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VITAL STATISTICS IN 2010

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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-2010 was estimated as 7 067 800, giving a growth of 0.9% compared with the corresponding figure in 2009 (i.e. 7 003 700). The structure of Hong Kong population experienced noticeable changes from 1981 to 2010. Low birth rate in the past decades led to a narrower base of the population pyramid for year 2010, compared with the one for 1981. Meanwhile, with increased longevity, the top of the population pyramid for 2010 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 25 and 34, population size of the females at protuberance (i.e. age group 45 to 49) in 2010 was obviously greater

¹ Statistician ² Senior Statistician

than the corresponding cohort aged 20 to 24 in 1981. (Figure 1)

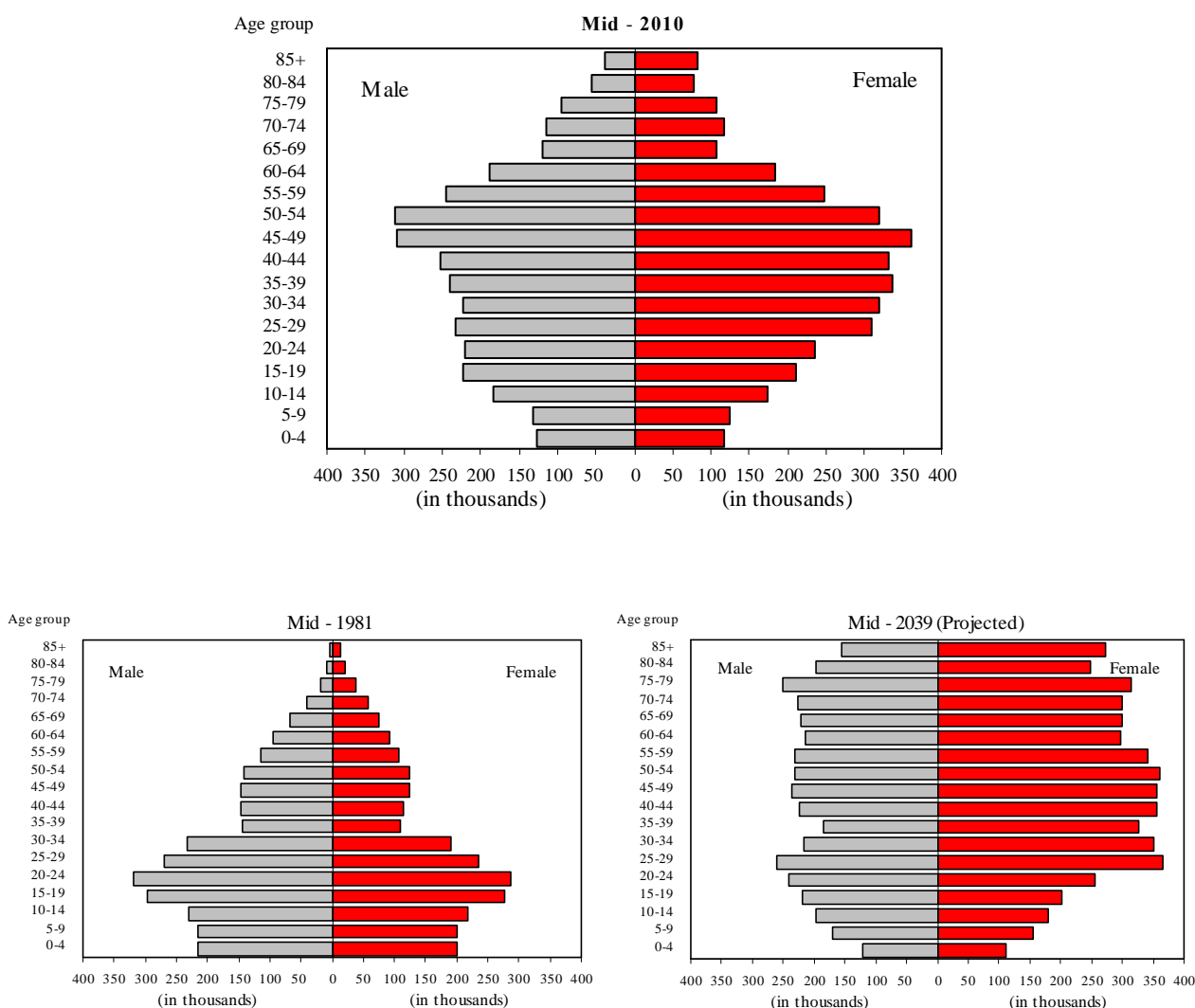
Based on the 2009-based population projections, it is projected that low birth rate will persist in the future and thus the base of population pyramid for year 2039 will be more or less the same as the one for 2010. In addition, as long life expectancy at birth remains, the top of population pyramid 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)

Ageing Trend

The Hong Kong population is getting increasingly older and this trend is likely

Figure 1 Population Pyramid, 1981, 2010 and 2039 (Projected)



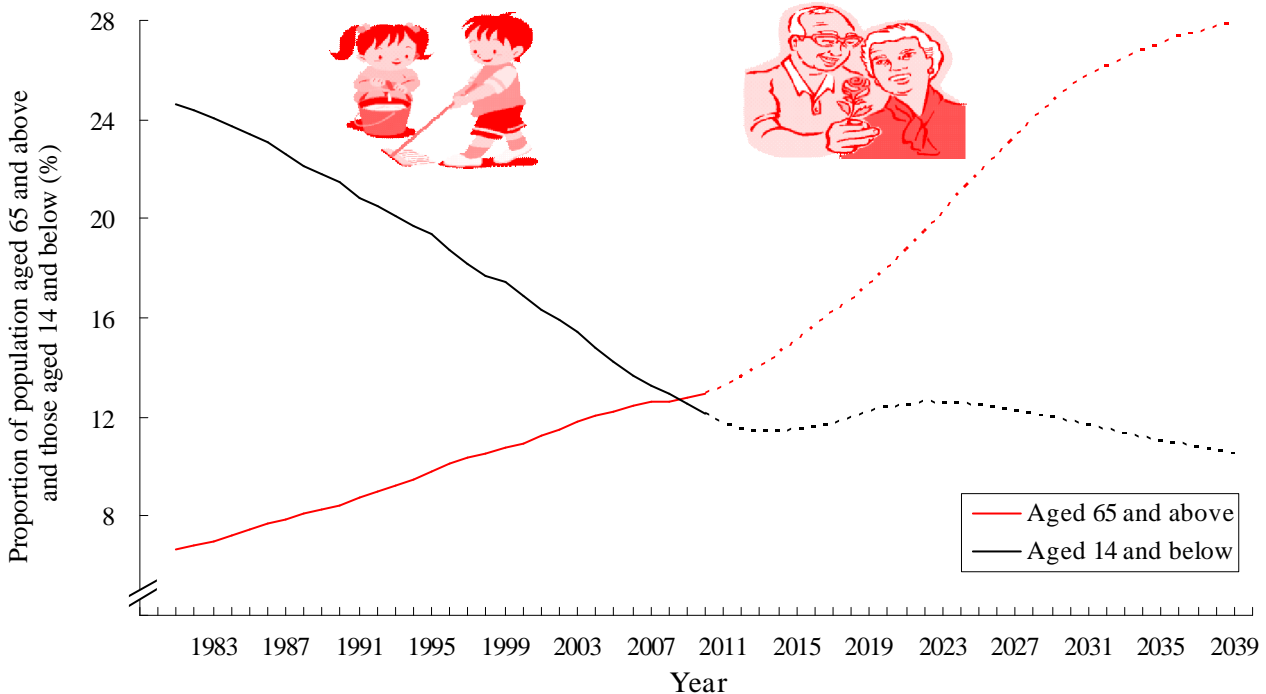
Source : Census and Statistics Department.

to continue into the future. Analysed by age group, the older population, i.e. those aged 65 and above, in 2010 increased by 2.1% in comparison with those in 2009. The proportion of the older persons was 12.9% (912 100) in 2010. 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 12.1% (858 000) in 2010. The percentage is expected to decrease further but at a slower pace in the future. The corresponding proportion for those aged 14 and below will decrease to 12.0% in 2029 and further to 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 above per 1 000 persons in the 15 to 64 age group, decreased over the past 29 years from 455 in 1981 to 334 in 2010. 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 and the proportion of younger persons is expected to remain relatively stable 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

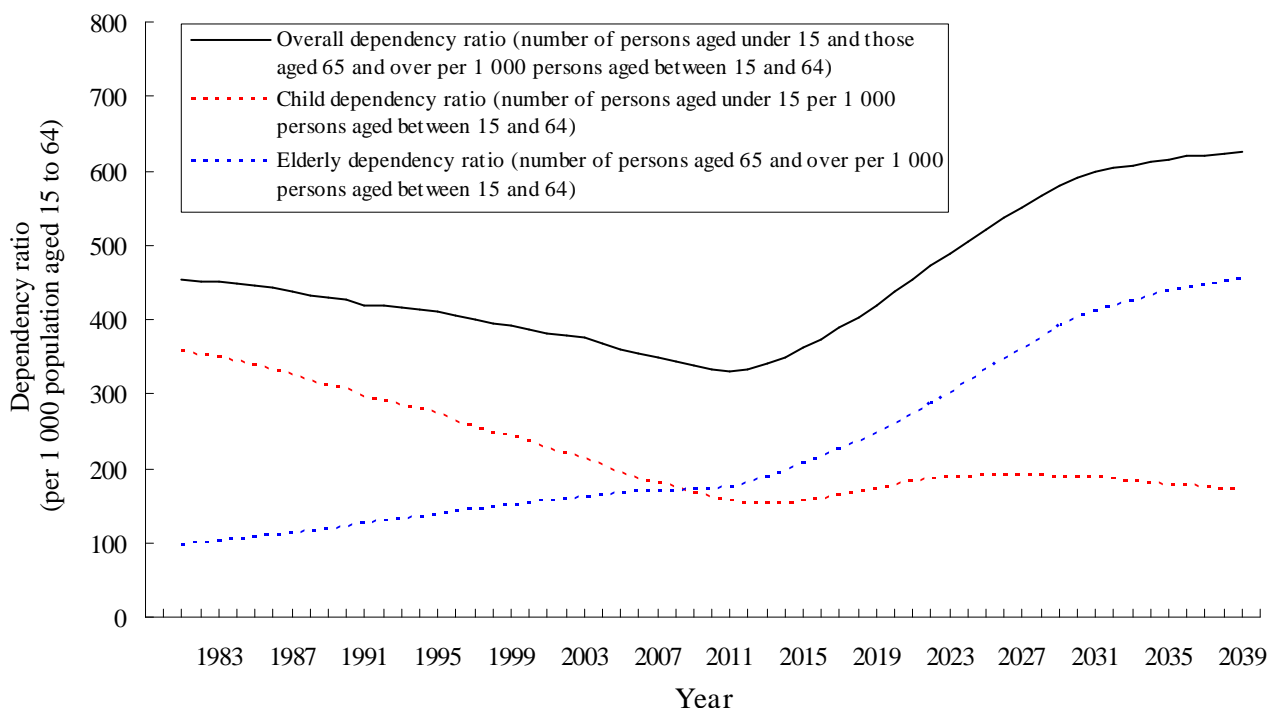


- Notes : 1. Figures from 1981 to 1995 are compiled based on the 'extended de facto' method and those from 1996 onwards are compiled based on the 'resident population' method.
 2. Figures from 2011 onwards are based on the 2009-based population projections.

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 2011 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 understanding 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 88 200 in 2010. There was an increase of 6.4% when comparing the number of registered live births in 2010 with that in 2009 (82 906).

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 2010, the number of such live births markedly went up to 40 648 and the proportion surged up to 46.1%. The

number of live births to local women had also recorded positive growth since 2005. (Table 1)

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 12.5 in 2010. (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

The following fertility-related figures for 2010 are provisional in nature.

