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VITAL STATISTICS IN 2009

Mr Davis KWAN ¹ Mrs Eliza LEUNG ²

Population

Demographic factors are major determinants of health. Age and gender structures of a population can indicate the type of health needs which are prevalent within the population. Demographic data are also important for making statistics comparable across countries. Disease incidence, prevalence and mortality rates require reliable population-based denominators.

Population Structure

In Hong Kong, the resident population as at mid-2009 was estimated as 7 003 700, giving a growth of 0.4% compared with the corresponding figure in 2008 (i.e. 6 977 700). The structure of Hong Kong population experienced apparent changes from 1981 to 2009. Low birth rate in the past decades led to a narrower base of the population pyramid for year 2009, compared with the one for 1981. Meanwhile, with longer life expectancy at birth, the top of the population pyramid for 2009 was broader than the corresponding pyramid for 1981. Also, with a continuous inflow of one-way permit holders from the Mainland, particularly the females aged between

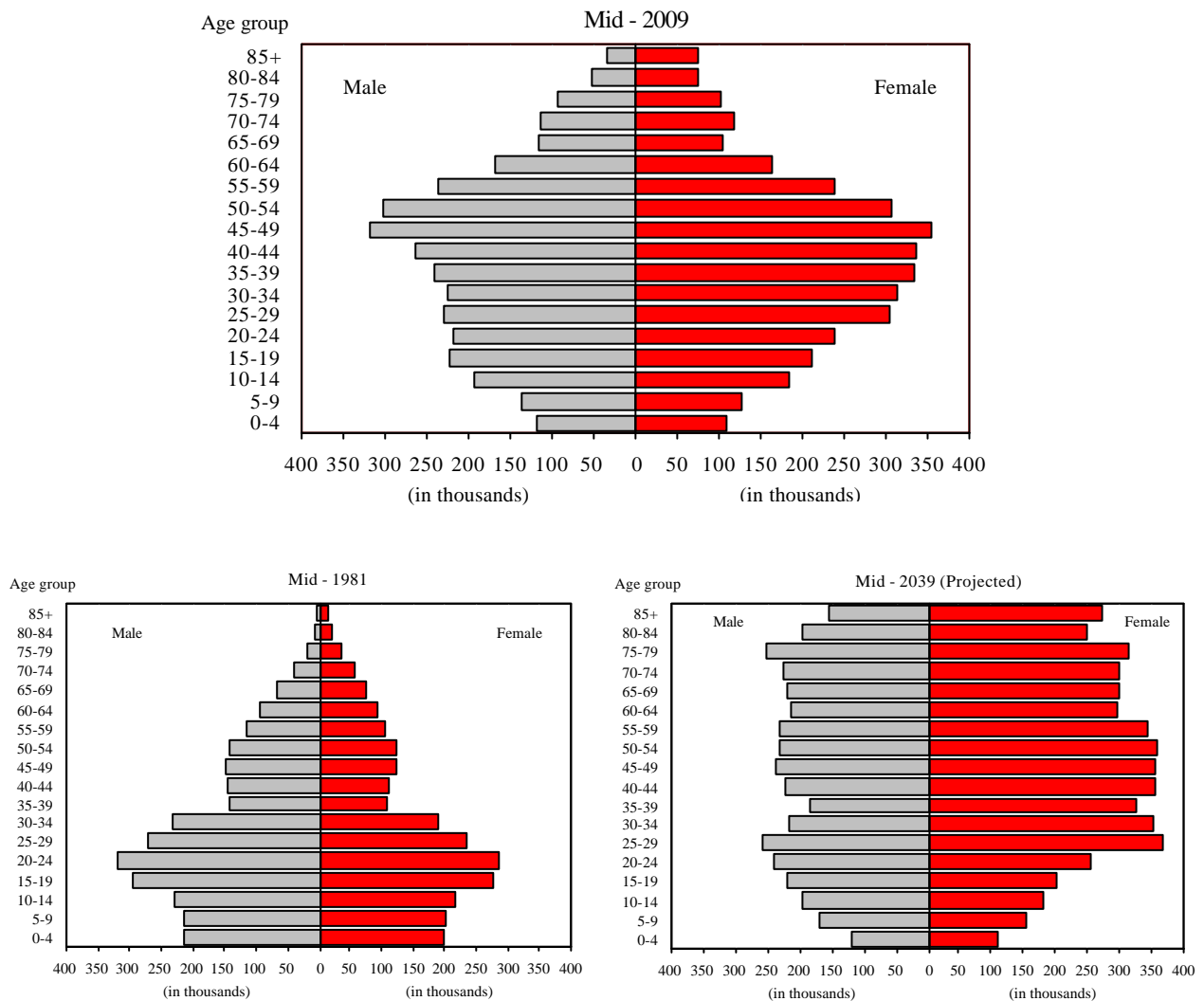
¹ Statistician ² Senior Statistician

25 and 34, population size of the females at protuberance (i.e. age group 45 to 49) in 2009 was obviously greater than the corresponding cohort aged 20 to 24 in 1981. (Figure 1)

Based on the 2009-based population projection, it is projected that low birth rate will persist in the future and thus the base of population pyramid for year 2039

will be more or less the same as the one for 2009. In addition, as long life expectancy at birth remains, the top of population pyramid for 2039 will further extend. Furthermore, the inflow of one-way permit holders from the Mainland will keep the overall population on the rising trend and the difference in population size between male and female will be noticeable at most age groups. (Figure 1)

Figure 1 Population Pyramid, 1981, 2009 and 2039 (Projected)



Source : Census and Statistics Department.

Ageing Trend

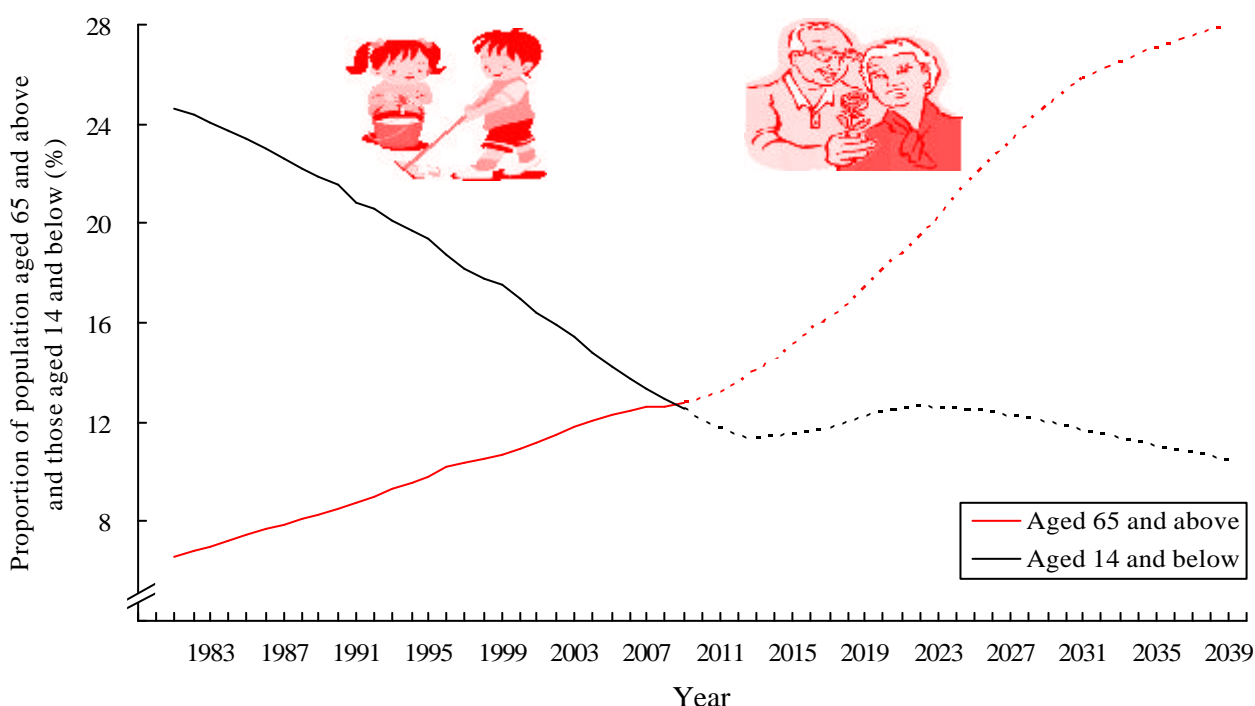
The Hong Kong population is getting increasingly older and this trend is likely to continue into the future. Analysed by age group, the older population, i.e. those aged 65 and above, in 2009 increased by 1.6% in comparison with those in 2008. The proportion of the older persons was 12.8% (893 500) in 2009. The percentage is expected to increase further in the future. As revealed in the population projection figures, the proportion of the older persons will climb up to 24.7% in 2029 and 28.0% in 2039.¹ On the other hand, the proportion of those aged 14 and below was 12.5% (873 400) in 2009. The percentage is expected to decrease further but at a slower pace in the future. The corresponding proportions for those aged

14 and below will decrease to 12.0% in 2029 and 10.5% in 2039.¹ (Figure 2)

Dependency Ratio

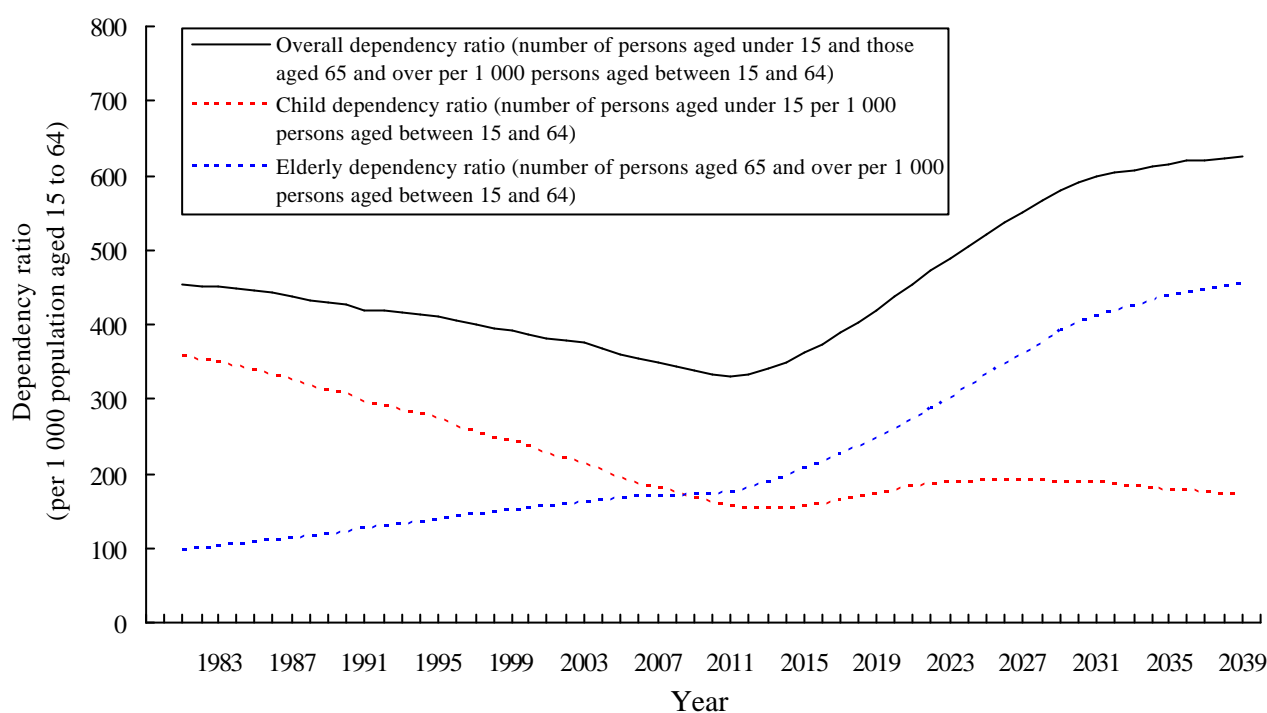
The overall dependency ratio, that is, the ratio of the number of persons aged under 15 and those aged 65 and over per 1 000 persons in the 15 to 64 age group, decreased over the past 28 years from 455 in 1981 to 337 in 2009. The decline was due to a rapid reduction in child dependency which more than offset a surge in elderly dependency. However, as the proportion of older persons is expected to increase more rapidly in the future, the overall dependency ratio is projected to rebound to 580 in 2029 and 625 in 2039. (Figure 3)

Figure 2 Proportion of Population Aged 65 and Above and Those Aged 14 and Below, 1981 to 2039



- Notes : 1. Figures from 1981 to 1995 are compiled based on the “extended de facto” method and those from 1996 onwards are compiled based on the “resident population” method.
2. Figures from 2010 onwards are based on the 2009-based population projections.

Source : Census and Statistics Department.

Figure 3**Dependency Ratios, 1981 to 2039**

- Notes : 1. Figures from 1981 to 1995 are compiled based on the “extended de facto” method and those from 1996 onwards are compiled based on the “resident population” method.
 2. Figures from 2010 onwards are based on the 2009-based population projections.

Source : Census and Statistics Department.

An analysis of two major components of population changes, i.e. births and deaths are crucial for the understanding of the changes on population sizes and its age-sex composition. This also provides the information required for compiling essential health indicators, evaluating the health status of the population and planning different types of health and social services.

Births

The number of registered live births significantly dropped from 87 104 in 1981 to 48 914 in 2004 and then rebounded significantly starting from 2005 up to 82 906 in 2009. There was an increase of

5.3% when comparing the number of registered live births in 2009 with that in 2008 (78 751).

Amongst the total registered live births born in Hong Kong, proportion of live births born to Mainland women was on the sharp increase in recent years. In 2001, there were 7 810 live births born to Mainland women, accounting for 15.9% of the total registered live births in the year. In 2009, the number of such live births markedly went up to 37 253 and the proportion surged up to 44.9%. The number of live births to local women had also recorded positive growth since 2005. (Table 1)

Table 1**Birth Statistics, 2001 to 2009**

Year	Registered live births born in Hong Kong		Registered live births born in Hong Kong to Mainland women*		Registered live births born in Hong Kong to local women†	
	Number	Annual growth rate	Number	Annual growth rate	Number	Annual growth rate
2001	49 144	-	7 810	-	41 334	-
2002	48 119	-2.1%	8 506	8.9%	39 613	-4.2%
2003	47 687	-0.9%	10 128	19.1%	37 559	-5.2%
2004	48 914	2.6%	13 209	30.4%	35 705	-4.9%
2005	57 124	16.8%	19 538	47.9%	37 586	5.3%
2006	65 195	14.1%	26 132	33.7%	39 063	3.9%
2007	70 394	8.0%	27 574	5.5%	42 820	9.6%
2008	78 751	11.9%	33 565	21.7%	45 186	5.5%
2009	82 906	5.3%	37 253	11.0%	45 653	1.0%

Notes : * Mainland women refer to Mainland residents who give birth in Hong Kong and they themselves do not have right of abode in Hong Kong.

