ANNUAL REPORT 2018

TUBERCULOSIS & CHEST SERVICE

OF THE

DEPARTMENT OF HEALTH

ANNUAL REPORT 2018

TUBERCULOSIS & CHEST SERVICE

OF THE

DEPARTMENT OF HEALTH

PREFACE

Global Epidemiology

Tuberculosis (TB) continues to be a major global health problem in 2018. Every year, about 10 million people fall ill with TB and 1.5 million people die from this disease. Since 2000, TB has become one of the top ten causes of death worldwide and is the leading cause of death from a single infectious agent. In 2018, there was an estimated 10.0 million new cases of TB worldwide and 1.5 million people died from TB, among which about 251 000 people died of HIV-associated TB. Multidrug-resistant tuberculosis (MDR-TB) remains a public health threat. There were an estimated 484 000 new cases with rifampicin-resistant-tuberculosis (RR-TB) in 2018 and of which 78% were MDR-TB.

Globally, the incidence of TB is falling at the rate of 2% per year. This figure has to accelerate to 4-5% per year to reach the 2020 milestones of the End TB Strategy. To end the global TB epidemic, with a global TB incidence falling below 10 new cases per 100 000 population per year, World Health Organization (WHO) member states has endorsed the END TB Strategy at the 2014 World Health Assembly as part of the Sustainable Development Goal. The strategy sets a 20-year timeframe (2016-2035) which calls for a 90% reduction in TB deaths and an 80% reduction in TB incidence by 2030, and a 95% reduction in TB deaths and a 90% reduction in TB incidence by 2035, compared with 2015. The actions to achieve these targets are grouped under four principles (government stewardship and accountability with monitoring and evaluation, strong coalition with civil society organizations and communities, protection and promotion of human rights, ethics and equity, and adaptation of the strategy and targets at country level with global collaboration) and three pillars (integrated patient-centred TB care and prevention, bold policies and supportive systems, and intensified research and innovation).

Local epidemiology

Hong Kong (HK) has been classified by WHO as a place of intermediate TB burden with good health infrastructure. In 2018, the number of TB notifications was 4 268, and the TB notification rate was 57.28 per 100 000. The corresponding figures in 2017 were 4 250 and 57.50 per 100 000. TB deaths accounted for 0.4 % of the total registered deaths in Hong Kong and stayed outside the top ten causes of death in 2018.

With the successful implementation of passive case-finding, rapid diagnosis, timely initiation of effective anti-TB treatment and directly observed treatment (DOT) in an ambulatory outpatient setting, the TB notification rate decreased from a historical peak of 697.2 per 100 000 in 1952 to 57.28 per 100 000 in 2018. However, the TB notification rate declined more slowly in recent years. The ageing population and reactivation from this pool of latent infection is accounting for the retarded decline rate

of TB. Tackling the challenge of an ageing population appears to be a key step in further reducing the local rate. However, the current diagnostic tools show limitations in screening latent TB infection (LTBI) in the elderly while treatment of LTBI in this group is more prone to adverse events like hepatotoxicity. Intensified researches and innovations are required to make a breakthrough in this area.

Comorbidities

Management of TB comorbidity is important as part of the TB control measures. Diabetes mellitus (DM) has been recognized as the most common TB comorbidity in HK. A previous local study showed that DM patients have more extensive disease, more adverse effects from treatment and lower success rates as compared with non-diabetic patients. DM is now routinely screened in TB patients attending chest clinics.

HIV infection is another risk factor for developing TB disease. In HK, the prevalence of HIV co-infection among TB patients has remained below 1% (0.6% in 2018). HIV testing has been performed among TB patients attending chest clinics on a voluntary basis with consent. Unlinked anonymous screening (UAS) has been stopped since late 2008.

Smoking has also been reported to be associated with TB. Tobacco control measures are routinely introduced to all patients attending chest clinics. The enhanced measures to manage these comorbidities may complement the early diagnosis, timely initiation of treatment and DOT to accelerate the decline of TB rate in HK.

Latent tuberculosis infection

Targeted screening of four main high-risk groups is conducted locally. They are household contacts of sputum smear positive patients, patients initiating anti-tumour necrosis factor (TNF) treatment, people with silicosis and people living with HIV. Tuberculin skin test (TST) and/or the interferon gamma release assays (IGRA) are the screening tests deployed. Six-months Isoniazid, 12-weeks weekly rifapentine plus isoniazid regimen and 4-months rifampicin are the regimens selectively offered for treatment of latent TB infection.

Multidrug-resistant and extensively drug-resistant tuberculosis

With all the efforts, the rate of MDR and extensively drug-resistant (XDR)-TB in HK remain low in 2018, being around 1 % (1.17%) and 0.03% of all culture confirmed TB cases in 2018. However, given the high rate of drug resistance TB in some neighbouring areas, frequent population movement and possible cross border transfer of drug

resistance, these constitute the major concerns to our apparently effective control on MDR and XDR-TB. The Department of Health of Hong Kong will continue to monitor the trend of drug resistance rates and enhance surveillance. To effectively tackle the issue of drug resistant TB in HK, routine use of molecular tests (Xpert MTB/RIF followed by line probe assays) for rapid detection of drug resistance among sputum smear positive cases and selected smear-negative cases while pending complementary information from culture-based drug susceptibility testing methods have been applied. The enhanced use of these tests together with the joint efforts of microbiologists and clinicians are important for the success of TB control.

The introduction of repurposed agent and the development of new drugs in recent years are bringing new hope to the treatment of MDR-TB and XDR-TB. In HK, there has been increasing use of linezolid, clofazimine, two repurposed agents recommended for treatment of MDR-TB by WHO. A number of MDR-TB and XDR-TB cases have also been put on Delamanid-containing regimen. In 2018, WHO published rapid communications regarding key changes to the recommendations on treatment of MDR-TB. The anti-TB medications have been regrouped and ranked based on the latest evidence. It advised the prioritised use of levofloxacin/moxifloxacin, linezolid and bedaquiline, followed by clofazimine, cycloserine/terizidone in all MDR-TB patients, while discouraging use of second-line injectable agents due to substantial reported ototoxicty. Kanamycin and capreomycin were no longer recommended owing to possible risk of treatment failure and relapse in their use in longer MDR-TB regimens*. This rapid communications also discussed about precautions regarding use of the shorter MDR-TB regimen which has been adopted by some countries. The shorter MDR-TB regimen comprising moxifloxacin, clofazimine, pyrazinamide, ethambutol in 9-12 months, supplemented by amikacin, high dose isoniazid, prothionamide in the first 4-6 months, has not been used in HK.

In Hong Kong, the treatment success rates for fluoroquinolone-susceptible MDR-TB using fluroquinolone-based MDR-TB treatment regimens have been high. For the fluoroquinolone-resistant MDR-TB, the use of linezolid in combination with high-dose Levofloxacin and high-dose isoniazid or prothionamide (with or without delamanid) also resulted in satisfactory outcomes. Our experience in the use of second-line injectable agents including kanamycin did not show substantial ototoxicity or increased risk of treatment failure or disease relapse. While the repurposed or new drugs are effective drugs, the use of these drugs might associate with potentially serious adverse events notably bone marrow suppression and peripheral neuropathy of linezolid and prolong QT interval in delamanid and bedaquiline. Careful selection of the regimen based on the drug sensitivity pattern, local surveillance data, potential toxicity while closely monitoring the clinical progress and drug tolerance on the use of second line drugs (including the repurposed and new drugs) are important to the success of treatment. We have conducted biweekly case conferences with the chest units of both Grantham Hospital and Kowloon Hospital (the two designated hospital units under Hospital

Authority for hospitalization of MDR- and XDR-TB patients) such that a close liaison in managing these patients is maintained.

*The longer regimens usually include at least 5 (considered to be) effective medicines and last 18-20months.

Public health functions

In recent years, the Department of Health has enhanced its public health functions by stepping up its local enforcement measures to contain the spread of TB within our community. For non-compliant TB patients posing public health hazards, we have more liberally enforced medical examination orders or isolation orders with reference to the Prevention and Control of Disease Ordinance (CAP 599). These are often taken as a last resort when all other non-coercive measures such as counselling, education and psychosocial support fail. In managing TB cases leaving Hong Kong and of potential public health concern, cross-jurisdiction notification has also been enhanced.

Neonatal BCG vaccination

Neonatal BCG is routinely given in Hong Kong at birth with a high coverage rate of 99% in 2018. On the other hand the BCG revaccination programme for primary school children has been stopped since the school year starting from September 2000.

Collaboration with other research parties

TB&CS has been actively collaborating with other local and overseas health authorities and academics in conducting studies and researches aiming to further improve the TB management. We have been participating the Tuberculosis Trial Consortium (TBTC) study 31 which is a large phase 3 multicenter open-label randomized clinical trial of rifapentine-containing treatment-shortening regimens for pulmonary TB rolled out in early 2016. There was also enhancing network with the health authorities in the Guangdong-Hong Kong-Macao Greater Bay Area.

World TB Day and community support

Measures to raise the public awareness of TB and to mobilize support from the community are of great importance to the success of TB control. This has been achieved through school education and public health talks. To echo WHO's endeavor to promote TB awareness and to commemorate the World TB Day, World TB Day 2018 opening ceremony cum health exhibition was jointly held by the Hong Kong Tuberculosis, Chest and Heart Diseases Association, Department of Health and the Hospital Authority on 24

March 2018 in Plaza Hollywood, Diamond Hill, Kowloon. Announcement for Public Interest (API) on prevention of TB on television and radio, interviews in mass media, newspaper columns were also conducted. With all these activities, it is hoped that health care workers, the public and all other stakeholders would be able to joined hands to fight against this endemic disease.

Part 1: Tuberculosis and Chest Service (TB&CS)

Approximately 80% of notified TB cases are managed in the Government TB&CS. In 2018, a total of 78 894 persons (including 16 239 new patients) attended TB&CS and the total attendance was 646 817. The corresponding figures in 2017 were 82 304 and 669 503. The diagnoses among new patients included active pulmonary TB (12.7%), active TB of other forms (4.9%), inactive TB (2.7%), bronchitis not specified as acute or chronic (7.3%), acute respiratory infection (3.4%), malignant neoplasm of trachea and bronchus (0.6%), bronchiectasis (1.3%), and asthma (0.3%). A total of 2 255 hospital admissions were arranged.

Part 2: Pneumoconiosis

The Pneumoconiosis Clinic (the Clinic) continued to provide a full range of outpatient services to patients with suspected or confirmed pneumoconiosis and mesothelioma. Apart from supporting the operation of Pneumoconiosis Medical Board (the Board) in assessment aspect under the Pneumoconiosis and Mesothelioma (Compensation) Ordinance (the Ordinance), the Clinic also provides services addressing the patients' diversified needs in terms of treatment, prevention and rehabilitation. The attendance at the clinic was 5 088 in 2018 compared with 5 416 in 2017. In 2018, 126 cases with suspected pneumoconiosis or mesothelioma were examined by the Board under the Ordinance, and 71 new cases (59 cases of silicosis, 2 cases of asbestos-related lung disease and 10 cases of mesothelioma) were confirmed by the Board. Up to the end of 2018, a total of 5 093 patients had been confirmed by the Board as having pneumoconiosis and/or mesothelioma under the Ordinance with the date of diagnosis on or after 1 January 1981.

PUBLICATIONS

1. Tse LA, Lin X, Li W, Qiu H, Chan CK, Wang F, Yu IT, Leung CC. Smoking Cessation Sharply Reduced Lung Cancer Mortality in a Historical Cohort of 3185 Chinese Silicotic Workers From 1981 to 2014. Br J Cancer. 2018 Dec;119(12):1557-1562.

2. Yew WW, Chang KC, Chan DP, Zhang Y. Can modulating redox status help to enhance antituberculosis drug efficacy? Tuberculosis (Edinb). 2018 Dec;113:177-178.

3. Chang KC, Nuermberger E, Sotgiu G, Leung CC. New Drugs and Regimens for Tuberculosis. Respirology. 2018 Nov;23(11):978-990.

4. Yew WW, Chang KC, Leung CC, Chan DP, Zhang Y. Vitamin C and Mycobacterium tuberculosis Persisters. Antimicrob Agents Chemother. 2018 Oct 24;62(11):e01641-18.

5. Collaborative Group for the Meta-Analysis of Individual Patient Data in MDR-TB treatment–2017, Ahmad N, Ahuja SD, Akkerman OW, Alffenaar JC, Anderson LF, Baghaei P, Bang D, Barry PM, Bastos ML, Behera D, Benedetti A, Bisson GP, Boeree MJ, Bonnet M, Brode SK, Brust JCM, Cai Y, Caumes E, Cegielski JP, Centis R, Chan PC, Chan ED, Chang KC, Charles M, Cirule A, Dalcolmo MP, D'Ambrosio L, de Vries G, Dheda K, Esmail A, Flood J, Fox GJ, Fréchet-Jachym M, Fregona G, Gayoso R, Gegia M, Gler MT, Gu S, Guglielmetti L, Holtz TH, Hughes J, Isaakidis P, Jarlsberg L, Kempker RR, Keshavjee S, Khan FA, Kipiani M, Koenig SP, Koh WJ, Kritski A, Kuksa L, Kvasnovsky CL, Kwak N, Lan Z, Lange C, Laniado-Laborín R, Lee M, Leimane V, Leung CC, Leung EC, Li PZ, Lowenthal P, Maciel EL, Marks SM, Mase S, Mbuagbaw L, Migliori GB, Milanov V, Miller AC, Mitnick CD, Modongo C, Mohr E, Monedero I, Nahid P, Ndjeka N, O'Donnell MR, Padayatchi N, Palmero D, Pape JW, Podewils LJ, Reynolds I, Riekstina V, Robert J, Rodriguez M, Seaworth B, Seung KJ, Schnippel K, Shim TS, Singla R, Smith SE, Sotgiu G, Sukhbaatar G, Tabarsi P, Tiberi S, Trajman A, Trieu L, Udwadia ZF, van der Werf TS, Veziris N, Viiklepp P, Vilbrun SC, Walsh K, Westenhouse J, Yew WW, Yim JJ, Zetola NM, Zignol M, Menzies D. Treatment Correlates of Successful Outcomes in Pulmonary Multidrug-Resistant Tuberculosis: An Individual Patient Data Meta-Analysis. Lancet. 2018 Sep 8;392(10150):821-834.

6. Leung EC, Leung CC, Chang KC, Chan CK, Mok TY, Chan KS, Lau KS, Chau CH, Yee WK, Law WS, Lee SN, Au KF, Tai LB, Leung WM. Delayed Diagnosis of Tuberculosis: Risk Factors and Effect on Mortality Among Older Adults in Hong Kong. Hong Kong Med J. 2018 Aug;24(4):361-368.

7. Yew WW, Chang KC, Chan DP. Oxidative Stress and First-Line Antituberculosis Drug-Induced Hepatotoxicity. Antimicrob Agents Chemother. 2018 Jul 27;62(8):e02637-17.

8. Chang KC, Leung EC, Law WS, Leung WM, Tai LB, Lee SN, Lam FM, Chau CH, Mok TY, Yew WW, Leung CC. Early Experience With Delamanid-Containing Regimens in the Treatment of Complicated Multidrug-Resistant Tuberculosis in Hong Kong. Eur Respir J. 2018 Jun 14;51(6):1800159.

9. Chang KC, Chan MC, Leung WM, Kong FY, Mak CM, Chen SP, Yu WC. Optimising the Utility of Pleural Fluid Adenosine Deaminase for the Diagnosis of Adult Tuberculous Pleural Effusion in Hong Kong. Hong Kong Med J. 2018 Feb;24(1):38-47.

10. Dheda K, Cox H, Esmail A, Wasserman S, Chang KC, Lange C. Recent Controversies About MDR and XDR-TB: Global Implementation of the WHO Shorter MDR-TB Regimen and Bedaquiline for All With MDR-TB? Respirology. 2018 Jan;23(1):36-45.

ADDENDUM

A brief history of compensation for Pneumoconiosis and malignant mesothelioma in Hong Kong

The Pneumoconiosis (Compensation) Ordinance (the Ordinance) was first introduced in 1980 for compensation of workers who acquired pneumoconiosis as a result of occupational exposure to silica and asbestos dusts with the date of diagnosis on or after 1 January 1981. This compensation scheme is funded by a levy which is imposed in respect of construction and quarry operations in Hong Kong. Compensation was paid out in the form of a lump sum according to the assessed degree of incapacity and the expected degree of further deterioration. On the other hand, eligible patients having pneumoconiosis with the date of diagnosis before the enactment of this ordinance who were alive as at 31 December 1980 are eligible for a government funded ex-gratia compensation scheme. The Ordinance was amended in 1993 to replace the lump sum payment with monthly payment payable to patients until their death. Reassessment at 2-yearly interval was also introduced at the same time to update the degree of incapacity for adjustment of the monthly compensation. Previously compensated post-1981 pneumoconiotics could apply for reassessment for compensation for additional incapacity. Further amendments were made in 1996. A flat-rate compensation for pain, suffering, and loss of amenities was payable to all post-1981 pneumoconiotics who had joined the revised scheme in 1993 or afterwards, irrespective of whether there was additional degree of incapacity over previous lump-sum compensation. The 1996 amendment also allowed the Pneumoconiosis Medical Board (the Board) to take other tests (FEV1 and adjusted DLCO) into consideration in adjusting the degree of incapacity (as determined by FVC) by a maximum of 5%. The ex-gratia payment scheme for pre-1981 pneumoconiotics was also reviewed. On top of a flat-rate of monthly payment, additional payments were introduced for those in need of constant care, oxygen and medical appliances. In 2008, the Pneumoconiosis (Compensation) Ordinance was amended to cover compensation for mesothelioma patients when it became the Pneumoconiosis and Mesothelioma (Compensation) Ordinance.

A new set of reference values for spirometry were published for the local population in 2006. A calibration study was subsequently performed in the Pneumoconiosis Clinic, comparing the new reference values with those published in 1982 among normal construction and quarry workers as well as silicosis patients. The new set of reference values was shown to reflect the lung function status of normal heavy manual workers better than the older set. Because of such findings, the new set of reference values has been adopted for compensation assessment since 2009.