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

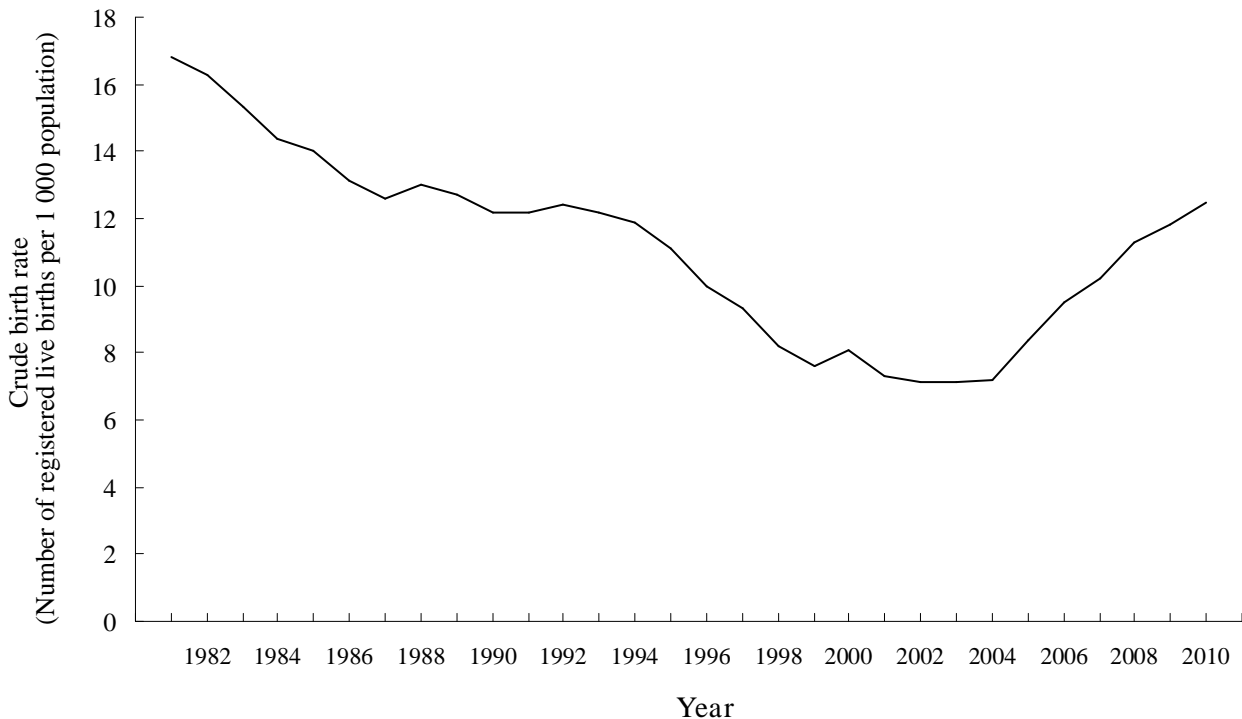
Table 1 Birth Statistics, 2001 to 2010

Year	Total 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 ^Ä	
	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%
2010	88 200	6.4%	40 648	9.1%	47 552	4.2%

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.

Ä 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.

Figure 4**Crude Birth Rate, 1981 to 2010**

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.

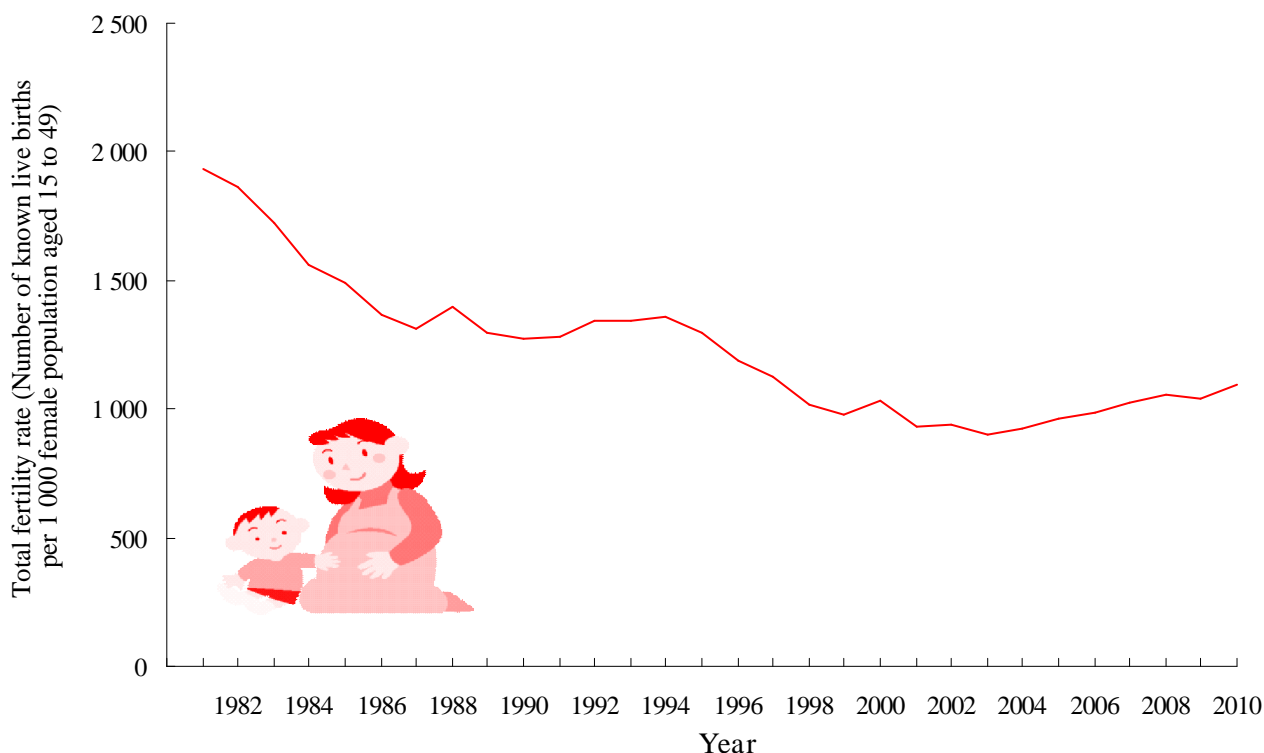
Sources : Census and Statistics Department, Department of Health, Immigration Department.

population (excluding female foreign 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.

The total fertility rate (TFR) is the most commonly used indicator to measure the fertility level of a country/territory, 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 1 094 in 2010. The low TFR in Hong Kong was associated with the delays in marriage and childbearing, which led 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 (ASFR) for women in young age groups. The ASFR is the number

Figure 5**Total Fertility Rate, 1981 to 2010**

- 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.

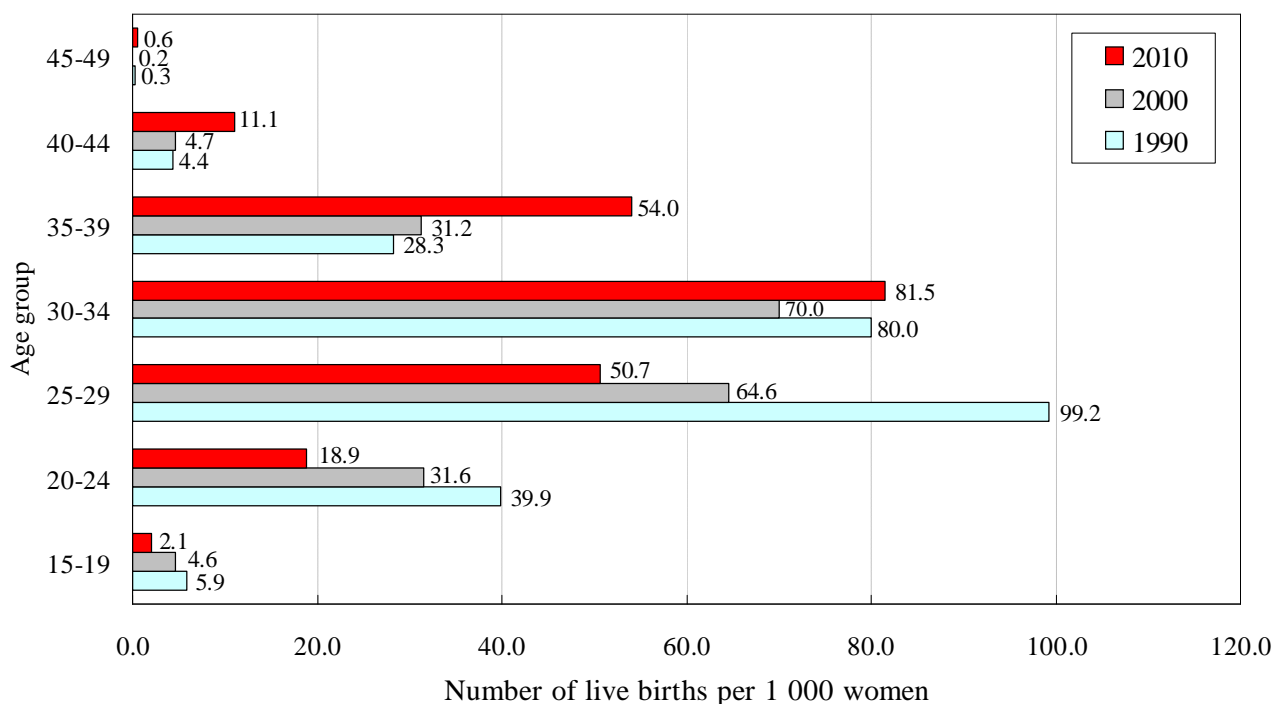
of live births occurring to women in a given age group during a year to the total female population at mid-year in that age group. The AFR for women in the young age groups of 15 to 19, 20 to 24 and 25 to 29 decreased sharply by 64%, 53% and 49% respectively in the past 20 years. On the contrary, the AFR for women aged 35 to 39 increased by 91% in the past 20 years. (Figure 6)

Deaths

The following mortality-related figures for 2010 are provisional in nature.

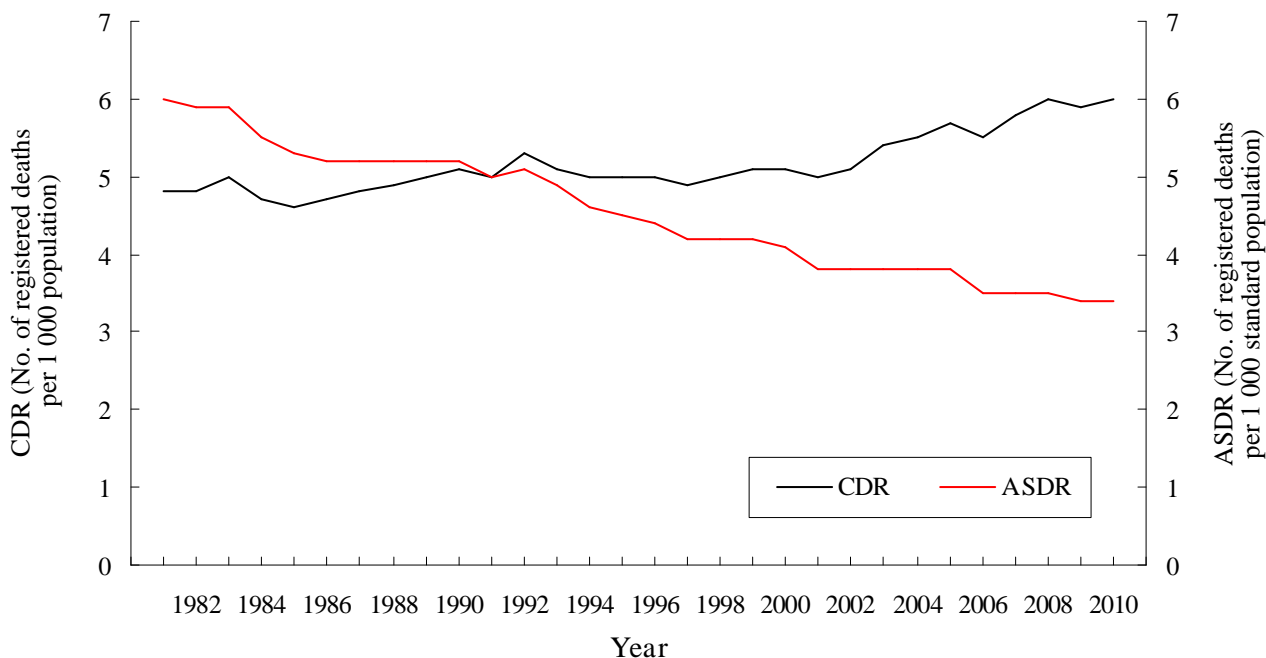
The number of registered deaths was 42 705 in 2010 (41 047 in 2009). The crude death rate was 6.0 per 1 000 population in 2010, which has slightly increased as compared with 2009 (5.9 per 1 000 population). In fact, crude death rate was on a rising trend over the past 29 years. However, the age-standardised death rate (ASDR), which eliminates the effect of age composition, reflected a reverse trend. In 2010, ASDR 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

Figure 6 Age Specific Fertility Rate (AFR) in Year 1990, 2000 and 2010



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

Figure 7 Crude Death Rate (CDR) and Age-standardised Death Rate (ASDR*), 1981 to 2010



- 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.

improved social conditions, health awareness and advanced medical technology.

