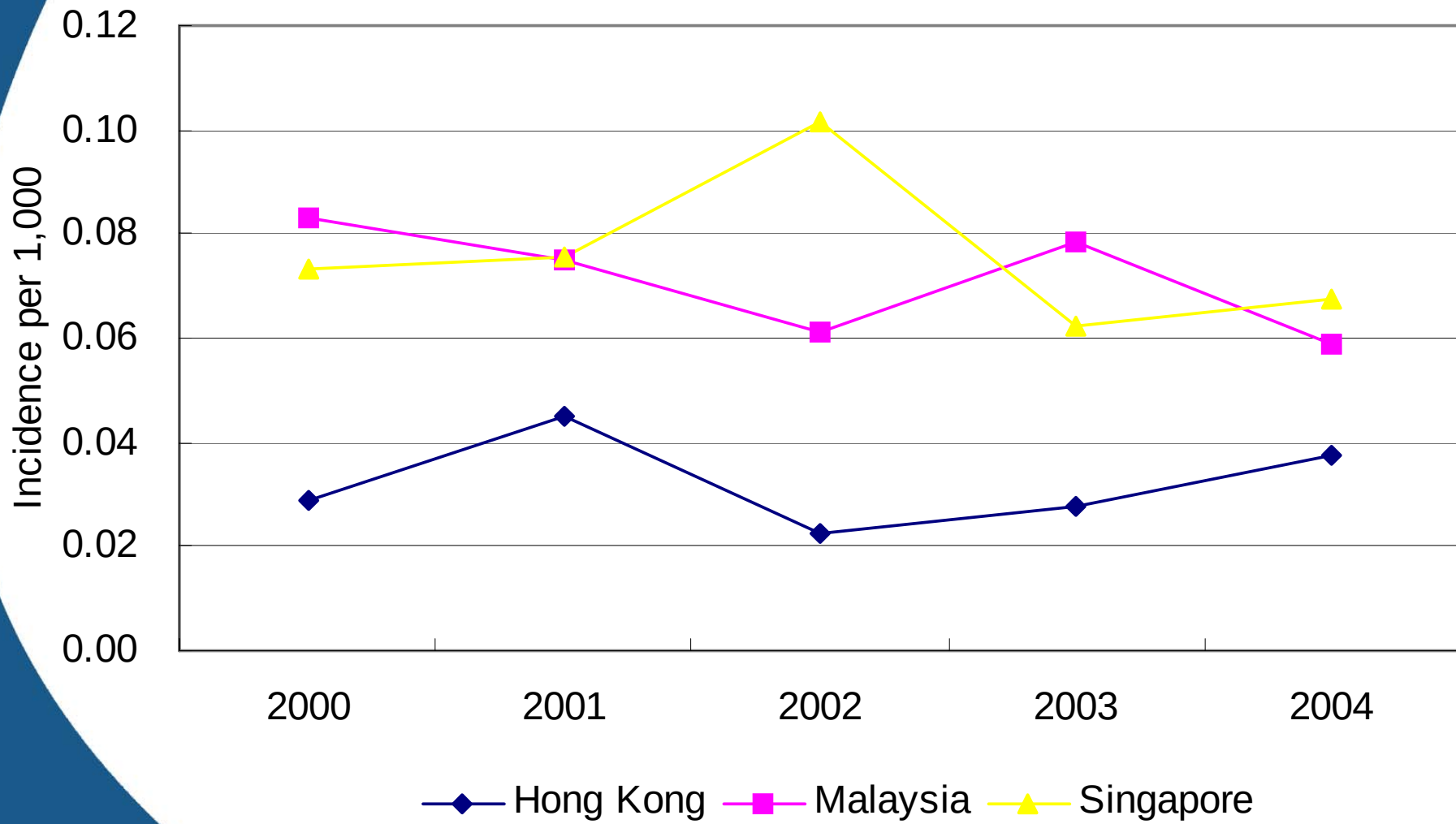
Heart Related Conditions - include Heart Attack, CABS, Other Serious CAD, Heart Valve Surgery and Surgery to Aorta



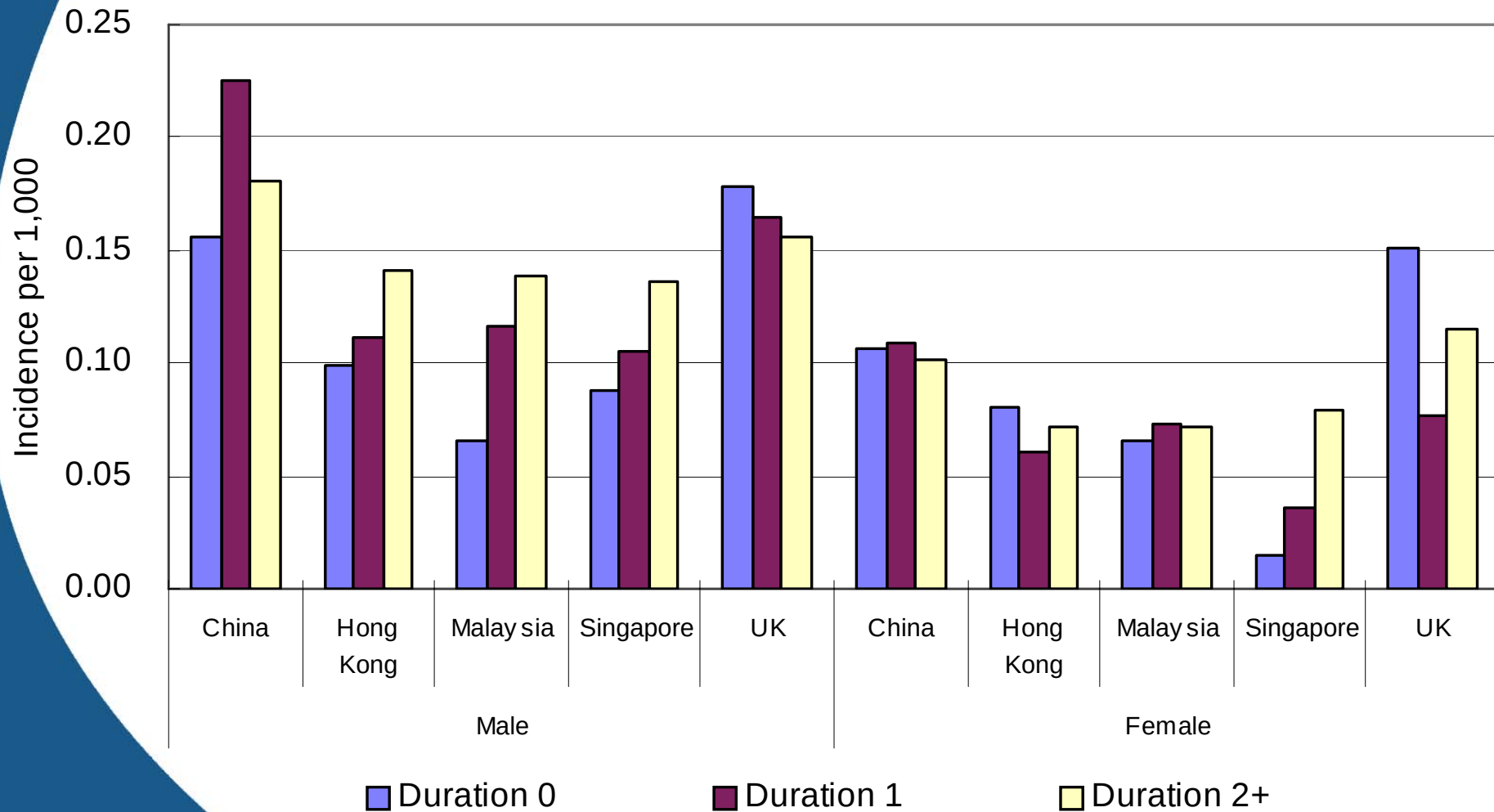
Age Standardised Incidence Rate (dur 2+) of Heart Related Conditions by Year - Males