† The figure derived by subtraction also included live births to non-Hong Kong resident women other than Mainland women but the number should be very small.

Sources : Census and Statistics Department; Immigration Department.

Crude Birth Rate

Crude birth rate, which refers to the number of registered live births per 1 000 population, went down from 16.8 per 1 000 population in 1981 to 7.1 in 2003. Afterwards, it rebounded to 11.8 in 2009. (Figure 4)

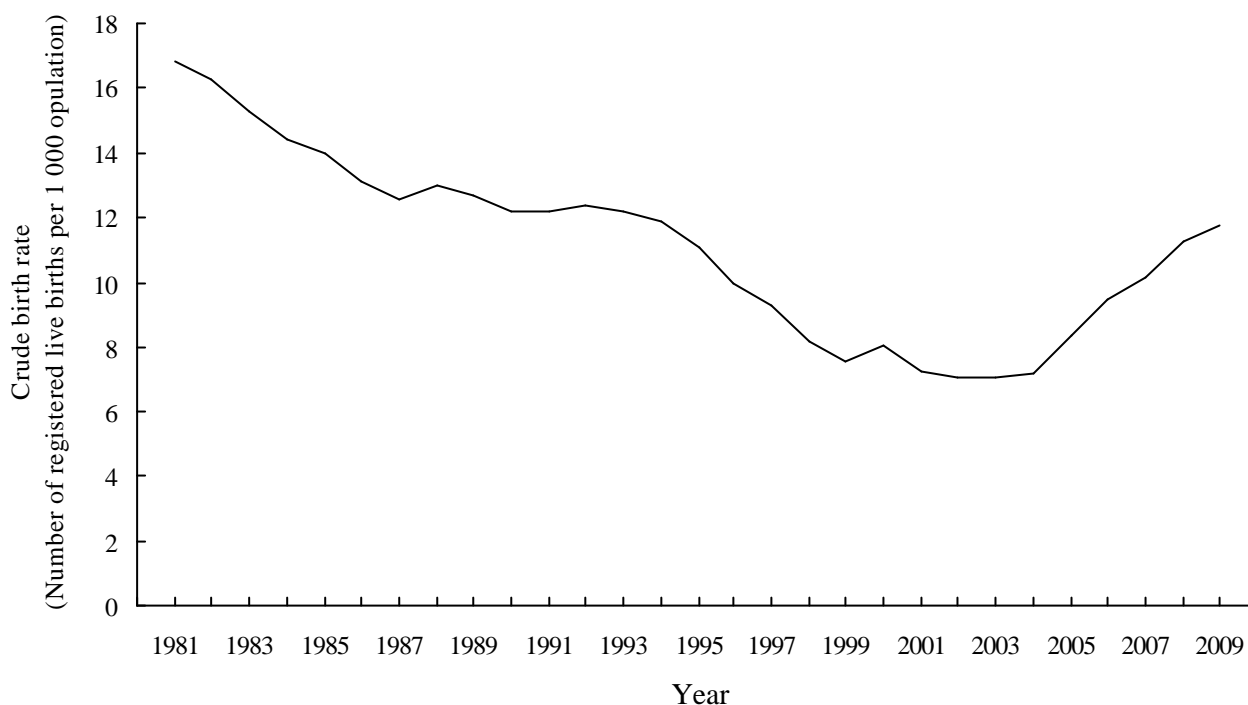
Though the crude birth rate, which focuses on babies born in Hong Kong, is a simple and common measure on fertility, it is susceptible to the increasing trend of Mainland women giving births in Hong Kong. In this aspect, fertility statistics, which focus on women giving births, could provide another perspective to better reflect the fertility situation in Hong Kong.

Fertility Rates

Fertility statistics are computed by relating live births to women of childbearing ages (i.e. aged 15 to 49). In compiling fertility statistics, all females in the Hong Kong population (excluding domestic helpers) and mainland women giving births in Hong Kong whose spouses are Hong Kong residents are included. The live births used in the calculation include those: (i) born in Hong Kong to women who are Hong Kong residents, (ii) born in Hong Kong to Mainland women whose spouses are Hong Kong residents; and (iii) born outside Hong Kong to women who are Hong Kong residents.

Figure 4

Crude Birth Rate, 1981 to 2009



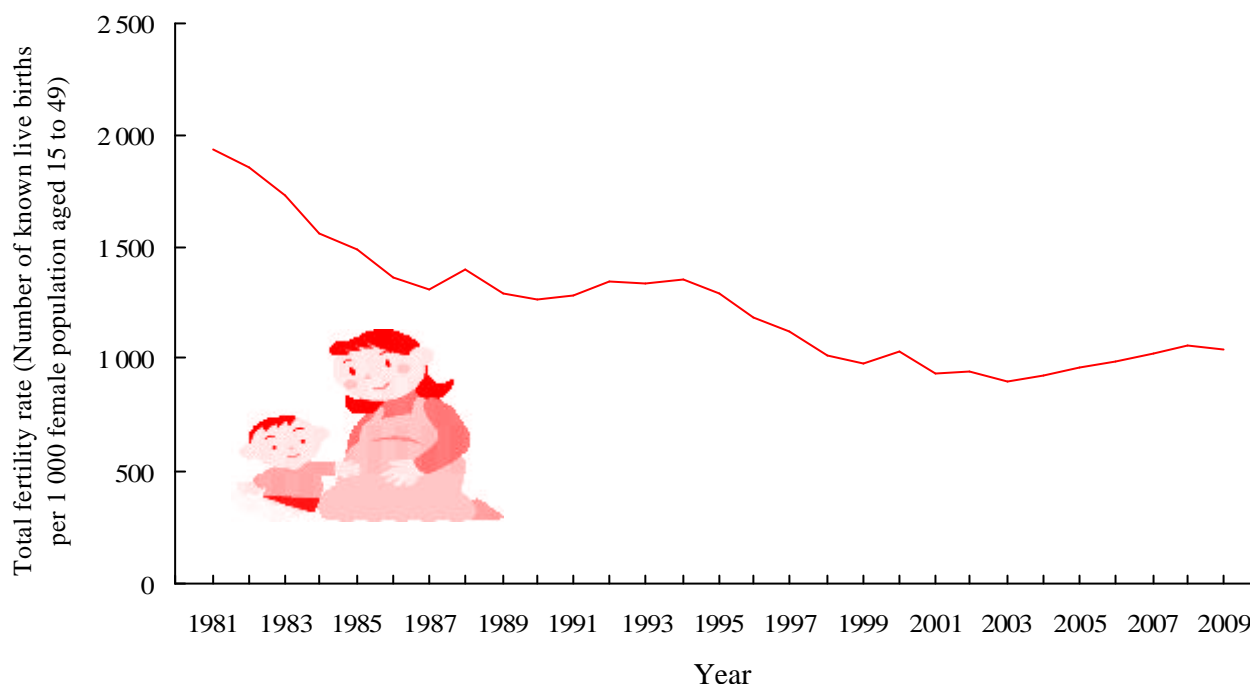
Note : Figures from 1981 to 1995 are compiled based on the “extended de facto” method and those from 1996 onwards are compiled based on the “resident population” method.

Sources : Census and Statistics Department; Department of Health; Immigration Department.

The total fertility rate (TFR) is the most commonly used indicator to measure the fertility level of an economy, which represents the average number of children that 1 000 women would bear (ignoring mortality) if they were subject throughout their reproductive span to the fertility rates prevailing in that year. Generally speaking, a TFR less than 2 100 per 1 000 female population implies that the generation does not have enough children to exactly “replace” itself in the population. The TFR reflected a downward trend during the past two decades. It decreased considerably from 1 933 known live births per 1 000 female population aged 15 to 49 in 1981 to 901 in 2003 and then slightly

increased to 1 042 in 2009. The low TFR in Hong Kong was associated with the delays in marriage and childbearing, which lead to increase in spinsterhood and curtailment of giving births. (Figure 5)

The delay in marriage and childbearing had a direct impact on the fertility in the young ages, which was reflected by the low age specific fertility rate (AFR) for women in young age groups. The AFR is the number of live births occurring to women in a given age group during a year to the total female population at mid-year in that age group. The AFR for women in the young age groups of 15 to 19, 20 to 24 and 25 to 29 decreased sharply by 69%, 52% and

Figure 5**Total Fertility Rate, 1981 to 2009**

- Notes :
1. Figures from 1981 to 1995 are compiled based on the “extended de facto” method and those from 1996 onwards are compiled based on the “resident population” method.
 2. The total fertility rate in a given year refers to the average number of children that would be born alive to 1 000 women during their lifetime if they were to pass through their childbearing ages 15 to 49 experiencing the age specific fertility rates prevailing in a given year.
 3. The fertility rates after 1981 have been compiled using a population denominator which has excluded female foreign domestic helpers.

Sources : Census and Statistics Department; Department of Health; Immigration Department.

50% respectively in the past 20 years. On the contrary, the AFR for women aged 35 to 39 increased by 68% in the past 20 years. (Figure 6)

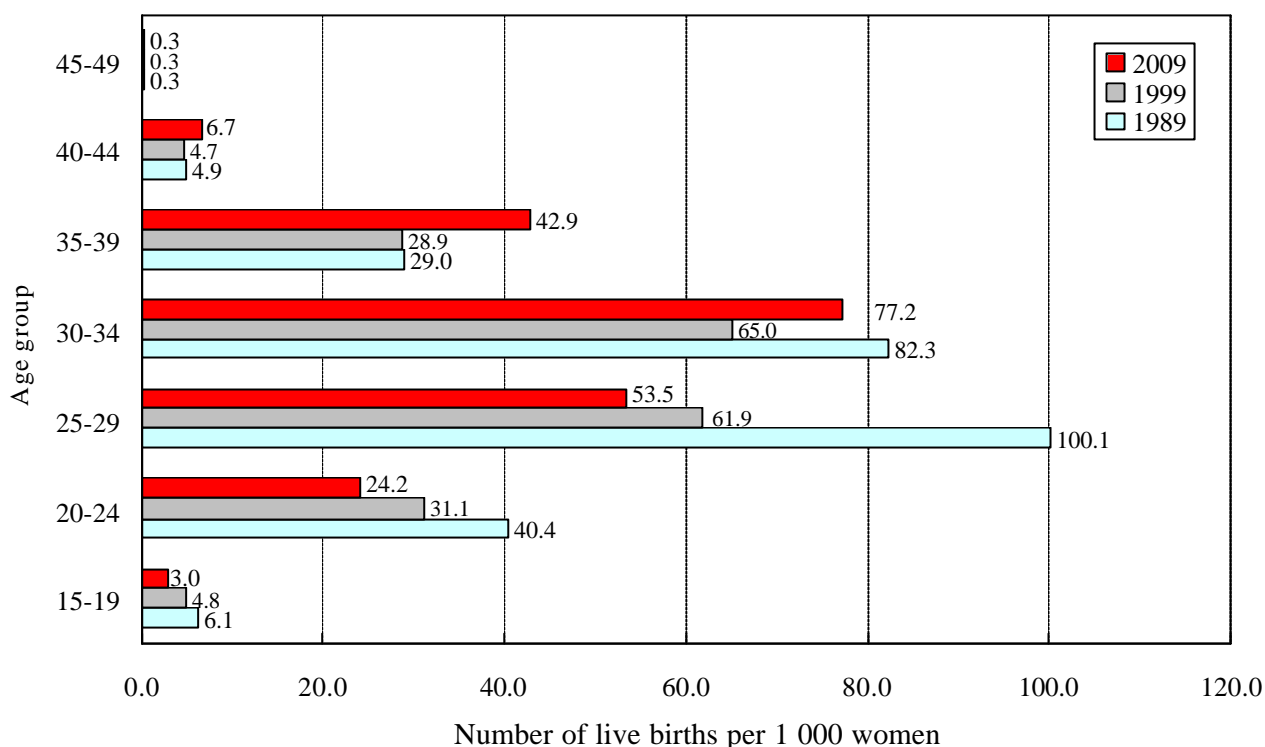
Deaths

The following mortality-related figures for 2009 are provisional in nature.

The number of registered deaths was 41 034 in 2009 (41 530 in 2008). The crude death rate was 5.9 per 1 000 population in 2009, which has slightly

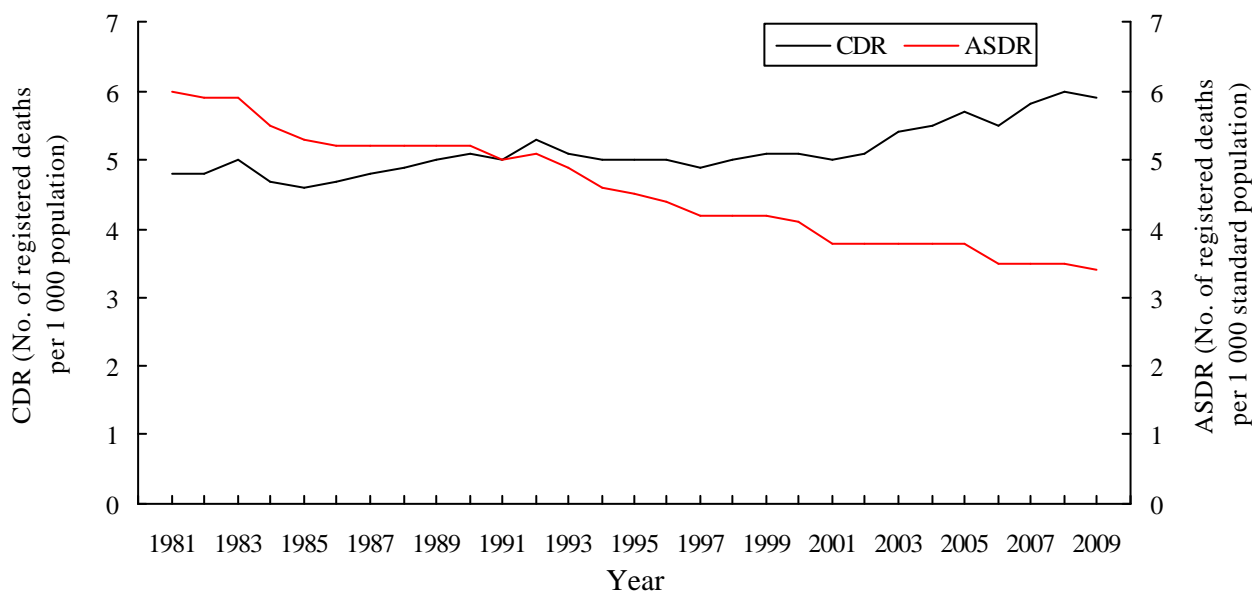
decreased as compared with 2008 (6.0 per 1 000 population). In fact, crude death rate was on a rising trend over the past 29 years. However, the age-standardised death rate, which eliminates the effect of age composition, reflected a reverse trend. In 2009, age-standardised death rate at 3.4 per 1 000 standard population was markedly lower than the corresponding rate in 1981 (i.e. 6.0 per 1 000 standard population) (Figure 7). It can be related to the improved social conditions, health awareness and advanced medical technology.