During the period of 2001 to 2010, the overall ASDR decreased by 11.3%. 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 (-16.1%), cerebrovascular diseases (-25.9%), chronic lower respiratory diseases (-34.1%), external causes of morbidity and mortality (-18.3%) and diabetes mellitus (-46.1%). (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 64% of all registered deaths in 2010. 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

Table 2 **Age-standardised Death Rate* of Ten Leading Causes of Death†, 2001 to 2010**

(Number of Deaths per 100 000 Standard Population*)

Rank	Causes of Death	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1	Malignant neoplasms	133.5	131.2	125.8	124.4	125.2	118.7	116.5	114.5	114.1	112.0
2	Diseases of heart	52.3	52.5	53.7	56.5	54.2	49.7	53.2	54.2	50.0	49.6
3	Pneumonia	32.4	32.3	37.6	33.5	37.3	34.4	38.2	40.3	37.1	38.4
4	Cerebrovascular diseases	34.4	33.6	34.8	32.9	31.6	28.9	29.3	29.5	26.6	25.5
5	Chronic lower respiratory diseases [¶]	22.9	21.4	20.8	20.0	20.5	16.5	16.9	16.4	14.5	15.1
6	External causes of morbidity and mortality [§]	23.5	25.8	25.1	26.5	25.1	22.2	20.3	19.3	20.7	19.2
7	Nephritis, nephrotic syndrome and nephrosis	11.6	11.2	12.1	11.5	11.7	11.6	11.4	11.7	11.4	11.1
8	Septicaemia	4.7	5.0	5.9	6.1	6.6	6.0	6.3	6.4	6.0	6.3
9	Dementia	2.6	2.8	2.4	2.4	2.3	2.2	2.2	3.3	4.1	4.7
10	Diabetes mellitus	7.6	6.2	8.0	7.0	5.7	4.5	4.3	4.5	4.0	4.1

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 2010.

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

§ 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.

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

physical activity and smoking habit, which might have developed since childhood, adolescence or young adult life. (Table 3)

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 140 in 2010, of which 50 were post neonatal deaths, 66 early neonatal deaths and 24 late neonatal deaths. The IMR and post neonatal mortality rate (PNMR) were 1.6 and 0.6 per 1 000 registered live births in 2010 respectively. Corresponding figures in 2009 were 1.7 and 0.7 per 1 000 registered live births respectively. The early neonatal mortality rate (ENMR) was 0.7 per 1 000 registered live births in 2010 (0.7 per 1 000 registered live births in 2009) whilst the late neonatal mortality rate (LNMR) was 0.3 per 1 000 registered live births in 2010 (0.2 per 1 000 registered live births in 2009). All of the above-mentioned rates

Table 3 Number of Registered Deaths and Proportionate Mortality by Ten Leading Causes of Death, 2010

Rank	Causes of Death	Number of Registered Deaths	Proportionate Mortality (as percentage of total number of registered deaths)
1	Malignant neoplasms	13 072	30.6%
2	Diseases of heart	6 630	15.5%
3	Pneumonia	5 723	13.4%
4	Cerebrovascular diseases	3 427	8.0%
5	Chronic lower respiratory diseases*	2 091	4.9%
6	External causes of morbidity and mortality ^Ä	1 809	4.2%
7	Nephritis, nephrotic syndrome and nephrosis	1 488	3.5%
8	Septicaemia	822	1.9%
9	Dementia	771	1.8%
10	Diabetes mellitus	522	1.2%
	All other causes	6 350	14.9%
	All causes	42 705	100.0%

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

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

Ä 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.

Sources : Census and Statistics Department, Department of Health.

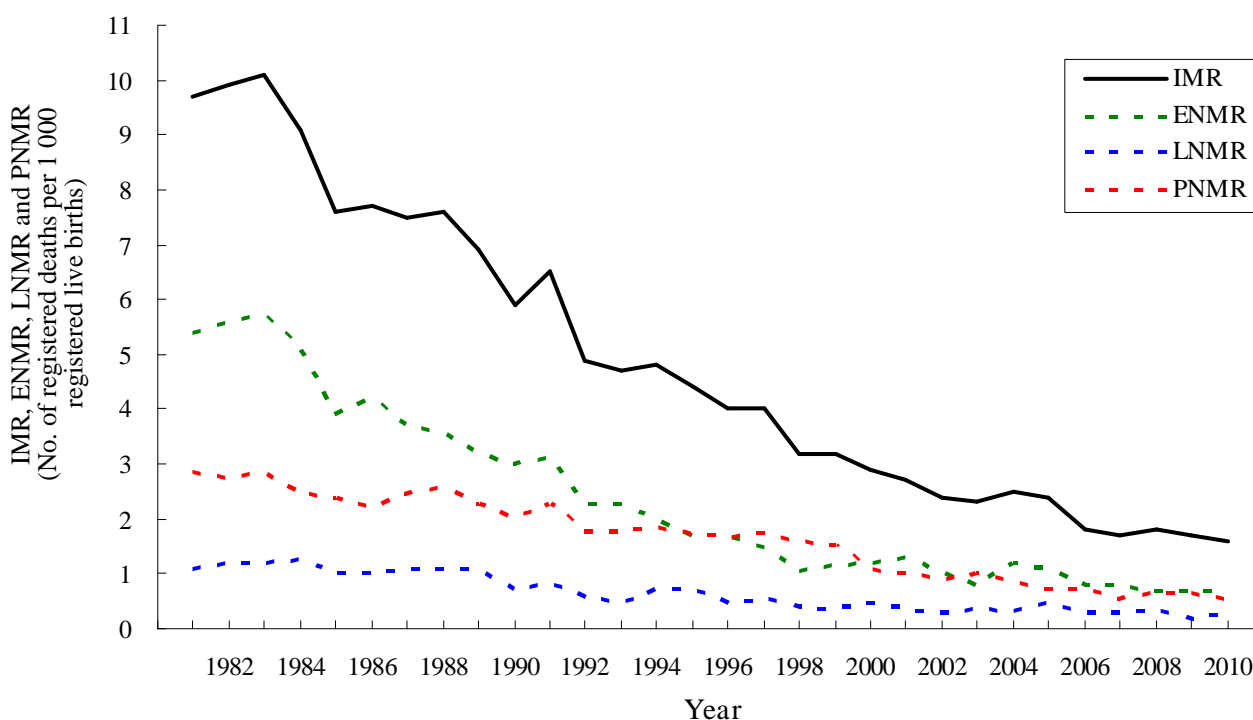
were generally on a downward trend from 1981 to 2010. It is noted that ENMR exhibited a much faster declining trend in comparison with LNMR and PNMR. (Figure 8)

In 2010, congenital malformations, deformation and chromosomal abnormalities ranked top on the proportionate mortality of infant deaths, following by disorders relating to length of gestation and fetal growth. (Table 4)

Maternal Deaths

There were one and two maternal deaths recorded in 2010 and 2009 respectively. The maternal mortality ratio (MMR) was 1.1 per 100 000 registered live births in 2010 (2.4 in 2009). From 1981 to 2010, MMR fluctuated at the range from 1.1 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. (Figure 9)

Figure 8 Infant Mortality Rate (IMR), Early Neonatal Mortality Rate (ENMR), Late Neonatal Mortality Rate (LNMR) and Post Neonatal Mortality Rate (PNMR), 1981 to 2010



- 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 in 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 in 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 in that year.

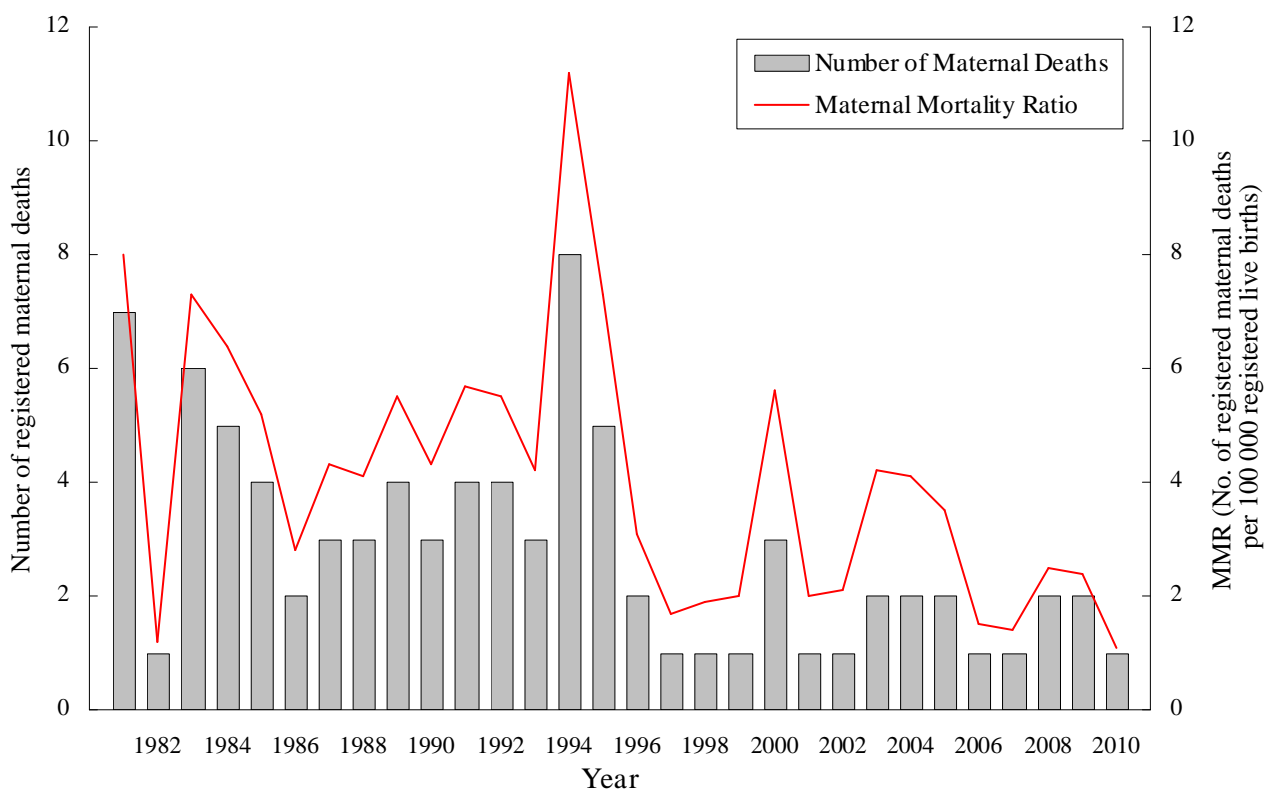
Sources : Census and Statistics Department, Department of Health, Immigration Department.