Part 1

TUBERCULOSIS

Part 1 - Tuberculosis Contents

Appendix 1

TB Notifications & Death Rate of Tuberculosis (All Forms)
1947 - 2018

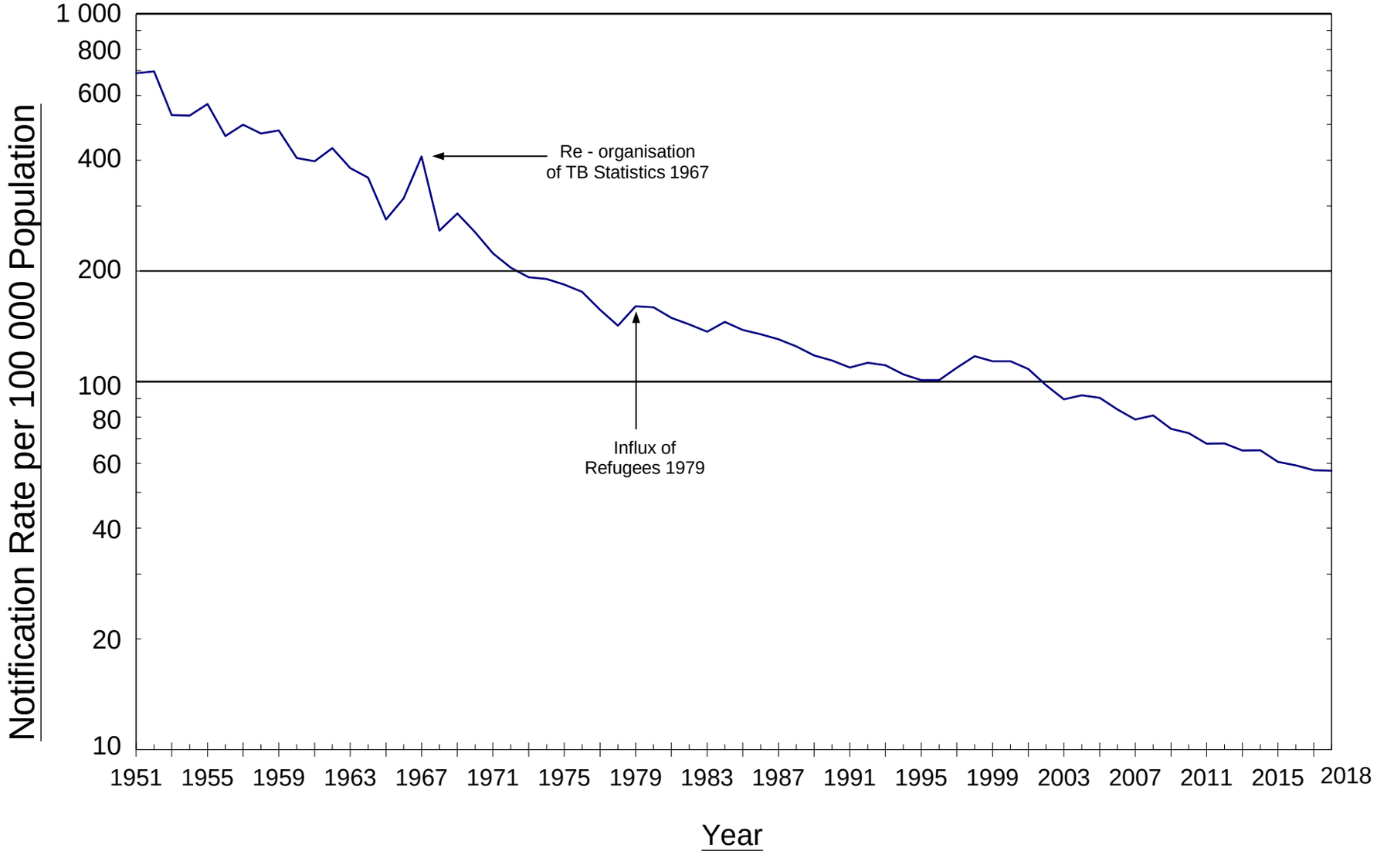
Year	TB Notifications		Notification Rate per 100 000 Pop	TB Deaths	Death Rate per 100 000 Pop	Ratio (Notifications/ Deaths)	Deaths ---------- x 100% Notifications
1947	4 855		277.4	1 861	106.3	2.61	38.33
1948	6 279		348.8	1 961	108.9	3.20	31.23
1949	7 510		404.4	2 611	140.6	2.88	34.77
1950	9 067		405.3	3 263	145.9	2.78	35.99
1951	13 886		689.0	4 190	207.9	3.31	30.17
1952	14 821		697.2	3 573	168.1	4.15	24.11
1953	11 900		530.7	2 939	131.1	4.05	24.70
1954	12 508		528.9	2 876	121.6	4.35	22.99
1955	14 148		568.1	2 810	112.8	5.03	19.86
1956	12 155		464.9	2 629	100.6	4.62	21.63
1957	13 665		499.4	2 675	97.8	5.11	19.58
1958	13 485		472.5	2 302	80.7	5.86	17.07
1959	14 302		482.0	2 178	73.4	6.57	15.23
1960	12 425		405.5	2 085	68.0	5.96	16.78
1961	12 584		397.2	1 907	60.2	6.60	15.15
1962	14 263		431.5	1 881	56.9	7.58	13.19
1963	13 031		380.9	1 762	51.5	7.40	13.52
1964	12 557		358.3	1 441	41.1	8.71	11.48
1965	9 927		275.9	1 278	35.5	7.77	12.87
1966	11 427		314.8	1 515	41.7	7.54	13.26
1967	15 253		409.7	1 493	40.1	10.22	9.79
1968	9 792		257.5	1 483	39.0	6.60	15.15
1969	11 072		286.5	1 470	38.0	7.53	13.28
1970	10 077		254.5	1 436	36.3	7.02	14.25
1971	9 028		223.2	1 250	30.9	7.22	13.85
1972	8 420		204.2	1 312	31.8	6.42	15.58
1973	8 152		192.2	1 154	27.2	7.06	14.16
1974	8 320		190.0	974	22.2	8.54	11.71
1975	8 192		183.6	646	14.5	12.68	7.89
1976	7 928		175.5	568	12.6	13.96	7.16
1977	7 191		156.9	532	11.6	13.52	7.40
1978	6 623		141.9	420	9.0	15.77	6.34
1979	7 907	(498) *	160.4	523	10.6	15.12	6.61
1980	8 065	(712)	159.3	551	10.9	14.64	6.83
1981	7 729	(254)	149.1	489	9.4	15.81	6.33
1982	7 527	(112)	143.0	454	8.6	16.58	6.03
1983	7 301	(73)	136.6	446	8.3	16.37	6.11
1984	7 843	(69)	145.3	420	7.8	18.67	5.36
1985	7 545	(59)	580 #	138.3	409	7.5	18.45	5.42
1986	7 432	(46)	544	134.5	407	7.4	18.26	5.48
1987	7 269	(41)	495	130.3	405	7.3	17.95	5.57
1988	7 021	(121)	433	124.8	388	6.9	18.10	5.53
1989	6 704	(226)	387	117.9	403	7.1	16.64	6.01
1990	6 510	(288)	341	114.1	382	6.7	17.04	5.87
1991	6 283	(281)	293	109.2	409	7.1	15.36	6.51
1992	6 534	(309)	264	112.6	410	7.1	15.94	6.27
1993	6 537	(264)	89	110.8	396	6.7	16.51	6.06
1994	6 319	(230)	87	104.7	409	6.8	15.45	6.47
1995	6 212	(175)	102	100.9	418	6.8	14.86	6.73
1996	6 501	(88)	162	101.0	292	4.5	22.26	4.49
1997	7 072	(34)	156	109.0	252	3.9	28.06	3.56
1998	7 673	(7)	169	117.3	270	4.1	28.42	3.52
1999	7 512	(5)	166	113.7	312	4.7	24.08	4.15
2000	7 578	(7)	152	113.7	299	4.5	25.34	3.95
2001	7 262	(0)	192	108.2	311	4.6	23.35	4.28
2002	6 602	(0)	186	97.9	267	4.0	24.73	4.04
2003	6 024	(0)	177	89.5	275	4.1	21.91	4.57
2004	6 226	(0)	110	91.8	286	4.2	21.77	4.59
2005	6 160	(0)	77	90.4	271	4.0	22.73	4.40
2006	5 766	(0)	58	84.1	294	4.3	19.61	5.10
2007	5 463	(0)	56	79.0	231	3.3	23.65	4.23
2008	5 635	(0)	67	81.0	229	3.3	24.61	4.06
2009	5 193	(0)	68	74.5	204	2.9	25.46	3.93
2010	5 093	(0)	80	72.5	191	2.7	26.66	3.75
2011	4 794	(0)	81	67.8	187	2.6	25.64	3.90
2012	4 858	(0)	100	67.9	199	2.8	24.41	4.10
2013	4 664	(0)	92	65.0	178	2.5	26.20	3.82
2014	4 705	(0)	85	65.1	187	2.6	25.16	3.97
2015	4 418	(0)	82	60.6	169	2.3	26.14	3.83
2016	4 346	(0)	67	59.2	160	2.2	27.16	3.68
2017	4 250	(0)	78	57.5	184	2.5	23.10	4.33
2018	4 268	(0)	92	57.3	190	2.5	22.46	4.45

* Figures in brackets denote the number of Vietnamese refugees included.

\# Figures in this column denote the number of Chinese immigrants staying in Hong Kong for less than 7 years.

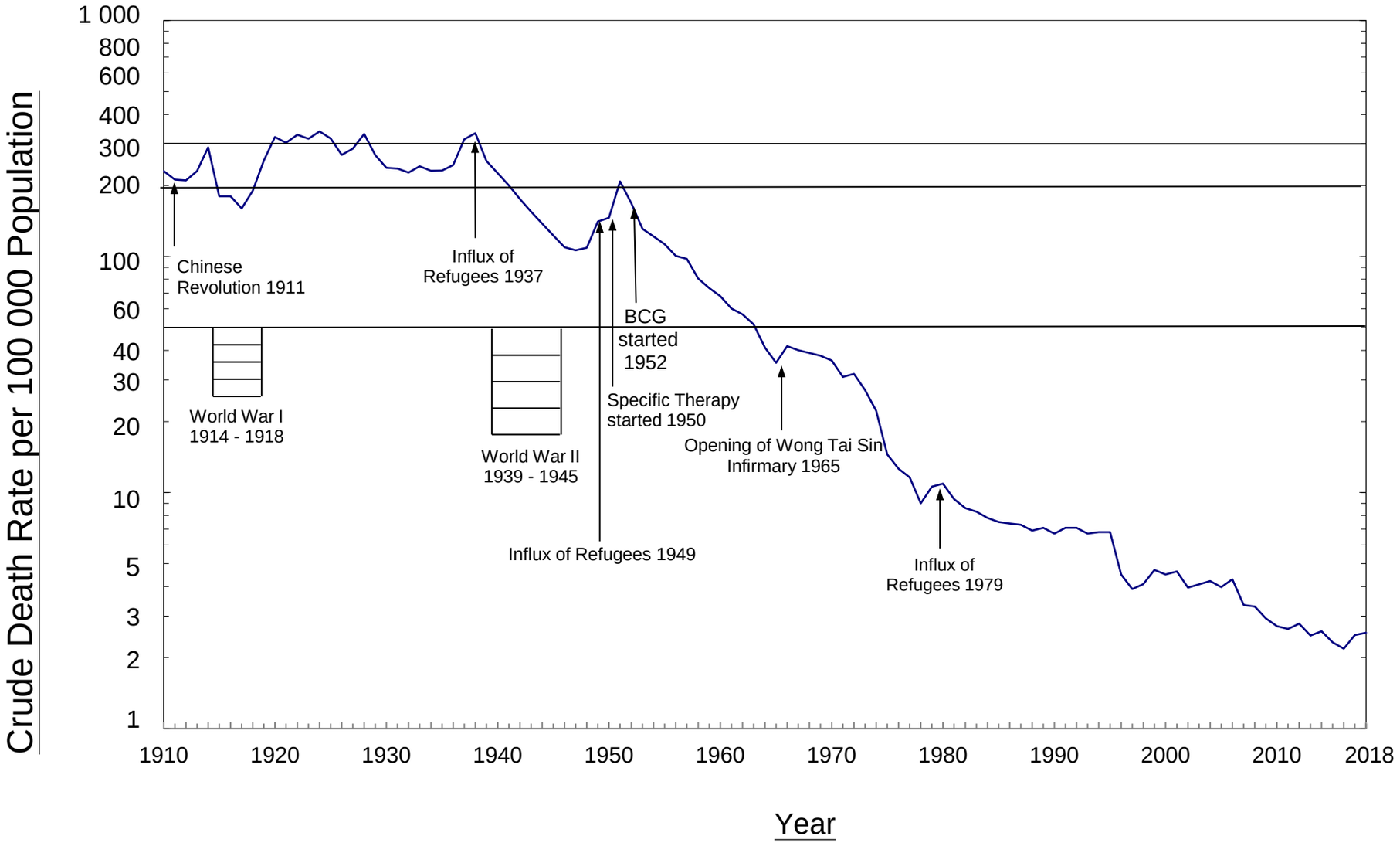
Appendix 2

TB Notification Rate (All Forms) 1951-2018



Appendix 3

Crude Death Rate due to Tuberculosis (All Forms) 1910-2018



Appendix 4(a)

Tuberculosis Notifications (All Forms) & Rate by Age & Sex 2018

Age Group	Tuberculosis Notifications (All Forms)			Tuberculosis Notifications Rate (per 100 000 population)		
	Male	Female	Total	Male	Female	Total
Under 1	1	1	2	2.77	0.75	1.80
1	1	0	1			
2	1	0	1			
3	0	0	0			
4	1	0	1			
5-9	2	1	3	1.25	0.67	0.97
10-14	6	8	14	4.27	5.97	5.10
15-19	32	30	62	20.65	20.66	20.65
20-24	91	79	170	42.68	36.29	39.45
25-29	86	114	200	37.38	41.96	39.86
30-34	62	152	214	27.51	45.67	38.34
35-39	87	137	224	36.91	37.64	37.35
40-44	86	127	213	37.59	37.74	37.68
45-49	121	103	224	50.40	30.62	38.86
50-54	157	94	251	58.96	28.40	42.02
55-59	261	127	388	84.38	38.10	60.38
60-64	316	113	429	116.26	40.40	77.79
65-69	296	115	411	140.95	53.07	96.32
70-74	269	78	347	193.94	55.24	123.97
75-79	239	59	298	251.31	61.08	155.45
80-84	249	87	336	317.20	91.48	193.55
85 & over	340	139	479	499.27	110.14	246.53
Total	**2 704**	**1 564**	**4 268**	**79.29**	**38.71**	**57.28**

Appendix 4(b)

Pulmonary TB Notifications by Age & Sex 2018**

Age Group	Pulmonary TB			Bacteriologically * Positive Pulmonary TB			Smear Positive Pulmonary TB		
	M	F	T	M	F	T	M	F	T
Under 1	0	1	1	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0
2	1	0	1	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	1	0	1	0	0	0	0	0	0
5 - 9	1	1	2	0	0	0	0	0	0
10 - 14	6	7	13	5	7	12	3	1	4
15 - 19	24	23	47	16	15	31	6	6	12
20 - 24	71	67	138	51	45	96	26	24	50
25 - 29	69	79	148	43	55	98	17	23	40
30 - 34	45	94	139	26	70	96	15	41	56
35 - 39	65	69	134	44	48	92	23	23	46
40 - 44	72	88	160	51	68	119	24	34	58
45 - 49	101	65	166	72	46	118	34	25	59
50 - 54	134	58	192	100	41	141	58	19	77
55 - 59	214	82	296	166	59	225	73	20	93
60 - 64	276	75	351	217	57	274	98	18	116
65 - 69	253	68	321	202	50	252	84	16	100
70 - 74	240	55	295	196	40	236	70	16	86
75 - 79	207	38	245	170	29	199	53	5	58
80 - 84	219	63	282	182	58	240	58	13	71
85 & over	287	108	395	250	90	340	71	27	98
Total	**2 286**	**1 041**	**3 327**	**1 791**	**778**	**2 569**	**713**	**311**	**1 024**

** Pulmonary TB with or without extrapulmonary TB

* Either smear or culture positive

Appendix 4(c)

Rate of Pulmonary TB Notifications by Age & Sex 2018**

(Rate per 100 000 Population)