Figure 6 Age Specific Fertility Rate (AFR) in Year 1989, 1999 and 2009



Sources : Census and Statistics Department; Department of Health; Immigration Department.

Figure 7 Crude Death Rate (CDR) and Age-standardised Death Rate (ASDR*), 1981 to 2009



Notes : 1. Figures from 1981 to 1995 are compiled based on the “extended de facto” method and those from 1996 onwards are compiled based on the “resident population” method.
 2. * According to a new world standard population specified in GPE Discussion Paper Series: No.31, EIP/GPE/EBD, World Health Organization, 2001.

Sources : Census and Statistics Department; Department of Health; Immigration Department.

During the period of 2001 to 2009, the overall age-standardised rate decreased by 11.1%. The reduction in the risk of dying was driven mostly by the substantial decrease in age-standardised rates of leading causes of deaths including cancers (-14.6%), cerebrovascular diseases (-22.4%), chronic lower respiratory diseases (-36.7%), external causes of morbidity and mortality (-12.3%) and diabetes mellitus (-47.4%). (Table 2)

Health problems in Hong Kong are mostly associated with chronic diseases. Among the leading causes of death, six major

chronic non-communicable diseases (NCDs), including cancer; heart diseases; cerebrovascular diseases; chronic lower respiratory diseases; nephritis, nephrotic syndrome and nephrosis; and diabetes mellitus accounted for nearly 65% of all registered deaths in 2009. Although older people generally have higher death rates in most of these chronic NCDs than their younger counterparts, the risk of developing many NCDs is determined by risk factors such as unhealthy diet, lack of physical activity and smoking habit, which might have developed since childhood, adolescence or young adult life. (Table 3)

Table 2 Age-standardised Death Rate* of Ten Leading Causes of Death†, 2001 to 2009

Rank	Causes of Death	2001	2002	2003	2004	2005	2006	2007	2008	2009
1	Malignant neoplasms	133.5	131.2	125.8	124.4	125.2	118.7	116.5	114.5	114.0
2	Diseases of heart	52.3	52.5	53.7	56.5	54.2	49.7	53.2	54.2	49.9
3	Pneumonia	32.4	32.3	37.6	33.5	37.3	34.4	38.2	40.3	36.6
4	Cerebrovascular diseases	34.4	33.6	34.8	32.9	31.6	28.9	29.3	29.5	26.7
5	External causes of morbidity and mortality‡	23.5	25.8	25.1	26.5	25.1	22.2	20.3	19.3	20.6
6	Chronic lower respiratory diseases§	22.9	21.4	20.8	20.0	20.5	16.5	16.9	16.4	14.5
7	Nephritis, nephrotic syndrome and nephrosis	11.6	11.2	12.1	11.5	11.7	11.6	11.4	11.7	11.4
8	Septicaemia	4.7	5.0	5.9	6.1	6.6	6.0	6.3	6.4	5.9
9	Dementia	2.6	2.8	2.4	2.4	2.3	2.2	2.2	3.3	4.1
10	Diabetes mellitus	7.6	6.2	8.0	7.0	5.7	4.5	4.3	4.5	4.0

Notes : * According to a new world standard population specified in GPE Discussion Paper Series: No. 31, EIP/GPE/EBD, World Health Organization, 2001.

† Ranking is according to the provisional number of registered deaths in year 2009.

‡ According to the ICD 10th Revision, when the morbid condition is classifiable under Chapter XIX as “Injury, poisoning and certain other consequences of external causes”, the codes under Chapter XX for “External causes of morbidity and mortality” should be used as the primary cause of death.

§ Chronic lower respiratory diseases has been included as a disease group for the purpose of ranking the causes of death since 2001.

Sources : Census and Statistics Department; Department of Health; Immigration Department.

Table 3 **Number of Registered Deaths and Proportionate Mortality
by Ten Leading Causes of Death, 2009**

Rank	Causes of Death	Number of Registered Deaths	Proportionate Mortality (as percentage of total number of registered deaths)
1	Malignant neoplasms	12 833	31.3%
2	Diseases of heart	6 405	15.6%
3	Pneumonia	5 242	12.8%
4	Cerebrovascular diseases	3 448	8.4%
5	External causes of morbidity and mortality*	1 924	4.7%
6	Chronic lower respiratory diseases†	1 908	4.6%
7	Nephritis, nephrotic syndrome and nephrosis	1 448	3.5%
8	Septicaemia	727	1.8%
9	Dementia	640	1.6%
10	Diabetes mellitus	493	1.2%
	All other causes	5 966	14.5%
	All causes	41 034	100.0%

Notes : Proportionate mortality may not add up to total due to rounding.

* According to the ICD 10th Revision, when the morbid condition is classifiable under Chapter XIX as “Injury, poisoning and certain other consequences of external causes”, the codes under Chapter XX for “External causes of morbidity and mortality” should be used as the primary cause of death.

† Chronic lower respiratory diseases has been included as a disease group for the purpose of ranking the causes of death since 2001.

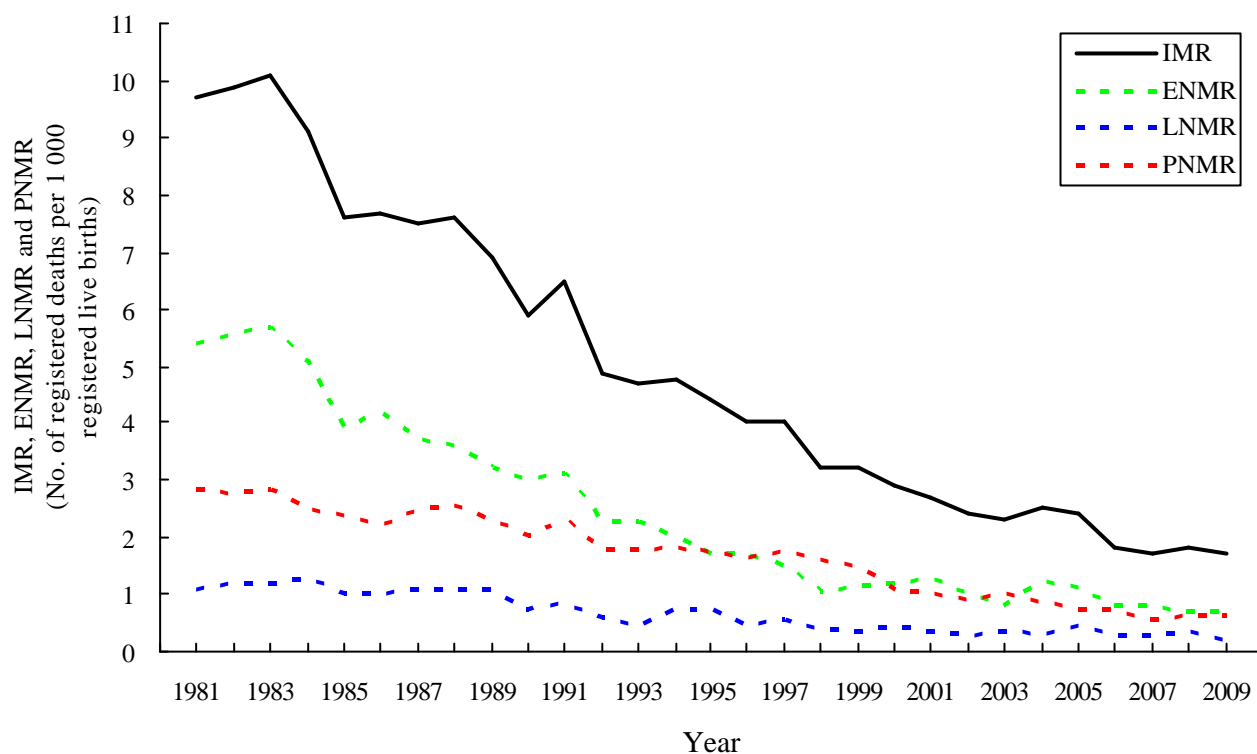
Sources : Census and Statistics Department; Department of Health.

Infant Deaths

The number of infant deaths and infant mortality rate (IMR) are important measures of the well-being of infants, children and pregnant women because they are associated with a variety of factors, such as maternal health, quality of and access to medical care. They also indicate the level of health or socioeconomic development of an economy. In Hong Kong, the number of registered infant deaths was 137 in 2009, of which 58 were post neonatal deaths, 61 early neonatal deaths and 18 late neonatal deaths. The IMR and post neonatal mortality rate were 1.7 and 0.7 per 1 000 registered live births

in 2009 respectively. Corresponding figures in 2008 were 1.8 and 0.7 per 1 000 registered live births respectively. The early neonatal mortality rate was 0.7 per 1 000 registered live births in 2009 (0.7 per 1 000 registered live births in 2008) whilst the late neonatal mortality rate was 0.2 per 1 000 registered live births in 2009 (0.4 per 1 000 registered live births in 2008). All of the above-mentioned rates were generally on a downward trend from 1981 to 2009. It is noted that early neonatal mortality rate exhibited a much faster declining trend in comparison with late neonatal mortality rate and post neonatal mortality rate. (Figure 8)

Figure 8 Infant Mortality Rate (IMR), Early Neonatal Mortality Rate (ENMR), Late Neonatal Mortality Rate (LNMR) and Post Neonatal Mortality Rate (PNMR), 1981 to 2009



- Notes :
1. IMR refers to the number of registered deaths of infant under one in a calendar year per 1 000 registered live births in that year.
 2. ENMR refers to the number of registered infant deaths aged under seven days in a calendar year per 1 000 registered live births of that year.
 3. LNMR refers to the number of registered infant deaths aged from seven days to under 28 days in a calendar year per 1 000 registered live births of that year.
 4. PNMR refers to the number of registered infant deaths aged from 28 days to under one year in a calendar year per 1 000 registered live births of that year.

Sources : Census and Statistics Department; Department of Health; Immigration Department.

In 2009, “congenital malformations, deformation and chromosomal abnormalities” ranked top on the proportional mortality of infant deaths, following by “disorders relating to length of gestation and fetal growth”. (Table 4)

Maternal Deaths

There were two maternal deaths recorded in both 2008 and 2009. The maternal mortality ratio (MMR) was 2.4 per

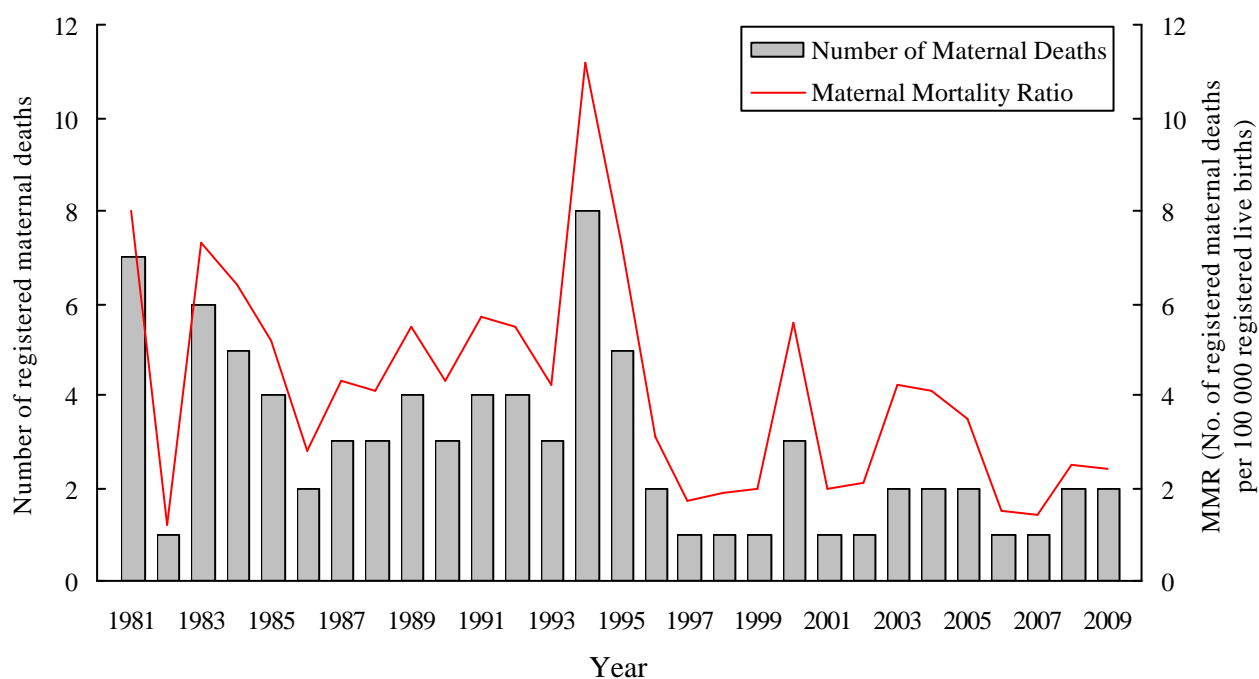
100 000 registered live births in 2009 (2.5 in 2008). From 1981 to 2009, MMR fluctuated at the range from 1.2 to 11.2. However, it should be noted that due to the small number of maternal deaths, MMR is likely to fluctuate even with an increase or decrease of one maternal death. Moreover, due to the increasing number of births in recent years, the same number of maternal deaths recorded in a year will result in a decrease in MMR compared with the previous year. (Figure 9)

Table 4 **Number of Registered Deaths and Proportionate Mortality by Five Leading Causes of Infant Deaths, 2009**

Rank	Causes of Death	Number of Registered Deaths	Proportionate Mortality (as percentage of total number of registered deaths)
1	Congenital malformations, deformations and chromosomal abnormalities	48	35.0%
2	Disorders relating to length of gestation and fetal growth	11	8.0%
3a	Diseases of the nervous system	8	5.8%
3b	Other respiratory conditions of newborn	8	5.8%
3c	Haemorrhagic and haematological disorders of fetus and newborn	8	5.8%
	All other causes	54	39.4%
All causes		137	100.0%

Note : Proportionate mortality may not add up to total due to rounding.
Sources : Census and Statistics Department; Department of Health.

Figure 9 **Number of Registered Maternal Deaths and Maternal Mortality Ratio (MMR), 1981 to 2009**



Sources : Census and Statistics Department; Department of Health; Immigration Department.