Table 4 **Number of Registered Deaths and Proportionate Mortality by Five Leading Causes of Infant Deaths, 2010**

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	30	21.4%
2	Disorders relating to length of gestation and fetal growth	17	12.1%
3	Diseases of the circulatory system	11	7.9%
4	Haemorrhagic and haematological disorders of fetus and newborn	9	6.4%
5	Septicaemia	7	5.0%
	All other causes	66	47.1%
All causes		140	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 2010**



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

Life Expectancy at Birth

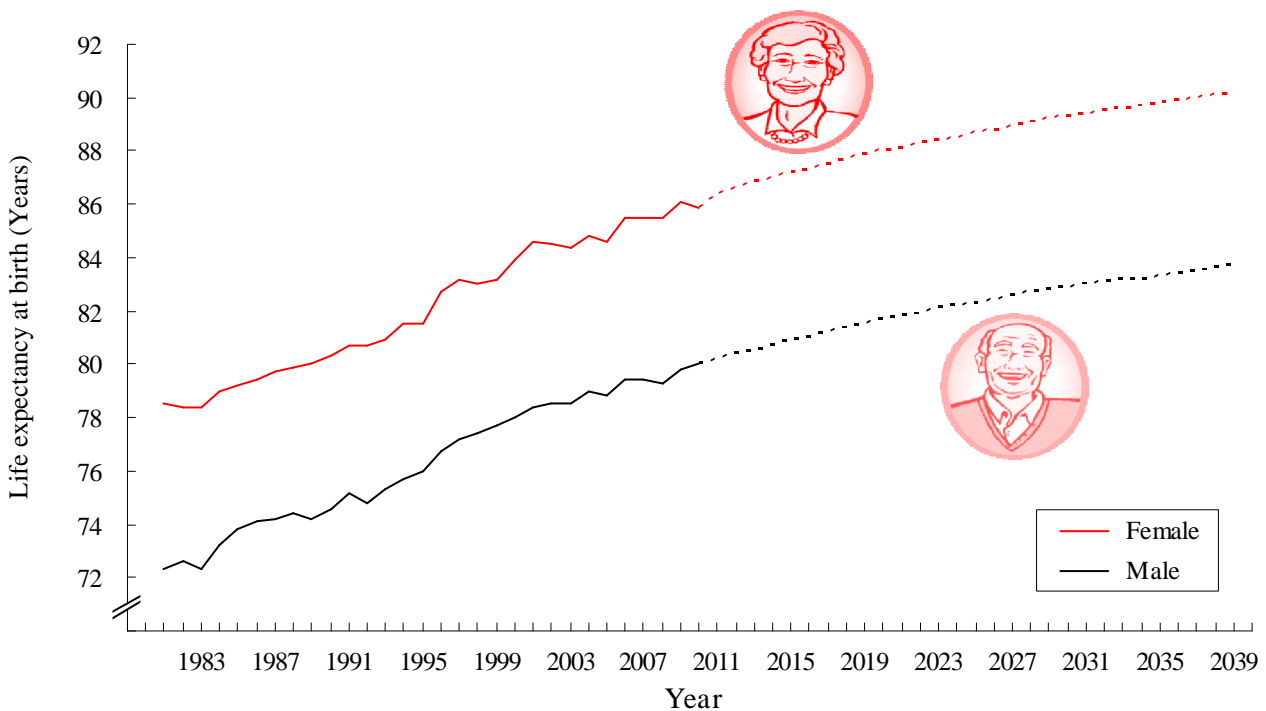
The life expectancy at birth defines the average number of years of life that a cohort of births born in a given year can expect to live if they were subject throughout their lifetime to the age-sex specific mortality rates prevailing in that year. It is a valuable tool for studying longevity and for 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 2010 was 80.0 years (provisional) for males and 85.9 years (provisional) for females. The figure for male was slightly higher than that for 2009 but the figure for female was the same in 2009 and 2010. 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 2009, life expectancy at birth both increased by 7.4 years for males and females. 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

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 2011 onwards are based on the 2009-based population projections.

Source : Census and Statistics Department.

partitioned by age group to estimate the contribution of a change in mortality at each age group to the total change in life expectancy at birth. During 1981 to 2009, the greatest contribution to life expectancy resulted from the reduction in mortality of the age group 65 and above (3.15 years for males and 4.18 years for females). The mortality improvement for persons aged under one and aged 65 and above together contributed 52.0% and 65.3% 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 2009, 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 (17.9% or 1.32 years), followed by cerebrovascular diseases (14.9% or 1.10 years) and diseases of heart (14.1% or 1.04 years). On the other hand, the reduction in mortality due to cerebrovascular diseases made the largest contribution to the increase in life expectancy for females (20.7% or 1.52 years), followed by diseases of heart (15.5% or 1.14 years) and malignant neoplasms (10.8% or 0.79 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 2009 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 death 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 2009

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	0.70	9.4	0.63	8.5
1-4	0.14	2.0	0.05	0.6
5-14	0.14	1.9	0.10	1.4
15-44	0.79	10.7	0.60	8.1
45-64	2.47	33.4	1.80	24.5
65+	3.15	42.6	4.18	56.8
Overall	7.39	100.0	7.35	100.0

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

Sources : Census and Statistics Department, Department of Health.

Table 6 Contribution to the Change in Life Expectancy at Birth (in Years) by Ten Leading Causes of Death by Sex, 1981 to 2009

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	1.32	17.9	0.79	10.8
Diseases of heart	1.04	14.1	1.14	15.5
Pneumonia	0.68	9.1	0.69	9.4
Cerebrovascular diseases	1.10	14.9	1.52	20.7
Chronic lower respiratory diseases	0.66	8.9	0.51	6.9
External causes of morbidity and mortality	0.57	7.8	0.47	6.4
Nephritis, nephrotic syndrome and nephrosis	0.22	3.0	0.31	4.2
Septicaemia	0.01	0.1	<0.005	0.1
Dementia	-0.05	-0.6	-0.08	-1.1
Diabetes mellitus	0.05	0.7	0.06	0.8
All other causes	1.78	24.1	1.94	26.4
Overall	7.39	100.0	7.35	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 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	1.6 ^{*,Ä}	(2010)	1.1 ^{*,Æ}	(2010)	80.0 [*]	85.9 [*] (2010)
2. Japan	2.3 ^{*,§}	(2010)	3.6 [§]	(2008)	79.6 [§]	86.4 [§] (2010)
3. Singapore	2.0 ^{II}	(2010)	0 [¶]	(2009)	79.3 ^{II}	84.1 ^{II} (2010)
4. Sweden	2.5	(2010)	5.5	(2008)	79.5	83.5 (2010)
5. United Kingdom (U.K.)	4.7 [*]	(2008)	9.4	(2009)	77.4	81.6 (2007)
6. United States of America (U.S.A.)	6.4 ^{**}	(2009)	12.7	(2007)	75.7 ^{ÄÄ}	80.6 ^{ÄÄ} (2009)

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

* Provisional figure.

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

Æ Per 100 000 registered live births.

§ Data only cover persons of Japanese nationality.

II 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.

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



Sources : Figures for Infant Mortality Rate

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REVIEW OF NOTIFIABLE DISEASES IN HONG KONG, 2010

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Overview

In 2010, a total of 21 370 cases of statutory notifiable diseases were recorded by the Centre for Health Protection (CHP) of the Department of Health (DH) in Hong Kong (Table 1). The three commonest notifiable diseases reported were chickenpox, tuberculosis and pandemic influenza A (H1N1) 2009.

The pandemic influenza A (H1N1) 2009, also known as Human Swine Influenza (HSI), emerged in 2009 and the pandemic continued in early 2010. The World Health Organization announced in August 2010 that the world was moving into the post-pandemic period. The HSI virus is expected to take on the behaviour of a seasonal influenza virus. HSI has been removed from the list of statutory notifiable infectious diseases since 8 October 2010 in view of the global and local epidemiology.

In 2010, a cluster of four local cases of dengue fever was recorded, eight years after the last local outbreak in 2002. Besides, Hong Kong experienced a high enterovirus 71 (EV71) activity season in 2010 but no fatal case of EV71 was recorded. One imported case of H5N1 avian influenza was also reported. These diseases were described in detail in the Highlights Section.

In 2010, the DH did not receive any notification of acute poliomyelitis, anthrax, botulism, congenital rubella syndrome, diphtheria, influenza A (H2), influenza A (H7), influenza A (H9), Japanese encephalitis, plague, rabies,

relapsing fever, Severe Acute Respiratory Syndrome, smallpox, tetanus, viral haemorrhagic fever, West Nile virus infection or yellow fever. On the other hand, an increase in notification of viral hepatitis C, cholera, dengue fever, viral hepatitis E and community-associated methicillin-resistant *Staphylococcus aureus* infection (CA-MRSA) was observed in 2010 as compared with the average yearly figure in the preceding five years (Table 2). These are summarised in the following sections according to the route of transmission.

I. Highlights for 2010

Cholera

In 2010, there were nine cases notified, affecting one male and eight females aged between 8 months and 66 years (median age: 46 years). Five of them were imported cases with travel history to India (two cases), Indonesia (two cases) or Singapore (one case). *Vibrio cholerae* serogroup O1 E1 Tor Ogawa was isolated from six cases and *Vibrio cholerae* serogroup O1 E1 Tor Inaba was isolated from three cases.

There were one imported cluster and one local cluster affecting two persons each. Local cluster of cholera is uncommon and the last local cluster occurred in 1999. The local cluster in 2010 affected two women aged 55 and 66 years who were neighbours and food collaterals. They shared several meals during the incubation period. Clinical specimens from them both grew *Vibrio cholerae* serogroup O1 E1 Tor Inaba. Environmental and food

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Table 1 Number of Notifications for Statutory Notifiable Diseases in Hong Kong, 2001 to 2010

(provisional figures as of April 2011)

Disease	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Acute poliomyelitis	0	0	0	0	0	0	0	0	0	0	
Amoebic dysentery	6	5	16	23	2	4	4	4	6	2	
Anthrax	-	-	-	-	-	-	-	0	0	0	
Bacillary dysentery	390	284	116	140	129	140	67	150	86	78	
Botulism	-	-	-	-	-	-	-	0	0	0	
Chickenpox	16 472	16 727	6 780	11 784	11 933	14 415	17 940	8 927	6 777	11 614	
Chikungunya fever	-	-	-	-	-	-	-	-	1	2	
Cholera	38	4	7	5	5	1	3	7	0	9	
Community-associated methicillin-resistant <i>Staphylococcus aureus</i> infection	-	-	-	-	-	-	173	282	368	495	
Creutzfeldt-Jakob disease	-	-	-	-	-	-	-	1	6	6	
Dengue fever	17	44	49	31	31	31	58	42	43	83	
Diphtheria	0	0	0	0	0	0	0	0	0	0	
Enterovirus 71 infection	-	-	-	-	-	-	-	-	31	101	
<i>Escherichia coli</i> O157:H7 infection	-	-	-	-	-	-	-	1	2	6	
Food poisoning	(Outbreaks)	671	670	422	821	973	1 094	621	619	407	316
	(Persons affected)	2 707	2 640	2 230	3 131	3 601	4 144	1 992	2 547	1 540	1 056
<i>Haemophilus influenzae</i> type b infection (invasive)	-	-	-	-	-	-	-	0	1	1	
Hantavirus infection	-	-	-	-	-	-	-	1	1	1	
Influenza A	<i>Influenza A (H2)</i>	-	-	-	-	-	-	0	0	0	
	<i>Influenza A (H5)</i>	-	-	-	0	0	0	0	0	1	
	<i>Influenza A (H7)</i>	-	-	-	0	0	0	0	0	0	
	<i>Influenza A (H9)</i>	-	-	-	0	0	0	1	1	2	0
	<i>Swine Influenza</i>	-	-	-	-	-	-	-	-	34 174	2 722
Japanese encephalitis	-	-	-	5	2	0	2	0	0	0	
Legionnaires' disease	3	4	3	3	11	16	11	13	37	20	
Leprosy	10	6	7	6	4	6	2	5	4	2	
Leptospirosis	-	-	-	-	-	-	-	4	9	7	
Listeriosis	-	-	-	-	-	-	-	11	14	6	
Malaria	47	54	28	37	32	40	33	25	23	34	
Measles	179	61	33	51	65	106	88	68	26	13	
Meningococcal infection (invasive)	10	6	3	4	4	6	2	0	2	2	
Mumps	67	89	121	221	145	184	180	136	155	167	
Paratyphoid fever	21	21	60	39	33	39	28	21	26	26	
Plague	0	0	0	0	0	0	0	0	0	0	
Psittacosis	-	-	-	-	-	-	-	0	1	1	
Q fever	-	-	-	-	-	-	-	1	4	1	
Rabies	1	0	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>	51	36	19	23	53	34	38	38	42	38
	<i>Congenital rubella syndrome</i>	-	-	-	-	-	-	1	0	0	
Scarlet fever	147	119	63	125	177	230	224	235	187	128	
Severe Acute Respiratory Syndrome	-	-	1 755	0	0	0	0	0	0	0	
Smallpox	-	-	-	-	-	-	-	0	0	0	
<i>Streptococcus suis</i> infection	-	-	-	-	13	8	6	6	6	10	
Tetanus	4	2	3	3	0	2	1	0	1	0	
Tuberculosis	7 262	6 602	6 024	6 226	6 160	5 766	5 463	5 635	5 193	5 132	
Typhoid fever	67	67	49	53	36	46	46	38	89	29	
Typhus and other rickettsial diseases	<i>Scrub typhus</i>	3	8	13	12	30	20	15	19	20	17
	<i>Urban typhus</i>	4	5	1	6	8	4	3	1	5	2
	<i>Spotted fever</i>	-	-	-	-	-	-	15	13	22	
	<i>Unclassified</i>	0	0	0	0	0	0	0	0	2	3
Viral haemorrhagic fever	-	-	-	-	-	-	-	0	0	0	
Viral hepatitis	<i>A</i>	494	267	107	121	64	76	68	71	64	65
	<i>B</i>	134	121	98	134	105	123	74	83	80	74
	<i>C</i>	0	4	0	1	1	2	2	3	3	11
	<i>E</i>	26	28	19	38	34	34	65	90	73	118
West Nile Virus Infection	-	-	-	-	-	-	-	0	0	0	
Whooping cough	15	23	5	10	32	21	31	25	15	5	
Yellow fever	0	0	0	0	0	0	0	0	0	0	
Total	26 139	25 257	15 801	19 922	20 082	22 448	25 249	16 579	47 999	21 370	

Note : Swine influenza, which is highlighted in the above table, has been removed from the list of statutory notifiable diseases since 8 October 2010.