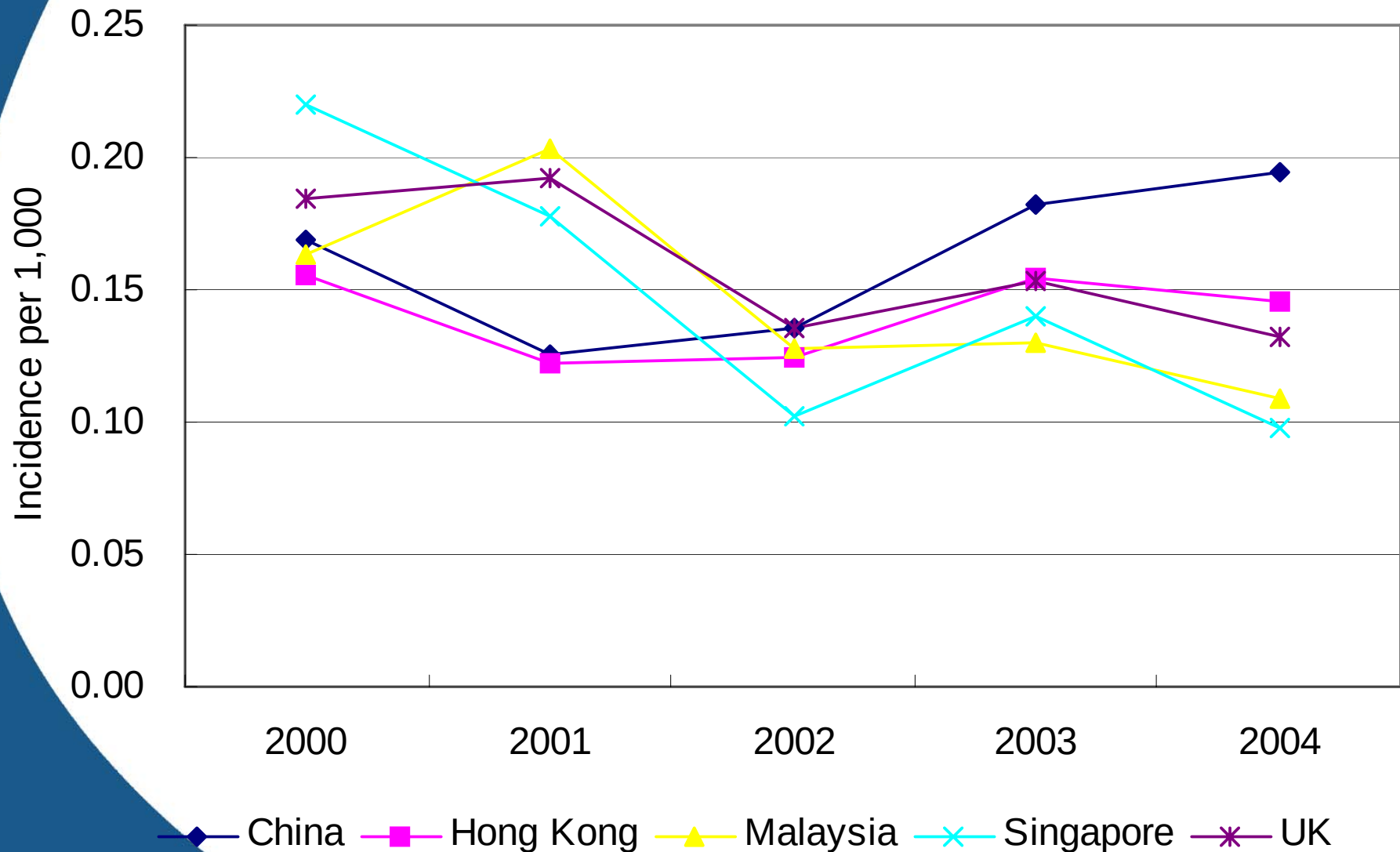
Age Standardised Incidence Rate (dur 2+) of Heart Related Conditions by Year - Females



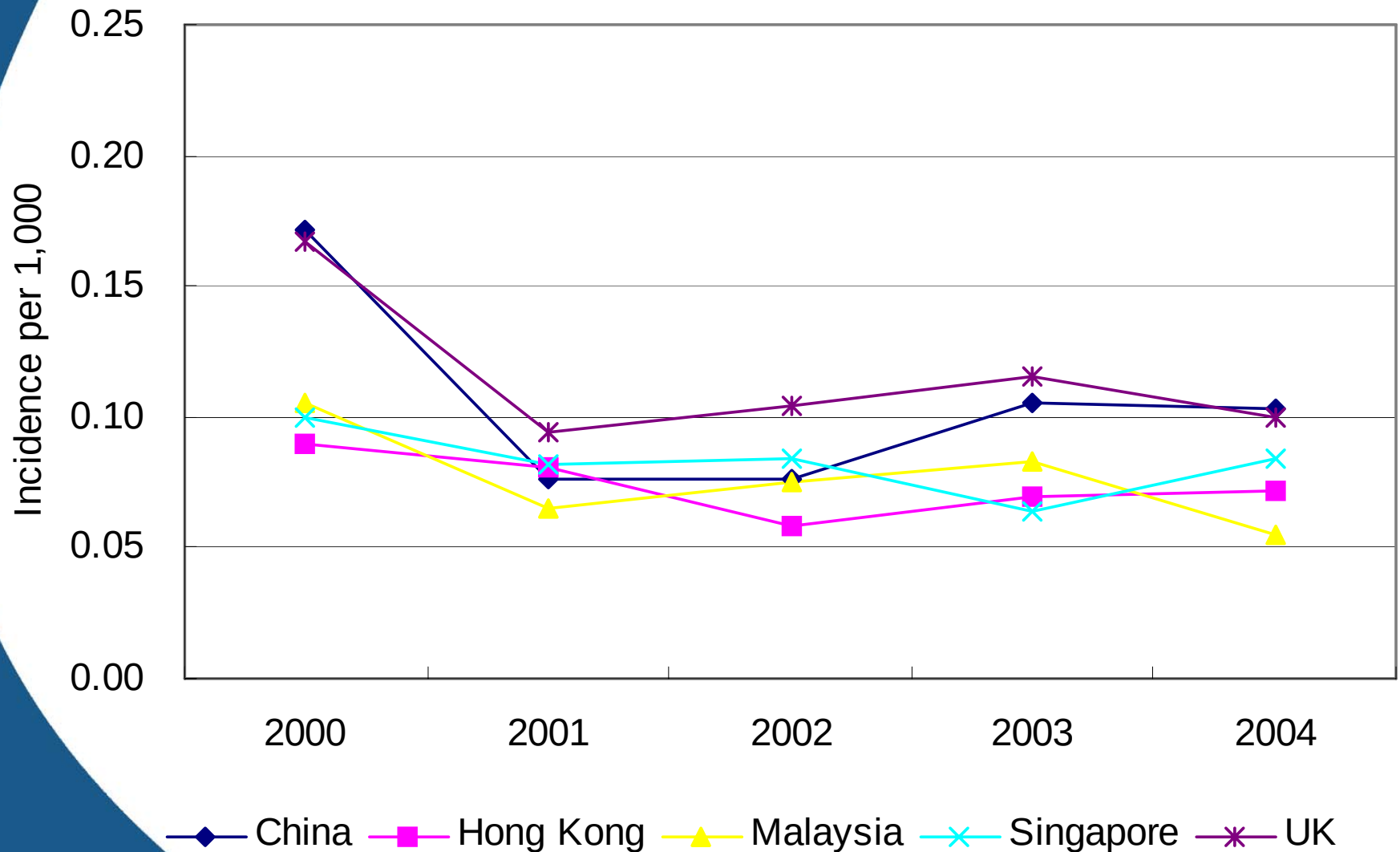
Age Standardised Stroke Incidence by Market and Duration



Age Standardised Stroke Incidence Rate by Year and Market for Males



Age Standardised Stroke Incidence Rate by Year and Market for Females



Summary – Cancer Claims & Incidence Rates

- **Cancer site:** Female Breast Cancer & Prostate Cancer are more common in insured lives than in population.
- Higher breast cancer incidence in insured lives in China, Hong Kong and Singapore
- **Prostate cancer in UK - Exclusion** of T1N0M0 prostate cancer will have positive impact
- **Cancer Incidence –**
 - positive trend (8.91% for males and 6.44% for females) in Singapore
- **Heart Attack and Stroke Incidence –**
 - slightly positive trend in Singapore

Agenda

- Claims Analysis
 - Overview
 - Declined claims
 - Time Lag
 - Cause of claims
 - Cancer claims
 - Incidence of Heart Attack, Heart Related Conditions, Stroke