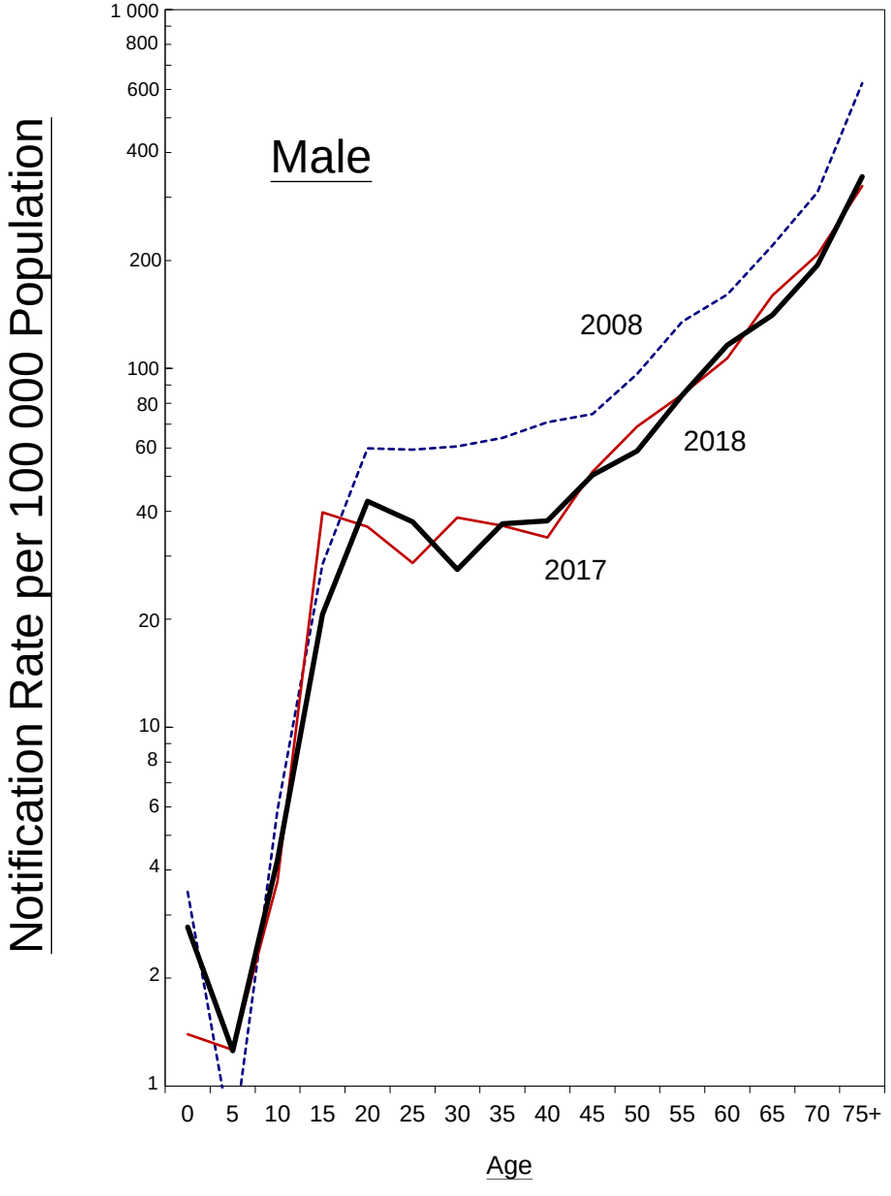
Age Group	Pulmonary TB			Bacteriologically * Positive Pulmonary TB			Smear Positive Pulmonary TB		
	M	F	T	M	F	T	M	F	T
0 - 4	1.4	0.7	1.1	0.0	0.0	0.0	0.0	0.0	0.0
5 - 9	0.6	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0
10 - 14	4.3	5.2	4.7	3.6	5.2	4.4	2.1	0.7	1.5
15 - 19	15.5	15.8	15.7	10.3	10.3	10.3	3.9	4.1	4.0
20 - 24	33.3	30.8	32.0	23.9	20.7	22.3	12.2	11.0	11.6
25 - 29	30.0	29.1	29.5	18.7	20.2	19.5	7.4	8.5	8.0
30 - 34	20.0	28.2	24.9	11.5	21.0	17.2	6.7	12.3	10.0
35 - 39	27.6	19.0	22.3	18.7	13.2	15.3	9.8	6.3	7.7
40 - 44	31.5	26.2	28.3	22.3	20.2	21.1	10.5	10.1	10.3
45 - 49	42.1	19.3	28.8	30.0	13.7	20.5	14.2	7.4	10.2
50 - 54	50.3	17.5	32.1	37.6	12.4	23.6	21.8	5.7	12.9
55 - 59	69.2	24.6	46.1	53.7	17.7	35.0	23.6	6.0	14.5
60 - 64	101.5	26.8	63.6	79.8	20.4	49.7	36.1	6.4	21.0
65 - 69	120.5	31.4	75.2	96.2	23.1	59.1	40.0	7.4	23.4
70 - 74	173.0	39.0	105.4	141.3	28.3	84.3	50.5	11.3	30.7
75 - 79	217.7	39.3	127.8	178.8	30.0	103.8	55.7	5.2	30.3
80 - 84	279.0	66.2	162.4	231.8	61.0	138.2	73.9	13.7	40.9
85 & over	421.4	85.6	203.3	367.1	71.3	175.0	104.3	21.4	50.4
Total	**67.0**	**25.8**	**44.7**	**52.5**	**19.3**	**34.5**	**20.9**	**7.7**	**13.7**

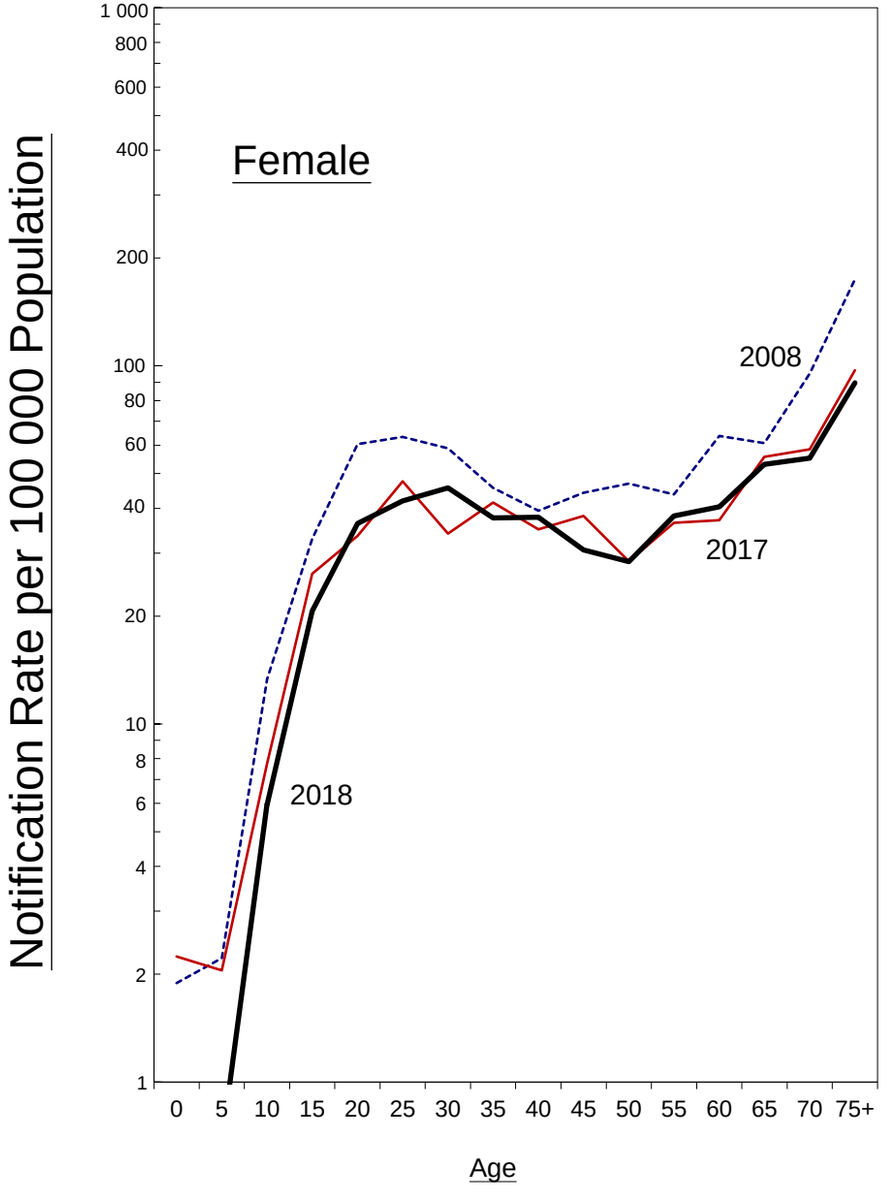
** Pulmonary TB with or without extrapulmonary TB

* Either smear or culture positive

Appendix 5

TB Notification Rate by Age & Sex 2008, 2017 & 2018





Appendix 6

Notifications of Tuberculosis by Type by Age & Sex 2018

Age Group	Pulmonary only #			Miliary			Meninges/CNS			Bones & Joints			Others		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Under 1	0	1	1	0	0	0	1	0	1	1	0	1	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5-9	0	1	1	0	0	0	0	0	0	0	0	0	2	0	2
10-14	6	6	12	0	0	0	0	0	0	0	0	0	0	2	2
15-19	22	20	42	0	0	0	2	0	2	0	0	0	8	10	18
20-24	64	65	129	1	0	1	1	0	1	0	0	0	25	14	39
25-29	62	75	137	2	0	2	3	1	4	1	0	1	20	38	58
30-34	40	88	128	0	0	0	1	1	2	1	1	2	20	62	82
35-39	62	65	127	0	1	1	2	3	5	3	3	6	20	65	85
40-44	67	87	154	1	0	1	0	1	1	0	5	5	18	34	52
45-49	95	60	155	1	0	1	1	1	2	2	2	4	22	40	62
50-54	129	54	183	2	1	3	0	0	0	2	4	6	24	35	59
55-59	200	81	281	0	0	0	3	1	4	1	1	2	57	44	101
60-64	265	67	332	3	1	4	5	3	8	3	4	7	42	38	80
65-69	236	64	300	1	0	1	1	1	2	4	3	7	54	47	101
70-74	230	53	283	1	0	1	0	2	2	1	2	3	37	21	58
75-79	198	36	234	1	2	3	1	1	2	2	2	4	38	18	56
80-84	209	61	270	0	0	0	1	0	1	3	3	6	36	23	59
85 & over	274	100	374	2	2	4	2	0	2	3	3	6	60	34	94
Total*	2 161	984	3 145	15	7	22	24	15	39	27	33	60	483	525	1 008 **

* The total add up to greater than the notification number of 4 268 for 2018 as some cases have multiple sites.

* * Including

TB lymph node	376
TB urogenital system	54
TB peritonitis, intestines, mesenteric, appendicitis	95
TB pleuritis, pleural effusion	350
TB laryngitis	31
TB skin	46
Unspecified	67

(Note: some cases have more than one site of extrapulmonary TB)

Pulmonary TB only, without extrapulmonary site involvement

Appendix 7

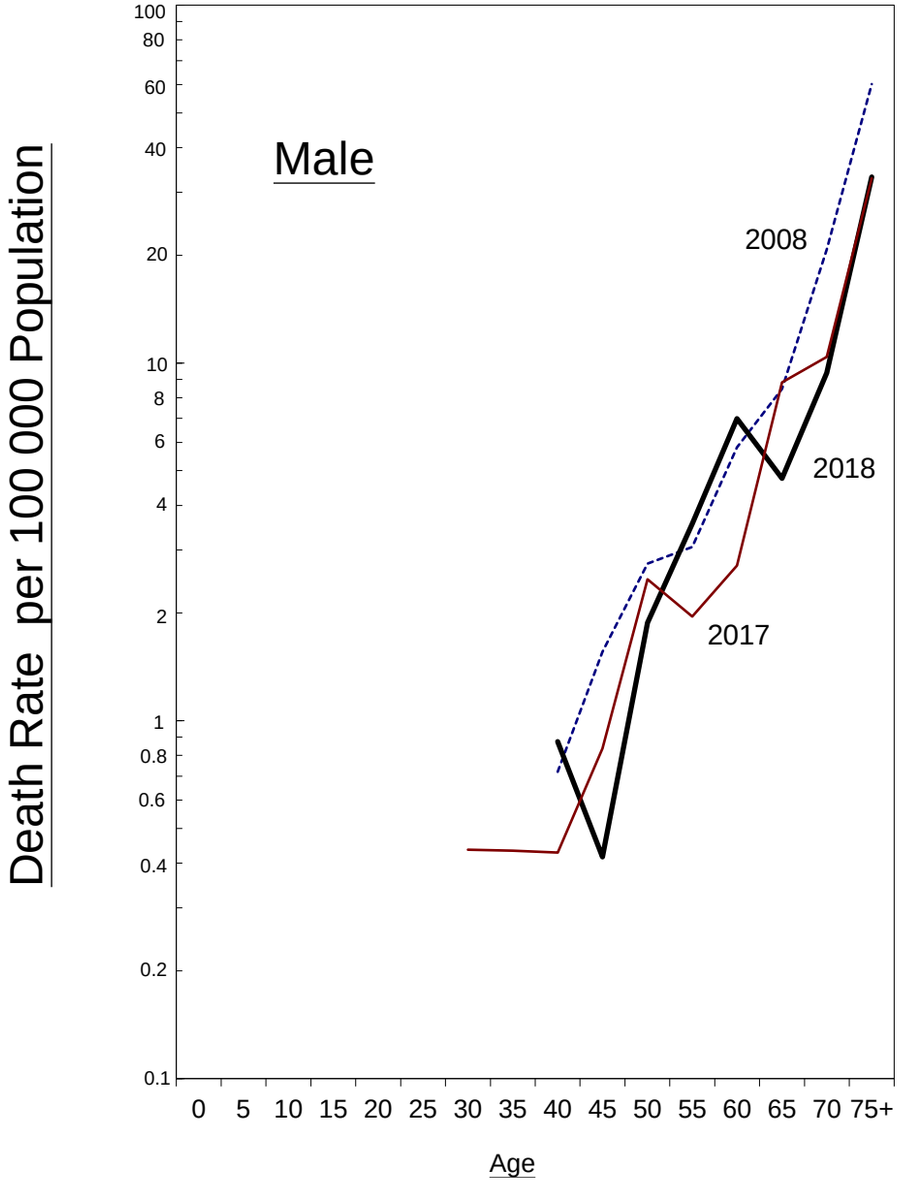
TB Death (All Forms) & Death Rate by Age & Sex 2018*

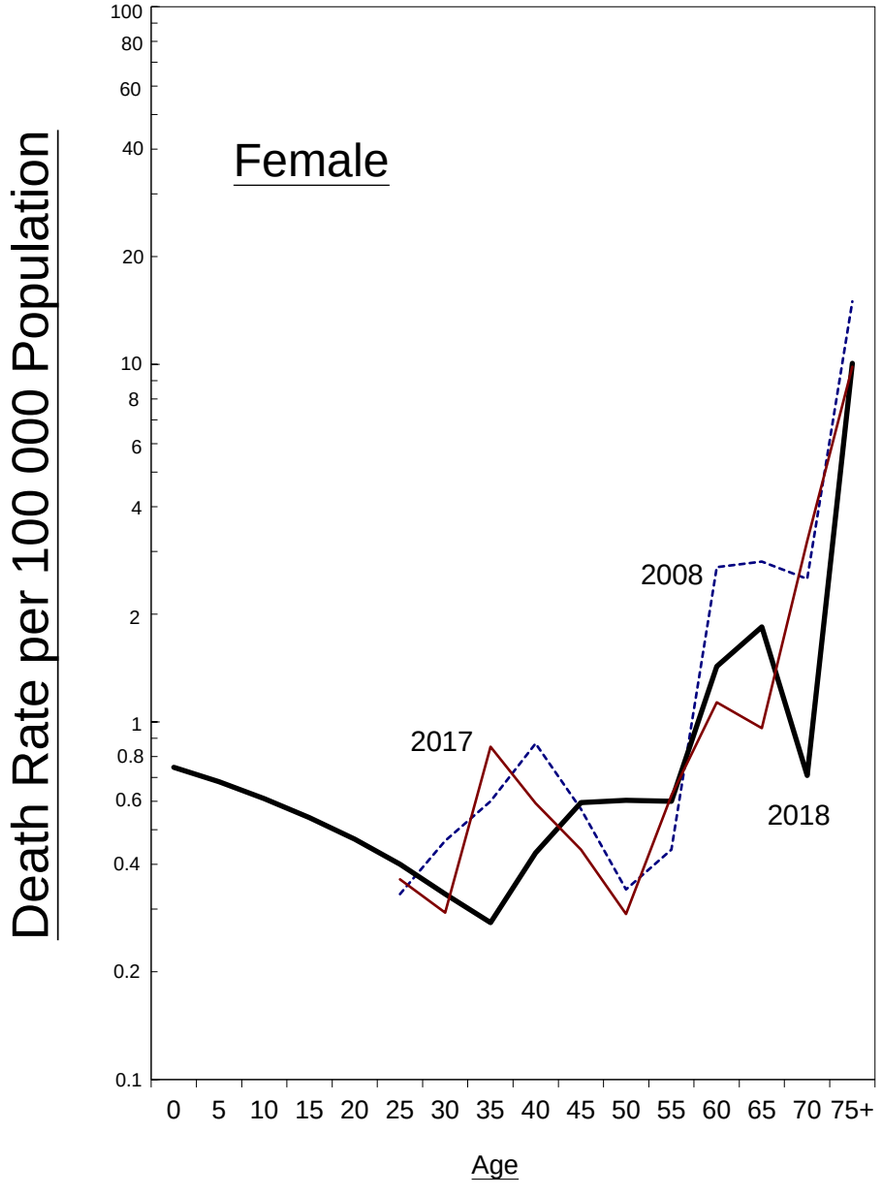
Age Group	Tuberculosis Death (All Forms)			Death Rate (per 100,000 population)		
	Male	Female	Total	Male	Female	Total
Under 1	0	1	1	0.00	0.75	0.36
1	0	0	0			
2	0	0	0			
3	0	0	0			
4	0	0	0			
5-9	0	0	0	0.00	0.00	0.00
10-14	0	0	0	0.00	0.00	0.00
15-19	0	0	0	0.00	0.00	0.00
20-24	0	0	0	0.00	0.00	0.00
25-29	0	0	0	0.00	0.00	0.00
30-34	0	0	0	0.00	0.00	0.00
35-39	0	1	1	0.00	0.27	0.17
40-44	2	0	2	0.87	0.00	0.35
45-49	1	2	3	0.42	0.59	0.52
50-54	5	2	7	1.88	0.60	1.17
55-59	11	2	13	3.56	0.60	2.02
60-64	19	4	23	6.99	1.43	4.17
65-69	10	4	14	4.76	1.85	3.28
70-74	13	1	14	9.37	0.71	5.00
75-79	20	5	25	21.03	5.18	13.04
80-84	28	7	35	35.67	7.36	20.16
85 & over	32	20	52	46.99	15.85	26.76
Total	**141**	**49**	**190**	**4.13**	**1.21**	**2.55**

* Data source : DH Death Registry 2018

Appendix 8

TB Mortality Rate by Age & Sex 2008, 2017 & 2018





Appendix 9

TB Deaths by Type by Age & Sex 2018*

Age Group	Pulmonary			Miliary			Meninges			Bones & Joints			Others		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Under 1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
40-44	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
45-49	1	1	2	0	0	0	0	1	1	0	0	0	0	0	0
50-54	3	2	5	0	0	0	1	0	1	0	0	0	1	0	1
55-59	8	1	9	2	0	2	1	1	2	0	0	0	0	0	0
60-64	18	3	21	1	0	1	0	0	0	0	0	0	0	1	1
65-69	8	2	10	0	1	1	1	0	1	0	0	0	1	1	2
70-74	13	0	13	0	0	0	0	0	0	0	0	0	0	1	1
75-79	17	2	19	0	1	1	1	0	1	0	1	1	2	1	3
80-84	26	4	30	0	1	1	0	1	1	0	0	0	2	1	3
85 & over	28	15	43	0	2	2	1	0	1	0	0	0	3	3	6
Total	124	30	154	3	6	9	5	4	9	0	1	1	9	8	17 **