Table 2 Notifications in 2010 versus the Average Annual Notifications in Preceding Five Years, 2005 to 2009

(provisional figures as of April 2011)

Disease	Notifications in 2010	Notification Rate in 2010 (per 100 000 population)	Average Notifications in Preceding Five Years (2005 to 2009)	% Change of Notifications in 2010 Over Average in Preceding Five Years
Viral hepatitis C	11	0.2	2.2	400.0
Cholera	9	0.1	3.2	181.3
Dengue fever	83	1.2	41.0	102.4
Viral hepatitis E	118	1.7	59.2	99.3
Community-associated methicillin-resistant <i>Staphylococcus aureus</i> infection	495	7.0	274.3	80.4
<i>Streptococcus suis</i> infection	10	0.1	7.8	28.2
Legionnaires' disease	20	0.3	17.6	13.6
Malaria	34	0.5	30.6	11.1
Mumps	167	2.4	160.0	4.4
Chickenpox	11 614	164.3	11 998.4	-3.2
Viral hepatitis A	65	0.9	68.6	-5.2
Rubella	38	0.5	41.0	-7.3
Tuberculosis	5 132	72.6	5 643.4	-9.1
Paratyphoid fever	26	0.4	29.4	-11.6
Scrub typhus	17	0.2	20.8	-18.3
Viral hepatitis B	74	1.0	93.0	-20.4
Meningococcal infection (invasive)	2	0.0 *	2.8	-28.6
Bacillary dysentery	78	1.1	114.4	-31.8
Scarlet fever	128	1.8	210.6	-39.2
Typhoid fever	29	0.4	51.0	-43.1
Amoebic dysentery	2	0.0 *	4.0	-50.0
Leprosy	2	0.0 *	4.2	-52.4
Urban typhus	2	0.0 *	4.2	-52.4
Food poisoning	316	4.5	742.8	-57.5
Whooping cough	5	0.1	24.8	-79.8
Measles	13	0.2	70.6	-81.6
Influenza A (H9)	0	0.0	0.8	-100.0
Tetanus	0	0.0	0.8	-100.0

Notes : 1. * Less than 0.05.

2. Only diseases with case notifications in three or more years during the period 2005 to 2009 are included in the column of average notifications in the preceding five years. Based on this criterion, acute poliomyelitis, anthrax, botulism, chikungunya fever, 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), Japanese encephalitis, 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.

specimens from home and food premises were all tested negative for *Vibrio cholerae*. The source of outbreak could not be ascertained despite intensive field epidemiological investigations.

Dengue Fever

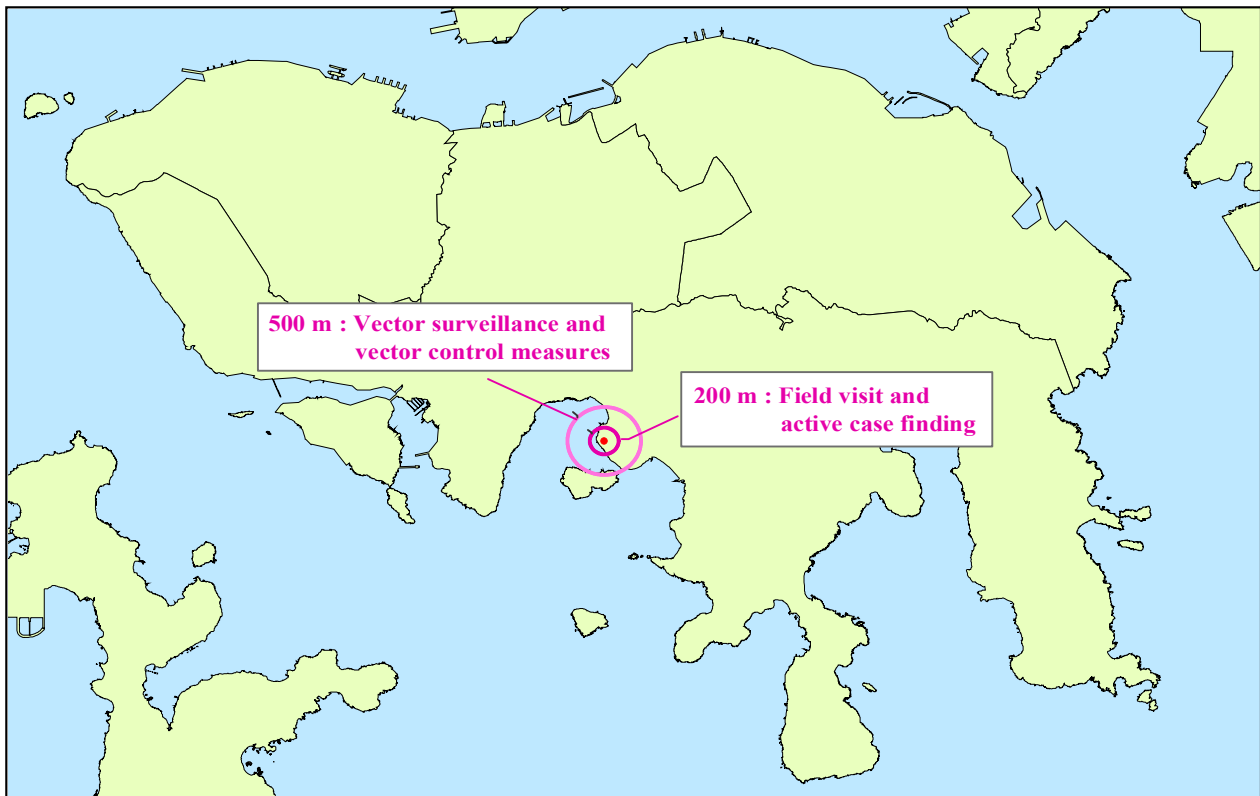
There were four local cases of dengue fever in late September of 2010. The patients were a family involving a 46-year-old gentleman (index patient), his wife and their two sons aged 18 and 8 years respectively. They did not travel outside Hong Kong during the incubation period. All of them recovered uneventfully. The dengue virus serotype identified was type 4.

A meeting of Interdepartmental Coordination Committee on Dengue Fever, with representatives from the Hospital Authority, Food and

Environmental Hygiene Department (FEHD) and other government departments, was held immediately. Active case finding was conducted around the residence in Deep Water Bay (Figure 1), at the couple's workplace and at the school attended by the 8-year-old son. Information was collected from 1 229 persons either by interview or questionnaire. Ninety-two blood samples, including three from the affected family members, were collected. Except for the affected cases mentioned above, all other persons were tested negative.

An enhanced surveillance for suspected cases of dengue fever was established and laboratory investigation was arranged for suspected cases. Letter was sent to encourage registered medical practitioners to report suspected dengue fever cases. No other local case was identified by

Figure 1 Action by the CHP and FEHD at Deep Water Bay for the Local Dengue Fever Cases



enhanced surveillance and active case finding.

Staff of FEHD also carried out vector surveillance and control measures around the residence and areas visited by the patients. Over 800 mosquito and larva samples were collected and all of them were tested negative for dengue virus by Reverse Transcription Polymerase Chain Reaction (RT-PCR).

Health talks were organised and a telephone hotline was set up to provide counselling and health advice on prevention and control of dengue fever. A mini-website designated for dengue fever was also set up where health education materials and guidelines for prevention and control of dengue fever can be found.

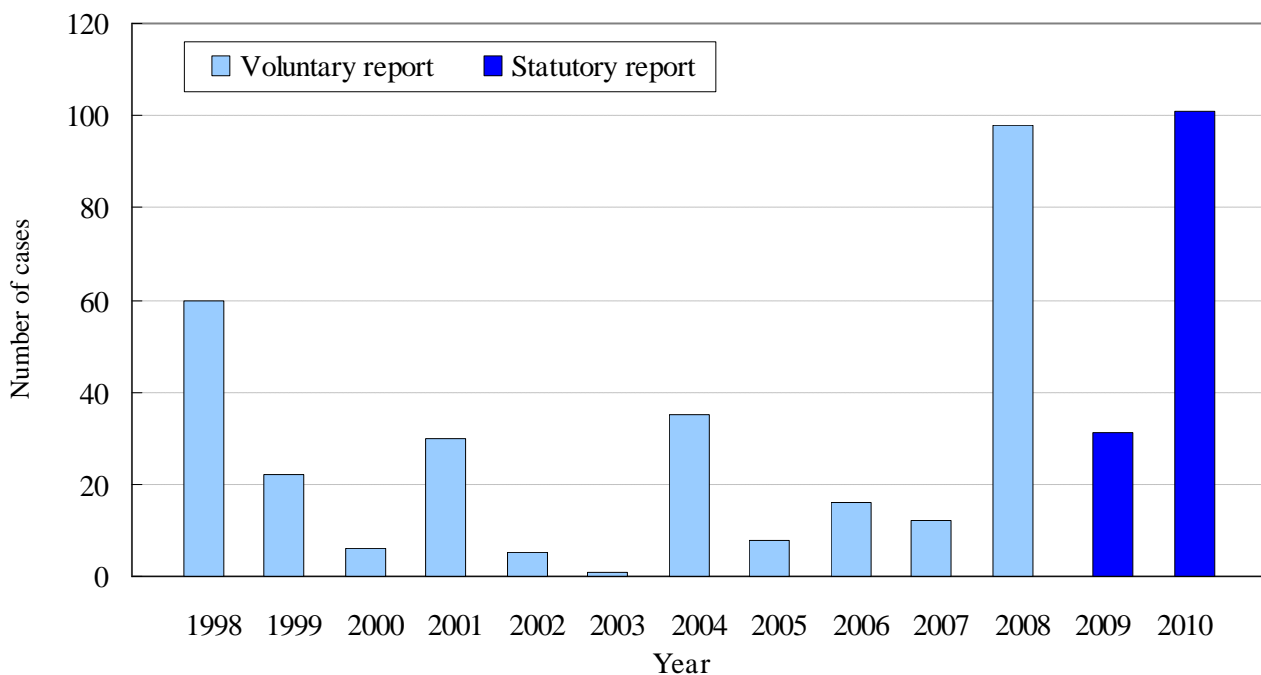
Other than the above four local cases, 79 imported cases of dengue fever were notified to the CHP in 2010, making a total of 83 cases. Among these imported

cases, the male-to-female ratio was 1.1:1 and the median age was 39 years (range: 8 to 74 years). Most cases were imported from Asian countries, namely, Indonesia (25 cases, 32%), followed by India (13 cases, 16%), Thailand (13 cases, 16%), the Philippines (eight cases, 10%) and Malaysia (seven cases, 9%). The dengue serotypes were available in 94% of patients, of which 31% were DEN-1, 35% were DEN-2, 24% were DEN-3 and 11% were DEN-4. Neither dengue haemorrhagic fever case nor fatal case was recorded in 2010.

Enterovirus 71 Infection

In 2010, Hong Kong experienced a high season of EV71 activity (Figure 2). A total of 101 cases of EV71 were notified, as compared with 31 cases in 2009 and 98 cases in 2008. The EV71 activity peaked in June and July during which 44% of the cases in 2010 were recorded. Most of the patients (73%) were children aged five

Figure 2 Number of Cases of Enterovirus 71 Infection, 1998 to 2010



Note : Enterovirus 71 infection has been listed as a statutory notifiable disease since 6 March 2009.

years or below, and the male-to-female ratio was 1.1:1. About 30% of the cases were imported. Seventy-three cases (72%) required hospitalisation. Out of the 101 cases, 93 (92%) presented with typical symptoms of hand, foot and mouth disease or herpangina, and the remaining eight cases (8%) presented with non-specific symptoms. A total of 19 cases (19% of all EV71 cases) had complications including meningitis (11 cases), encephalitis (four cases), meningoencephalitis (two cases), acute flaccid paralysis (one case) and brainstem encephalitis (one case). Patients with complication aged from 13 days to 43 years (median age: seven years), with 47% (nine cases) aged below six years and 21% (four cases) were adults aged 18 years or above. There was no fatal case reported in 2010.