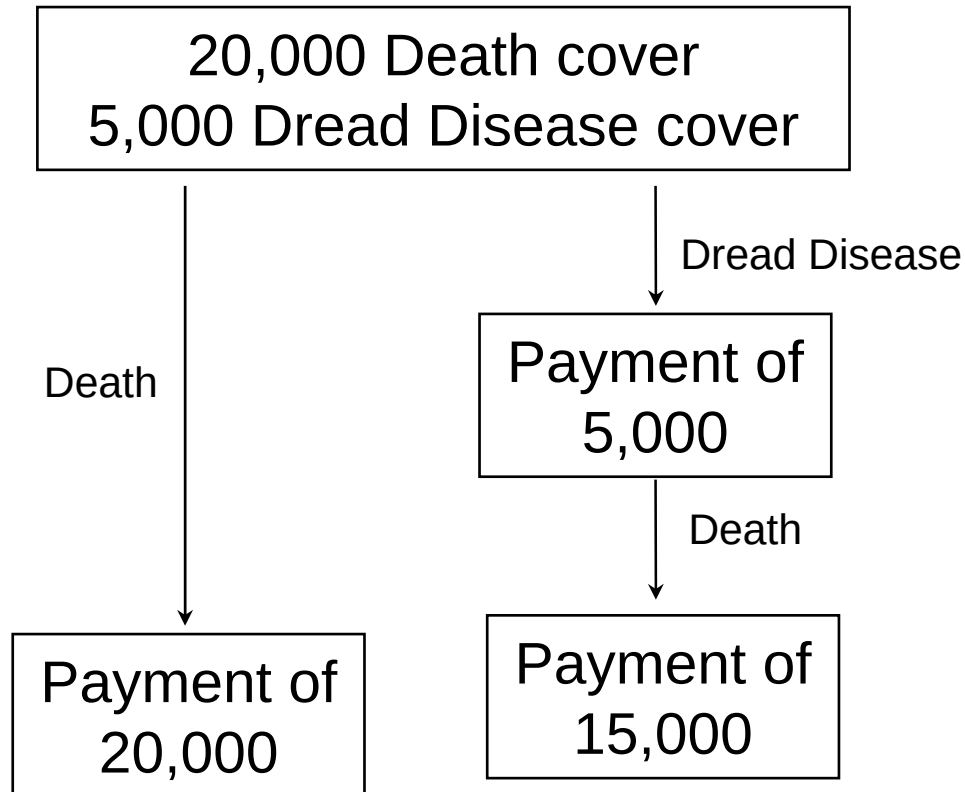
Graduated Incidence Rates and A/E Ratios

Basis

- Graduated Incidence Rates
 - Calculated using the data from **Hong Kong, Malaysia and Singapore only**
 - Graduate claims incidence rates for duration 2+ policies only to remove initial selection effect
 - For age 20 to 60 only to avoid sparse data at old and young ages
- Other markets' experience (South Africa, UK and China) are also studied using the same set of rates.
- Graduated Incidence Rates for Additional DD
 - Using data from **Hong Kong and Singapore only**

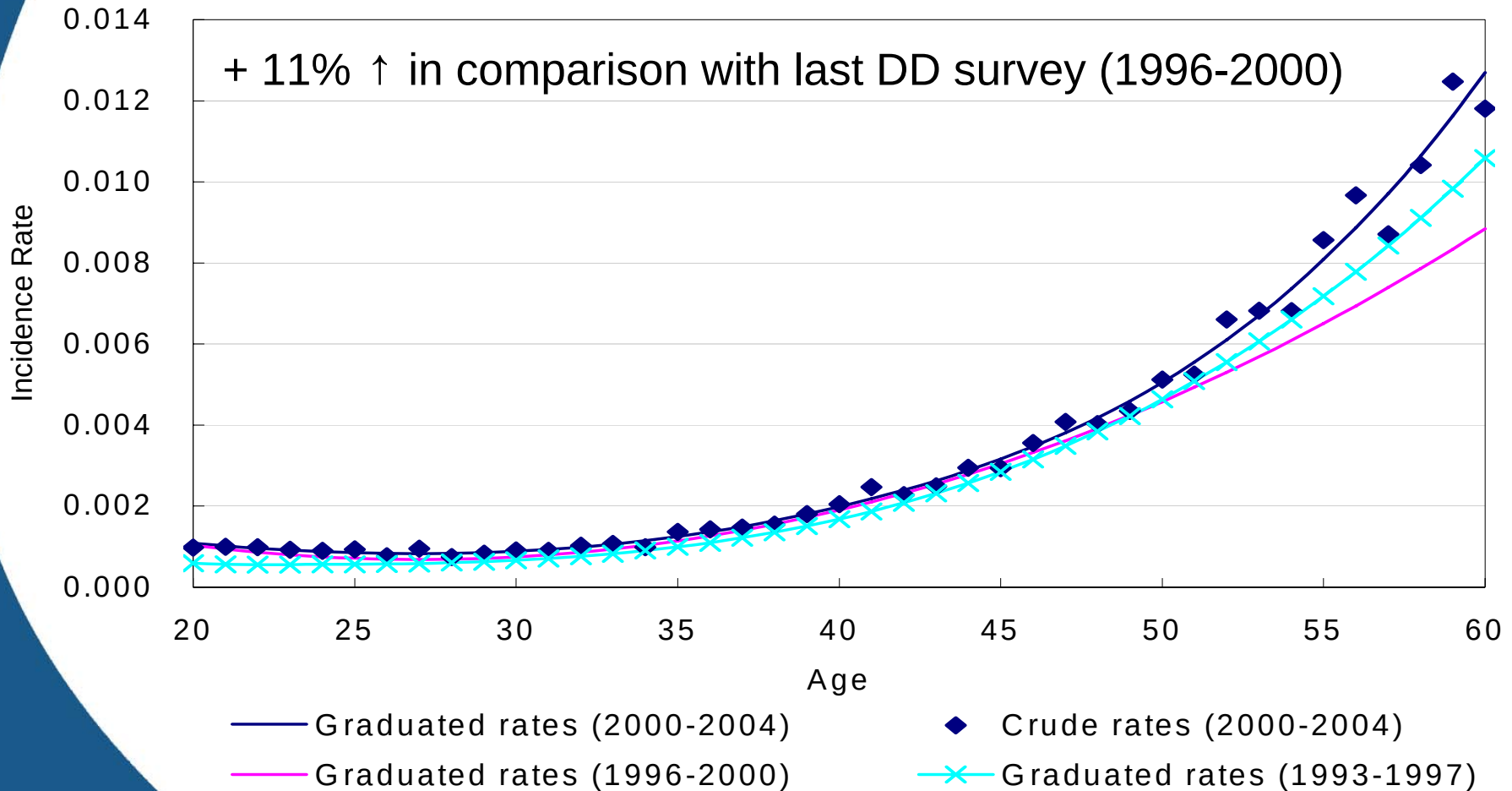
Acceleration Type Dread Disease Policies