* Data source : DH Death Registry 2018

** Breakdown of Deaths from other forms of TB:-

	Number
Tuberculosis of intestines, peritoneum and mesenteric glands	5
Sequelae of respiratory and unspecified tuberculosis	12
Total	17

Appendix 10

Tuberculosis Mortality
1950 - 2018

Year	% of TB Death below 5 years*	% of TB Death below 1 year*	Infant Mort. Rate from TB per 1 000 Registered Live Births*	% of TB Deaths among Total Registered Deaths*	Average Age of TB Death*
1950	38.34	9.81	5.28	17.7	24.0
1951	34.22	7.73	4.73	20.0	25.0
1952	34.28	7.05	3.50	18.4	25.0
1953	36.27	9.02	3.51	16.1	26.0
1954	31.26	8.17	2.82	14.9	29.0
1955	28.51	8.61	2.67	14.7	31.0
1956	25.22	7.34	1.99	13.6	32.0
1957	21.20	5.76	1.57	13.8	36.0
1958	19.64	7.04	1.52	11.2	36.5
1959	18.92	5.56	1.16	10.8	37.0
1960	10.55	2.21	0.42	10.9	43.0
1961	11.48	2.62	0.46	10.2	43.0
1962	5.74	1.44	0.24	9.3	46.0
1963	5.51	1.08	0.16	8.9	47.0
1964	4.09	0.90	0.12	8.0	48.0
1965	3.36	0.70	0.09	7.3	49.0
1966	2.71	0.73	0.12	8.1	53.0
1967	2.01	0.33	0.06	7.6	54.5
1968	1.15	0.20	0.04	7.7	56.5
1969	0.95	0.27	0.05	7.8	56.0
1970	0.63	0.00	0.00	6.9	57.5
1971	0.64	0.08	0.01	6.2	57.5
1972	0.30	0.15	0.02	6.2	59.0
1973	0.35	0.09	0.01	5.4	58.0
1974	0.82	0.21	0.02	4.4	58.5
1975	1.39	0.31	0.03	3.0	58.5
1976	0.70	0.00	0.00	2.4	59.5
1977	0.38	0.00	0.00	2.3	61.0
1978	0.48	0.24	0.01	1.8	61.0
1979	0.96	0.19	0.01	2.0	61.0
1980	0.73	0.18	0.01	2.1	62.0
1981	0.41	0.00	0.00	2.0	63.0
1982	0.22	0.00	0.00	1.8	63.0
1983	0.45	0.00	0.00	1.7	63.0
1984	0.24	0.24	0.01	1.6	64.5
1985	0.00	0.00	0.00	1.6	65.5
1986	0.00	0.00	0.00	1.6	68.0
1987	0.00	0.00	0.00	1.5	68.5
1988	0.52	0.26	0.01	1.4	69.0
1989	0.25	0.25	0.01	1.4	69.0
1990	0.52	0.52	0.03	1.3	69.0
1991	0.00	0.00	0.00	1.4	69.0
1992	0.00	0.00	0.00	1.3	68.0
1993	0.25	0.25	0.01	1.3	69.0
1994	0.00	0.00	0.00	1.4	71.0
1995	0.00	0.00	0.00	1.4	71.1
1996	0.00	0.00	0.00	0.9	70.6
1997	0.00	0.00	0.00	0.8	72.1
1998	0.37	0.00	0.00	0.8	72.6
1999	0.00	0.00	0.00	0.9	72.9
2000	0.00	0.00	0.00	0.9	73.4
2001	0.00	0.00	0.00	0.9	74.3
2002	0.00	0.00	0.00	0.8	74.0
2003	0.36	0.00	0.00	0.8	72.3
2004	0.00	0.00	0.00	0.8	73.4
2005	0.00	0.00	0.00	0.7	74.3
2006	0.00	0.00	0.00	0.8	73.5
2007	0.00	0.00	0.00	0.6	74.2
2008	0.00	0.00	0.00	0.6	74.5
2009	0.00	0.00	0.00	0.5	73.7
2010	0.00	0.00	0.00	0.4	73.1
2011	0.00	0.00	0.00	0.4	77.3 **
2012	0.00	0.00	0.00	0.5	75.9
2013	0.00	0.00	0.00	0.4	74.1
2014	0.00	0.00	0.00	0.4	76.0
2015	0.00	0.00	0.00	0.4	75.6
2016	0.00	0.00	0.00	0.3	77.2
2017	0.00	0.00	0.00	0.4	75.4
2018	0.53	0.53	0.02	0.4	74.6

* Data source : DH Death Registry 2018

** The average age of TB death is calculated by the exact age of TB death from 2011 onwards. Figures may be slightly different from previous years which were compiled basing on the age groups of TB death.

Appendix 11

Top Ten Causes of Death 2018

Rank	Causes of Death	Detailed List No.	2018		
		ICD 10th Revision	Male	Female	Total
	All Causes		26 389	21 088	47 478 (1)
1	Malignant neoplasms	C00-C97	8 526	6 068	14 594
2	Pneumonia	J12-J18	4 597	3 840	8 437
3	Diseases of heart	I00-I09, I11 I13, I20-I51	3 332	2 756	6 088
4	Cerebrovascular diseases	I60-I69	1 613	1 403	3 016
5	External causes of morbidity and mortality #	V01-Y89	1 162	709	1 871
6	Nephritis, nephrotic syndrome and nephrosis	N00-N07, N17-N19, N25-N27	785	837	1 622
8	Dementia	F01-F03	502	954	1 456
7	Chronic lower respiratory diseases *	J40-J47	1 073	306	1 379
9	Septicaemia	A40-A41	503	482	985
10	Diabetes mellitus	E10-E14	272	205	477
	Tuberculosis (including late effects of tuberculosis)		141	49	190
	All other causes	Residues of all causes	3 883	3 479	7 363 (1)

Notes : 1. Figures in brackets denote number of deaths of unknown sex included.

2. Classification of diseases and causes of death is based on the International Statistical Classification of Diseases and Related Health Problems (ICD) 10th Revision from 2001 onwards. The disease groups for the purpose of ranking causes of death have also been redefined based on the ICD 10th Revision, and new disease groups have been added. Figures for 2001 may not be comparable with figures for previous years which were compiled based on the ICD 9th Revision.

* 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.

Appendix 12(a)

Origin of Tuberculosis Notifications
2008 - 2018

Origin	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
East Kowloon Chest Clinic	129	100	99	105	101	83	83	105	83	83	83
Kowloon Chest Clinic	184	171	165	122	154	167	127	95	98	98	94
Sai Ying Pun Chest Clinic	86	69	80	71	89	79	70	69	59	61	72
Shaukiwan Chest Clinic	105	80	72	74	65	74	66	72	56	45	67
Shaukiwan Pneumoconiosis	13	16	6	9	10	2	9	0	5	7	2
Shek Kip Mei Chest Clinic	127	92	87	90	101	95	80	89	83	70	66
South Kwai Chung Chest Clinic	200	158	166	146	158	122	127	103	98	99	106
Tai Po Chest Clinic	81	63	71	86	82	93	64	54	63	60	44
Wanchai Chest Clinic	168	170	143	118	110	113	95	89	83	88	71
Yan Oi Chest Clinic	179	172	152	173	144	146	104	105	109	100	75
Yaumatei Chest Clinic	137	139	131	128	132	112	101	92	82	81	91
Yuen Chau Kok Chest Clinic	116	124	131	112	108	110	98	80	80	81	73
Yung Fung Shee Chest Clinic	147	118	131	112	116	86	92	87	75	73	66
Castle Peak Hospital (Chest Clinic)	5	0	0	0	2	0	0	0	0	0	0
Cheung Chau Chest Clinic	2	1	1	1	1	0	0	0	2	1	0
Sai Kung Chest Clinic	9	1	3	6	4	4	2	3	1	2	1
Sheung Shui Chest Clinic	45	42	63	33	21	30	33	22	30	29	31
Tung Chung Chest Clinic	9	7	11	13	9	11	11	9	21	12	17
Yuen Long Chest Clinic	67	73	80	48	39	66	51	67	53	59	48
Sub-total	1 809	1 596	1 592	1 447	1 446	1 393	1 213	1 141	1 081	1 049	1 007
Grantham Hospital	209	214	180	163	138	148	140	166	148	128	113
Haven of Hope Hospital	87	103	65	80	68	77	95	96	86	68	69
Kowloon Hospital	120	84	108	92	97	64	74	105	111	111	108
Ruttonjee Hospital	165	183	170	176	165	127	140	109	122	117	113
Wong Tai Sin Hospital	104	82	105	57	58	86	69	62	47	49	63
Other Govt. Institutions (a)	78	54	64	62	54	51	61	49	53	58	80
Other H.A. Hospitals	2 648	2 472	2 425	2 364	2 497	2 377	2 578	2 370	2 343	2309	2357
Private Practitioners	83	57	101	100	109	118	129	122	146	141	139
Private Hospitals	332	348	283	253	226	223	206	198	209	220	219
Total	5 635	5 193	5 093	4 794	4 858	4 664	4 705	4 418	4 346	4 250	4 268
% of cases from Chest Clinics among the total	32.1	30.7	31.3	30.2	29.8	29.9	25.8	25.8	24.9	24.7	23.6
% from Chest Hospitals (b)	12.2	12.8	12.3	11.8	10.8	10.8	11.0	12.2	11.8	11.1	10.9
% from Other Public Hospitals	48.4	48.6	48.9	50.6	52.5	52.1	56.1	54.8	55.1	55.7	57.1
% from Private Sector	7.4	7.8	7.5	7.4	6.9	7.3	7.1	7.2	8.2	8.5	8.4

Notes :
(a) Sources are from Outpatient Clinics, Public Mortuaries, Prison Hospitals, & Army Hospitals.
(b) Chest Hospitals include Kowloon Hospital, Wong Tai Sin Hospital, Ruttonjee Hospital, Grantham Hospital and Haven of Hope Hospital.
(c) Castle Peak Hospital (Chest Clinic) ceased operation from 1 April 2015.

Appendix 12(b)

Breakdown of Origin of TB
Notifications for "Other H.A. Hospitals" 2018

Name of Hospital	No. of TB Notification
Alice Ho Miu Ling Nethersole Hospital	87
Caritas Medical Centre	144
Castle Peak Hospital	1
Hong Kong Buddhist Hospital	9
Kwong Wah Hospital	162
North District Hospital	102
North Lantau Hospital	3
Our Lady of Maryknoll Hospital	9
Pamela Youde Nethersole Eastern Hospital	166
Pok Oi Hospital	110
Prince of Wales Hospital	191
Princess Margaret Hospital	210
Queen Elizabeth Hospital	251
Queen Mary Hospital	128
Shatin Hospital	4
Tai Po Hospital	7
Tin Shui Wai Hospital	7
Tseung Kwan O Hospital	125
Tuen Mun Hospital	269
Tung Wah Eastern Hospital	5
Tung Wah Group of Hospitals Fung Yiu King Hospital	3
Tung Wah Hospital	4
United Christian Hospital	228
Yan Chai Hospital	132
Total	**2 357**

Appendix 13

Tuberculosis Notifications & Notification Rates by District Council District 2018

District Council District	Notification	Notification Rate (per 100 000 pop.)
Hong Kong Island	667	53.3
Central & Western	145	59.0
Wanchai	68	37.4
Eastern	309	56.0
Southern	145	53.1
Kowloon	1 519	67.1
Kowloon City	210	50.0
Kwun Tong	473	69.3
Sham Shui Po	324	80.3
Wong Tai Sin	279	65.9
Yau Tsim Mong	233	69.4
NT (East)	932	47.6
Islands	75	43.3
Northern	155	48.7
Sai Kung/Tseung Kwan O	233	49.4
Shatin	327	47.7
Tai Po	142	45.7
NT (West)	1 091	55.3
Kwai Tsing	344	66.8
Tsuen Wan	137	43.5
Tuen Mun	259	51.5
Yuen Long	351	54.8
Marine	0	0.0
Unknown	23	0.0
Others	36	0.0
Total	4 268	**57.3**

Appendix 14

Establishment & Strength of TB & Chest Service
as at 1.12.2018

Post	Establishment	Strength
Consultant Chest Physician i/c	1	1
Consultant Chest Physician	1	0
Senior Medical & Health Officer	7	7
Medical & Health Officer	23	24
Senior Nursing Officer	1	1
Nursing Officer	15	14
Registered Nurse	75	76
Enrolled Nurse	74	73
Senior Dispenser	9	9
Dispenser	9	9
Executive Officer I	1	1
Statistical Officer II	3	3
Personal Secretary I	1	1
Clerical Officer	16	14
Assistant Clerical Officer	20	22
Clerical Assistant	56	56
Office Assistant	8	8
Workman II	43	42
Senior Radiographer	3	3
Radiographer I	8	8
Radiographer II	21	21
Radiographic Technician	4	4
Darkroom Technician	10	7

Appendix 15
Total Attendances at Chest Clinics
2008 - 2018

Clinic/Hospital	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
East Kowloon Chest Clinic	59 670	56 566	58 167	55 678	49 894	51 368	52 449	52 874	54 391	53 160	51 934
Kowloon Chest Clinic	62 017	56 658	56 523	47 693	50 666	52 766	52 423	45 953	45 938	46 887	41 671
Sai Ying Pun Chest Clinic	40 126	36 036	34 502	36 441	36 877	33 892	33 274	36 301	36 622	32 200	33 069
Shaukiwan Chest Clinic	50 618	45 028	41 263	41 804	40 600	42 335	44 417	45 789	42 426	37 176	41 212
Shaukiwan Pneumoconiosis	8 501	8 187	7 719	6 869	6 576	6 137	5 433	4 920	4 806	4 840	4 620
Shek Kip Mei Chest Clinic	52 161	54 933	49 216	49 500	47 853	49 164	51 852	48 142	47 816	47 374	42 544
South Kwai Chung Chest Clinic	81 441	82 044	81 923	75 752	78 785	75 062	73 740	78 403	73 985	67 149	65 577
Tai Po Chest Clinic	33 297	35 492	36 215	37 628	39 318	41 316	32 443	30 988	33 357	32 126	31 641
Wanchai Chest Clinic	50 465	50 461	49 609	48 893	46 777	47 901	49 276	43 900	45 326	42 857	39 552
Yan Oi Chest Clinic	66 058	63 411	67 564	63 333	67 804	64 184	60 278	60 770	61 780	64 016	67 621
Yaumatei Chest Clinic	68 587	70 439	68 633	68 164	62 688	61 905	60 937	57 835	58 938	55 234	50 246
Yuen Chau Kok Chest Clinic	57 211	60 481	58 027	65 627	59 542	67 573	60 396	51 136	56 538	63 228	58 485
Yung Fung Shee Chest Clinic	71 767	74 196	80 444	73 038	74 204	75 140	67 274	65 603	73 857	72 019	70 214
Castle Peak Hospital (ceased operation from 1 April 2015)	192	146	149	145	146	124	126	38	0	0	0
Cheung Chau Chest Clinic	1 411	869	1 206	1 286	1 349	1 356	1 273	1 562	1 139	1 781	1 415
Sai Kung Chest Clinic	1 885	1 745	2 277	1 861	1 546	1 542	1 371	1 513	1 385	1 248	1 383
Sheung Shui Chest Clinic	21 909	22 468	22 303	21 775	17 495	15 308	16 827	15 361	14 113	15 539	13 506
Tung Chung	4 263	5 137	4 433	4 447	4 248	4 303	4 091	4 166	5 554	5 484	4 467
Yuen Long Chest Clinic	29 979	29 935	30 729	30 201	27 413	29 929	27 377	26 361	26 427	26 369	26 911
Hei Ling Chau ATC	290	344	303	202	190	240	162	127	117	130	121
Lai Chi Kok Reception Centre	412	379	303	330	365	279	250	278	234	245	242
Shek Pik Prison Hospital	232	201	186	94	140	192	184	199	189	159	152
Stanley Prison Hospital	796	719	687	688	529	488	443	360	367	282	234
Total	**763 288**	**755 875**	**752 381**	**731 449**	**715 005**	**722 504**	**696 296**	**672 579**	**685 305**	**669 503**	**646 817**

Appendix 16

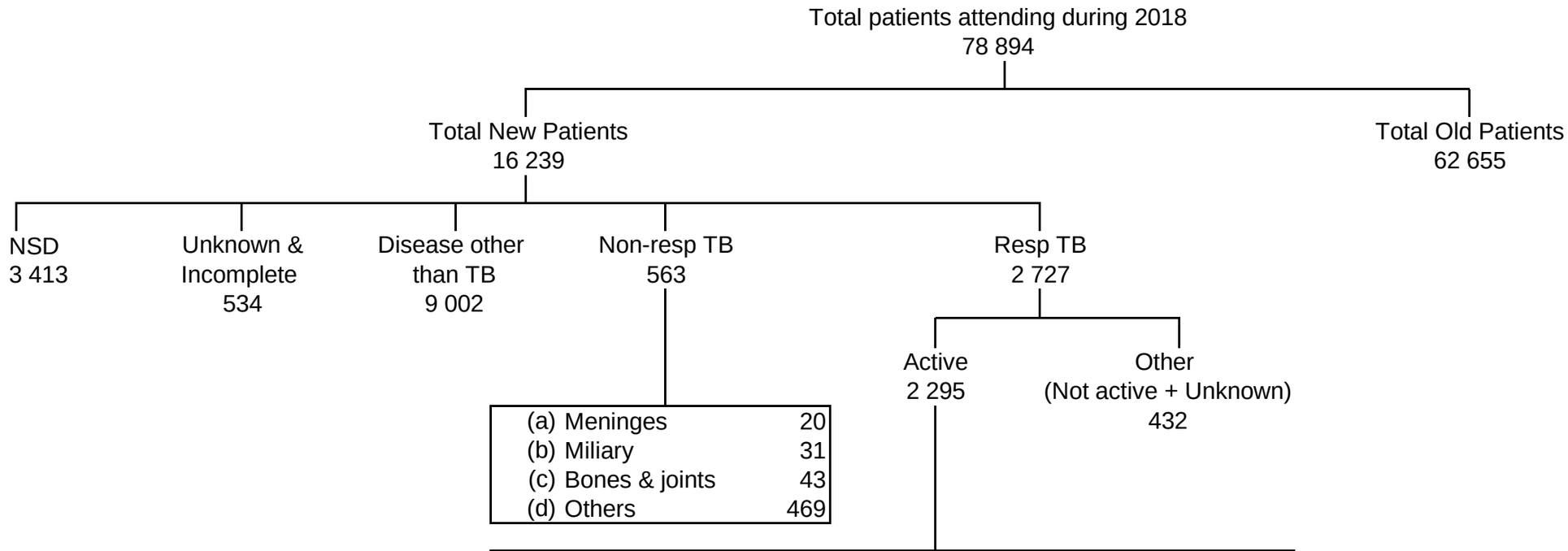
No. of Doctor Sessions, Cases Seen by Doctor and Patient/Doctor Session 2018