H5N1 Avian Influenza

One imported case of H5N1 avian influenza infection affecting a 59-year-old female was reported in 2010. The patient travelled to the Mainland (Shanghai, Nanjing and Hangzhou) from 23 October to 1 November 2010 and developed respiratory symptoms on 2 November after returning to Hong Kong. Her condition deteriorated and she was admitted to hospital with pneumonia on 14 November. Her nasopharyngeal aspirate taken on 16 November was tested positive for H5 influenza A by RT-PCR. After treatment with oseltamivir, she recovered and was discharged on 13 December. All her close contacts were tested negative for H5 influenza A. Genetic analysis of virus isolated from the patient showed that all genes were of avian origin and no re-assortment with genes of human origin was detected. The virus belonged to clade 2.3.2, which was a common and highly pathogenic H5N1 avian influenza virus found in Asia. FEHD had enhanced the cleansing and disinfection works in public

markets managed by the department in Hong Kong. In addition, enhanced surveillance work was carried out to the markets. All samples taken from the retail outlets of the markets were tested negative for H5N1. The Agriculture, Fisheries and Conservation Department had enhanced local surveillance for avian influenza in local farms and all samples taken were tested negative for H5N1. No secondary human case was detected upon enhanced surveillance. The CHP closely liaised with the Mainland authorities concerning the case and all close contacts in the Mainland were asymptomatic.

Human Swine Influenza

HSI emerged in April 2009 and was listed as a statutory notifiable disease on 27 April 2009. As the pandemic evolved, the HSI virus has widely circulated in the community. Hong Kong had lowered its response level under the Framework of Government's Preparedness Plan for Influenza Pandemic from 'Emergency' to 'Alert' level on 24 May 2010 and HSI has been removed from the list of statutory notifiable diseases since 8 October 2010. Between 1 January and 7 October, a total of 2 722 laboratory confirmed cases were notified. Among these cases, 85 were severe cases (including 20 fatal cases), with a male-to-female ratio of 1.7:1 and age range from 30 days to 85 years (median age: 51.5 years). For the fatal cases, the male-to-female ratio was 3:1 and their ages ranged from 3 to 82 years (median age: 58 years). Most of them (70%) had underlying chronic illness and none of them had received the HSI vaccination.

II. Droplet and Air-borne Diseases

Chickenpox

A total of 11 614 cases of chickenpox were notified in 2010, representing a 71%

increase from 6 777 cases notified in 2009. The male-to-female ratio was 1.1:1. The median age was six years and 82% were among children aged below 13 years. A total of 794 institutional outbreaks of chickenpox were reported, with 53% occurred in pre-primary setting, 47% in primary and secondary schools and 1% in other institutions such as special schools.

LegionnairesøDisease

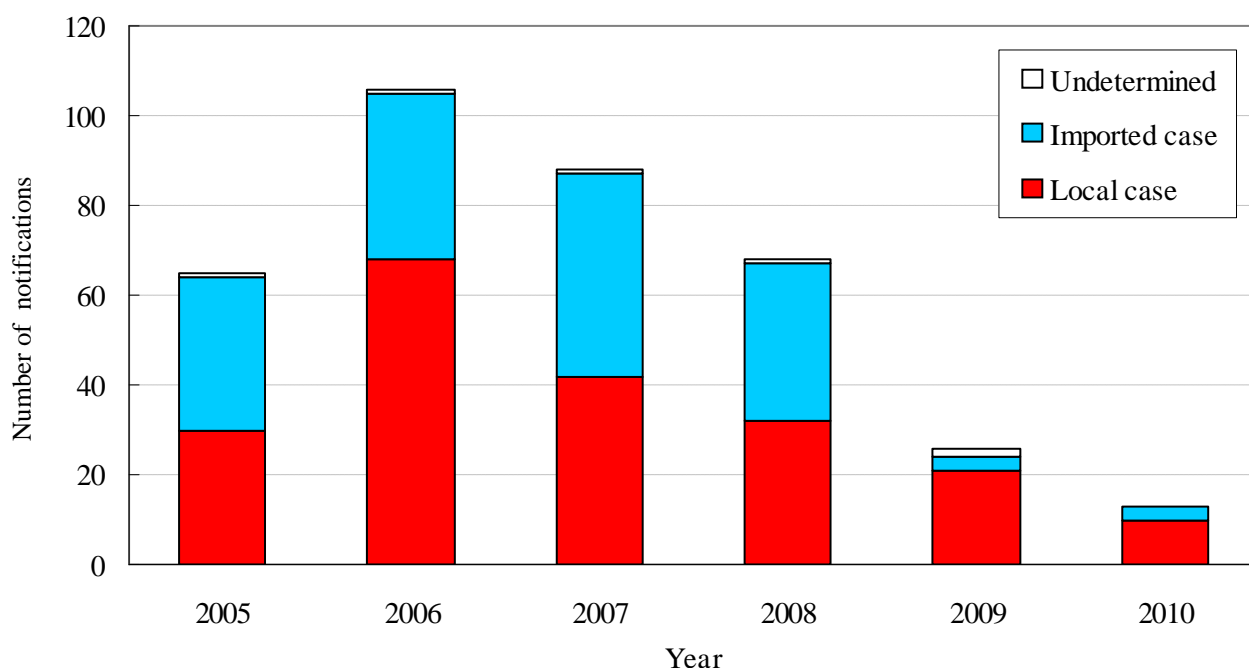
A total of 20 cases of Legionnairesø disease were notified in 2010, decreased by 46% as compared with 2009. Fourteen (70%) of these were local cases, three (15%) were imported cases and the remaining three cases (15%) were unclassified as the patients spent part of the incubation period outside Hong Kong. Seventeen (85%) cases were diagnosed initially by urinary antigen test, while three (15%) by four-fold rise in paired titres for antibodies against *Legionella*. Similar to overseas experience, males, elderly people and smokers were affected more.

The male-to-female ratio was 4:1 and the median age was 62 years (range: 53 to 81 years). Forty-five percent of the cases were current or ex-smoker. Seven patients (35%) required intensive care and one fatal case affecting an 81-year-old lady, who was an ex-smoker with underlying chronic obstructive pulmonary disease and ischemic heart disease, was recorded. Epidemiological investigation showed that all these cases were sporadic without epidemiological linkage.

Measles, Mumps and Rubella

The number of measles cases has been decreasing since 2007, to 13 cases in 2010 (Figure 3). This was also a record low figure since the data were available in 1946. Among these cases, three were imported and ten were classified as local cases (1.41 notifications of local cases per 1 000 000 population). Overall, the male-to-female ratio was 1.6:1 and five cases were under two years old. Only four cases (31%) had laboratory confirmation

Figure 3 Number of Notifications of Measles, 2005 to 2010



and others were clinically compatible cases. Five cases had not received any measles vaccination. Among them, only one case was below the age of 12 months and not due for measles vaccination according to the immunisation schedule. Six of the cases required hospitalisation. All these cases were sporadic without epidemiological linkage.

The Western Pacific Region of the World Health Organization adopted the goal to achieve measles elimination (defined as annual incidence less than 1 per 1 000 000 population) by 2012 in all member states. Through maintaining a very high measles immunisation coverage among children, it is expected that the local incidence would go down further and reach the measles elimination goal.

For mumps, a total of 167 cases were notified in 2010. The median age was nine years and male-to-female ratio was 1.7:1. Only 3% of the cases had laboratory confirmation. Twenty-four cases had not received any vaccination. All these cases were sporadic without epidemiological linkage.

In 2010, there were 38 notifications of rubella infection. The male-to-female ratio was 1.4:1 and the median age was 21.5 years. Forty-five percent of cases were laboratory confirmed. Thirteen cases had not received any vaccination. There were two clusters identified. One was a domestic cluster affecting two adults aged 45 and 51 years. The other one was a cluster in a correctional facility affecting four adults with age ranging from 22 to 43 years. No case of congenital rubella syndrome was recorded in 2010.

Meningococcal Infection (Invasive) and *Haemophilus influenzae* Type b Infection (Invasive)

Two cases of invasive meningococcal

infection in Hong Kong were recorded. Both were female, aged 39 and 60 years. One case was of serotype A *Neisseria meningitidis* and the other was of serotype B *Neisseria meningitidis*. Both of them recovered after hospitalisation.

There was one case of invasive *Haemophilus influenzae* type b infection, affecting a gentleman aged 37 years with underlying chronic disease. He presented with pneumonia, developed acute liver failure and gastrointestinal bleeding, and later succumbed.

Psittacosis

A case of psittacosis affecting a 55-year-old lady was recorded in 2010. There was no definite history of contacting bird or poultry and all her contacts were asymptomatic.

Scarlet Fever

Altogether 128 cases of scarlet fever were notified in 2010. The cases were predominately (95%) local cases. About 94% of them were children aged below 13 years and the median age was five years. The male-to-female ratio was 1.7:1. Sixty-one percent of the cases were hospitalised. Four small clusters affecting a total of eight persons were reported. Three of these clusters occurred in domestic setting and the other one occurred in a residential institution. No fatal case was recorded.

Tuberculosis

The notification rate of tuberculosis decreased slightly to 73 per 100 000 population (5 132 cases, provisional figure), a historical low, as compared to 74 per 100 000 population (5 193 cases) in 2009 (Figure 4). The death rate also decreased, to 2.65 per 100 000 population (187 deaths) from 2.91 per 100 000

population (204 deaths) in 2009 (Figure 5). The male-to-female ratio was

1.7:1 and 55% of the tuberculosis patients were at age 55 or above.