Acceleration Type Benefit



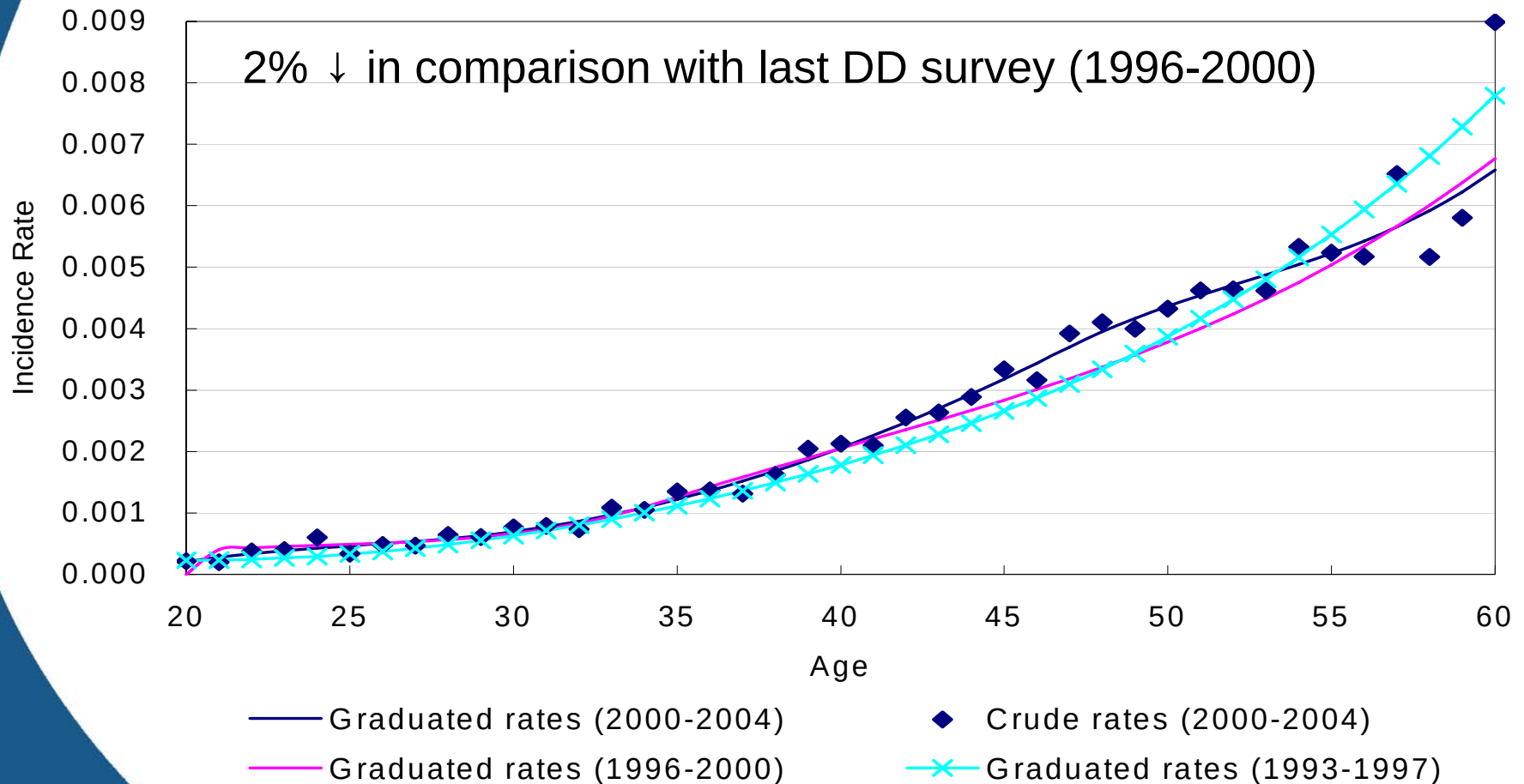
Incidence Rates (HK, Singapore and Malaysia): Death with Dread Disease Acceleration – Males

Based on 7,086 actual claims



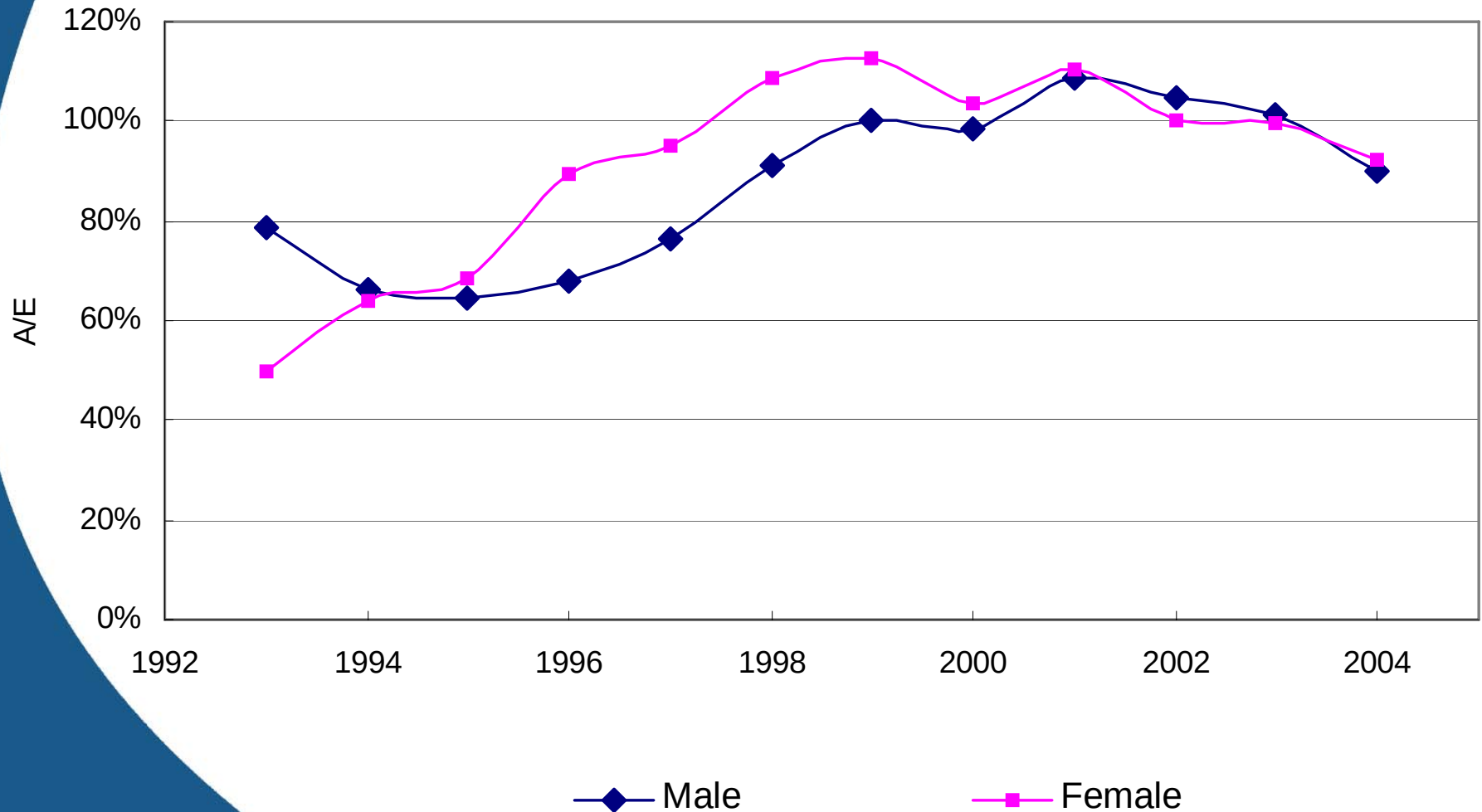
Incidence Rates (HK, Singapore and Malaysia): Death with Dread Disease Acceleration – Females

Based on 7,297 actual claims



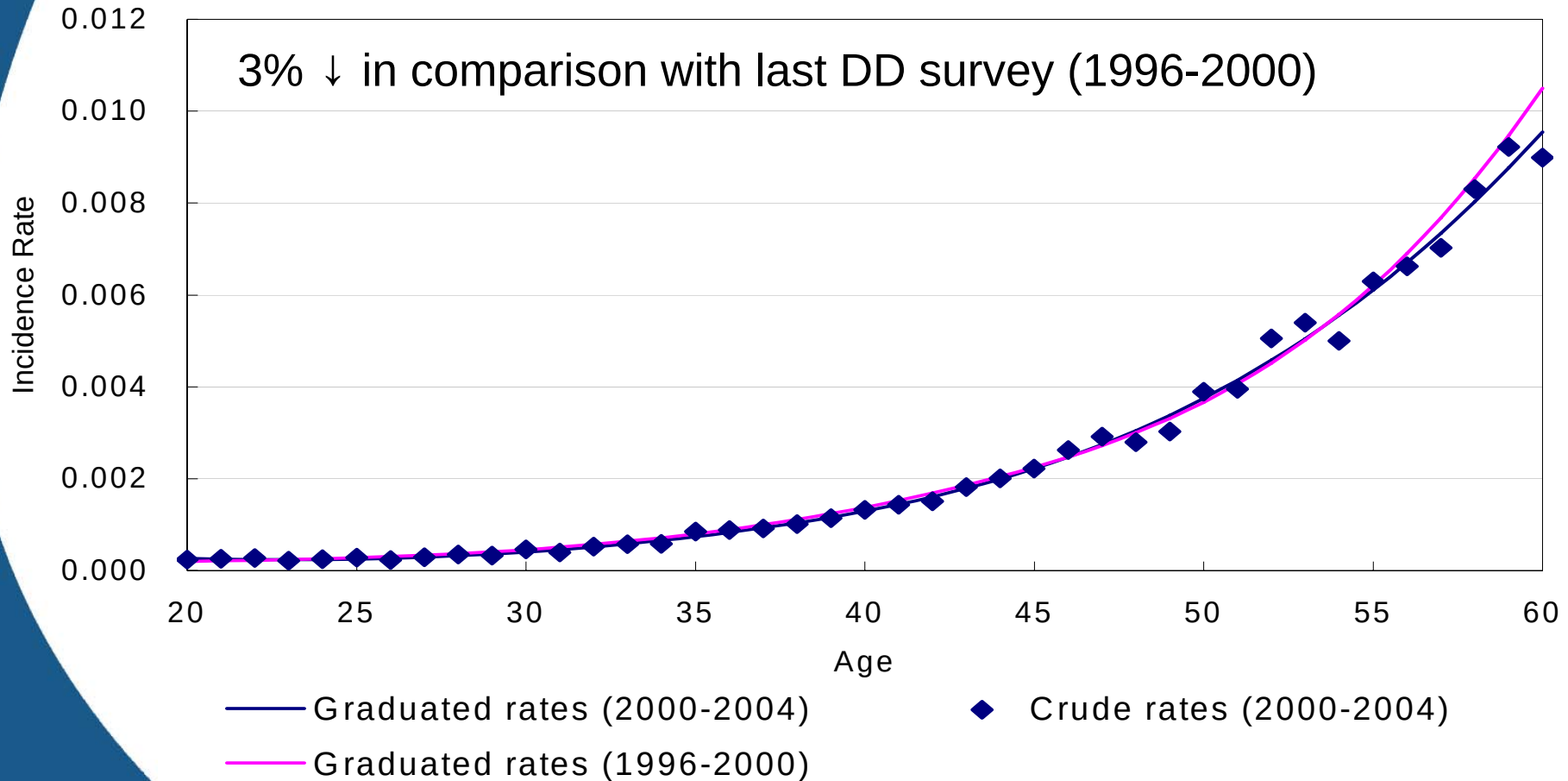
Trend – Death with Dread Disease Acceleration