Clinic/Hospital	Doctor Sessions	Cases Seen by Doctor	Patient/Doctor Session
Full Time Clinics			
East Kowloon	531	11 960	23
Kowloon	602	12 556	21
Pneumoconiosis	349	4 628	13
Sai Ying Pun	607	9 885	16
Shaukeiwan	536	10 894	20
Shek Kip Mei	568	9 500	17
South Kwai Chung	950	18 870	20
Tai Po	496	7 824	16
Wanchai	689	12 696	18
Yan Oi	868	19 500	22
Yaumatei	747	12 357	17
Yuen Chau Kok	808	16 059	20
Yung Fung Shee	650	15 158	23
Sub-total	**8 401**	**161 887**	**19**
Part Time Clinics			
Cheung Chau	18	199	11
Sai Kung	48	572	12
Sheung Shui	294	3 415	12
Tung Chung	147	1 650	11
Yuen Long	396	6 787	17
Sub-total	**903**	**12 623**	**14**
Institutions Correctional Services Department			
Hei Ling Chau	12	121	10
Lai Chi Kok Reception Center	26	174	7
Shek Pik	12	137	11
Stanley Prison	13	207	16
Sub-total	**63**	**639**	**10**
Total	**9 367**	**175 149**	**19**

Note: Doctor Session - one doctor of a half-day session

Appendix 17

Flow Chart of Patients Attending Chest Clinics 2018



Bacteriology	Extent	Number
Negative	Minimal	206
	Moderate	37
	Extensive	20
	Not Recorded	97
Positive	Minimal	639
	Moderate	358
	Extensive	248
	Not Recorded	205
Incomplete	Minimal	186
	Moderate	62
	Extensive	53
	Not Recorded	184

Bacteriology	Cavity	Number
Negative	Yes	27
	No	333
Positive	Yes	327
	No	1 123
Incomplete	Yes	68
	No	417

* A total of 78 894 patients attended, comprising 62 655 old cases and 16 239 new cases. Among new cases, 2 727 had respiratory TB with 2 295 being active, 563 had non-respiratory TB, 9 002 had diseases other than TB, 534 had unknown and incomplete diagnoses, and 3 413 had NSD (no specific diagnosis). Of the 563 new cases with non-respiratory TB, 20 had TB affecting meninges, 31 had miliary TB, 43 had TB affecting bones and joints, and 469 had TB affecting other sites.

Appendix 18

Classification of Patients of First Attendance with New Case Card Completed by Clinics According to International Classification of Diseases Code 2018

Code		Classification	Total
ICD 9	ICD 10		
010	A15.7, A16.7	Primary Tuberculosis Infection	6
011	A15.0-15.3, A16.0-16.2	Pulmonary Tuberculosis	2 059
012	A15.4-15.6, A15.8-15.9, A16.3-16.5, A16.8-16.9	Other Respiratory Tuberculosis	290
013	A17.0-17.1	Tuberculosis of Nervous System	20
014	A18.3	Tuberculosis of Intestines	75
015	A18.0	Tuberculosis of Bones & Joints	43
016	A18.1	Tuberculosis of Genito-urinary System	33
017	A18.2, A18.4-18.8	Tuberculosis of Other Organs	300
018	A19.0-19.2, A19.8-19.9	Miliary Tuberculosis	31
137	B90.0-90.2, B90.8-90.9	Late effects of Tuberculosis	432
160-165	C30-39, C34.0-34.3, C34.8-34.9	Malignant Neoplasm of Respiratory System	90
212	D14.0-14.4	Benign Neoplasm of Respiratory System	0
460-466	J00-06, J02.0, J02.8-02.9, J03.0, J03.9, J04.0-04.2, J05.0-05.1, J06.0-06.9	Acute Respiratory Infection	545
470-478	J30-39, J30.0-30.4, J39.8-39.9	Other Diseases of Upper Resp Tract	13
480-486	J12-18, J12.9, J15.0-15.2, J15.5-15.9	Pneumonia	69
487	J09, J10.0-10.1, J10.8, J11.0-11.1, J11.8	Influenza	21
490-491	J40, J41.0-41.1, J41.8, J42	Bronchitis, (not specified as acute or chronic) & chronic brochitis	1 179
492	J43, J43.0-43.2, J43.8-43.9	Emphysema	10
493	J45, J45.0-45.1, J45.8-45.9, J46	Asthma	42
494	J47	Bronchiectasis	213
495-496	J44, J44.0-44.1, J44.8-44.9	Others	28
501	J61	Asbestosis	0
502	J62, J62.0, J62.8	Silicosis	15
505	J64	Pneumoconiosis, unspecified	1
506-508	J63	Others	0
510	J86	Pyothorax (Empyema)	1
511	J90	Pleurisy	21
512	J93, J93.0-93.1, J93.8-93.9	Pneumothorax	4
513-519	J95-99, J96.0-96.1, J96.9, J98.4, J99.1, [J99.0* (M05.1†), J99.1*, J99.1* (M33.0-M33.1†), J99.1* (M31.3†), J99.1* (M32.1†), J99.1* (M33.2†), J99.1* (M34.8†)]	Other Diseases of Respiratory System	0
786	R00-09, R04.0-04.2, R04.8-04.9 R06.0-06.2, R06.5-06.8, R07.0-07.4, R09.1, R09.3	Unknown	2 343
V71	Z00.0, Z01.6, Z02, Z02.1-02.2, Z02.6-02.9, Z11.1, Z71.1	N.S.D.	3 413
		Diseases Other than TB & Resp System	4 942
Total			16 239

NB. Above is a crude mapping of some of the codings in ICD9 to ICD10 as a reference only. Such mapping may result in mis-classification of some cases.

Appendix 19 (a)

Extent of Active Respiratory TB in First Attenders at Chest Clinics 2016-2018

Extent *	2016		2017		2018	
	No.	%	No.	%	No.	%
1. Minimal	881	38.6	777	35.0	1 031	44.9
2. Moderate	499	21.8	472	21.3	457	19.9
3. Extensive	257	11.3	238	10.7	321	14.0
4. Not Recorded	647	28.3	730	32.9	486	21.2
Total	2 284	100.0	2 217	100.0	2 295	100.0
No. of first attenders	19 650		19 715		16 239	
% of active TB	11.6		11.2		14.1	

* 1. Minimal : Less than right upper lobe
2. Moderate : More than right upper lobe
3. Extensive : More than a lung

Percentage on Sputum Results of Active TB in First Attenders at Chest Clinics 2018

	Number	%
Smear +	564	24.6
Smear - Culture +	902	39.3
Smear - Culture -	342	14.9
Incomplete	487	21.2
Total	2 295	100.0

Appendix 19 (b1)

Rate of Drug-resistant Tuberculosis

Among cases registered during the period January to December 2018 *(Data from PHLC)*

Age Group	Category	% resistance to				* % resistance to			MDR-TB	# Total % resistance	Total no. of cases analysed
		E	R	H	S	1 drug	2 drugs	≥ 3 drugs			
0 - 19	New cases	1.67	1.67	3.33	5.00	5.00	3.33	0.00	0.00	8.33	60
	Previously treated cases	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
	Overall	1.67	1.67	3.33	5.00	5.00	3.33	0.00	0.00	8.33	60
20 - 39	New cases	1.43	1.83	4.89	8.35	8.55	1.22	1.63	1.43	11.41	491
	Previously treated cases	0.00	23.53	23.53	11.76	0.00	11.76	11.76	23.53	23.53	17
	Overall	1.38	2.56	5.51	8.46	8.27	1.57	1.97	2.17	11.81	508
40 - 59	New cases	0.44	1.74	6.53	8.27	9.00	2.61	0.87	1.02	12.48	689
	Previously treated cases	4.35	6.52	15.22	8.70	8.70	2.17	6.52	6.52	17.39	46
	Overall	0.68	2.04	7.07	8.30	8.98	2.59	1.22	1.36	12.79	735
60 up	New cases	0.25	0.62	4.80	7.94	7.64	2.46	0.31	0.43	10.41	1624
	Previously treated cases	0.67	1.34	10.74	10.07	11.41	3.36	1.34	1.34	16.11	149
	Overall	0.28	0.68	5.30	8.12	7.95	2.54	0.39	0.51	10.89	1773
All	New cases	0.52	1.12	5.20	8.03	8.07	2.30	0.66	0.73	11.03	2 864
	Previously treated cases	1.42	4.25	12.74	9.91	9.91	3.77	3.30	4.25	16.98	212
	Overall	0.59	1.33	5.72	8.16	8.19	2.41	0.85	0.98	11.44	3 076

Notes: E = ethambutol; R = rifampicin; H = isoniazid; S = streptomycin

* % resistant to one, two or more than two of the four drugs E, R, H and S

total % resistance: resistant to at least one of the four drugs E, R, H and S

New cases: for cases with no past history of anti-tuberculosis treatment / *Unknown cases*

Previously treated cases: for cases with past history of anti-tuberculosis treatment

Overall: for all cases

NB: The TB Reference Laboratory of Department of Health is using the absolute concentration method for drug susceptibility tests.

The figures are based on phenotypic testing results only.

Appendix 19 (b2)

Rate of Drug-resistant Tuberculosis

Among cases with date of starting treatment druing the period January to December 2018

	New case		Previously treated cases		Combined	
	N	%	N	%	N	%
Total number of strains tested	2 864	100	212	100	3 076	100
Susceptible to all 4 drugs	2 548	88.97	176	83.02	2 724	88.56
Any resistance	316	11.03	36	16.98	352	11.44
H	149	5.20	27	12.74	176	5.72
R	32	1.12	9	4.25	41	1.33
E	15	0.52	3	1.42	18	0.59
S	230	8.03	21	9.91	251	8.16
Monoresistance	231	8.07	21	9.91	252	8.19
H	65	2.27	12	5.66	77	2.50
R	10	0.35	0	0.00	10	0.33
E	1	0.03	0	0.00	1	0.03
S	155	5.41	9	4.25	164	5.33
Multidrug resistance	21	0.73	9	4.25	30	0.98
H+R	4	0.14	3	1.42	7	0.23
H+R+E	2	0.07	0	0.00	2	0.07
H+R+S	9	0.31	4	1.89	13	0.42
H+R+E+S	6	0.21	2	0.94	8	0.26
Other patterns	64	2.23	6	2.83	70	2.28
H+E	3	0.10	0	0.00	3	0.10
H+S	58	2.03	5	2.36	63	2.05
H+E+S	2	0.07	1	0.47	3	0.10
R+E	1	0.03	0	0.00	1	0.03
R+S	0	0.00	0	0.00	0	0.00
R+E+S	0	0.00	0	0.00	0	0.00
E+S	0	0.00	0	0.00	0	0.00
Number of drugs resistant to:						
0 drug	2 548	88.97	176	83.02	2 724	88.56
1 drug	231	8.07	21	9.91	252	8.19
2 drugs	66	2.30	8	3.77	74	2.41
3 drugs	13	0.45	5	2.36	18	0.59
4 drugs	6	0.21	2	0.94	8	0.26

Appendix 19 (c1)

Trend of anti-TB drug resistance (1998-2018)*

New cases

(Percentages)	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Ethambutol	1.24	1.11	0.54	0.96	0.65	0.42	0.34	0.54	0.35	0.12	0.45	0.26	0.25	0.33	0.70	0.54	0.65	0.54	0.50	0.73	0.52
Rifampicin	1.17	0.97	0.61	0.83	0.46	0.69	0.75	0.83	0.86	0.46	0.64	0.90	0.78	0.88	0.95	1.03	0.85	0.92	0.78	0.89	1.12
Isoniazid	6.78	6.22	5.21	5.02	4.71	4.64	3.65	4.16	4.13	3.79	4.33	4.19	4.86	4.18	4.66	4.39	5.33	4.90	5.80	6.17	5.20
Streptomycin	7.65	9.34	7.78	7.39	7.40	7.59	6.90	6.72	6.00	7.47	6.89	8.04	7.61	7.32	9.48	8.22	9.36	9.30	8.91	9.11	8.03
MDR-TB	1.06	0.75	0.47	0.55	0.34	0.46	0.48	0.51	0.55	0.31	0.30	0.67	0.70	0.63	0.74	0.70	0.68	0.54	0.50	0.63	0.73
Total % resistance	10.89	12.61	10.35	10.39	10.22	10.54	8.84	9.33	8.64	9.32	9.41	10.59	9.88	10.08	11.67	10.72	12.47	11.98	11.43	12.28	11.03

Previously treated cases

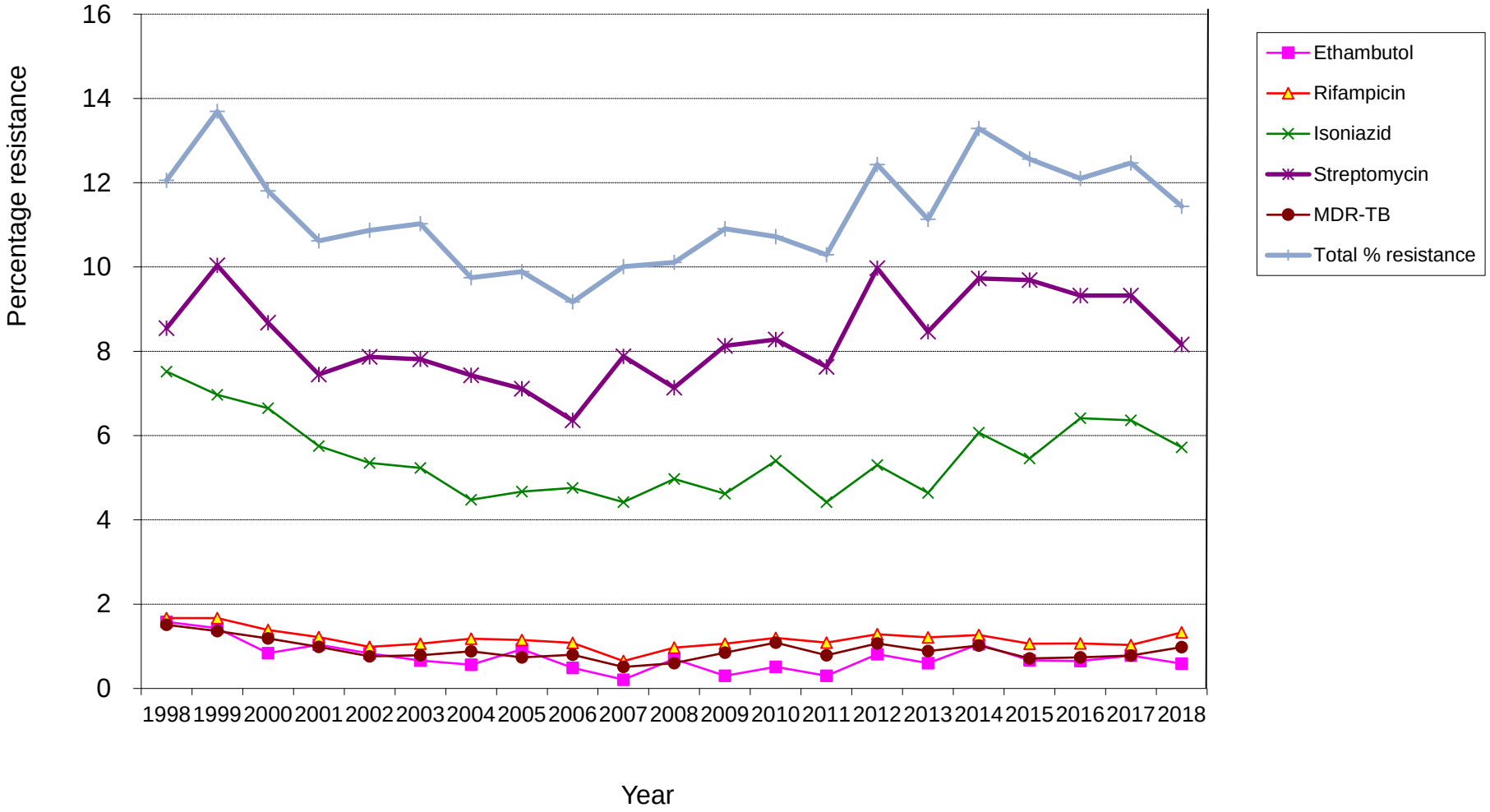
(Percentages)	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Ethambutol	3.51	3.16	2.68	1.85	2.04	2.19	2.14	3.92	1.61	0.90	2.65	0.47	2.56	0.00	1.70	0.99	4.73	2.50	2.27	1.69	1.42
Rifampicin	4.61	6.09	5.98	3.71	4.59	3.41	4.29	3.64	2.90	2.10	3.53	1.73	4.47	2.84	4.08	2.22	5.09	3.13	4.17	3.37	4.25
Isoniazid	11.84	11.51	15.26	11.80	9.69	9.00	10.46	8.68	10.00	9.31	10.00	6.45	9.58	6.38	10.54	6.17	12.73	13.75	12.88	9.55	12.74
Streptomycin	13.82	14.45	13.81	10.96	10.97	9.25	11.26	10.08	9.35	11.11	9.12	8.49	13.42	10.28	13.95	10.62	13.09	15.63	13.64	12.92	9.91
MDR-TB	4.17	5.19	5.36	3.54	3.57	2.92	3.75	2.52	2.90	2.10	2.94	1.57	4.15	2.13	3.74	1.98	4.00	3.13	3.41	3.37	4.25
Total % resistance	18.86	20.32	20.41	16.36	16.58	14.11	16.35	14.29	13.55	15.32	15.59	12.26	17.25	12.06	18.71	13.58	20.73	21.25	19.32	15.73	16.98