Figure 4 Number of Notifications of Tuberculosis, 1951 to 2010

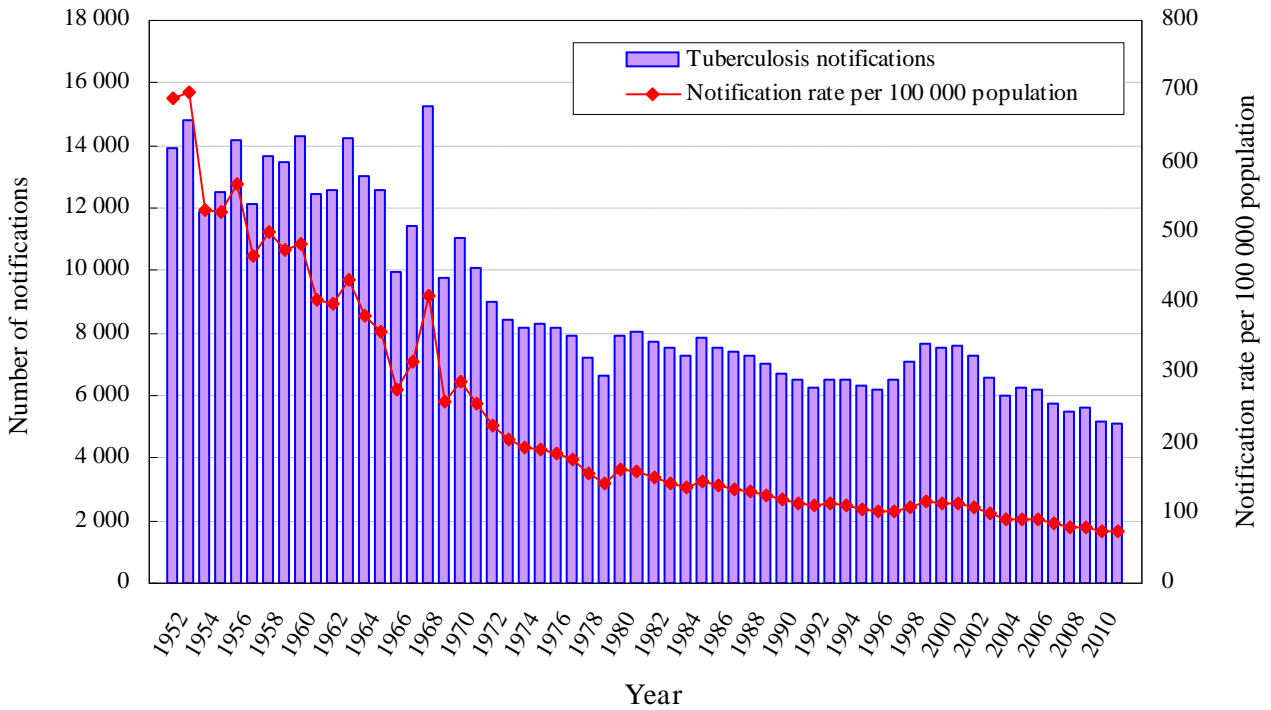
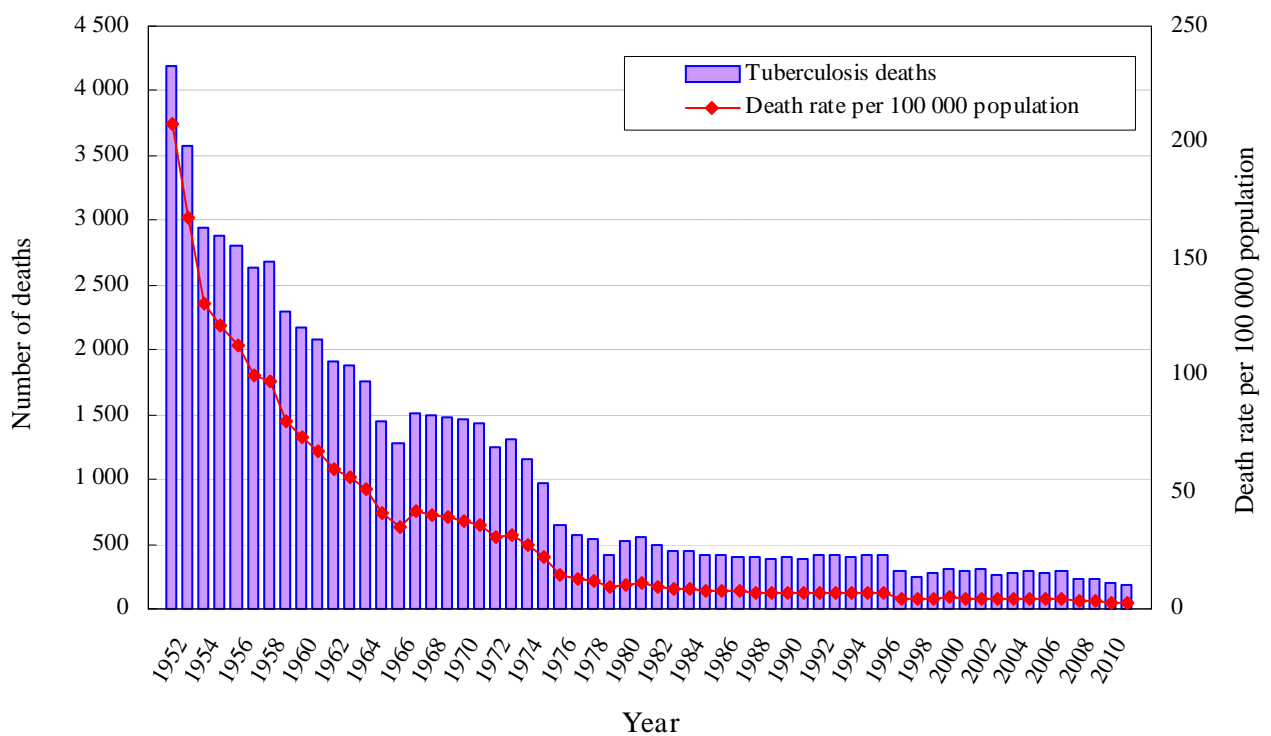


Figure 5 Deaths due to Tuberculosis, 1951 to 2010



Whooping Cough

Five cases of whooping cough were notified in 2010, affecting two adults aged 28 and 41 years, and three newborn babies aged two months or below. This was almost an 80% drop as compared to the average of the past five years (24.8 cases). The male-to-female ratio was 0.7:1. There were two imported cases among the five cases. Three cases, which were newborn babies, required hospitalisation. This year, one home cluster affecting a total of two persons was recorded

III. Food- and Water-borne Diseases

Amoebic Dysentery and Bacillary Dysentery

Two cases of amoebic dysentery were reported in 2010. Both were male, aged 40 and 57 years.

A total of 78 cases of bacillary dysentery were notified in 2010. The male-to-female ratio was 1.1:1 and the median age was 25.5 years. Of all the isolates, 74% were *Shigella sonnei*, 23% were *Shigella flexneri*, and the remaining were *Shigella boydii* and *Shigella dysenteriae*. Around 23% of them were imported cases and around 68% were local cases, with the remaining of the patients unclassified as they spent part of the incubation period overseas. Among the imported cases, nine cases (50%) had travel history to the Mainland, six cases (33%) to India, and one case each to Indonesia, Nepal and Pakistan respectively. Among the laboratory confirmed cases, two clusters affecting a total of four persons were recorded.

Escherichia coli O157: H7 Infection

In 2010, six cases of *Escherichia coli* O157: H7 infection were reported, affecting one 6-month-old baby and five

girls aged between ten months and three years. There was a domestic cluster affecting a 2-year-old girl and her female cousin aged ten months who lived in the same apartment. They had onset of symptoms within two days of each other. Both of them did not visit farms and had no contact with cows during the incubation period. There was no pet kept in the apartment. The elder girl was attending a nursery and had history of beef intake before onset of illness. Nursery and home contacts were asymptomatic and all environmental swabs and food samples taken at home and at the nursery were tested negative for *Escherichia coli* O157: H7.

Food Poisoning

The number of food poisoning outbreaks continued to decrease to 316 outbreaks in 2010, a record low since 1996. A total of 1 056 persons were affected. Four percent of the affected persons were hospitalised. Most of these outbreaks (78%) were suspected to be caused by bacterial agents, 15% by biotoxins, 5% by viral agents and 1% by chemical agents. The causative agents were laboratory confirmed in 16% of the outbreaks. Among these, the top three causative agents were *Vibrio parahaemolyticus* (49%), *Salmonella* species (24%) and norovirus (10%). Contaminated raw food (16%), inadequate cooking (16%) and improper storage of cooked food (15%) were the major contributing factors for the outbreaks. Seventy percent of the food poisoning outbreaks, affecting 805 persons, occurred in food premises. The largest food poisoning outbreak in 2010 involved a cluster of 26 outbreaks related to consumption of vegetarian food purchased from the same premises. A total of 83 persons were affected and stool samples from the affected persons were tested positive for *Vibrio parahaemolyticus*. Improper storage of cooked food could be the contributing factor for this outbreak.

Hepatitis A and E

In 2010, 65 cases of hepatitis A were notified, with a male-to-female ratio of 0.8:1 and a median age of 33 years. Thirty-nine cases (60%) were local cases, 15 cases (23%) were imported and 11 cases (17%) could not be classified. Among the 15 imported cases, six (40%) had travelled to Pakistan, three (20%) to the Philippines, two (13%) to Cambodia, two (13%) to Mongolia, one (7%) to the Mainland and one (7%) to Malaysia. Majority of the cases (77%) were Chinese, followed by Pakistani (15%).

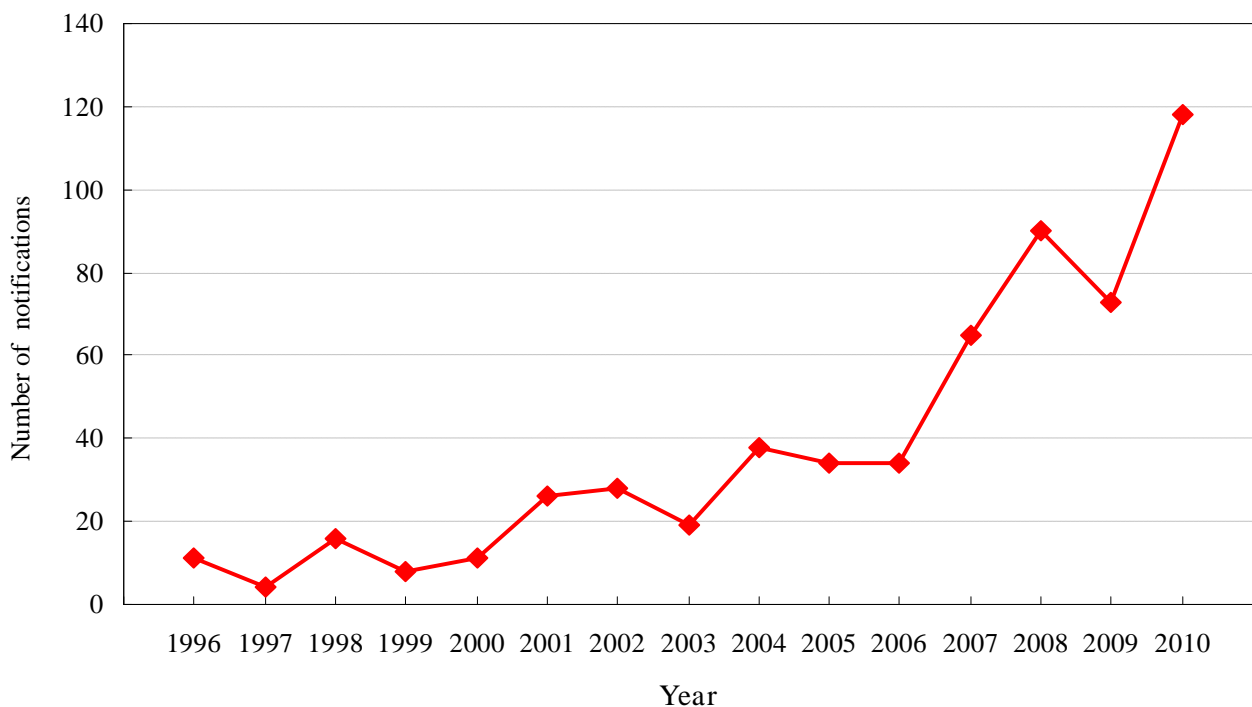
For hepatitis E, a total of 118 cases were notified. The number of cases was a record high and increased nearly by one fold as compared to the average of the previous five years (Figure 6). The median age was 54 years and the male-to-female ratio was 2:1. Most (89%) were local cases. Around 80% of the cases were admitted to hospital. Three cases, which were all men, aged 54 to 68 years, died.

Besides, there is growing evidence suggesting a zoonotic source of hepatitis E infection. In particular, pig may be an important reservoir. The Centre for Food Safety conducted a risk assessment study to assess the prevalence of hepatitis E virus (HEV) in fresh pig livers. Among the liver samples of 51 roaster pigs (around four months old), 16 (31%) were tested positive for HEV, while none of the 49 porker pig (around six months old) liver samples were tested positive. The CHP has reviewed the food history for the cases of hepatitis E infection in 2010. It was found that around 32%, 7% and 31% of all cases of hepatitis E infection recalled consumption of pig liver, pig offal other than pig liver and shellfish during the incubation period respectively. No common incriminated food or linkage to food premises could be identified among these cases.

Listeriosis

A total of six sporadic cases of listeriosis

Figure 6 Number of Notifications of Viral Hepatitis E, 1996 to 2010



were reported in 2010. Four males and two females, aged from 41 to 88 years were affected. None of the patients was pregnant. Four of the cases were immunocompromised or had underlying chronic illness.

Typhoid Fever and Paratyphoid Fever

The number of typhoid fever cases decreased from 89 cases in 2009 to 29 cases in 2010. Overall, the male-to-female ratio was 0.5:1 and the median age was 27 years. Twenty-eight of the cases (97%) required hospitalisation and all eventually recovered. Most cases (72%) were imported. Among the imported cases, eight (38%) had travelled to Indonesia, six (29%) to India, three (14%) to Pakistan, and one each to Bangladesh, Nepal, the Philippines and Sri Lanka respectively during the incubation period.

For paratyphoid fever, there were 26 cases with a male-to-female ratio of 1.6:1 and a median age of 20.5 years. Thirty-one percent were imported cases, with travel history to places like the Mainland, India, Indonesia and Thailand.

IV. Vector-borne Diseases

Chikungunya Fever

Two imported cases of chikungunya fever were notified in 2010 involving one male and one female aged 59 and 26 years respectively. The two cases had history of travel to Singapore and Indonesia respectively. Both recovered uneventfully.