A/E Ratios by Calendar Year - Hong Kong, Malaysia and Singapore(Duration 2+)



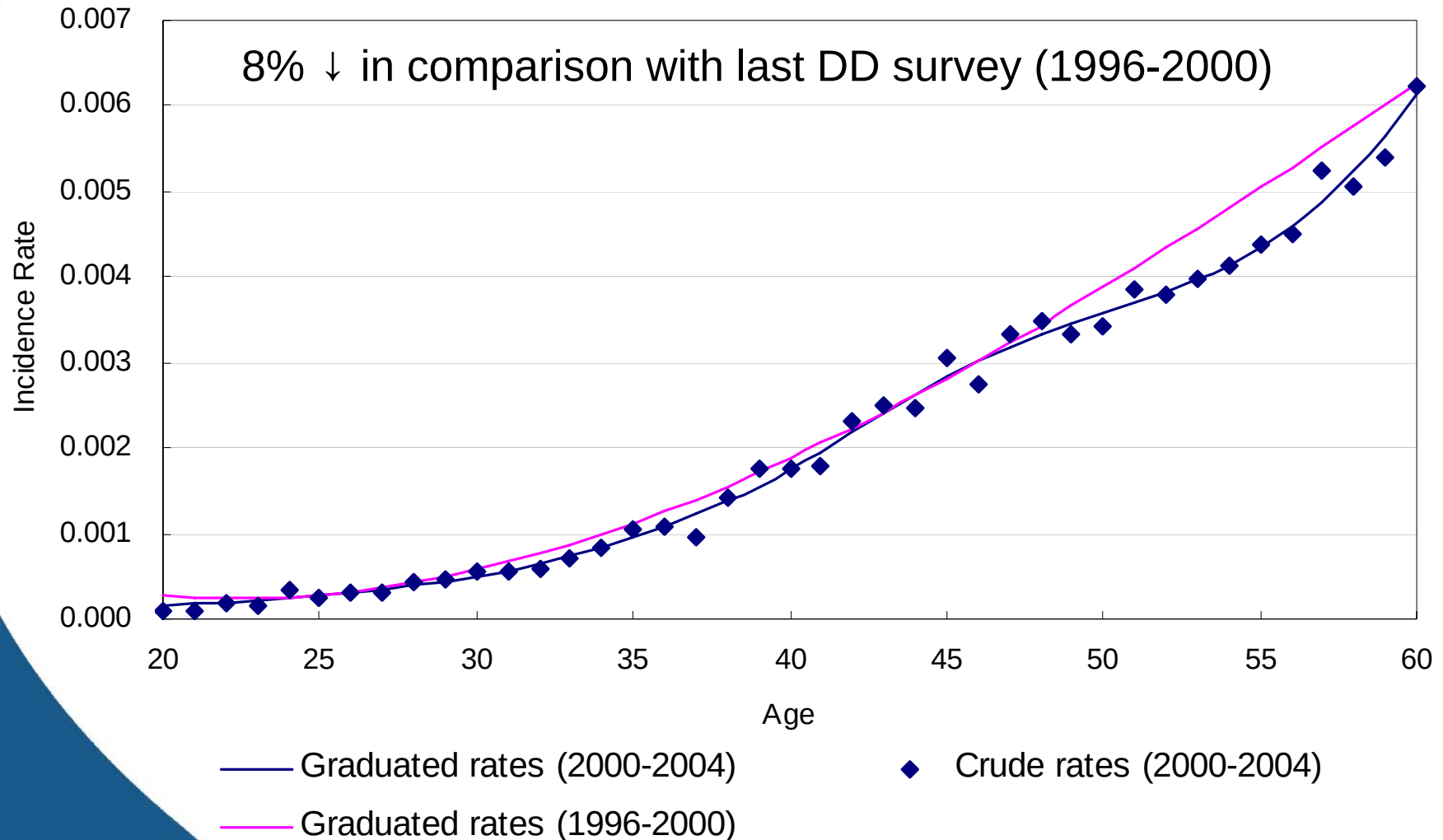
Incidence Rates (HK, Singapore and Malaysia): Acceleration Dread Disease – Males

Based on 7,063 actual claims



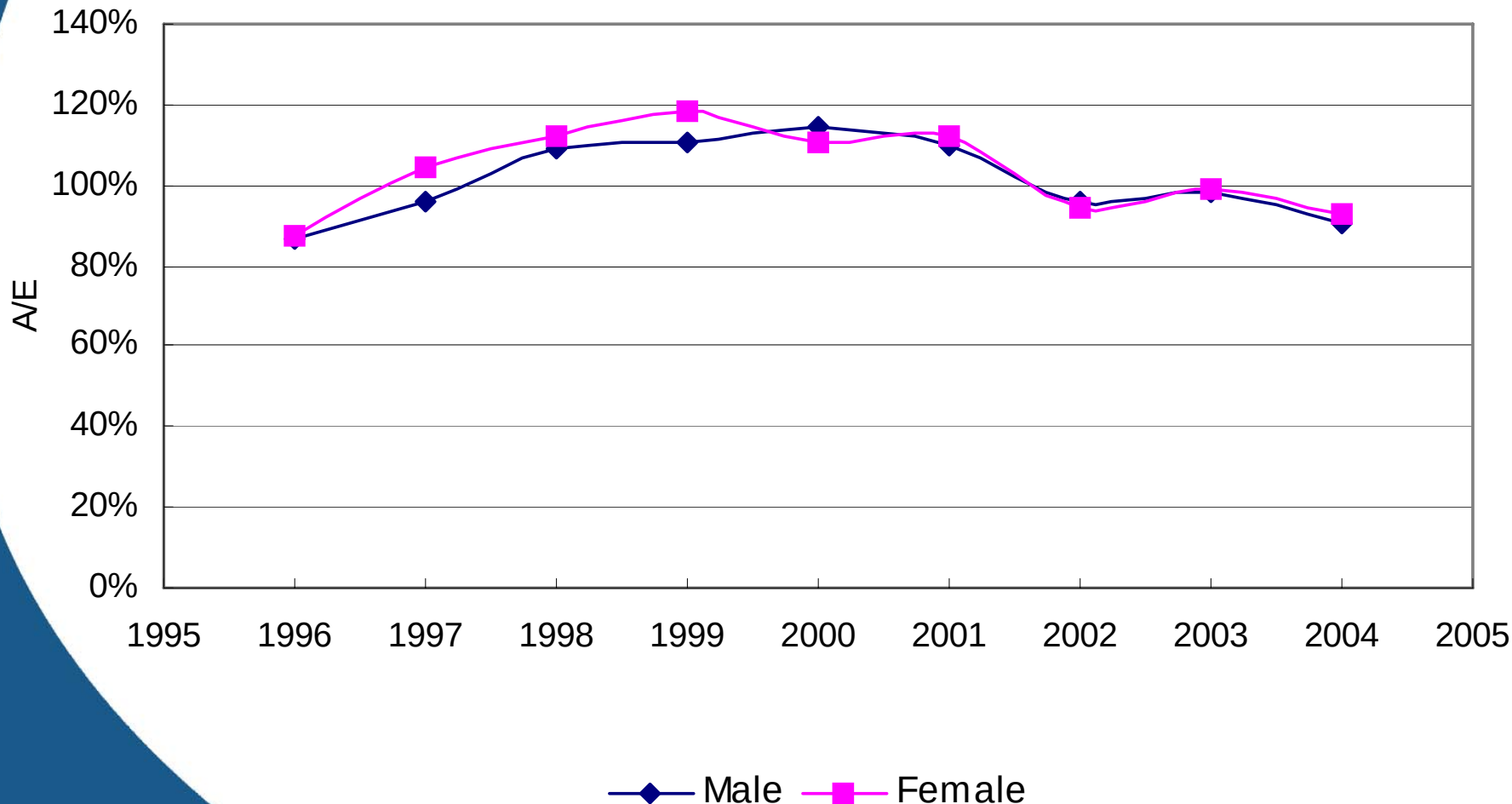
Incidence Rates (HK, Singapore and Malaysia): Acceleration Dread Disease – Females