Life Expectancy at Birth

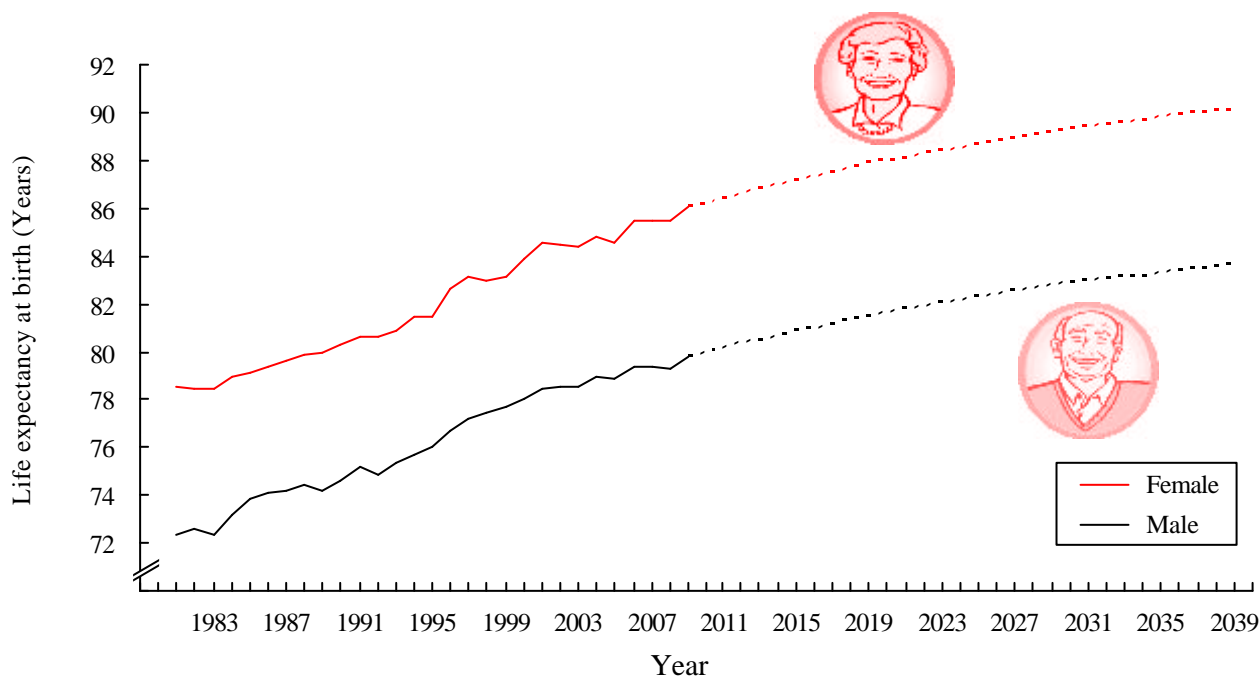
The life expectancy at birth defines the average number of years of life that a cohort of births born in a given year can expect to live if they were subject throughout their lifetime to the age-sex specific mortality rates prevailing in that year. It is a valuable tool for studying longevity and for comparing the mortality experience of different countries/territories at a point in time and the mortality level of a population over time.

The life expectancy at birth for the year 2009 was 79.8 years (provisional) for males and 86.1 years (provisional) for females. Both figures were slightly higher than the corresponding figures for 2008. As revealed in the Hong Kong Life Tables prepared by the Census and Statistics Department, the figures would further increase to 82.8 years for males and 89.2

years for females in 2029; and 83.7 years for males and 90.1 years for females in 2039.² (Figure 10)

During 1981 to 2008, life expectancy at birth increased by 7.0 years and 6.9 years for males and females respectively. These improvements in life expectancy are the result of changes in mortality for specific age-sex groups. To measure changes in mortality, Arriaga (1984)³ developed a mathematical method to estimate the contribution of mortality change by age based on changes in life expectancy. The procedure estimates the number of years added to or removed from life expectancy because of the decrease or increase of the probability of dying for each age interval in the life table. Using this life table decomposition technique, the change in life expectancy at birth is partitioned by age group to estimate the contribution of a change in mortality at each age group to

Figure 10 Life Expectancy at Birth (Male and Female), 1981 to 2039



- Notes : 1. Figures from 1981 to 1995 are compiled based on the “extended de facto” method and those from 1996 onwards are compiled based on the “resident population” method.
2. Figures from 2010 onwards are based on the 2009-based population projections.

Source : Census and Statistics Department.

the total change in life expectancy at birth. During 1981 to 2008, the greatest contribution to life expectancy resulted from the reduction in mortality of the age group 65 and over (2.96 years for males and 3.87 years for females). The mortality improvement for persons aged under one and aged 65 and over contributed 51.6% and 64.7% of the overall improvement in life expectancy for males and females respectively. (Table 5)

Using the decomposition technique further proposed by Arriaga (1989)⁴, the change in life expectancy at birth during the period can also be disaggregated by leading causes of death. This approach assumes that the contribution of the change in mortality for each leading cause of death in a given age group to the change in life expectancy is proportional to the contribution of the leading cause of death to the change in mortality rate in the specific age group. During 1981 to 2008, the increase in life expectancy at birth in Hong Kong was mainly attributed to the reduction in mortality of major chronic non-communicable diseases. Among that, the

reduction in mortality due to malignant neoplasms made the largest contribution to the increase in life expectancy at birth for males (17.6% or 1.24 years), following by cerebrovascular diseases (15.3% or 1.08 years) and diseases of heart (13.9% or 0.97 years). On the other hand, the reduction in mortality due to cerebrovascular diseases made largest contribution to the increase in life expectancy for females (20.4% or 1.41 years), following by diseases of heart (15.3% or 1.06 years) and malignant neoplasms (12.2% or 0.85 years). The decomposition of the change in life expectancy provides a new perspective for examining the trend of cause-specific mortality. Nevertheless, the decomposition analysis for 1981 to 2008 is subject to the limitation of comparability between different versions of the International Classification of Diseases (ICD). It is because mortality figures by cause of deaths are based on ICD 10th Revision from 2001 onwards while the figures for previous years were compiled based on the ICD 9th Revision. (Table 6)

Table 5 Contribution to the Change in Life Expectancy at Birth (in Years) by Age by Sex, 1981 to 2008

Age group	Male		Female	
	Contribution to the increase in life expectancy at birth	Share (%)	Contribution to the increase in life expectancy at birth	Share (%)
0	0.67	9.5	0.62	8.9
1-4	0.12	1.7	<0.005	0.1
5-14	0.11	1.5	0.09	1.3
15-44	0.80	11.4	0.59	8.5
45-64	2.37	33.7	1.76	25.4
65+	2.96	42.1	3.87	55.8
Overall	7.02	100.0	6.93	100.0

Note : Percentage may not add up to 100% due to rounding.

Sources : Census and Statistics Department, Department of Health.

Comparison of Key Vital Statistics with Other Major Economies

Life expectancy at birth as well as IMR

and MMR compared favourably with other major economies. Hong Kong takes pride in having achieved health indices which rank among the best in the world. (Table 7)

Table 6 Contribution to the Change in Life Expectancy at Birth (in Years) by Ten Leading Causes of Death by Sex, 1981 to 2008

Disease group	Male		Female	
	Contribution to the increase in life expectancy at birth	Share (%)	Contribution to the increase in life expectancy at birth	Share (%)
Malignant neoplasms	1.24	17.6	0.85	12.2
Diseases of heart	0.97	13.9	1.06	15.3
Pneumonia	0.63	8.9	0.62	9.0
Cerebrovascular diseases	1.08	15.3	1.41	20.4
Chronic lower respiratory diseases	0.60	8.6	0.48	7.0
External causes of morbidity and mortality	0.58	8.2	0.42	6.1
Nephritis, nephrotic syndrome and nephrosis	0.22	3.1	0.30	4.3
Septicaemia	<0.005	<0.5	<0.005	<0.5
Diabetes mellitus	0.05	0.7	0.05	0.7
Dementia	-0.04	-0.5	-0.07	-1.0
All other causes	1.69	24.1	1.81	26.2
Overall	7.02	100.0	6.93	100.0

Note : Percentage may not add up to 100% due to rounding.

Sources : Census and Statistics Department, Department of Health.

Table 7 Comparison of Infant Mortality Rate (IMR), Maternal Mortality Ratio (MMR) and Life Expectancy at Birth among Selected Economies

Economy	Infant Mortality Rate (Deaths per 1 000 Live Births)	Maternal Mortality Ratio (Deaths per 100 000 Live Births)	Life Expectancy at Birth	
			Male	Female
1. Hong Kong, China	1.7 ^{*,†} (2009)	2.4 ^{*,‡} (2009)	79.8 [*]	86.1 [*] (2009)
2. Japan	2.4 ^{*,§} (2009)	3.2 [§] (2007)	79.6 [§]	86.4 [§] (2009)
3. Singapore	2.2 (2009)	8 [¶] (2008)	79.0	83.7 (2009)
4. Sweden	2.5 (2009)	5.5 (2008)	79.4	83.4 (2009)
5. United Kingdom (U.K.)	4.7 [*] (2008)	7.3 (2007)	77.4	81.6 (2007)
6. United States of America (U.S.A.)	6.5 ^{**} (2008)	12.7 (2007)	75.4 ^{††}	80.4 ^{††} (2007)

Notes : Figures in brackets denote the reference year of the data.

* Provisional figure.

† Compiled based on the number of registered births and registered deaths.

‡ Per 100 000 registered live births.

§ Data only cover persons of Japanese nationality.

|| Data refer to resident population.

¶ Per 100 000 live births and still births.

** Data exclude fetal deaths as well as births and infant deaths of non-residents of the U.S.A.

†† Figure excludes non-residents of the U.S.A.



Sources : Figures for Infant Mortality Rate

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Japan - Japan Monthly Statistics, www.stat.go.jp/data/getujidb/zuhyou/b01.xls (accessed on 30 July 2010).
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REVIEW OF NOTIFIABLE DISEASES IN HONG KONG, 2009

Dr Terence LAM¹ Dr C M TAM² Dr Christine WONG³

Overview

Year 2009 was another challenging year for public health. The World Health Organization declared Influenza Pandemic Phase Six on 11 June 2009. The pandemic declaration, the first since 1968 pandemic flu, signaled the start of the human swine influenza (influenza A (H1N1) 2009) pandemic. Locally, the first imported case of human swine influenza (HSI) was reported in May and HSI activity started to rise sharply in July and peaked in late September. A total of 34 174 cases of HSI were notified to the Centre for Health Protection (CHP) of the Department of Health (DH) in 2009 in Hong Kong. This alone contributed to 71% of the yearly notifications.

In 2009, three diseases, namely, HSI, enterovirus 71 infection (EV71) and chikungunya fever, became statutorily notifiable under the Prevention and Control of Disease Ordinance (Cap 599), expanding the list of notifiable diseases to a total of 47 infectious diseases.

For notifiable diseases other than HSI, there were a total of 13 980 cases recorded, which was significantly lower than the average of the previous five years (20 856 cases) (Table 1). When compared with the average notifications in the preceding five years, Legionnaires' disease, typhoid fever and viral hepatitis C showed more than 50% increase whereas Japanese encephalitis, cholera, measles and food poisoning showed more than 50%

decrease (Table 2). The top three commonest infectious diseases notified to the DH in 2009 were HSI, chickenpox and tuberculosis.

In 2009, the DH did not receive any notification of acute poliomyelitis, anthrax, botulism, cholera, congenital rubella syndrome, diphtheria, influenza A (H2), influenza A (H5), influenza A (H7), Japanese encephalitis, plague, rabies, relapsing fever, SARS, smallpox, viral haemorrhagic fever, West Nile virus infection and yellow fever.

Highlights for 2009

Community-associated Methicillin-resistant *Staphylococcus aureus* Infection

A total of 368 cases of community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) infection were recorded in 2009. This was 30% higher than the 282 cases in 2008 (Figure 1). The male-to-female ratio was 1.4:1 and the median age was 34 years (range: less than one month to 88 years). Skin and soft tissue infections were the most common presenting conditions (98%) while ten cases presented with invasive infections. Majority of the cases were Chinese (57%), with Filipinos and Caucasians making up 18% and 11% of the cases respectively. Sixty-two percent of patients required hospitalisation and the median length of stay was three days. Majority of the cases were sporadic and

¹ Scientific Officer ² Consultant Chest Physician i/c ³ Principal Medical & Health Officer

Table 1 Number of Notifications for Statutory Notifiable Diseases in Hong Kong, 2000 to 2009

(provisional figures as of June 2010)

Diseases	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
Acute poliomyelitis	1	0	0	0	0	0	0	0	0	0	
Amoebic dysentery	3	6	5	16	23	2	4	4	4	6	
Anthrax	-	-	-	-	-	-	-	-	0	0	
Bacillary dysentery	310	390	284	116	140	129	140	67	150	86	
Botulism	-	-	-	-	-	-	-	-	0	0	
Chickenpox	8 556	16 472	16 727	6 780	11 784	11 933	14 415	17 940	8 927	6 777	
Chikungunya fever	-	-	-	-	-	-	-	-	-	1	
Cholera	12	38	4	7	5	5	1	3	7	0	
Community-associated methicillin-resistant <i>Staphylococcus aureus</i> infection	-	-	-	-	-	-	-	173	282	368	
Creutzfeldt-Jakob disease	-	-	-	-	-	-	-	-	1	6	
Dengue fever	11	17	44	49	31	31	31	58	42	43	
Diphtheria	0	0	0	0	0	0	0	0	0	0	
Enterovirus 71 infection	-	-	-	-	-	-	-	-	-	31	
<i>Escherichia coli</i> O157:H7 infection	-	-	-	-	-	-	-	-	1	2	
Food poisoning	(Outbreaks)	618	671	670	422	821	972	1 095	621	619	407
	(Persons affected)	2 452	2 707	2 640	2 230	3 131	3 595	4 145	1 992	2 547	1 540
<i>Haemophilus influenzae</i> type b infection (invasive)	-	-	-	-	-	-	-	-	0	1	
Hantavirus infection	-	-	-	-	-	-	-	-	1	1	
Influenza A	<i>Influenza A (H2)</i>	-	-	-	-	-	-	-	0	0	
	<i>Influenza A (H5)</i>	-	-	-	-	0	0	0	0	0	
	<i>Influenza A (H7)</i>	-	-	-	-	0	0	0	0	0	
	<i>Influenza A (H9)</i>	-	-	-	-	0	0	0	1	1	2
	<i>Swine Influenza</i>	-	-	-	-	-	-	-	-	-	34 174
Japanese encephalitis	-	-	-	-	5	2	0	2	0	0	
Legionnaires' disease	2	3	4	3	3	11	16	11	13	37	
Leprosy	11	10	6	7	6	4	6	2	5	4	
Leptospirosis	-	-	-	-	-	-	-	-	4	9	
Listeriosis	-	-	-	-	-	-	-	-	11	14	
Malaria	35	47	54	28	37	32	40	33	25	23	
Measles	61	179	61	33	51	65	106	88	68	26	
Meningococcal infection (invasive)	14	10	6	3	4	4	6	2	0	2	
Mumps	77	67	89	121	221	145	184	180	136	155	
Paratyphoid fever	13	21	21	60	39	33	39	28	21	26	
Plague	0	0	0	0	0	0	0	0	0	0	
Psittacosis	-	-	-	-	-	-	-	-	0	1	
Q fever	-	-	-	-	-	-	-	-	1	4	
Rabies	0	1	0	0	0	0	0	0	0	0	
Relapsing fever	0	0	0	0	0	0	0	0	0	0	
Rubella and congenital rubella syndrome	<i>Rubella</i>	2 338	51	36	19	23	53	34	38	38	42
	<i>Congenital rubella syndrome</i>	-	-	-	-	-	-	-	1	0	
Scarlet fever	123	147	119	63	125	177	230	224	235	187	
Severe Acute Respiratory Syndrome	-	-	-	1 755	0	0	0	0	0	0	
Smallpox	-	-	-	-	-	-	-	-	0	0	
<i>Streptococcus suis</i> infection	-	-	-	-	-	13	8	6	6	6	
Tetanus	7	4	2	3	3	0	2	1	0	1	
Tuberculosis	7 578	7 262	6 602	6 024	6 226	6 160	5 766	5 463	5 635	5 348	
Typhoid fever	105	67	67	49	53	36	46	46	38	89	
Typhus and other rickettsial diseases	<i>Scrub typhus</i>	2	3	8	13	12	30	20	15	19	20
	<i>Urban typhus</i>	2	4	5	1	6	8	4	3	1	5
	<i>Spotted fever</i>	-	-	-	-	-	-	-	-	15	13
	<i>Unclassified</i>	0	0	0	0	0	0	0	0	0	2
Viral haemorrhagic fever	-	-	-	-	-	-	-	-	0	0	
Viral hepatitis	<i>A</i>	505	494	267	107	121	64	76	68	71	63
	<i>B</i>	137	134	121	98	134	105	123	74	83	81
	<i>C</i>	0	0	4	0	1	1	2	2	3	3
	<i>E</i>	11	26	28	19	38	34	34	65	90	73
West Nile Virus Infection	-	-	-	-	-	-	-	-	0	0	
Whooping cough	11	15	23	5	10	32	21	31	25	15	
Yellow fever	0	0	0	0	0	0	0	0	0	0	
Total	20 543	26 139	25 257	15 801	19 922	20 081	22 449	25 249	16 579	48 154	

Notes : 1. One case of poliomyelitis reported in 2000 was a vaccine-associated acute poliomyelitis case occurring in 1995. The last case of poliomyelitis due to wild poliovirus occurred in Hong Kong in 1983. Hong Kong, as part of the World Health Organization Western Pacific Region, has been declared polio-free since year 2000.