Malaria

There were 34 cases recorded in 2010 and all were imported. The top three places of origin of the infection were India (56%), Pakistan (6%) and Sierra Leone (6%) (Figure 7). The male-to-female ratio was 2.4:1 and the median age was 31 years

(range: 11 to 79 years). *P. vivax* was the most commonly identified parasites of the cases (18 patients, 53%) and 94% of these cases had travel history to South Asia. This was followed by *P. falciparum* (12 patients, 35%), of which two-third of the cases had travel history to Africa. One case each was identified to be *P. malariae* and *P. ovale* respectively. The species of parasite remained unidentified in two cases. No fatal case was reported.

Scrub Typhus, Urban Typhus and Spotted Fever

In 2010, 17 scrub typhus cases were notified and most of them (94%) were local cases. The median age of the cases was 56 years with a male-to-female ratio of 1.4:1. Eschars were found in seven (41%) of the patients. Two imported cases of urban typhus were notified in 2010, affecting two females aged 69 and 72 years. Twenty-two spotted fever cases were notified. The median age of the cases was 60.5 years with a male-to-female ratio of 0.8:1. Three typhus cases were unclassified as their subtype cannot be distinguished by serology. There was no case of epidemic typhus.

V. Zoonotic Diseases

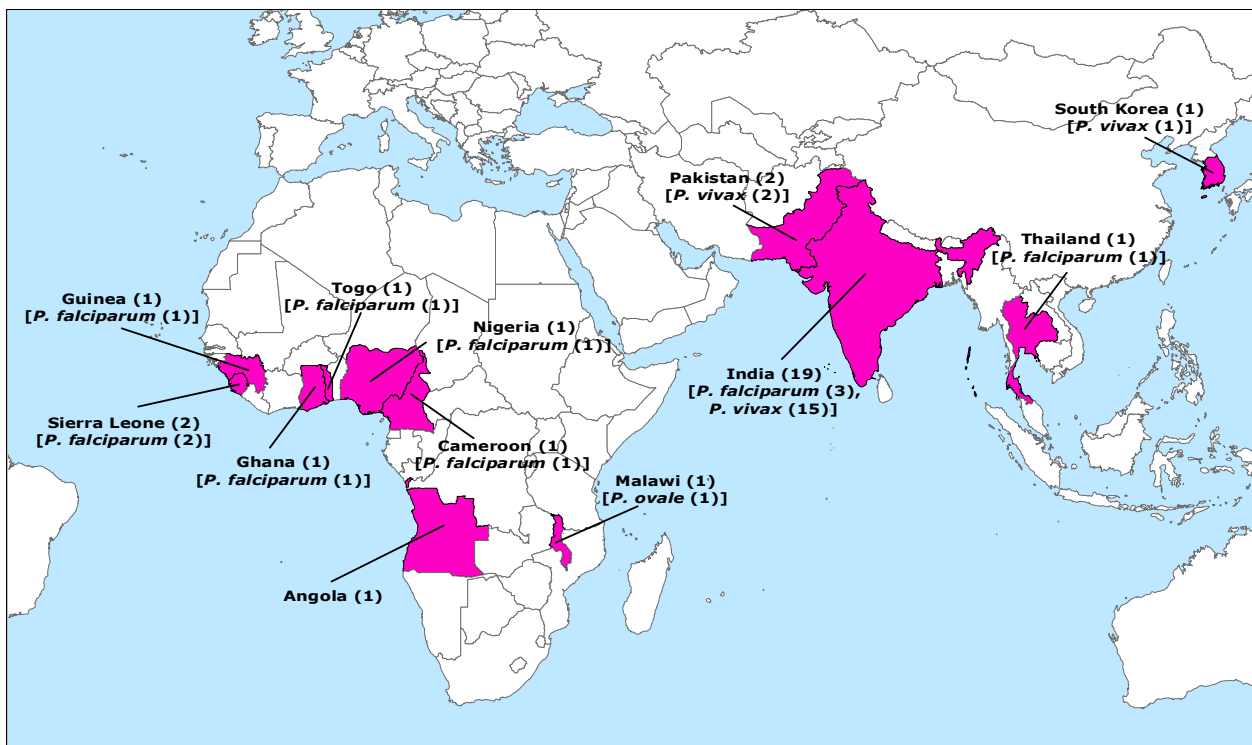
Creutzfeldt-Jakob Disease

Six cases of sporadic Creutzfeldt-Jakob disease were reported to the CHP in 2010. They were three males and three females aged 49 to 85 years (median age: 73.5 years). All six patients passed away.

Leptospirosis

Seven sporadic cases of leptospirosis affecting four males and three females aged 15 to 55 years (median age: 40 years) were notified. Three were imported cases with travel history to Malaysia (two cases) and Thailand (one case). Six cases had

Figure 7 Geographical Distributions of Cases and Determined Parasites by Place of Acquiring Malaria Infection Notified in 2010



Note : Two cases were not included in the map as the place of acquiring the disease cannot be ascertained.

history of participating in outdoor recreational activities like rafting, river swimming, hiking, working outdoor or in market infested by rodents, during the incubation period. All patients recovered after hospitalisation.

Q Fever

One local sporadic case of Q fever was notified. The patient was a 46-year-old gentleman who worked in a frozen meat shop. He had no contact with live animals and did not consume unpasteurised milk. He recovered after hospitalisation.

VI. Other diseases

Community-associated Methicillin-resistant *Staphylococcus aureus* Infection

Although the number of cases of CA-MRSA continued to rise, no institutional

outbreak of CA-MRSA had been reported in Hong Kong so far.

A total of 495 cases were recorded in 2010. This was 35% higher than the 368 cases in 2009. The male-to-female ratio was 1.3:1 and the median age was 33 years (range: less than 1 month to 94 years). Majority of the cases (66%) were Chinese, followed by Filipinos (13%) and Caucasians (9%). Majority of the cases (98%) presented only with non-invasive skin and soft tissue infections such as abscess, wound infection, cellulitis, etc. Eleven cases (2%) presented with invasive infections, including pneumonia (three cases), sepsis (three cases), septic arthritis (two cases), necrotising fasciitis (one case), right pyelonephritis with sepsis (one case) and sagittal sinus thrombosis with blood culture yielding CA-MRSA (one case). Sixty-six percent of patients required hospitalisation. One case who

presented with necrotising fasciitis died. Majority of the cases were sporadic and clusters occurred only in family setting. In 2010, 18 family clusters involving 40 persons were identified and the size of the clusters ranged from two to three persons.

Hantavirus Infection

One imported case of hantavirus infection, affecting a 50-year-old man, was reported. He developed acute nephritis. His condition improved with supportive treatment including one session of haemodialysis. He recovered after hospitalisation. He had frequent exposure to rodents at his workplace.

Hepatitis B and C

For hepatitis B, a total of 74 cases were notified. The male-to-female ratio was 4.7:1 and the median age was 38.5 years. No case under the age of 15 was reported. Majority of the cases (89%) were local cases. One fatal case of hepatitis B involving a 77 years old man was recorded in 2010.

The number of hepatitis C cases spiked to 11 cases in 2010, as compared to the average of 2.2 cases in the past five years. A total of eight males aged 32 to 79 years (median age: 45.5 years) and three females aged 16 to 74 years (median age: 45 years) were affected. Three patients were intravenous drug users. Seven of them were hospitalised and all of them were discharged. No cluster of cases was identified.

Streptococcus suis Infection

In 2010, ten cases of *Streptococcus suis* infection were notified. The male-to-female ratio was 2.3:1 and the median age was 57.5 years (range: 46 to 77 years). They presented with meningitis (six cases), septicaemia (four cases) and endocarditis (one case). All were hospitalised and two of them were admitted to intensive care unit for treatment. No fatal case was recorded. Four of them were complicated by hearing impairment. Six patients had history of handling raw pork.

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 the 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 the 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 the 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://ceno.chp.gov.hk>).
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 (<http://ceno.chp.gov.hk>) for the current list of statutory notifiable diseases and the surveillance case definitions. Notification forms are also available at the website.

HIV/AIDS Surveillance

	2011 Quarter 1	2010 Quarter 4	2010 Quarter 1	2010 Whole Year	Cumulative total since 1984
HIV	103	102	101	389	4 935
AIDS	13	14	19	79	1 198

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 2011	Apr 2011	May 2011	Jun 2011	Jan-Jun 2010	Jan-Jun 2011
1) Acute Poliomyelitis	-	-	-	-	-	-
2) Amoebic Dysentery	1	1	-	-	2	2
3) Anthrax*	-	-	-	-	-	-
4) Bacillary Dysentery	1	4	3	2	22	16
5) Botulism*	-	-	-	-	-	-
6) Chickenpox	987	890	1 097	1 652	4 955	7 380
7) Chikungunya Fever ^Ä	-	-	-	-	-	-
8) Cholera	-	-	-	-	3	-
9) Community-associated methicillin-resistant <i>Staphylococcus aureus</i> Infection ^Æ	57	39	51	59	194	294
10) Creutzfeldt-Jakob Disease*	1	1	1	-	4	3
11) Dengue Fever	-	2	3	-	31	9
12) Diphtheria	-	-	-	-	-	-
13) Enterovirus 71 Infection ^Ä	-	2	17	15	62	39
14) Food Poisoning						
- Outbreaks	21	26	30	38	170	180
- Persons Affected	60	64	82	123	550	598
15) <i>Haemophilus influenzae</i> type b Infection (invasive)	-	-	-	-	-	1
16) Hantavirus Infection*	-	-	-	-	-	-
17) Influenza A (H2)*, Influenza A (H5) [§] , Influenza A (H7) [¶] , Influenza A (H9) [¶] , Swine Influenza [¶]	-	-	-	-	2 412	-
18) Japanese Encephalitis**	-	-	-	-	-	-
19) Legionnaires' Disease	-	1	2	-	15	5
20) Leprosy	-	1	2	-	1	3
21) Leptospirosis*	-	-	-	-	2	1
22) Listeriosis*	-	2	-	3	1	5
23) Malaria	2	1	6	6	7	18
24) Measles	2	1	2	1	9	6
25) Meningococcal Infection (invasive)	1	1	1	-	1	5
26) Mumps	18	15	6	17	75	72
27) Paratyphoid Fever	2	1	2	3	12	13
28) Plague	-	-	-	-	-	-
29) Psittacosis*	-	-	-	-	1	-
30) Q Fever*	1	2	-	1	1	4
31) Rabies	-	-	-	-	-	-
32) Relapsing Fever	-	-	-	-	-	-
33) Rubella and Congenital Rubella Syndrome:						
- Rubella	11	10	11	7	18	45
- Congenital Rubella Syndrome*	11	10	11	7	18	45
34) Scarlet Fever	44	74	100	408	58	684
35) Severe Acute Respiratory Syndrome	-	-	-	-	-	-
36) Shiga toxin-producing <i>Escherichia coli</i> Infection*. ^{ÄÄ}	-	-	-	-	3	1
37) Smallpox*	-	-	-	-	-	-
38) <i>Streptococcus suis</i> Infection ^Æ	1	1	-	1	3	4
39) Tetanus	-	-	-	-	-	-
40) Tuberculosis	509	397	461	457	2 516	2 585
41) Typhoid Fever	2	1	5	-	14	16
42) Typhus and other rickettsial diseases ^{§§} :						
- Scrub Typhus	1	-	4	2	21	8
- Urban Typhus	-	-	-	-	9	-
- Spotted Fever*	-	-	-	-	1	-
- Unclassified	1	-	2	2	11	6
43) Viral Haemorrhagic Fever*	-	-	2	-	-	2
44) Viral Hepatitis:						
- A	30	26	24	12	144	149
- B	5	4	4	2	30	29
- C	2	5	5	3	40	35
- E	1	2	1	2	5	6
45) West Nile Virus Infection*	22	15	14	5	69	79
46) Whooping Cough	-	-	-	-	-	-
47) Yellow Fever	1	-	6	2	1	13
	-	-	-	-	-	-

Notes : * Notifiable since 14 July 2008
 Ä Notifiable since 6 March 2009
 Æ Notifiable since 5 January 2007
 § Notifiable since 30 January 2004
 ¶ Notifiable since 31 December 2004
 ¶ Notifiable from 27 April 2009 to 7 October 2010
 ** Notifiable since 16 July 2004
 ÄÄ The figures of Shiga toxin-producing *Escherichia coli* infection represent *Escherichia coli* O157:H7 infection before 10 June 2011.
 Æ Notifiable since 2 August 2005 and cases prior to this date were voluntarily notified.
 §§ ðTyphusö has been revised to ðTyphus and other rickettsial diseasesö which includes spotted fever since 14 July 2008.