Based on 9,389 actual claims



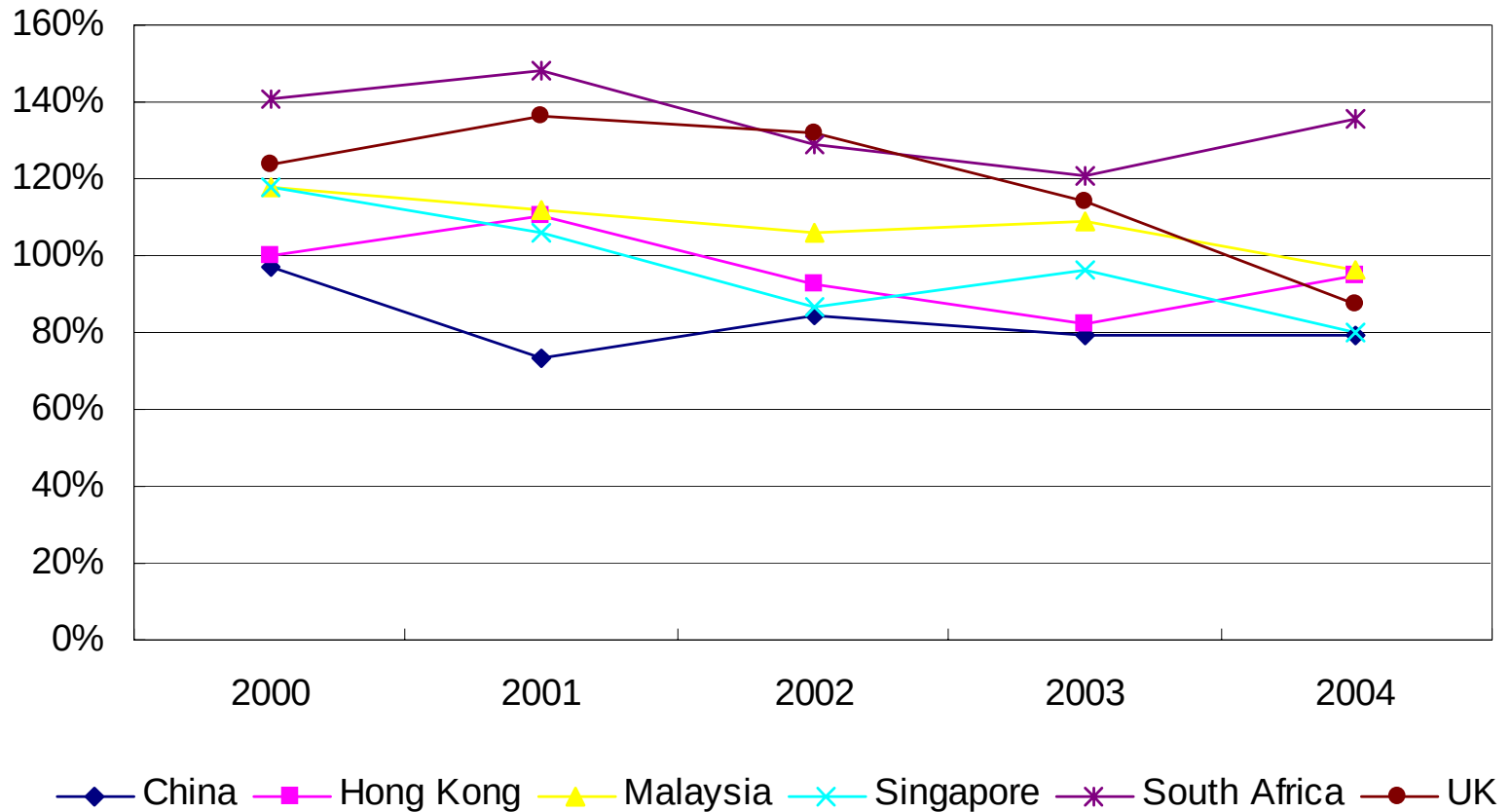
Trend - Acceleration Dread Disease

A/E Ratios by Calendar Year - Hong Kong, Malaysia and Singapore
(Duration 2+)



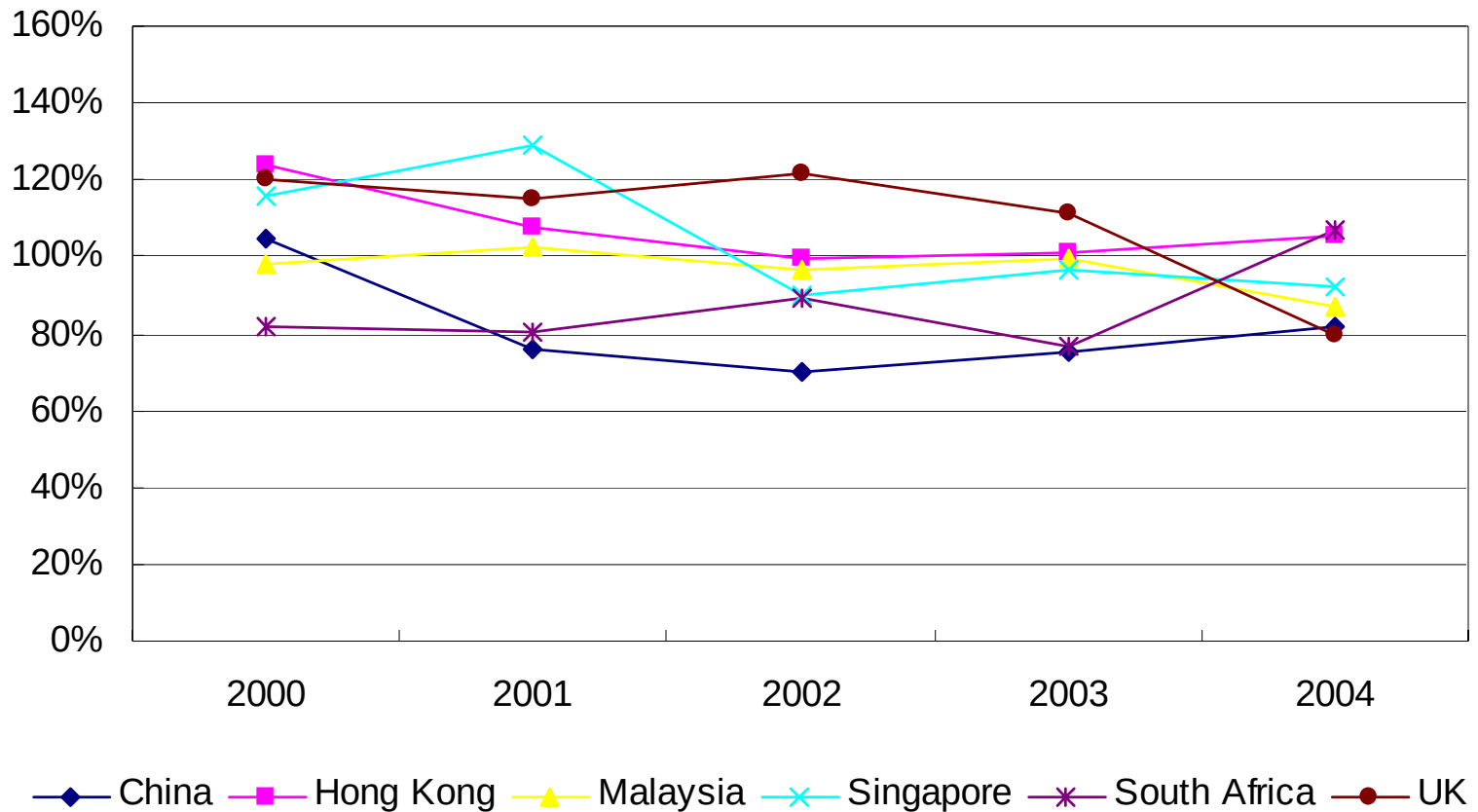
A/E Ratios by Calendar Year and Market – Duration 2+, Males