2. Chikungunya fever and enterovirus 71 infection have been listed as notifiable diseases since 6 March 2009. Also, swine influenza has been listed as notifiable disease since 27 April 2009. The newly added statutory notifiable diseases are highlighted in the above table.

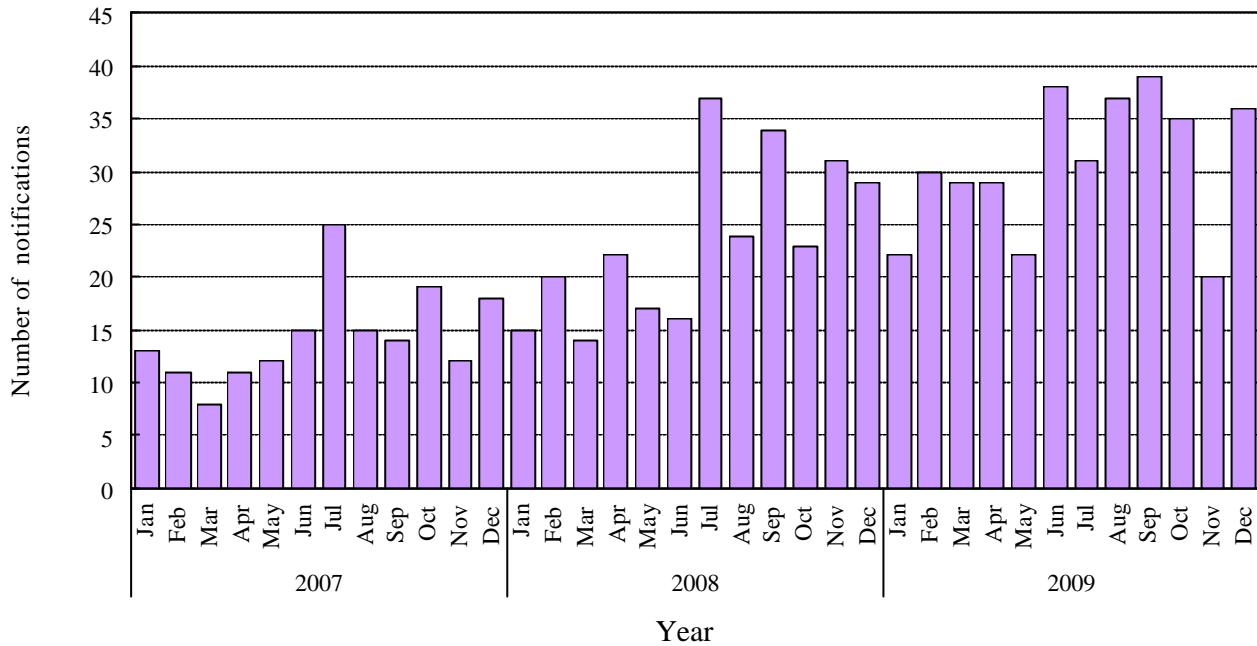
Table 2 Notifications in 2009 versus the Average Annual Notifications in Preceding Five Years, 2004 to 2008

(provisional figures as of June 2010)

Disease	Notifications in 2009	Notification Rate in 2009 (per 100 000 population)	Average Notifications in Preceding Five Years (2004 to 2008)	% Change of Notifications in 2009 Over Average in Preceding Five Years
Legionnaires' disease	37	0.5	10.8	242.6
Typhoid fever	89	1.3	43.8	103.2
Viral hepatitis C	3	0.0*	1.8	66.7
Viral hepatitis E	73	1.0	52.2	39.8
Urban typhus	5	0.1	4.4	13.6
Rubella	42	0.6	37.2	12.9
Dengue fever	43	0.6	38.6	11.4
Scrub typhus	20	0.3	19.2	4.2
Scarlet fever	187	2.7	198.2	-5.7
Tuberculosis	5 348	76.4	5 850.0	-8.6
Mumps	155	2.2	173.2	-10.5
Leprosy	4	0.1	4.6	-13.0
Tetanus	1	0.0*	1.2	-16.7
Paratyphoid fever	26	0.4	32.0	-18.8
Amoebic dysentery	6	0.1	7.4	-18.9
Viral hepatitis A	63	0.9	80.0	-21.3
Viral hepatitis B	81	1.2	103.8	-22.0
<i>Streptococcus suis</i> infection	6	0.1	8.3	-27.3
Malaria	23	0.3	33.4	-31.1
Bacillary dysentery	86	1.2	125.2	-31.3
Whooping cough	15	0.2	23.8	-37.0
Meningococcal infection (invasive)	2	0.0*	3.2	-37.5
Chickenpox	6 777	96.8	12 999.8	-47.9
Food poisoning (outbreaks)	407	5.8	825.6	-50.7
Measles	26	0.4	75.6	-65.6
Cholera	0	0.0	4.2	-100.0
Japanese encephalitis	0	0.0	1.8	-100.0

Notes : 1. * Less than 0.05.

2. Only diseases with case notifications in three or more years during the period 2004 to 2008 are included in the column of average notifications in the preceding five years. Based on this criteria, acute poliomyelitis, anthrax, botulism, chikungunya fever, community-associated methicillin-resistant *Staphylococcus aureus* infection, congenital rubella syndrome, Creutzfeldt-Jakob disease, diphtheria, enterovirus 71 infection, *Escherichia coli* O157:H7 infection, *Haemophilus influenzae* type b infection (invasive), hantavirus infection, influenza A (H2), influenza A (H5), influenza A (H7), influenza A (H9), leptospirosis, listeriosis, plague, psittacosis, Q fever, rabies, relapsing fever, Severe Acute Respiratory Syndrome, smallpox, spotted fever, swine influenza, viral haemorrhagic fever, West Nile virus infection and yellow fever are excluded from the above table.

Figure 1**Number of Notifications of Community-associated Methicillin-resistant *Staphylococcus aureus* Infection, 2007 to 2009**

clusters occurred only in family setting. In 2009, seven family clusters involving 16 persons were identified and the size of the clusters ranged from two to three. No institutional outbreak of CA-MRSA had been reported in Hong Kong so far. Nasal and axillary swabs were taken from asymptomatic close contacts of patients with CA-MRSA for screening of CA-MRSA colonisation. Among the close contacts with swabs taken, 16% were tested positive for CA-MRSA colonisation and 91% of them completed decolonisation in 2009.

All the isolates found in 2009 remained sensitive to vancomycin. There were four deaths reported in 2009, involving three patients with influenza co-infections and one with infective endocarditis.

Enterovirus 71 Infection

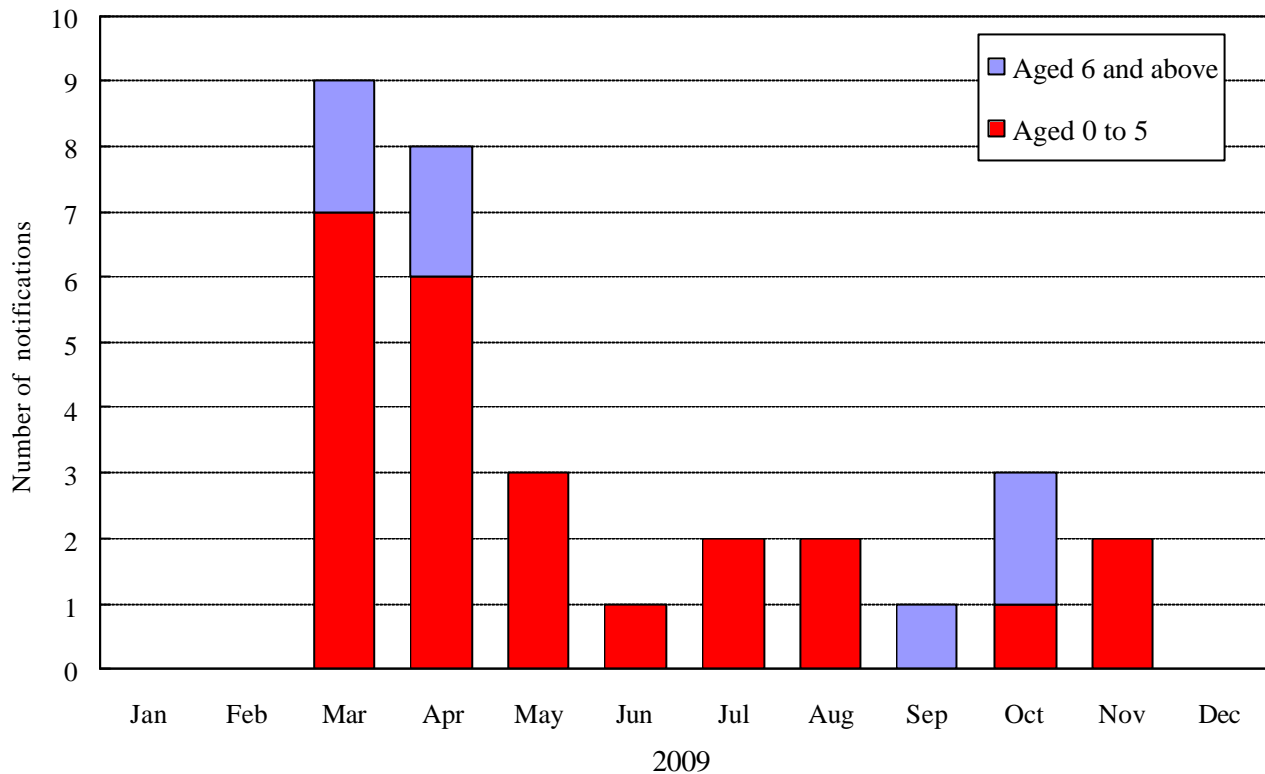
EV71 was made statutorily notifiable on 6 March 2009. EV71 activity in 2009 was

lower than that in 2008. A total of 31 cases of EV71 were notified in 2009, as compared with 98 cases reported in 2008. Three cases with complications, involving children aged 13 months to two years, were reported. Two of them were complicated with encephalitis and meningitis while the other one, who suffered from myocarditis and heart failure, died one day after admission to intensive care unit. Most of the patients (77%) were children aged five years or below (Figure 2) and the male-to-female ratio was 1.8:1. The EV71 activity peaked in March and April during which 55% of the cases were recorded. Out of the 31 cases, 29 (94%) were presented with symptoms of hand, foot and mouth disease or herpangina while two cases were presented only with fever, vomiting or diarrhoea.

H9N2 Avian Influenza

There were two cases of H9N2 human infection notified in 2009. The first case

Figure 2 Number of Notifications of Enterovirus 71 Infection, 2009



was an imported case involving an immunocompromised 47-year-old woman with multiple underlying conditions. She presented with shortness of breath and productive cough and was admitted to a public hospital after she travelled from Shenzhen to Hong Kong for consultation. Her nasopharyngeal aspirate was tested positive for influenza A (subtype H9N2). She had visited a market in Shenzhen during the incubation period but denied having contact with poultry. The other case involved a 35-month-old girl living in Hong Kong. She presented with cough, running nose and earache and was admitted to hospital. Both patients recovered and none of their contacts was tested positive for influenza A (H9). Together with the previous cases in 1999, 2003, 2007 and 2008, there were a total of seven cases of H9N2 human infection in Hong Kong.