Overall

(Percentages)	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Ethambutol	1.58	1.43	0.84	1.04	0.83	0.66	0.56	0.93	0.49	0.21	0.70	0.30	0.51	0.30	0.81	0.60	1.05	0.67	0.65	0.78	0.59
Rifampicin	1.67	1.67	1.39	1.22	0.99	1.06	1.18	1.15	1.08	0.65	0.97	1.06	1.20	1.09	1.29	1.21	1.27	1.06	1.07	1.03	1.33
Isoniazid	7.52	6.97	6.65	5.75	5.35	5.23	4.48	4.67	4.76	4.42	4.97	4.62	5.40	4.42	5.30	4.64	6.07	5.46	6.41	6.36	5.72
Streptomycin	8.55	10.04	8.68	7.45	7.87	7.81	7.43	7.11	6.36	7.88	7.14	8.13	8.28	7.63	9.97	8.47	9.73	9.69	9.32	9.32	8.16
MDR-TB	1.51	1.36	1.19	0.99	0.76	0.79	0.88	0.74	0.80	0.51	0.60	0.85	1.09	0.79	1.07	0.89	1.02	0.71	0.74	0.78	0.98
Total % resistance	12.06	13.69	11.81	10.62	10.87	11.03	9.75	9.89	9.17	10.01	10.11	10.91	10.72	10.29	12.43	11.13	13.29	12.56	12.10	12.47	11.44

Appendix 19 (c2)

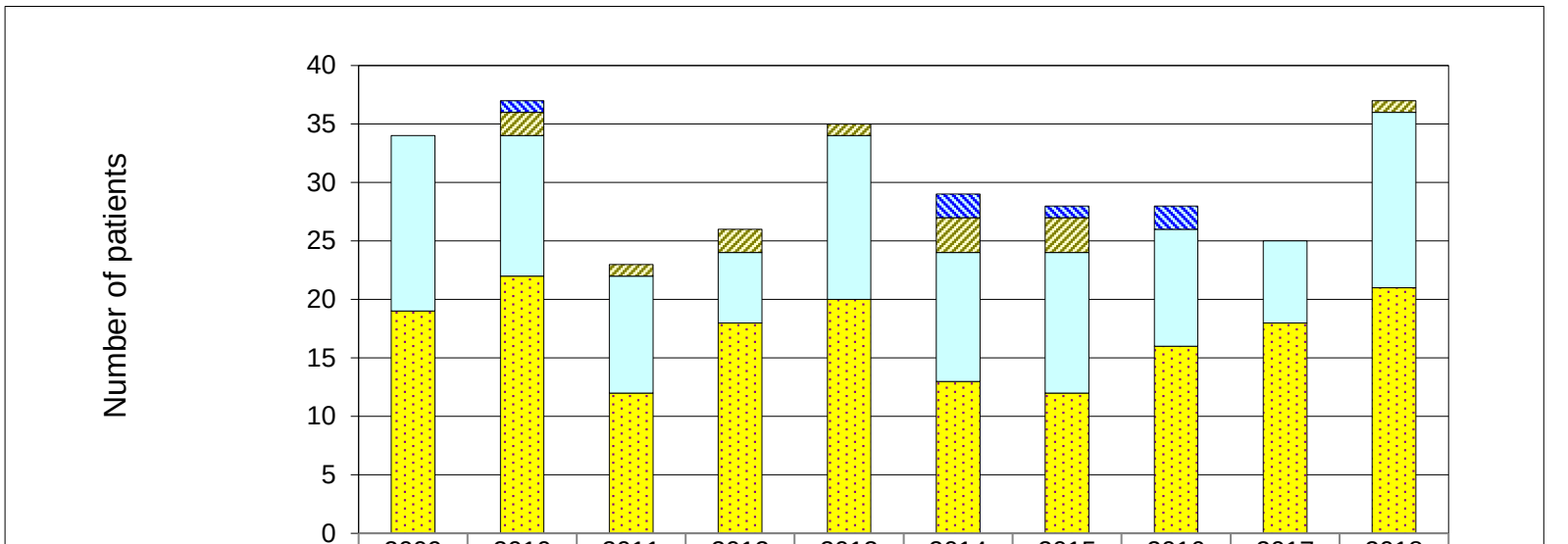
Trend of anti-TB drug resistance (1998-2018) (Overall)



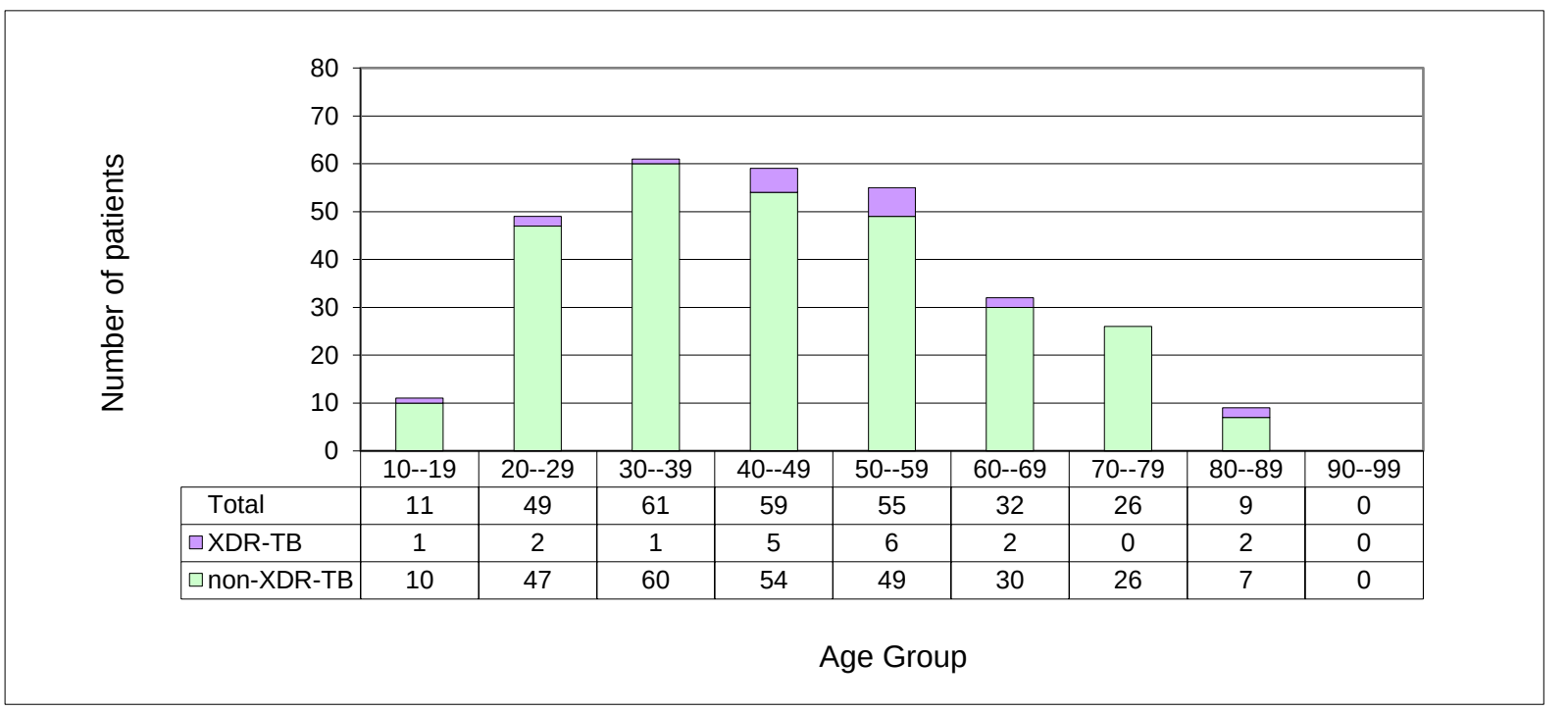
Appendix 19 (d)

MDR-TB and XDR-TB by Sex and Year (Upper Graph) and by Age (Lower Graph) (2009-2018)

Cases of MDR-TB and XDR-TB are identified from four main sources: (1) Programme forms; (2) MDR-TB registry; (3) Prison registry; (4) TB Reference Laboratory. The year to which the case belongs is defined as the year of starting treatment with second-line anti-TB drugs, or if treatment has not been started (e.g., patient died, or no effective second-line drugs are available for treatment), it is defined as the year of reporting MDR-TB.



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total	34	37	23	26	35	29	28	28	25	37
XDR-TB female	0	1	0	0	0	2	1	2	0	0
XDR-TB male	0	2	1	2	1	3	3	0	0	1
non-XDR-TB female	15	12	10	6	14	11	12	10	7	15
non-XDR-TB male	19	22	12	18	20	13	12	16	18	21



	10--19	20--29	30--39	40--49	50--59	60--69	70--79	80--89	90--99
Total	11	49	61	59	55	32	26	9	0
XDR-TB	1	2	1	5	6	2	0	2	0
non-XDR-TB	10	47	60	54	49	30	26	7	0

Definitions: MDR-TB = multidrug-resistant tuberculosis [resistant to at least isoniazid and rifampicin]

XDR-TB = extensively drug-resistant tuberculosis [resistant to any fluoroquinolone, and at least one of the three injectable second-line drugs (capreomycin, kanamycin, and amikacin), in addition to MDR-TB]

NB: In the above graphs, non-XDR-TB refers to MDR-TB excluding XDR-TB cases.

Since 2014, MDR-TB cases have been counted according to the year of TB notification

Appendix 20 (a)
Treatment Return 2018

Name of Clinic/Hospital	Service Regimen																										
	No. put on Rx b/f	Bought in					Treatment completed					Transfer out to		Interrup	Died	Drop out				Complete defaulter				No. still onRx c/f	Unsup Rx	Incomp super. Rx	No. def. >2M <3M
		1	2	3	4	5	<6M	at 6M	>6M	NTM	%	hosp.	other cc	Rx temp		Rx by GP	Leave HK	Def. >1x	AMA	<2M	>2M <3M	>3M	%				
	A	B	C	D	E	F	G	H	I	J		K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Full Time Clinics																											
East Kowloon	170	116	2	7	128	53	8	41	180	8	87.0	37	12	0	19	2	2	0	1	0	0	1	0.4	165	6	66	0
Kowloon	174	110	6	4	99	35	7	28	173	0	86.6	21	11	0	14	1	7	0	4	0	2	3	2.2	157	0	32	0
South Kwai Chung	178	137	2	13	175	41	3	44	233	2	86.3	23	7	0	12	0	17	1	6	0	7	0	2.2	191	0	31	0
Sai Ying Pun	64	74	10	8	83	27	0	26	102	4	85.9	27	7	2	10	2	5	1	0	0	0	0	0.0	80	3	20	0
Shaukeiwan	107	111	3	4	75	22	8	38	109	3	86.5	20	6	0	8	2	9	0	1	0	0	0	0.0	118	0	36	1
Shek Kip Mei	55	95	9	6	114	39	1	36	138	0	82.9	26	15	0	13	1	11	1	1	0	3	7	4.8	65	0	75	1
Tai Po	102	78	1	3	64	9	6	25	95	0	83.9	0	6	0	10	1	2	0	1	0	1	8	6.3	102	0	12	2
Wanchai	95	99	6	7	64	38	9	68	98	1	83.4	27	13	0	3	4	22	0	2	1	0	0	0.5	61	2	14	0
Yan Oi	196	126	2	4	178	29	6	43	198	4	87.3	26	15	0	14	4	5	0	3	1	0	4	1.8	212	34	52	0
Yaumatei	137	115	8	12	140	37	3	53	136	2	84.0	18	18	1	3	2	17	3	7	0	3	2	2.2	181	0	0	0
Yuen Chau Kok	186	109	1	9	109	43	6	47	164	6	87.9	24	13	0	6	3	10	2	4	0	0	0	0.0	172	0	24	0
Yung Fung Shee	206	155	5	7	166	52	2	94	223	3	88.1	42	12	0	16	3	10	0	2	1	1	7	2.5	175	5	103	2
Sub-total	1 670	1 325	55	84	1 395	425	59	543	1 849	33	86.1	291	135	3	128	25	117	8	32	3	17	32	1.9	1 679	50	465	6
Hosp Discharge Clinic																											
East Kowloon	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0
Part Time Clinics																											
Cheung Chau	4	0	0	0	1	1	0	2	2	0	100.0	0	0	0	0	0	0	0	0	0	0	0	0.0	2	0	0	0
Sai Kung	7	3	0	0	9	1	0	1	9	0	100.0	0	0	0	0	0	0	0	0	0	0	0	0.0	10	0	3	0
Sheung Shui	75	49	1	1	53	16	1	16	77	1	88.6	11	8	0	5	1	1	1	0	0	1	3	3.8	69	0	63	0
Tung Chung	31	15	0	0	21	5	1	11	32	0	93.5	1	0	0	2	0	0	0	0	0	0	1	2.2	24	0	15	0
Yuen Long	101	87	4	1	86	16	0	21	90	1	81.6	15	4	0	7	2	6	1	3	0	0	6	4.4	139	0	144	0
Sub-total	218	154	5	2	170	39	2	51	210	2	86.7	27	12	0	14	3	7	2	3	0	1	10	3.7	244	0	225	0
Institutions Correctional Services Department																											
Hei Ling Chau	5	6	3	0	0	0	0	1	3	0	100.0	0	6	0	0	0	0	0	0	0	0	0	0.0	4	0	0	0
Stanley Prison	5	12	0	0	0	0	0	0	0	0	0.0	0	14	0	0	0	0	0	0	0	0	0	0.0	3	0	0	0
Shek Pik Prison	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0
Sub-total	10	18	3	0	0	0	0	1	3	0	0.0	0	20	0	0	0	0	0	0	0	0	0	0.0	7	0	0	0
Total	1 898	1 497	63	86	1 565	464	61	595	2 062	35	86.2	318	167	3	142	28	124	10	35	3	18	42	2.0	1 930	50	690	6

Appendix 20 (b)
Treatment Return 2018

Other Regimen																										
Name of Clinic/Hospital	No. put on Rx b/f	Bought in					Treatment completed					Transfer out to		Interrup Rx temp	Died	Drop out				Complete defaulter				No. still onRx c/f	Unsup Rx	Incomp super. Rx	No. def. >2M <3M
		1	2	3	4	5	<6M	at6M	>6M	NTM	%	hosp.	other cc			Rx by GP	Leave HK	Def. >1x	AMA	<2M	>2M <3M	>3M	%				
	A	B	C	D	E	F	G	H	I	J		K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Full Time Clinics																											
East Kowloon	48	11	2	2	30	5	1	4	36	1	88.9	5	1	0	2	0	0	0	1	0	1	0	2.2	46	2	11	0
Kowloon	25	7	2	4	11	6	2	3	18	0	77.8	3	1	0	3	0	0	0	2	0	0	1	3.7	22	0	5	0
South Kwai Chung	80	7	1	4	30	2	0	5	37	1	84.0	2	0	0	4	1	0	0	0	0	2	0	4.0	72	0	10	0
Sai Ying Pun	58	2	1	3	14	7	0	2	14	1	72.7	8	2	0	5	0	0	0	0	0	0	0	0.0	53	0	9	0
Shaukeiwan	14	5	2	0	20	7	1	1	9	1	55.6	3	1	0	6	0	0	0	0	0	0	1	5.6	25	0	14	1
Shek Kip Mei	122	9	0	1	24	7	1	3	17	2	64.5	5	0	0	4	0	3	0	1	0	0	1	3.2	126	0	13	1
Tai Po	16	0	0	0	12	1	0	0	12	2	75.0	0	0	0	1	0	0	0	1	0	0	0	0.0	13	0	2	0
Wanchai	28	5	0	0	11	4	1	2	6	6	53.3	3	0	0	1	0	0	0	0	0	0	0	0.0	29	1	2	0
Yan Oi	51	5	0	0	41	11	0	1	26	3	64.3	8	2	0	7	1	1	0	0	0	0	3	7.1	56	4	8	0
Yaumatei	26	4	6	2	31	6	0	2	22	3	66.7	3	4	0	3	1	2	1	0	1	1	1	8.3	31	0	0	0
Yuen Chau Kok	34	1	0	2	29	8	0	5	34	0	92.9	8	1	0	3	0	0	0	0	0	0	0	0.0	23	0	9	0
Yung Fung Shee	83	5	0	5	25	6	1	5	23	2	90.3	4	2	0	1	0	0	0	0	0	0	0	0.0	86	1	9	0
Sub-total	585	61	14	23	278	70	7	33	254	22	76.5	52	14	0	40	3	6	1	5	1	4	7	3.2	582	8	92	2
Hosp Discharge Clinic																											
East Kowloon	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0
Part Time Clinics																											
Cheung Chau	0	0	0	0	0	1	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	1	0	0	0
Sai Kung	0	0	0	0	1	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	1	0	1	0
Sheung Shui	16	0	0	1	11	0	1	2	11	0	100.0	1	0	0	0	0	0	0	0	0	0	0	0.0	13	0	10	0
Tung Chung	7	1	1	0	2	0	0	0	4	0	40.0	0	1	0	5	0	0	0	0	0	1	0	10.0	0	0	0	0
Yuen Long	35	4	0	0	20	4	0	1	30	3	91.2	1	0	0	0	0	0	0	0	0	0	0	0.0	28	0	15	0
Sub-total	58	5	1	1	34	5	1	3	45	3	87.3	3	1	0	2	0	0	0	0	0	0	2	3.6	44	0	26	0
Institutions Correctional Services Department																											
Hei Ling Chau	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0
Stanley Prison	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0
Shek Pik Prison	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0
Sub-total	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0
Total	643	66	15	24	312	75	8	36	299	25	77.9	55	15	0	42	3	6	1	5	1	4	9	3.3	626	8	118	2

Appendix 20 (c)

Explanatory Notes for Appendices 20(a) & 20(b)

Name of clinic/hospital	Service regimen / Other regimens *																								
	b/f	Brought in					Treatment completed				Transfer out to		Interrup. Rx temp.	Died	Drop out				Complete defaulter				Number still on Rx c/f	Unsup. Rx	Incomp. Super. Rx	No. Def. >2m, <3m
							<6M	at 6M	>6M	NTM	hospi-tal	other cc			Rx by GP	Leave HK	Def. >1x	AMA	<2M	>2M, <3M	>3M	%				
	A	B *	C *	D *	E *	F *	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

% = (H + I) / (A + B + C + D + E + F - G - K - L - M - Q - W) ⇨

V = (S + T + U) / (A + B + C + D + E + F - G - K - L - M - Q - W) ⇨

W = (A + B + C + D + E + F) - (G + H + I + K + L + M + N + O + P + Q + R + S + T + U) ⇨

* Explanatory Notes :

Service regimen	Upon starting treatment, the regimen contains any combination of drugs including H (isoniazid), R (rifampicin), Z (pyrazinamide), E (ethambutol), and S (streptomycin).
Other regimens	Upon starting treatment, the regimen contains second line drugs apart from H, R, Z, E or S.
Item B	New cases with treatment started in chest clinics.
Item C	Retreatment cases, with treatment newly started. Previous treatment either not completed, or even if claimed to be completed, without documentation in the available clinic record.
Item D	Relapse cases, with treatment newly started. Previous treatment is completed with documentation in the available clinic record.
Item E	Treatment cases transferred in from hospitals, private doctors, etc. without treatment started previously at any chest clinics for this episode of tuberculosis.
Item F	Other transferred in treatment cases, with treatment given previously in any chest clinics for this episode of tuberculosis.