Acceleration Dread Disease



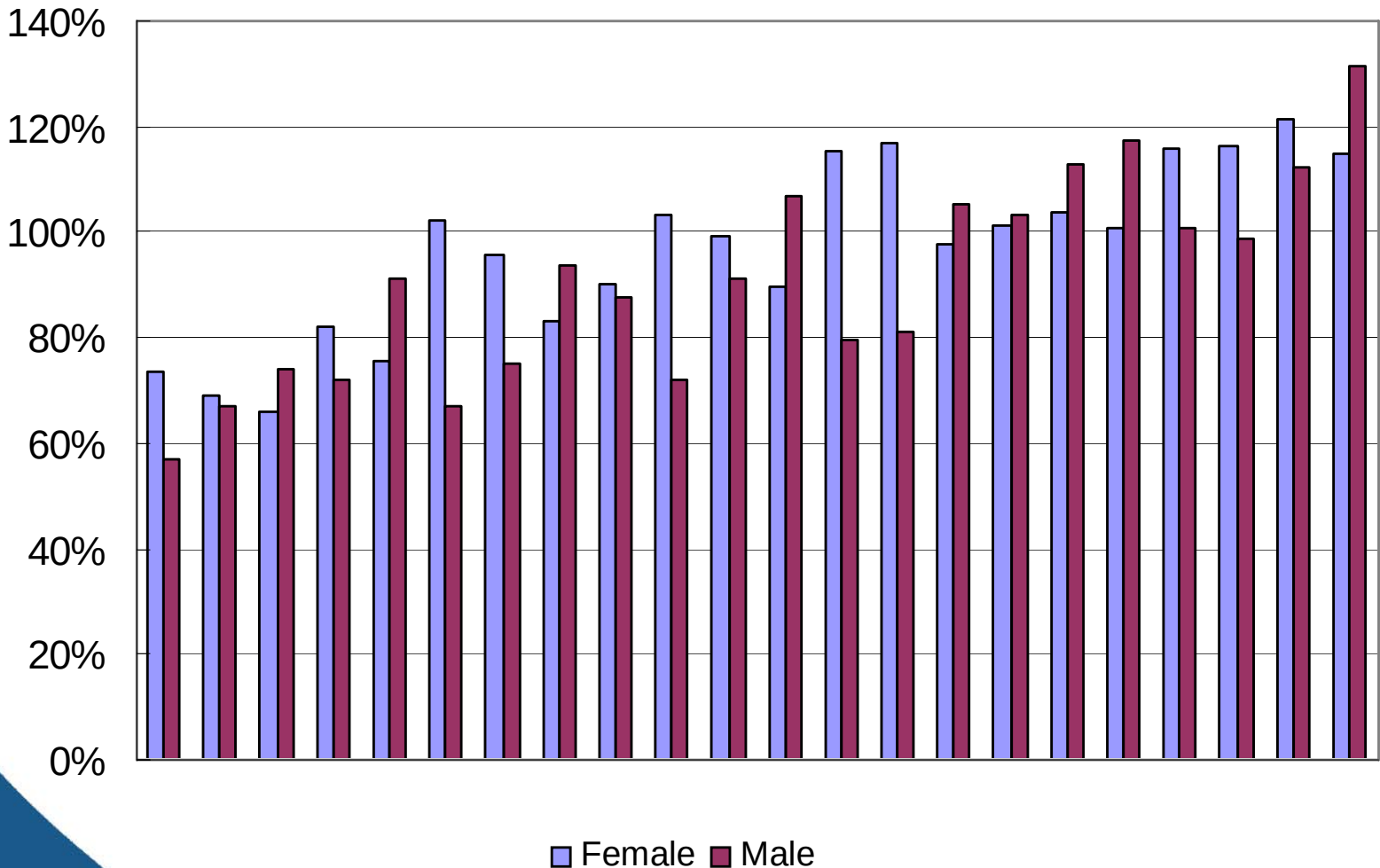
A/E Ratios by Calendar Year and Market – Duration 2+, Females

Acceleration Dread Disease



A/E Ratios by Company – Hong Kong, Malaysia, Singapore and China

Acceleration DD, 22 companies which reported at least 80 claims for both male and female at duration 2+



Initial Selection Effect by Territory

Acceleration DD, age range 20 – 60, males

	HK M S		HK	Mal	Sin	China	SA	UK
	Claims	A/E						
Duration 0	673	87%	79%	93%	83%	90%	114%	91%
Duration 1	824	93%	81%	99%	96%	85%	156%	98%
Duration 2+	7,063	100%	95%	107%	95%	80%	134%	115%
Selection Discount								
Dur 0		13%	17%	13%	13%	-12.5%	15%	21%
Dur 1		7%	15%	7.5%	-1%	-6.3%	-16%	15%

Duration 0 exposure = No of lives * (1 – waiting period in days / 365)

Initial Selection Effect by Territory

Acceleration DD, age range 20 – 60, females

	HK M S		HK	Mal	Sin	China	SA	UK
	Claims	A/E						
Duration 0	796	84%	98%	77%	85%	78%	53%	88%
Duration 1	1,054	92%	94%	88%	102%	77%	87%	99%
Duration 2+	9,389	100%	106%	96%	101%	78%	84%	106%
Selection Discount								
Dur 0		16%	8%	20%	16%	0%	37%	17%
Dur 1		8%	11%	8%	-1%	1%	-4%	7%

Duration 0 exposure = No of lives * (1 – waiting period in days / 365)

Breakdown of Death and DD Claims by Territory

Acceleration DD + Death, age range 20 – 60, males

	HK M S		HK	Mal	Sin	China	RSA	UK
	Claims	A/E						
Death + Acc DD	7068	100%	84%	116%	83%	85%	226%	106%
Death only	2538	36%	23%	49%	21%	33%	135%	28%
DD only	4530	64%	61%	67%	61%	51%	91%	78%
<i>DD only (all companies)</i>	7063	64%	61%	67%	62%	54%	90%	78%

Breakdown of Death and DD Claims by Territory

Acceleration DD + Death, age range 20 – 60, females

	HK M S		HK	Mal	Sin	China	RSA	UK
	Claims	A/E						
Death + Acc DD	7297	100%	99%	99%	103%	84%	141%	102%
Death only	1183	16%	12%	21%	11%	19%	77%	15%
DD only	6114	84%	87%	78%	93%	66%	64%	87%
<i>DD only (all companies)</i>	9389	82%	87%	78%	84%	65%	69%	87%

Exposure Distribution by Duration

Acceleration DD, age range 20 – 60, both males and females

	China	Hong Kong	Singapore	Malaysia
Duration 0	24%	14%	5%	14%
Duration 1	34%	16%	7%	14%
Duration 2+	42%	70%	88%	73%
Total	100%	100%	100%	100%

- China is an emerging market with a much younger portfolio than the other 3 Asian markets.

* Duration 0 exposure has been adjusted for waiting period.