Human Swine Influenza

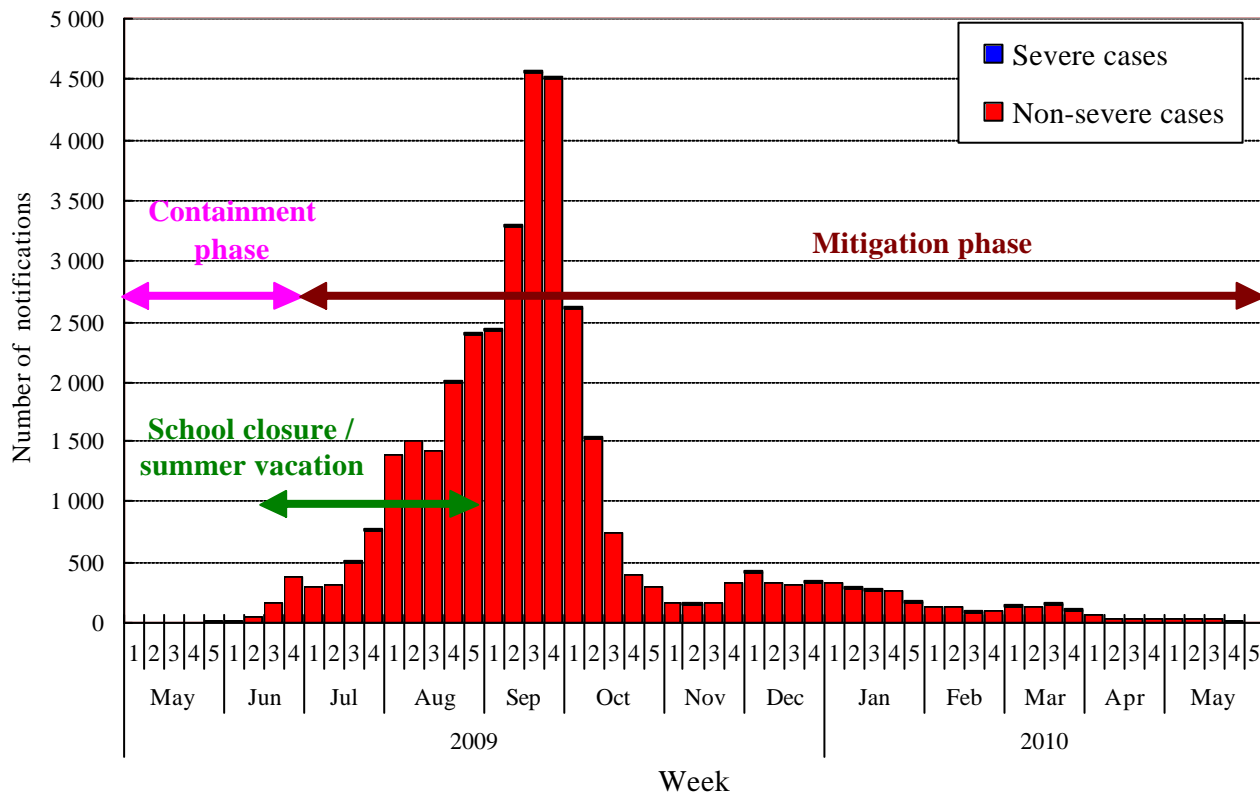
The first imported case was confirmed on 1 May 2009 in Hong Kong. The case involved a 25-year-old Mexican who arrived in Hong Kong on 30 April 2009. The Emergency Response Level under the Emergency Preparedness for Influenza Pandemic was activated on the same day. To delay disease introduction and its onward transmission in the community (containment phase), stringent containment measures were implemented in Hong Kong, including making HSI statutorily notifiable, hospitalisation and isolation of all cases, tracing and quarantine of all close contacts of confirmed cases and provision of antiviral prophylaxis, health declaration at port entries and increased public education on personal and environmental hygiene.

About 40 days later, when the first local case (with no travel history nor contact history with an imported case) was reported on 10 June 2009, all kindergartens, child care centres, primary schools and special schools were closed from 12 June for an initial period of 14 days and the school suspension was subsequently extended to the end of summer vacation.

As the pandemic evolves, control measures have been gradually changed from containment measures to mitigation measures which aim at reducing the associated morbidity and mortality and minimising disruption to health services and other sectors of the society. In the mitigation phase, priority was accorded to disease surveillance and management of patients who are at higher risk of complications and clinically severe cases.

HSI activity peaked in September 2009 and around 70% of cases notified in 2009 occurred in August and September (Figure 3). A total of 34 174 laboratory confirmed cases of HSI were notified in 2009, since the infection was made statutorily notifiable on 27 April 2009. The activity had gradually declined since September. No second peak of HSI was noted in 2009. The male-to-female ratio of laboratory confirmed cases was 1.1:1 and the median age was 14 years (range: ten days to 95 years). About half of the cases (53%) were aged below 15 years. In terms of severity, the percentages of laboratory confirmed cases requiring hospitalisation were higher for the children (aged below five years, 31%) and the elderly (aged 65 years and above, 69%), as compared to the overall percentage of 16%. A total of 212 severe cases including 62 fatal cases were reported in

Figure 3 Number of Notifications of Laboratory Confirmed Human Swine Influenza Infection



2009. Most of the fatal cases (73%) had underlying chronic diseases. They were aged from one year to 95 years (median age was 55 years). While children were more commonly affected, the elderly and people with pre-existing medical condition were more prone to severe complications once infected. (Figure 4)

Five virus isolates of HSI were found to have oseltamivir resistance but remained sensitive to zanamivir. All of them were mild and sporadic infections with no secondary spread. Four of the five cases were locally acquired infection.

The activity of HSI in Hong Kong declined steadily after its peak in late September 2009 and remained at a low level in 2010. The clinical severity of HSI has not changed during the past one year. The Government lowered the influenza

response level from "Emergency" to "Alert" Response Level on 24 May 2010. On 10 August 2010, the World Health Organization, based on its assessment on the global situation, announced that the world has entered the post-pandemic period. It is expected that the HSI virus will take on the behaviour of a seasonal influenza virus and continue to circulate for some years to come.

Legionnaires' Disease

Thirty-seven sporadic cases of Legionnaires' disease were notified in 2009, which was more than three times the average (10.8) of the five preceding years. The increase was partly contributed by the increased utilisation of the rapid diagnostic kit urinary antigen test (UAT) as a method for diagnosis of the infection (Figure 5). Twenty-four cases (65%) were

Figure 4 Cumulative Age-specific Incidence Rates and Mortality Rates of Human Swine Influenza Infection, 2009

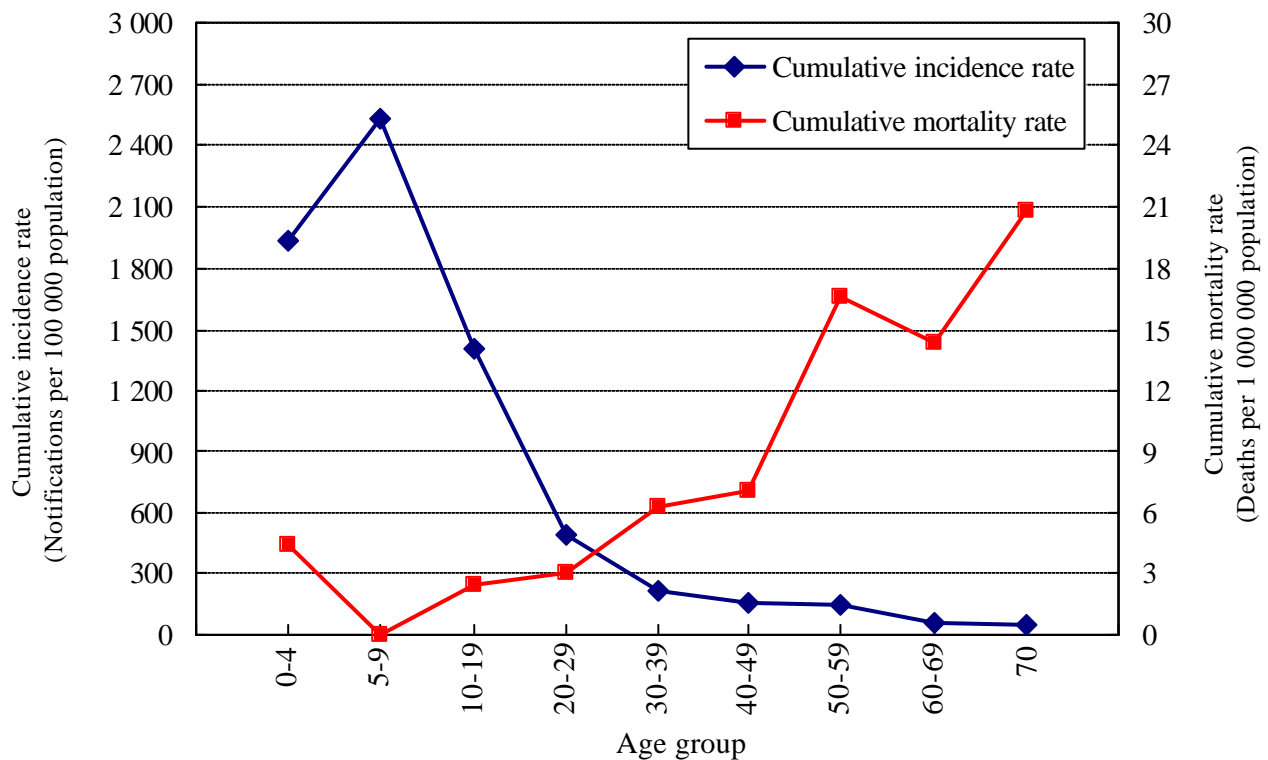
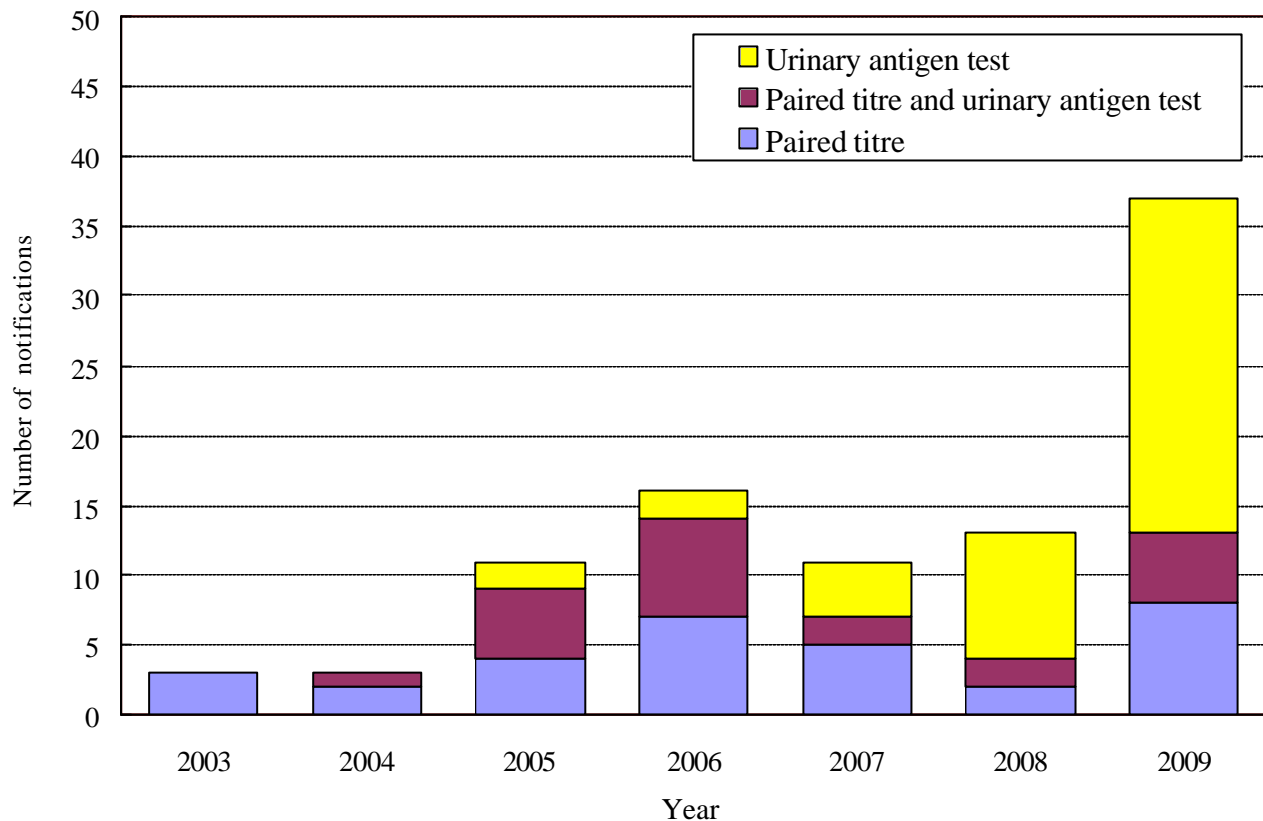


Figure 5 Number of Notifications of Legionnaires' Disease by Diagnostic Methods, 2003 to 2009



Note : *Legionella pneumophila* serogroup 1 were isolated in respiratory specimens of some cases.

tested positive by UAT only, five cases (14%) were tested positive by UAT and demonstrated a four-fold rise in antibody titre, while the remaining eight cases (22%) demonstrated a four-fold rise in antibody titre. Similar to overseas experience, males and people of older age were more affected, as indicated by the male-to-female ratio of 8.3:1 and the median age of 59 years (range: 38 to 92 years). The top five most common signs and symptoms were radiological evidence of pneumonia (100%), fever (97%), cough (84%), sputum (49%) and shortness of breath (49%). Fifty-seven percent of the cases were current or ex-smoker. Fourteen patients required intensive care and five

were fatal. Epidemiological investigation showed that all these cases were sporadic without epidemiological linkage.

Droplet and Air-borne Diseases

Chickenpox

A total of 6 777 cases of chickenpox were notified in 2009, representing a 24% decrease from 8 927 cases notified in 2008. The male-to-female ratio was 1.1:1. The median age was six years and 81% were among children aged below 13. A total of 487 institutional outbreaks of chickenpox were reported, with 52% in primary and secondary schools, 47% in

pre-primary setting and 1% in other institutions like special schools.

Measles, Mumps and Rubella

For measles, 26 cases were notified, which represented a 66% decrease as compared with the average (75.6) of the five preceding years (Figure 6). Overall, the male-to-female ratio was 0.9:1 and eight cases (31%) were under two years old. Thirty-five percent were serologically confirmed. Twenty-seven percent of the cases had not received any measles vaccination. There was one domestic outbreak affecting two baby girls below the age of two. Both had not completed measles vaccination.

For mumps, a total of 155 cases were notified in 2009. The median age was ten years and male-to-female ratio was 1.3:1. Only six percent of the cases had serological confirmation or were

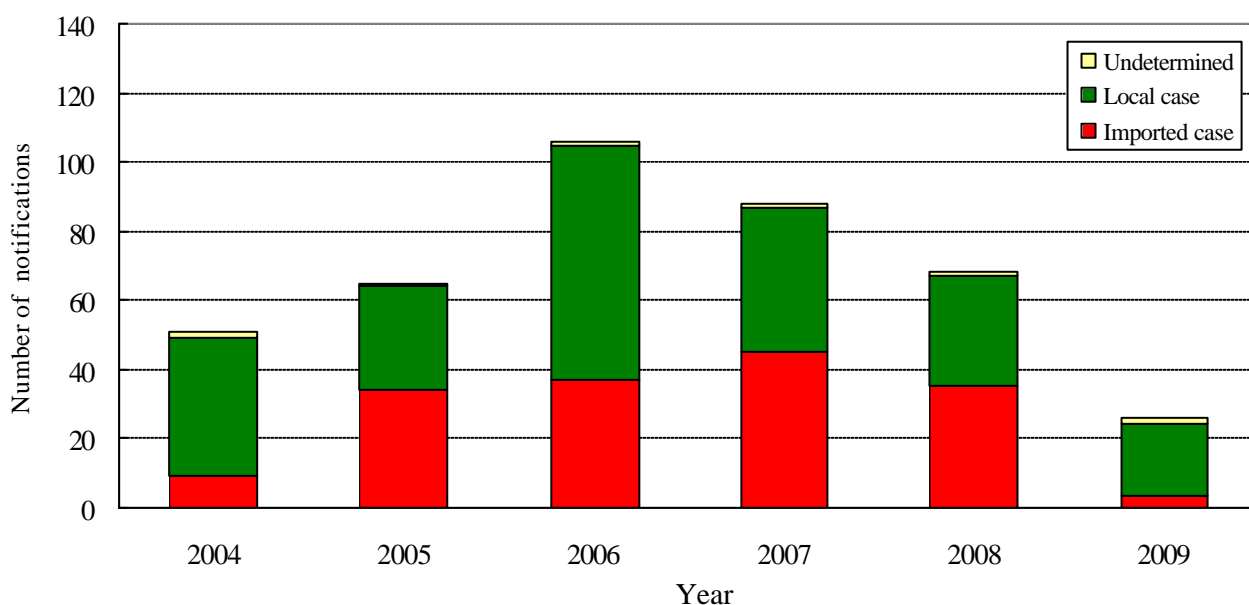
epidemiologically linked to confirmed cases. There was one domestic outbreak affecting three children aged from five to 13 years.