Appendix 20 (d)

Explanatory Notes For Appendices 20(a) and 20(b)

Appendix 20 (a) : Service regimen: For treatment cases who, upon starting anti-TB drugs, were given any combination of drugs including H (isoniazid), R (rifampicin), Z (pyrazinamide), E (ethambutol), and S (streptomycin).

Appendix 20 (b) : Other regimens: For treatment cases who, upon starting anti-TB drugs, were given also second line drugs apart from H, R, Z, E or S.

Number put on treatment b/f:

(A) - No. put on Rx b/f: Total number of treatment cases c/f from last month's balance.

Brought in:

- Items (B), (C), (D) & (E) will be using a new treatment number, while item (F) will be using the same previous treatment number, as follows:

(B) (1) Newly started treatment in your chest clinic.

(C) (2) Retreatment cases, with treatment newly started, including:
- Cases previously classified under items(O), (P), (Q), (R), (S), (T) or (U) in the most recent episode of treatment, with treatment restarted now after treatment has been interrupted for over 2 months;
- Cases claiming to have anti-TB treatment completed previously in chest clinic or chest hospital, but the clinic record is not available, e.g., because it has been destroyed;
- Cases claiming to have anti-TB treatment completed previously from sources other than chest clinic or chest hospital.

(D) (3) Relapse case:
- Cases having treatment completed previously (even if this is completed less than 2 months ago) in either chest clinic or chest hospital as indicated in the clinic record which is still available, e.g., cases classified under items (H) or (I) in the most recent episode.

(E) (4) Transfer in from hospitals, general practitioners (GPs), or prison:
- Cases previously unknown to any one chest clinic for this episode of treatment.

(F) (5) Cases using the same previous treatment number:
- Cases previously known to chest clinic for this episode of treatment, and now being transferred in from other chest clinics, hospitals, GPs, or prison, e.g., cases previously classified under items (K) or (L);
- Cases previously classified under items (O), (P), (Q), (R), or (S) in the most recent episode of treatment, with treatment restarted now after treatment has been interrupted for less than 2 months;
- Cases previously classified under item (M), and resuming treatment now.

Treatment completed:

(G) < 6m: Treatment stopped permanently by doctor prematurely, e.g., revised diagnosis.

(H) at 6m: Treatment stopped permanently by doctor at or within 2 weeks of 6 month from DOS.

(I) > 6m: Treatment stopped permanently by doctor at 7 month or more.

(J) NTM = Non-tuberculous mycobacteria cases

Column following (J): % = (H + I)/(A + B + C + D + E + F – G – K – L – M – Q – W)

Transfer out to:

(K) hosp: Admission to hospital.

(L) other cc: Transfer out to other chest clinics.

Interrup. Rx temp.:
(M) Treatment interrupted by doctor temporarily, e.g., due to side effects of drug such as impaired LFT.

Died:
(N) Treatment cases who died.

Drop out:
(O) Rx by GP: Changed to be treated by GP.
(P) Leave HK: Treatment cases known to be going back to Philippines, China, or other countries for good as stated in the clinic record (whether AMA has been signed or not).
(Q) Def. > 1x: Defaulted treatment and NFA in conference with MO for more than one time.
(R) AMA: Treatment cases who have signed AMA, excluding those who are to be classified under items (O) or (P).

Complete defaulter:
(S) < 2m: Defaulted treatment for less than 2 months, and NFA in conference with MO for the first time.
(T) > 2m, < 3m: Defaulted treatment for more than 2 months but less than 3 months, and NFA in conference with MO for the first time.
(U) > 3m: Defaulted treatment for more than 3 months, and NFA in conference with MO for the first time.
(V) % = (S + T + U)/(A + B + C + D + E + F – G – K – L – M – Q – W)

No. still on Rx c/f:
(W) - Number of treatment cases in hand at the end of the month = (A + B + C + D + E + F) – (G + H + I + K + L + M + N + O + P + Q + R + S + T + U)

Unsup. Rx:
(X) - Treatment cases with all anti-TB drugs supplied (not even taken one dose at chest clinic) and unsupervised. Count under this item if this happens within the first 2 month of treatment.

Incomp. super. Rx:
(Y) - Treatment incompletely supervised, including:
  - Treatment supervised by non-clinic staff, e.g., CNS, old aged home staff, Vietnamese camp, prison.
  - Drug supplied to patient or relatives.

  Count under this item if this happens within the first 2 months of treatment.

No. def. > 2m, < 3m:
(Z) - Number of defaulters who have defaulted treatment for more than 2 months but less than 3 months, but not yet NFA in conference with MO. (NB: No cases who have been counted under this item in the last month will be counted again under this item for the subsequent months.)

  This item needs to be counted only on the last working day of the month when completing the monthly treatment return.

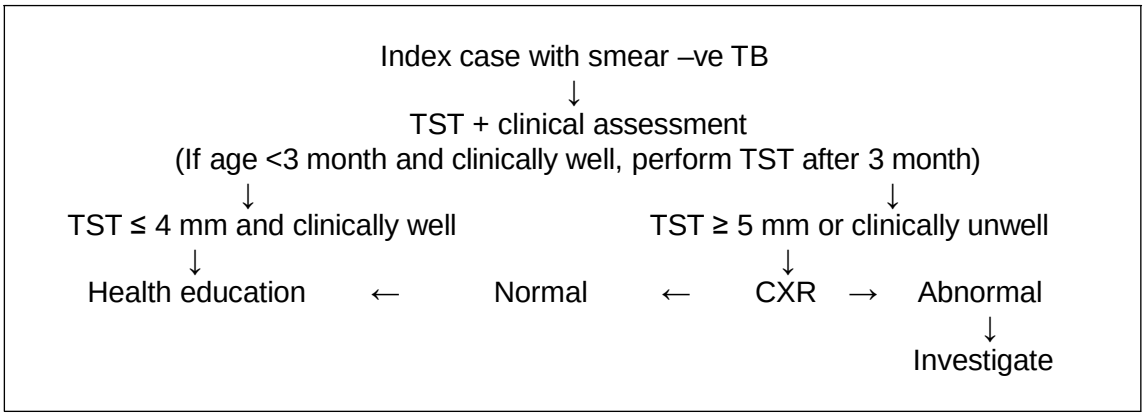
Appendix 21 (a)

Scheme for Investigation of Close Contacts (Household) in the Tuberculosis & Chest Service, Department of Health

(Updated 18 May 2015)

Scenario	Strategy
Index case is smear-negative and the close contact < 5 years old	Tuberculin skin test, with chest X-ray if the test reads 5 mm or more.
Index case is smear-negative and the close contact aged 5 years or more	Chest X-ray
Index case is smear-positive and the close contact < 35 years old	Chest X-ray and tuberculin skin test, with treatment of latent TB infection if appropriate.
Index case is smear-positive and the close contact aged 35 years or more	Chest X-ray, with tuberculin skin test and treatment of latent TB infection after assessment on a case-by-case basis.

Flow chart for contact investigation of close contacts aged below 5 with smear negative index case *



* If the index case has smear-negative TB and the close contact case is aged below five, the contact case is first evaluated by tuberculin skin test alongside clinical assessment. If the contact case is aged below 3 months and clinically well, the tuberculin test can be postponed until the contact case is 3 months old. If the contact case is clinically well and the tuberculin skin test result is 4 mm or less, health education is all that is required. If the contact case is clinically unwell or the tuberculin skin test result is 5 mm or more, chest X-ray is taken. If chest X-ray is normal, only health education is required. Otherwise, further investigation may be considered.

Appendix 21 (b)

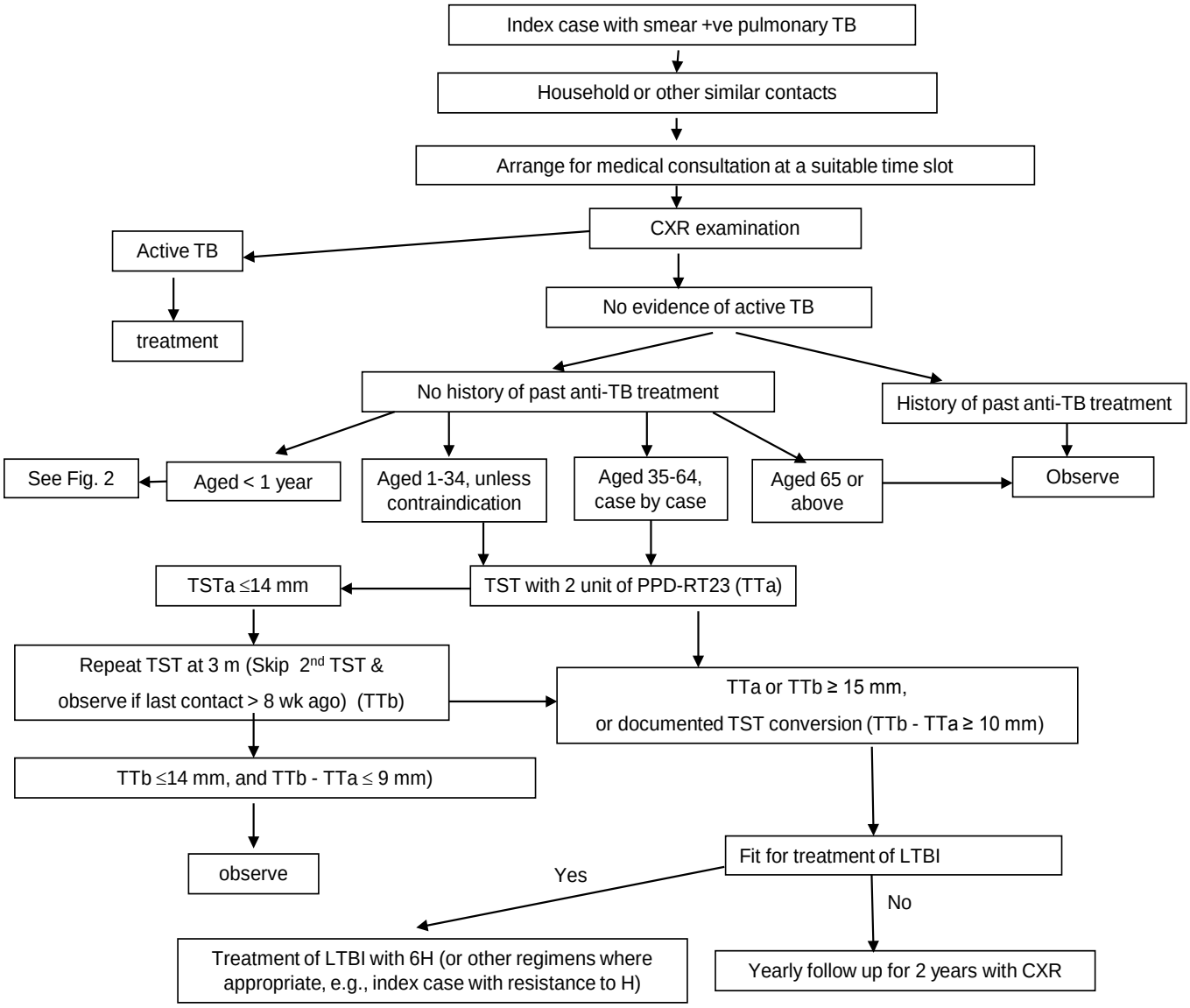


Figure 1: General schema for targeted screening of household contacts of smear-positive pulmonary TB patients

* Targeted screening for active TB and latent TB infection is regularly offered to subjects exposed to smear-positive pulmonary TB patients in the same household or other similar scenarios. Medical consultation is arranged at a suitable time slot, when chest X-ray examination will first be done to exclude active TB for which treatment will be given. Contacts with no evidence of active TB but a history of past anti-TB treatment will be observed, whereas those with no history of past anti-TB treatment will be managed according to their age group. For contacts aged below 1, please refer to App 21b2. For contacts aged 1 to 34, tuberculin skin test (TST) is routinely offered, unless there are contraindications. For those aged 35 to 64, TST is offered on a case-by-case basis. For those aged 65 or above, just observe. TST is done using 2 units of PPD-RT23. If the induration measured after 48 to 72 hours is no more than 14 mm, repeat TST 3 months later, unless the contact has had no further contact with the index case for more than 8 weeks. If the test response of either the first or the second TST is at least 15 mm, or if the difference between the two test responses is at least 10 mm, consider treatment of latent TB infection with daily isoniazid for 6 months (or other regimens where appropriate, for example, when the index case has TB with isoniazid resistance). If treatment of latent TB infection is indicated but the contact case is medically not fit, consider yearly follow up for 2 years with chest X-ray.

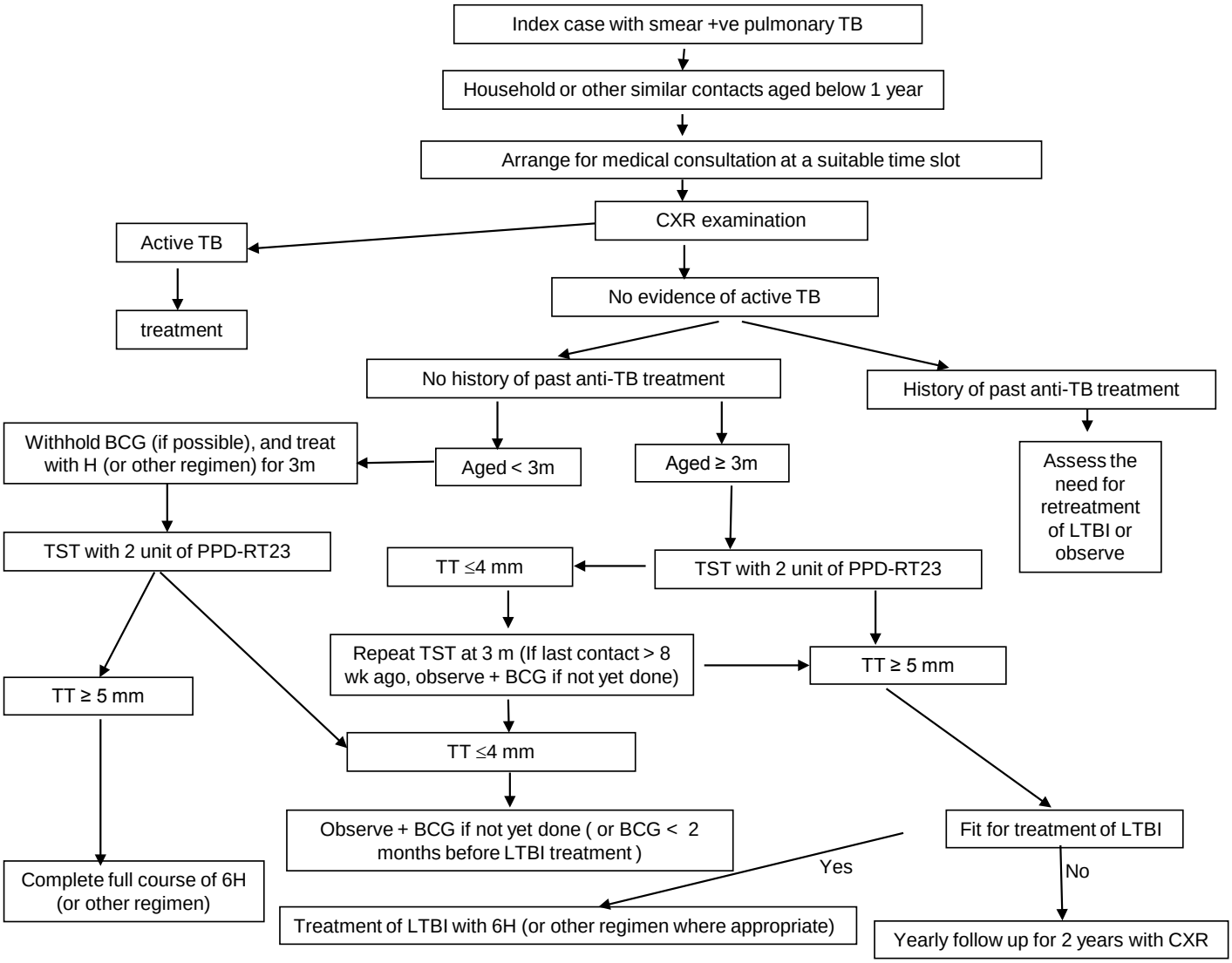


Figure 2: Targeted screening of household contacts aged below one year

* Targeted screening for active TB and latent TB infection is regularly offered to subjects aged below 1 year and exposed to smear-positive pulmonary TB patients in the same household or other similar scenarios. Medical consultation is arranged at a suitable time slot, when chest X-ray examination will first be done to exclude active TB for which treatment will be given. For contacts with no evidence of active TB but a history of past anti-TB treatment, the need for retreatment of latent TB infection versus observation will be assessed. For those with neither active TB nor a history of past anti-TB treatment, further management is stratified by their age group. For contacts aged below 3 months, withhold BCG if possible, and treat with isoniazid daily (or other regimens) for 3 months. This is followed by tuberculin skin test (TST) using 2 units of PPD-RT23. If the test response is at least 5 mm, complete a full course of 6-month isoniazid preventive treatment (or other regimens). If the test response is no more than 4 mm, observe and give BCG if it has not yet been given or given less than 2 months before starting treatment for latent TB infection.