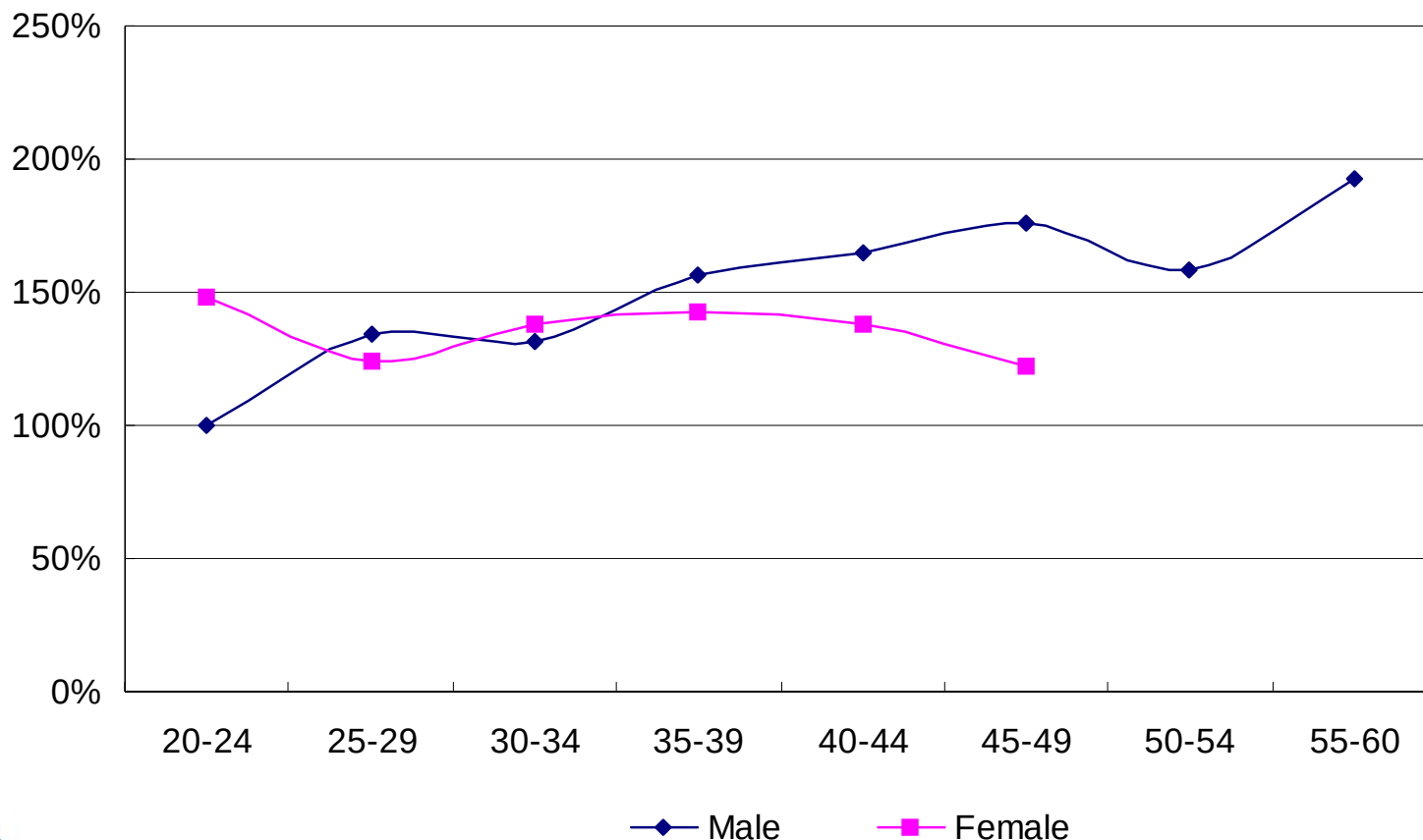
Analysis by Smoking Status - A/E Ratios

Acceleration DD, (Duration 2+)

		Males			Females		
		% of Exposure	No of Claims	A/E	% of Exposure	No of Claims	A/E
HK M S	NS	73%	2,528	84%	97%	4,256	97%
	S	27%	1,479	136%	3%	132	118%
	S/NS differential			162%			122%
China	NS						
	S			n/a			
HK	NS	78%	489	78%	94%	934	98%
	S	22%	188	112%	6%	49	128%
	S/NS differential			143%			130%
Mal	NS	70%	1,461	90%	98%	2,096	100%
	S	30%	1,027	147%	2%	52	133%
	S/NS differential			164%			134%
Sin	NS	79%	578	75%	97%	1,226	91%
	S	21%	264	119%	3%	31	90%
	S/NS differential			157%			99%
RSA	NS	52%	587	109%	68%	422	73%
	S	48%	889	158%	32%	258	86%
	S/NS differential			145%			117%
UK	NS	80%	1,311	97%	83%	1,146	98%
	S	20%	535	170%	17%	329	136%
	S/NS differential			174%			140%

Analysis by Smoking Status – A/E Ratios (Dur 2+) for Hong Kong, Singapore and Malaysia

The overall smoker/non-smoker differential for the age range 20-60 is 162% in males and 122% in females. (1,479 male smoker claims and 132 female smoker claims.)



Too few claims(< 20) for female age 50-60 for results to be credible.

Comparison by Sum Assured – A/E Ratios (Dur 2+)

	Male			Female		
	Per life	Per SA	Per SA /Per Life	Per life	Per SA	Per SA /Per Life
Hong Kong, Malaysia and Singapore	100%	97%	97%	100%	107%	107%
China	80%	83%	104%	78%	81%	104%
Hong Kong	95%	94%	99%	106%	112%	106%
Malaysia	107%	105%	98%	96%	100%	104%
Singapore	95%	96%	101%	101%	105%	104%
South Africa	134%	132%	99%	84%	93%	111%
United Kingdom	115%	116%	101%	106%	108%	102%

- Different from mortality experience, there is **no selection effect** for higher sums insured!

A/E Analysis by Sum Assured Band (RMB) – China, Males

		Male			
	SA Band (RMB)	Actual Claim Count	A/E	95% Lower CI	95% Upper CI
Duration 0	0-19,999	1,442	72%	-4%	4%
	20,000-39,999	4,319	91%	-3%	3%
	40,000-69,999	1,199	112%	-6%	6%
	70,000+	310	158%	-17%	18%
	Total	7,270	106%	-2%	2%
Duration 1	0-19,999	2,898	72%	-3%	3%
	20,000-39,999	6,749	85%	-2%	2%
	40,000-69,999	1,806	108%	-5%	5%
	70,000+	345	132%	-14%	14%
	Total	11,798	99%	-2%	2%
Duration 2+	0-19,999	5,849	69%	-2%	2%
	20,000-39,999	11,157	79%	-1%	1%
	40,000-69,999	3,151	88%	-3%	3%
	70,000+	621	95%	-7%	8%
	Total	20,778	83%	-1%	1%

* Due to the difference in data structure, some companies have slightly different bandings from the others. Nonetheless, we use the closest banding to combine data from all companies.

A/E Analysis by Sum Assured Band (RMB) – China, Females

		Female			
	SA Band (RMB)	Actual Claim Count	A/E	95% Lower CI	95% Upper CI
Duration 0	0-19,999	1,418	64%	-3%	3%
	20,000-39,999	4,563	78%	-2%	2%
	40,000-69,999	1,395	99%	-5%	5%
	70,000+	292	141%	-16%	17%
	Total	7,668	92%	-2%	2%
Duration 1	0-19,999	3,762	67%	-2%	2%
	20,000-39,999	7,857	85%	-2%	2%
	40,000-69,999	2,037	94%	-4%	4%
	70,000+	364	99%	-10%	10%
	Total	14,020	84%	-1%	1%
Duration 2+	0-19,999	7,527	72%	-2%	2%
	20,000-39,999	12,622	84%	-1%	1%
	40,000-69,999	3,734	85%	-3%	3%
	70,000+	654	93%	-7%	7%
	Total	24,537	81%	-1%	1%

* Due to the difference in data structure, some companies have slightly different bandings from the others. Nonetheless, we use the closest banding to combine data from all companies.

Summary – Graduated Rates and A/E Ratios

- Acc DD with Death experience
 - HKMS: ↑ 11% males, ↓ 2% females
 - Slight improving trends from 2000 to 2004.
- Much lower initial selection effect than Life business
- Smoker (esp males) showed worse experience than nonsmokers.
- Experience with higher sum insured not necessarily better => obvious anti-selection for RMB70,000+ in China
- Relatively young portfolio in China

For Your Consideration – (1)

- **Anti-selection risk:** especially in China and Female Products
- **Anti-selection risk:** very limited positive selection with some companies having heavier experience initially
- **High declinature rate** may indicate misunderstanding of the product.
- **Hong Kong : Male cancer rates increase** although population rates reduce
- **Exclusion** of T1N0M0 prostate cancer will have positive impact

For Your Consideration – (2)

- What is of concern in 2008 and beyond?
 - Future Proof Definitions and Guarantees
 - Impact of Standardized Definitions
 - Tremendous scope for underwriters/claims assessors to influence claims experience.
 - Tremendous need for underwriters and claims assessors to influence product design.
 - Benefits for early cancers and minor cancers.
 - Scaled Dread Disease Benefit



A Berkshire Hathaway Company

Thank You!