In 2009, there were 42 notifications of rubella infection. The male-to-female ratio was 1.1:1 and the median age was 23.5 years. Thirty-six percent of cases were serologically confirmed or epidemiologically linked to confirmed case.

Meningococcal Infection and *Haemophilus influenzae* Type b Infection

Two cases of invasive meningococcal infection in Hong Kong, including one fatal case, were recorded. They were both males, aged one month and 36 years. One case was of serotype B *Neisseria meningitidis* and the other was of serotype W135.

Figure 6 Number of Notifications of Measles, 2004 to 2009



There was one case of invasive *Haemophilus influenzae* type b (Hib) infection, affecting a two-year-old girl with underlying congenital problems.

Psittacosis

A case of psittacosis affecting a 56-year-old man was recorded in 2009. He had pneumonia and encephalitis and recovered later. He was suspected to have contracted the infection from a parrot he kept which died before his admission.

Scarlet Fever

Altogether 187 cases of scarlet fever were notified in 2009. About 95% of them were children aged below 13 years and the median age was five years. The male-to-female ratio was 1.3:1. Fifty-six percent of the cases were hospitalised. There were five outbreaks affecting a total of 12 persons.

Tuberculosis

The notification rate of tuberculosis (TB) decreased to 76 per 100 000 population (5 348 cases, provisional figure), a historical low, as compared to 81 per 100 000 population (5 635 cases) in 2008 (Figure 7). The death rate was 2.78 per 100 000 population (195 deaths) as compared to 3.28 per 100 000 population (229 deaths) in 2008 (Figure 8). The male-to-female ratio was 1.7:1 and 55% of the tuberculosis patients were at age 55 or above.

In 2009, 34 newly diagnosed cases of multidrug-resistant TB (MDR-TB) with resistance to at least isoniazid and rifampicin (including 0 case of extensively drug-resistant TB (XDR-TB), a subgroup of MDR-TB with additional resistance to

any fluoroquinolone and any one of the three injectables: amikacin, kanamycin and capreomycin) were registered, as compared to 28 cases of MDR-TB (including two cases of XDR-TB) in 2008. A recent analysis of a series of 270 MDR-TB patients during the period 1997 to 2006 showed that 187 (69.3%) were treated successfully, 26 (9.6%) died, 45 (16.7%) defaulted, nine (3.3%) were transferred out and three (1.1%) failed treatment. Among 187 successfully treated cases, eight (4.3%) relapsed during the entire study period. The relapse rate was 0.75 per 100 person-years. Two relapses occurred among 11 XDR-TB patients (2/11=18%) while six occurred among the remaining 176 MDR-TB patients (6/176=3.4%).

In 2009, the HIV seropositive rate among TB patients in the chest clinics from voluntary testing was 0.89%, as compared with 1.05% in 2008. Forty TB patients were reported to be HIV seropositive (against a provisional figure of 5 348 TB cases in the general population) in 2009, compared to 48 cases in 2008. Twenty-four cases had their TB as the AIDS-defining illness, among 76 AIDS cases reported in 2009. TB is second to *Pneumocystis jiroveci* pneumonia as the most common AIDS-defining illnesses in 2009.

Whooping Cough

Fifteen cases of whooping cough were notified in 2009 and mostly newborn babies were affected, with a median age of two months. The male-to-female ratio was 1.5:1. Two were imported cases. Ninety-three percent of the patients required hospitalisation. Two home outbreaks affecting a total of five persons were reported.

Figure 7 Number of Notifications of Tuberculosis, 1950 to 2009

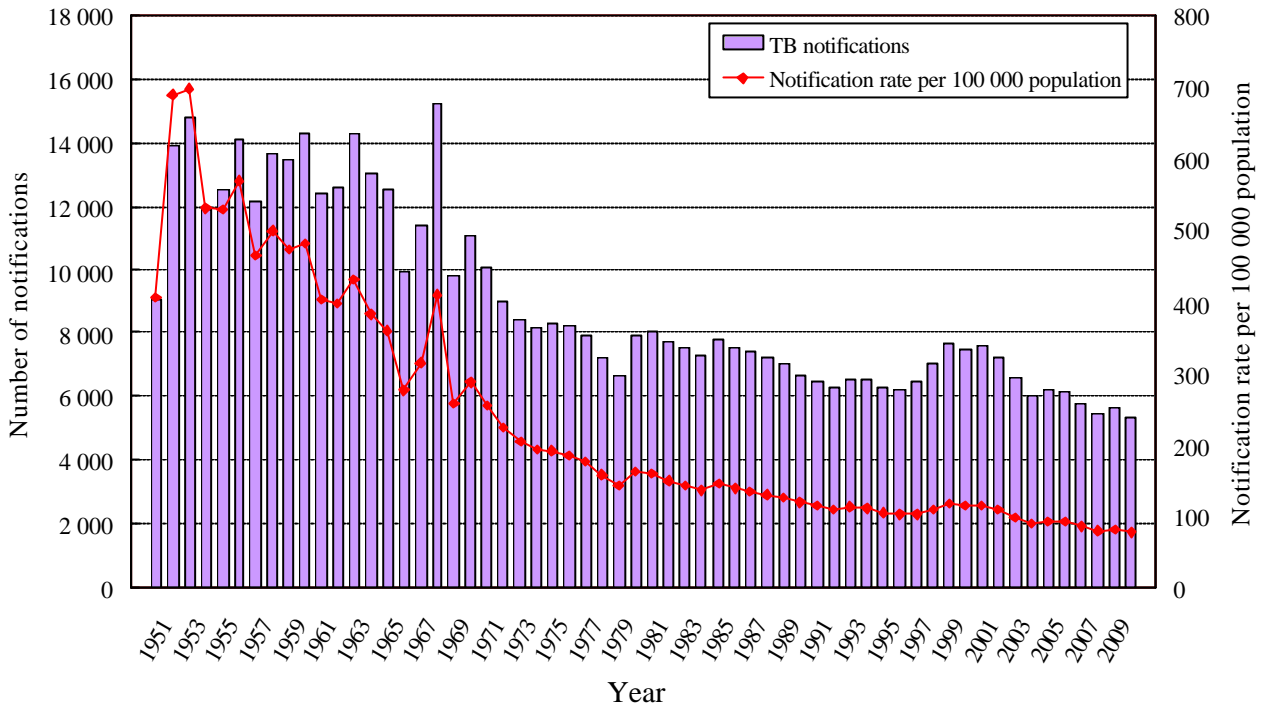
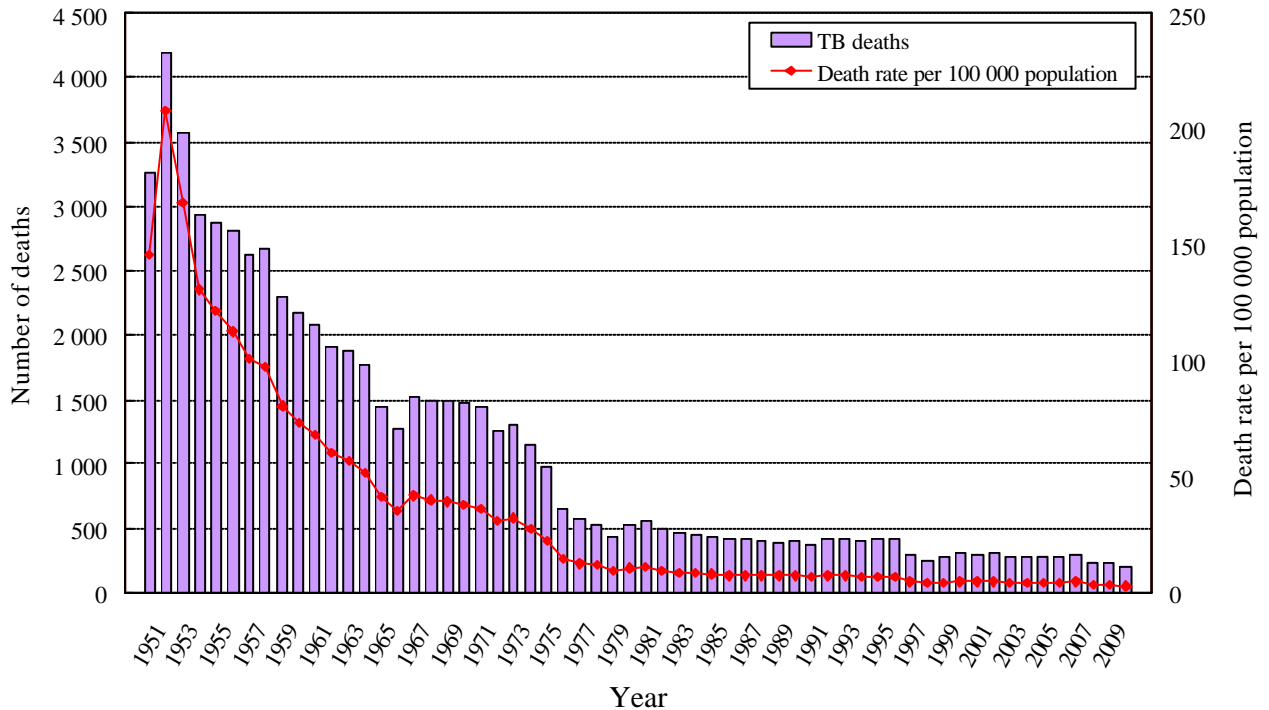


Figure 8 Deaths due to Tuberculosis, 1950 to 2009



Food- and Water-borne Diseases

Amoebic Dysentery and Bacillary Dysentery

Six cases of amoebic dysentery were reported in 2009, affecting five males and one female, age ranged from 32 to 54 years (median age was 41.5 years).

Bacillary dysentery notification was 31% (86 cases) lower than the average of 125.2 cases over the preceding five years. The male-to-female ratio was 0.6:1 and the median age was 28 years. Of all the isolates, 72% were *Shigella sonnei*, 27% were *Shigella flexneri* and the remaining was *Shigella dysenteriae*. Twenty-eight percent of the cases were imported cases. Among the imported cases, ten cases (42%) had travel history to Mainland, four cases (17%) to Vietnam, three (13%) to Indonesia and two (8%) to India.

Escherichia coli O157: H7 Infection

In 2009, two sporadic cases of *Escherichia coli* O157: H7 infection were reported, affecting a ten-month-old baby boy and a two-year-old boy. Both recovered uneventfully.

Food Poisoning

In 2009, there were 407 food poisoning outbreaks affecting a total of 1 540 persons, both of which are the lowest in the past 11 years. Most of these outbreaks (78%) were suspected to be caused by bacterial agents, 10% by viral agents, 7% by biotoxins, 4% by chemical agents. The causative agents were confirmed in 18% of the outbreaks. Among these, the top three causative agents were *Salmonella* species (42%), *Vibrio parahaemolyticus* (40%) and noroviruses (3%). Cross contamination by raw food (34%),

inadequate cooking (16%) and contaminated raw food (14%) were the major contributing factors for the outbreaks. Eighty percent of the food poisoning outbreaks, affecting 1 191 persons, occurred in food premises. Four percent of the affected persons were hospitalised. The largest food poisoning outbreak in 2009 affected 51 students of a secondary school and was related to lunch boxes provided by a food factory. Inappropriate holding temperature and inadequate reheating of food were the likely contributing factors for this outbreak.

Hepatitis A and E

In 2009, 63 cases of hepatitis A were notified, with a male-to-female ratio of 1.3:1 and a median age of 30 years. Sixty-eight percent of the cases were local cases, twenty-seven percent were imported cases and five percent could not be classified. Among the imported cases, 59% had travelled to Thailand, Malaysia or Pakistan.

For hepatitis E, a total of 73 cases were notified. The median age was 53 years and the male-to-female ratio was 1.4:1. Most were local cases (84%). There was one local domestic cluster involving three patients. No fatal case was reported.

Listeriosis

A total of 14 cases of listeriosis were reported in 2009. Five males and nine females, aged from one month to 84 years were affected, including three pregnant women. Nine of the cases were immunocompromised or had history of underlying chronic illness. One of the three pregnant patients had spontaneous abortion. There was one home outbreak affecting two persons. There were two

fatal cases involving a 78-year-old woman and an 84-year-old man. Both of them had underlying chronic diseases.

Typhoid Fever and Paratyphoid Fever

The number of typhoid fever cases reported in 2009 was 89, double the average of 43.8 cases for the five preceding years. Over three-fourths of the cases were notified between May and October. Overall, the male-to-female ratio was 0.3:1 and the median age was 27 years. Eighty-six of the cases (97%) required hospitalisation and all eventually recovered. Most cases (79%) were imported. Among the imported cases, 81% of the cases had travel history to Indonesia, 9% to Pakistan and 7% to India during the incubation period.

For paratyphoid fever, there were 26 cases with a male-to-female ratio of 1:1 and a median age of 26.5 years. This was 19% lower than the average of the five preceding years. Thirty-one percent were imported cases, with travel history to places like Bangladesh, Mainland, India, Nepal and Western Sahara. No fatal case was reported, but one patient was complicated by encephalitis.

Vector-borne Diseases

Chikungunya Fever

Chikungunya fever had become statutorily notifiable since 6 March 2009. One imported case of chikungunya fever was notified in 2009. The patient was a 59-year-old woman with travel history to Singapore, Malaysia and Thailand during the incubation period.

Dengue Fever

A total of 43 cases, all imported, were

notified. The male-to-female ratio was 2.6:1 and the median age was 38 years (range: five to 76 years). Most cases were imported from Asian countries (Figure 9). The top three were Indonesia (14 cases, 33%), Philippines (eight cases, 19%) and Thailand (seven cases, 16%). The dengue serotypes were available in 77% of patients. Of these 30% were DEN-1, 21% were DEN-2 and 48% were DEN-3. No dengue haemorrhagic fever and fatal case was reported in 2009.

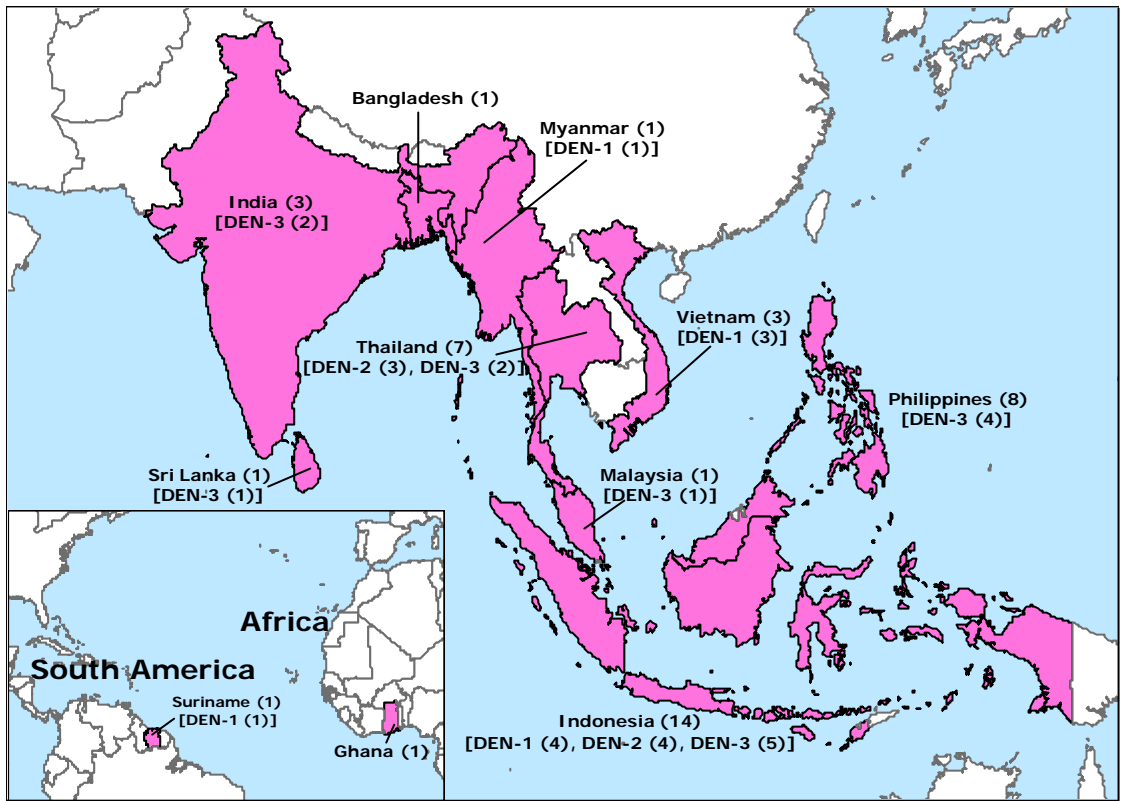
Malaria

There were 23 cases, all imported, notified in 2009, 31% fewer than the average of the five preceding years. The male-to-female ratio was 3.6:1 and the median age was 34 years (range: 13 to 83 years). The proportion of cases imported from Asian countries (70%) was higher than from African countries (30%). *P. vivax* was the most commonly identified parasites of the cases (12 patients, 52%) and 75% of these cases had travel history to South Asia. This was followed by *P. falciparum* (nine patients, 39%), of which two-third of the cases had travel history to Africa. The rest was identified to be *P. malariae* (two patients). *P. ovale* was not identified in any cases. No fatal case was reported.

Scrub Typhus, Urban Typhus and Spotted Fever

In 2009, 20 scrub typhus cases were notified and 19 of them were local cases. The median age was 51.5 years with a male-to-female ratio of 1.2:1. Eschars were found in eight (40%) of the patients. Five cases of urban typhus, with four of them being imported cases, were notified in 2009. The median age was 36 years with a male-to-female ratio of 0.3:1. Thirteen spotted fever cases were notified. The median age was 58 years with a male-to-

Figure 9 Geographical Distributions of Cases and Determined Dengue Virus Serotypes by Places of Acquiring Dengue Fever Infection Notified in 2009



Note : Two cases were not included in the map as the place of acquiring the disease cannot be ascertained.
DEN-1, DEN-2 and DEN-3 denote dengue virus serotype 1, 2 and 3 respectively.

female ratio of 1.2:1. There was no case of epidemic typhus.

Zoonotic Diseases

Creutzfeldt-Jakob Disease

Six cases of sporadic Creutzfeldt-Jakob disease (CJD) were reported to CHP in 2009. They were two males and four females aged 60 to 80 years (median age was 65 years).

Leptospirosis

Nine sporadic cases of leptospirosis affecting seven males and two females aged 21 to 59 years (median age was 38

years) were notified. Four were imported cases with travel history to the Mainland (two cases), Lao People’s Democratic Republic (one case) and the Philippines (one case). Six cases had history of participating outdoor recreational activities like rafting, river swimming, hiking or outdoor work during the incubation period. All patients recovered after hospitalisation and one of them required intensive care.

Q Fever

Four local sporadic cases of Q fever were notified, affecting three males and one female aged 26 to 60 years (median age was 51.5 years). None of them had contact

with live animals nor consumed unpasteurised milk. All of them required hospital care. One developed infective endocarditis before he was discharged and required prolonged medications. The others recovered.

Other diseases

Hantavirus Infection

One local case of hantavirus infection, affecting a 42-year-old man, was reported. He developed acute renal failure and once required haemodialysis. His condition eventually improved and he was discharged.

Hepatitis B and C

For hepatitis B, a total of 81 cases were notified. The male-to-female ratio was 2.2:1 and the median age was 37 years. The majority of cases (93%) were local cases. Two of them were fatal. Three cases of hepatitis C affecting two males aged 63 and 64 years and one female of 76 years old were reported in 2009.

***Streptococcus suis* Infection**

In 2009, six cases of *Streptococcus suis* infection were notified. The male-to-female ratio was 1:1 and the median age was 57.5 years (range: 54 to 87 years). They presented with meningitis (four cases) and septicaemia (two cases). All were hospitalised and one of them required intensive treatment. Four of them were complicated by hearing impairment. All of the six patients had history of handling raw pork.

Tetanus

There was one case of tetanus, affecting a female patient aged 75 years. She presented with symptoms of muscle spasm over both upper limbs, neck stiffness, trismus and lock jaw. She developed respiratory failure and was intubated for mechanical ventilation. She was discharged after being hospitalised for 88 days and recovered uneventfully. She had history of fall and injury with open wound before onset of symptom. She could not recall her vaccination history.

Notes on Data Interpretation

It is required by the Prevention and Control of Disease Ordinance (Cap 599) that medical practitioner shall report notifiable diseases to Director of Health. The data reported in this review are collected through statutory disease notification and only covers infectious diseases listed in the Schedule 1 to the Prevention and Control of Disease Ordinance. The data are useful for determination of relative disease burden and monitoring trend. However, the reported disease incidence might be affected by a number of factors such as introduction of a new diagnostic test and public awareness of a specific disease and case definition.

Incidence data in this review are presented by the date of notification to DH, except for CA-MRSA, which are presented by date of laboratory confirmation. Surveillance data are also reported in Communicable Diseases Watch (CD Watch) which is a biweekly publication of CHP. The data reported in CD Watch, in particular, number of fatal cases, might vary from data reported in this review because of differences in the timing of reports and case definition of fatal cases attributable to infectious diseases.

Notes to Doctors

1. Reporting of statutory notifiable diseases, suspected outbreaks or any other infectious conditions that may be of public health concern can be made to the Central Notification Office (CENO) of Centre for Health Protection through phone (2477 2772) or fax (2477 2770) or CENO On-line (<http://www.chp.gov.hk/ceno>).
2. For urgent cases, such as those that are severe and fatal, suspected to have caused widespread transmission, rare in Hong Kong or suspected to be related to deliberate release, you may call CENO (at 2477 2772 during office hours or Medical Control Officer (at pager 7116 3300 call 9179 outside office hours) for immediate attention. During weekends or public holidays, the Medical Control Officer will also screen incoming fax and voice messages left at CENO.
3. Please visit the CENO website (www.chp.gov.hk/ceno) for the current list of statutory notifiable diseases and the surveillance case definitions. Notification forms are also available at the website.

NEWS IN BRIEF

Action Plan to Promote Healthy Diet and Physical Activity Participation in Hong Kong

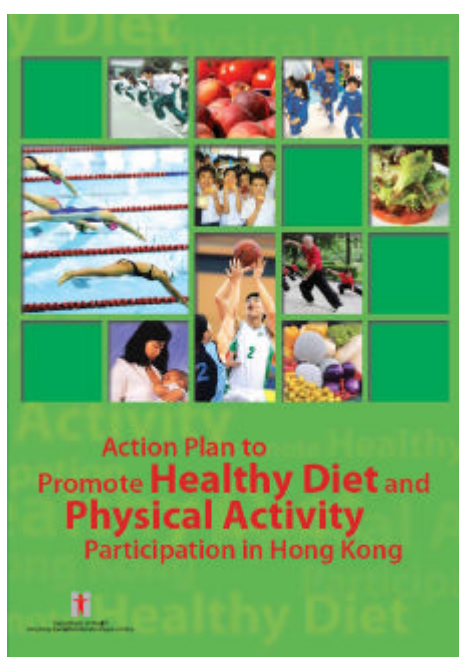
The Hong Kong SAR Government has launched the strategic document "Promoting Health in Hong Kong: A Strategic Framework for Prevention and Control of Non-communicable Diseases" in 2008. A high-level Steering Committee (SC), chaired by the Secretary for Food and Health Dr. York Chow and comprising representatives from various sectors, has been set up to deliberate on and oversee the overall roadmap for implementation of the strategy.

Under the SC, the Working Group on Diet and Physical Activity (WGDPA) was established in December 2008. After careful review and in-depth discussion regarding the local situation on Non-communicable Diseases and the major risk factors including unhealthy dietary habit, physical inactivity and overweight/obese, as well as the local health promotion activities conducted by government departments and various organisations in Hong Kong, the WGDPA compiled the "Action Plan to Promote Healthy Diet and Physical Activity Participation in Hong Kong" (Action Plan). This Action Plan outlines 30 specific actions that different government bureaux/departments and relevant parties will implement to promote healthy diet and physical activity participation over the next few years in Hong Kong.

In order to raise public awareness and call for concerted efforts in promoting healthy eating and physical activity participation, a series of publicity actions are being planned. A Kick-off ceremony will be held on 27 September 2010 to launch the Action Plan officially.

Partnership between different sectors is critically important in creating an environment that is supportive to adoption of a healthy lifestyle. Active participation by ALL is the key to success!

A copy of the Action Plan can be found at both DH and CHP websites: <http://www.dh.gov.hk> and <http://www.chp.gov.hk>.



HIV/AIDS Surveillance

	2010 Quarter 1	2009 Quarter 4	2009 Quarter 1	2009 Whole Year	Cumulative total since 1984
HIV	101	71	104	396	4 544
AIDS	19	20	17	76	1 125

Contact Numbers for Prompt Notification

Infectious Diseases other than Tuberculosis	Fax No. (Form DH1(s))	Tel. No.	Tuberculosis	Fax No. (Form DH1A(s))
Central Notification Office	2477 2770	2477 2772		
Duty Medical Officer (for urgent notification during weekends, public holidays or after office hours)	-	7116 3300 call 9179	Tuberculosis and Chest Service	2834 6627 2574 2439

Number of Notifications of Infectious Diseases

Disease	Mar 2010	Apr 2010	May 2010	Jun 2010	Jan-Jun 2009	Jan-Jun 2010
1) Acute Poliomyelitis	-	-	-	-	-	-
2) Amoebic Dysentery	-	1	-	-	4	1
3) Anthrax*	-	-	-	-	-	-
4) Bacillary Dysentery	1	5	4	8	35	21
5) Botulism*	-	-	-	-	-	-
6) Chickenpox	724	660	937	1 279	4 304	4 955
7) Chikungunya Fever†	-	-	-	-	1	-
8) Cholera	-	-	2	1	-	3
9) Community-associated methicillin-resistant <i>Staphylococcus aureus</i> Infection‡	27	41	24	48	170	194
10) Creutzfeldt-Jakob Disease*	2	-	-	-	3	4
11) Dengue Fever	5	5	6	8	21	31
12) Diphtheria	-	-	-	-	-	-
13) Enterovirus 71 Infection†	4	13	17	24	21	62
14) <i>Escherichia coli</i> O157:H7 Infection*	1	-	2	-	-	3
15) Food Poisoning:						
- Outbreaks	25	19	33	59	183	172
- Persons Affected	67	49	87	160	654	478
16) <i>Haemophilus influenzae</i> type b Infection (invasive)*	-	-	-	-	-	-
17) Hantavirus Infection*	-	-	-	-	1	-
18) Influenza A(H2)*, Influenza A(H5)§, Influenza A(H7)¶, Influenza A(H9)¶, Swine Influenza¶	573	148	104	26	785	2 412
19) Japanese Encephalitis**	-	-	-	-	-	-
20) Legionnaires' Disease	3	2	1	5	12	15
21) Leprosy	-	-	1	-	3	1
22) Leptospirosis*	-	2	-	-	-	2
23) Listeriosis*	-	1	-	-	12	1
24) Malaria	1	1	1	3	6	7
25) Measles	2	2	2	-	20	10
26) Meningococcal Infection (invasive)	1	-	-	-	1	1
27) Mumps	13	12	18	19	86	78
28) Paratyphoid Fever	3	2	2	3	14	12
29) Plague	-	-	-	-	-	-
30) Psittacosis*	-	-	-	-	-	1
31) Q Fever*	-	-	-	-	4	1
32) Rabies	-	-	-	-	-	-
33) Relapsing Fever	-	-	-	-	-	-
34) Rubella and Congenital Rubella Syndrome:						
- Rubella	3	4	5	4	28	19
- Congenital Rubella Syndrome‡	3	4	5	4	28	19
35) Scarlet Fever	11	7	11	10	140	62
36) Severe Acute Respiratory Syndrome	-	-	-	-	-	-
37) Smallpox*	-	-	-	-	-	-
38) <i>Streptococcus suis</i> Infection††	-	-	-	1	2	3
39) Tetanus	-	-	-	-	1	-
40) Tuberculosis	527	439	464	529	2 752	2 751
41) Typhoid Fever	4	1	3	1	34	11
42) Typhus and other rickettsial diseases**:						
- Scrub Typhus	2	-	3	3	5	9
- Urban Typhus	1	-	-	-	1	1
- Spotted Fever*	1	1	-	6	7	11
- Unclassified	-	-	-	-	1	-
43) Viral Haemorrhagic Fever*	-	-	-	-	-	-
44) Viral Hepatitis:						
- A	32	14	13	8	126	113
- B	9	3	3	1	39	25
- C	4	6	7	5	45	33
- E	1	-	1	-	-	4
- E	18	5	2	2	42	51
45) West Nile Virus Infection*	-	-	-	-	-	-
46) Whooping Cough	-	-	-	-	12	1
47) Yellow Fever	-	-	-	-	-	-

Notes : * Notifiable since 14 July 2008

† Notifiable since 6 March 2009

‡ Notifiable since 5 January 2007

§ Notifiable since 30 January 2004

¶ Notifiable since 31 December 2004

¶ Notifiable since 27 April 2009

** Notifiable since 16 July 2004

†† Notifiable since 2 August 2005 and cases prior to this date were voluntarily notified.

‡‡ "Typhus" has been revised to "Typhus and other rickettsial diseases" which includes spotted fever since 14 July 2008.