For contacts aged 3 months or above, TST is done using 2 units of PPD-RT23. If the test response is no more than 4 mm, repeat TST 3 months later, unless the contact has had no further contact with the index case for more than 8 weeks. If the test response of either the first or second TST is at least 5 mm, consider treatment of latent TB infection with daily isoniazid for 6 months (or other regimens where appropriate). If treatment of latent TB infection is indicated but the contact case is medically not fit, consider yearly follow up for 2 years with chest X-ray. If the test response of the second TST (or the single TST done more than 8 weeks ago after last contact) is no more than 4 mm, observe and give BCG if it has not yet been given .

Appendix 21 (C)

Examination of Contacts in the Chest Clinics 2018

Particulars	Smear Positive Index Cases	Smear Negative Index Cases	Total
No. of patients (new & old) listed	1 079	3 053	4 132
No. of contacts listed	2 439	7 331	9 770
Number of contacts x-rayed	2 451 (100.00%)	7 138 (100.00%)	9 589 (100.00%)
Results			
(a) NSD & Unknown	2 267 (92.49%)	6 760 (94.70%)	9 027 (94.14%)
(b) Disease other than TB	90 (3.67%)	229 (3.21%)	319 (3.33%)
(c) Inactive respiratory TB	36 (1.47%)	66 (0.92%)	102 (1.06%)
(d) Active respiratory TB			
A (radiologically)	10 (0.41%)	17 (0.24%)	27 (0.28%)
B (bacteriogically)	5 (0.20%) > 17 (0.69%)	7 (0.10%) > 26 (0.36%)	12 (0.13%) > 43 (0.45%)
C (incomplete)	2 (0.08%)	2 (0.03%)	4 (0.04%)
(e) Non-respiratory TB	3 (0.12%)	2 (0.03%)	5 (0.05%)
(f) Result not yet known	38 (1.55%)	55 (0.77%)	93 (0.97%)

Appendix 22 (a)

Scheme for BCG Administration in Hong Kong 2018

Population Group		Procedures
Newborns		Direct BCG with intradermal method
Children under the age of 15	Negative BCG history and negative BCG scar	Direct BCG with intradermal method (since September 2000)
	BCG history and / or BCG scar	No action
Primary School Children (aged 6-10)		BCG revaccination programme stopped since September 2000

Notes: (1) Freeze dried BCG from Statens Serum Institut of Denmark being used

(2) Any child with symptoms and/or BCG complications should be seen by a doctor

Appendix 22 (b)

BCG Vaccinations at Birth 2018

Institution		No. of Live-births	BCG Vaccination	% Vaccinated
Hospital under HA management	P.Y. Nethersole East	2 429	2 367	97.4
	Queen Mary	3 665	3 579	97.7
Private Hospital	Canossa	532	519	97.6
	Gleneagles H.K. Hospital	136	124	91.2
	H.K. Adventist	304	305	100.3 *
	H.K. Sanatorium	2 872	2 846	99.1
	Matilda International	878	815	92.8
	St. Paul's	1 348	1 342	99.6
Total (HK Island)		12 164	11 897	97.8
Hospital under HA management	Kwong Wah	4 035	4 011	99.4
	Queen Elizabeth	5 803	5 688	98.0
	United Christian	3 687	3 677	99.7
Private Hospital	H.K. Baptist	2 244	2 221	99.0
	St. Teresa's	4 170	4 098	98.3
	Precious Blood	687	675	98.3
Total (Kowloon)		20 626	20 370	98.8
Hospital under HA management	Alice H.M.L. Nethersole	-	-	-
	Prince of Wales	6 479	6 465	99.8
	Princess Margaret	4 240	4 217	99.5
	Tuen Mun	5 280	5 251	99.5
Private Hospital	T.W. Adventist	1 386	1 378	99.4
	Shatin Int'l Medical Ctr Union	3 537	3 509	99.2
Total (NT Areas)		20 922	20 820	99.5
Mother & Child Health Centre		-	139	-
Grand Total		53 712	53 226	99.1

Note: * Including vaccinations of live births transferred from other maternity institutions and vaccinations of live births at end of 2017

Appendix 23

TB and Chest Beds in Public Services 2018

Hospital		No. of TB and Chest Beds
Hospital Authority	Grantham Hospital	109
	Kowloon Hospital	112
	Ruttonjee Hospital	134
	Haven of Hope Hospital	131
	Wong Tai Sin Hospital	93
	Total (Hospital Authority)	579
Custody	Stanley Prison Hospital	20
Grand Total (2018)		599
Grand Total (2017)		598
Grand Total (2016)		595

Appendix 24

Annual Admissions to Hospitals from Government Chest Clinics 2007 - 2018

Year	Total Admissions
2007	4 038
2008	3 170
2009	3 345
2010	3 330
2011	3 142
2012	2 940
2013	2 823
2014	2 799
2015	2 631
2016	2 579
2017	2 459
2018	2 255

Admissions by Clinic	Year 2018
East Kowloon	268
Kowloon	99
Sai Ying Pun	257
Shaukeiwan	212
Shaukeiwan Pneumoconiosis	63
Shek Kip Mei	59
South Kwai Chung	244
Tai Po	63
Tung Chung	8
Wanchai	122
Yan Oi	292
Yaumatei	125
Yuen Chau Kok	188
Yung Fung Shee	140
Cheung Chau	4
NT Unit	111
Total	2 255

Appendix 25

HIV Surveillance Among TB Patients

Provider-initiated HIV Antibody Testing Among TB Patients in Government Chest Clinics (2005 – 2018)

Year	HIV positive		HIV negative		HIV results unknown or not done		Total	
	Number	%	Number	%	Number	%	Number	%
2005	35	0.7%	4174	80.5%	973	18.8%	5182	100%
2006	33	0.7%	4478	90.4%	445	9.0%	4956	100%
2007	41	0.9%	4034	87.8%	517	11.3%	4592	100%
2008	48	1.0%	4073	88.8%	464	10.1%	4585	100%
2009	40	0.9%	3953	88.1%	496	11.0%	4489	100%
2010	28	0.7%	3805	89.5%	418	9.8%	4251	100%
2011	33	0.8%	3623	89.7%	381	9.4%	4037	100%
2012	22	0.5%	3685	90.7%	357	8.8%	4064	100%
2013	24	0.6%	3512	87.6%	473	11.8%	4009	100%
2014	23	0.6%	3322	87.5%	450	11.9%	3795	100%
2015	24	0.7%	3266	90.4%	322	8.9%	3612	100%
2016	28	0.8%	3244	91.3%	283	8.0%	3555	100%
2017	31	0.9%	3225	93.0%	211	6.1%	3467	100%
2018	23	0.6%	3336	93.1%	225	6.3%	3584	100%

Unlinked Anonymous Screening (UAS) for HIV in TB & Chest Service

Period	Category	Sample	Number Tested (No. +ve) (% +ve)
1.12.90 - 31.1.91	Outpatient	Blood	1548
5.6.91 - 5.8.91	Inpatient	Blood	485
1.4.92 – 30.6.92	Outpatient	Blood	1469 (2) (0.14%)
1.4.93 – 30.6.93	Outpatient	Blood	1173
Sep 95 – Nov 95	Outpatient	Urine	895 (2) (0.22%)
Sep 96 – Dec 96	Outpatient	Urine	998 (4) (0.40%)
Oct 97 – Jan 98	Outpatient	Urine	1003 (2) (0.20%)
Oct 98 – Jan 99	Outpatient	Urine	833 (4) (0.48%)
Sep 99 – Dec 99	Outpatient	Urine	1166 (8) (0.69%)
Sep 00 – Dec 00	Outpatient	Urine	1018 (5) (0.49%)
Oct 01 – Dec 01	Outpatient	Urine	1071 (4) (0.37%)
Oct 02 – Jan 03	Outpatient	Urine	1000 (8) (0.80%)
Nov 03 – Feb 04	Outpatient	Urine	920 (6) (0.65%)
Oct 04 – Feb 05	Outpatient	Urine	1056 (9) (0.85%)
Nov 05 – Jan 06	Outpatient	Urine	841 (7) (0.83%)
Nov 06 – Feb 07	Outpatient	Urine	841 (5) (0.59%)
Nov 07 – Feb 08	Outpatient	Urine	887 (11) (1.24%)

Since late 2008, UAS is no longer performed, and surveillance of HIV among TB patients mainly depends on voluntary HIV testing.

Appendix 26

Number of 'Confirmed' cases of TB in health care staff
Notified to Labour Department (1996 – 2018)

Year	Number
1996	2
1997	10
1998	39
1999	57
2000	39
2001	41
2002	29
2003	30
2004	42
2005	30
2006	18
2007	16
2008	25
2009	18
2010	11
2011	17
2012	15
2013	7
2014	7
2015	9
2016	6
2017	9
2018	4

'Confirmed' Cases of TB in Health Care Staff Notified
to Labour Department (2018) by Age and Job Title

Age Group	Doctor	Nurse	Other Allied Health Professional	Other Supporting Staff	Total
20 – 24					0
25 – 29		1			1
30 – 34					0
35 – 39					0
40 – 44		1			1
45 – 49		1			1
50 – 54					0
55 – 59				1	1
60 – 64					0
65 – 69					0
70 – 74					0
Total	0	3	0	1	4

Appendix 27
Cohorts of TB Patients

Treatment outcomes for TB cases registered in 2017 calendar year (number of patients)

	Number of cases registered in 2017 *		Cured or treatment completed		Treatment failed		Died		Lost to follow-up (defaulted)		Not evaluated **	
All new and relapse cases (bacteriologicaly confirmed or clinically diagnosed, pulmonary or extrapulmonary)	4 184	100.00%	2 721	65.03%	1	0.02%	718	17.16%	109	2.61%	635	15.18%
Previously treated patients (excluding relapse cases) ***	29	100.00%	16	55.17%	0	0.00%	1	3.45%	4	13.79%	8	27.59%
HIV-positive TB cases, all types	29	100.00%	13	44.83%	0	0.00%	2	6.90%	1	3.45%	13	44.83%

NB:
* Excludes cases moved to second-line treatment (i.e., excluding rifampicin-resistant cases).
** "Not evaluted" includes "transferred out", "still on treatment" and any other registered cases where the treatment outcome has not been evaluated.
*** "Previously treated patients (excluding relapse cases)" include "treatment after default" and "failure of previous treatment" cases.

Treatment outcomes for TB cases started on second-line TB treatment in 2016 calendar year (number of patients)

	Number of cases started on second-line TB treatment in 2016		Cured or treatment completed		Treatment failed		Died		Lost to follow-up (defaulted)		Not evaluated ****	
All confirmed RR-TB/ MDR-TB cases	36	100.00%	27	75.00%	0	0.00%	0	0.00%	7	19.44%	2	5.56%
All confirmed XDR-TB cases *****	2	100.00%	2	100.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

NB:
**** "Not evaluted" includes "transferred out", "still on treatment" and any other registered cases where the treatment outcome has not been evaluated.
***** Excluding all confirmed RR-TB/ MDR-TB cases which are not XDR-TB cases.

Part 2

PNEUMOCONIOSIS

Part 2 - Pneumoconiosis : Contents

Appendix No.

Appendix 1
New Cases of Suspected Pneumoconiosis/Mesothelioma attending
the Pneumoconiosis Clinic in Hong Kong 1956 - 2018

Year	Number of New Cases Undergoing Assessment						Cumulative Total	Cumulative Total of patients Confirmed by the Board	
	Government Workers	Non-government Workers	Total	Number of cases confirmed by the Board (b)	(e)	(f)		R1	R2
1956	1	-	1				1		
1957	4	4	8				9		
1958	9	13	22				31		
1959	5	7	12				43		
1960	9	6	15				58		
1961	8	-	8				66		
1962	3	1	4				70		
1963	9	5	14				84		
1964	21	17	38				122		
1965	9	4	13				135		
1966	7	9	16				151		
1967	3	6	9				160		
1968	4	2	6				166		
1969	4	10	14				180		
1970	22	36	58				238		
1971	9	18	27				265		
1972	9	29	38				303		
1973	3	39	42				345		
1974	-	97	97				442		
1975	5	84	89				531		
1976	15	252	267				798		
1977	3	216	219				1017		
1978	12	207	219				1236		
1979	2	210	212				1448		
1980	12	532	544 (a)				1992	386 (a)	-
1981	8	608	616				2608	1332	162
1982	4	511	515				3123	1434	634
1983	2	292	294				3417	1469	945
1984	1	231	232				3649	1477	1140
1985	1	179	180				3829	1479	1322
1986	3	176	179	(3)		(188)	4008	1485	1513
1987	4	166	170	(2)		(164)	4178	1485	1679
1988	6	172	178	(4)		(194)	4356	1488	1877
1989	-	156	156	(1)		(145)	4512	1488	2023
1990	2	147	149	(1)		(118)	4661	1489	2142
1991	-	171	171	(1)		(8)	4832	1489	2151
1992	2	171	173	(3)		(186)	5005	1490	2340
1993	2	247	249	(4)		(148)	5254	1492	2492
1994	-	327	327	(7)		(271)	5581	1493	2770
1995	9	245	254	(9)		(221)	5835	1494	3000
1996	4	193	197	(9)		(110)	6032	1494	3119
1997	4	154	158	(7)		(116)	6190	1494	3242
1998	2	197	199	(5)		(104)	6389	1494	3351
1999	-	291	291	(15)		(139)	6680	1494	3505
2000	3	235	238	(11)		(103)	6918	1494	3619
2001	6	230	236	(9)		(123)	7154	1494	3751
2002	3	212	215	(9)		(108)	7369	1494	3868
2003	3	142	145	(6)		(74)	7514	1494	3948
2004	3	138	141	(4)		(69)	7655	1494	4021
2005	-	134	134	(2)		(68)	7789	1494	4091
2006	-	278	278	(7)		(109)	8067	1494	4207
2007	-	120	120	(2)		(67)	8187	1494	4276
2008	3	118	121	(5)	(2)	(65)	8308	1494	4348
2009	-	167	167	(5)	(17)	(86)	8475	1494	4456
2010	-	152	152	(1)	(12)	(61)	8627	1494	4530
2011	-	130	130	(9)	(13)	(63)	8757	1494	4615
2012	-	122	122	(3)	(12)	(44)	8879	1494	4674
2013	-	156	156	(2)	(17)*	(51)	9035	1494	4743*
2014	3	138	141	(2)	(14)	(68)	9176	1494	4827
2015	4	153	157	(0)	(13)	(56)	9333	1494	4896
2016	2	144	146	(4)	(7)	(43)	9479	1494	4950
2017	6	132	138	(2)	(16)	(54)	9617	1494	5022
2018	1	125	126 (c)	(2)	(10)	(59)	9743	1494 (d)	5093

Notes :

(a) The Pneumoconiosis Compensation Scheme was initiated in 1980, before that reporting was voluntary.

(b) The figures in this column denote the number of cases of asbestos-related lung disease confirmed by the Board.

(c) Up to the moment that this report is being compiled, 61 of these 126 assessment cases in 2018 had been confirmed to be pneumoconiosis by the Pneumoconiosis Medical Board. And the following tables (Appendix 2 to Appendix 8) are compiled based on these 61 cases.

(d) Under Revised Ordinance 1993 : 584 out of 1494 pneumoconiotics had joined the pneumoconiosis ex-gratia scheme up to the year 2018. 37 living pneumoconiotics were each receiving a monthly ex-gratia payment of $7.170.00 in 2018.

(e) The figures in this column denote the number of cases of Mesothelioma confirmed by the Board.

(f) The figures in this column denote the number of cases of Silicosis confirmed by the Board.

R1 Patients having pneumoconiosis with the date of diagnosis before 1 January 1981 who were alive as at 31 December 1980 are eligible for a government funded ex-gratia compensation scheme.

R2 Patients having pneumoconiosis with the date of diagnosis on or after 1 January 1981 are elligible for a levy funded compensation scheme under the Pneumoconiosis (Compensation) Ordinance (the Ordinance). The Ordinace was amended to cover for mesothelioma as well in 2008.

* 1 patient is confirmed with a second disease in that year

Appendix 2

Age Distribution of Pneumoconiosis Patients confirmed in 2018

Age	Number of Cases	%
< 25	0	0
25 - 29	0	0
30 - 34	0	0
35 - 39	0	0
40 - 44	0	0
45 - 49	0	0
50 - 54	2	3
55 - 59	11	18
60 - 64	23	38
65 - 69	14	23
70 - 74	6	10
75+	5	8
Total	61	100

Appendix 3

Occupation Distribution of Pneumoconiosis Patients confirmed in 2018

Type of Occupation	Number of Cases	%
Construction	28	46
Construction/Quarry	1	2
Others	32	52
Total	61	100

Appendix 4

Pneumoconiosis Patients confirmed in 2018 by Duration of Exposure to Dust

Duration	Number of Cases	%
< 5 years	1	2
5 - 9	1	2
10 - 14	3	5
15 - 19	5	8
20 - 24	11	18
25 - 29	7	11
30+	33	54
Unknown	0	0
Total	61	100

Appendix 5

Pneumoconiosis Patients confirmed in 2018 by Degree of Incapacity

Degree of Incapacity (%)	No. of New Cases Compensated under Compensation Ordinance
5	22
10	21
15	5
20	6
25	0
30	2
35	2
40	2
45	0
50	0
55	0
60	0
65	0
70	1
75	0
80	0
85	0
90	0
95	0
100	0
N. A.	0
Total	61

Appendix 6

Pneumoconiosis Patients confirmed in 2018
Classified by Radiological Appearance

Type of Opacity		Profusion 1	Profusion 2	Profusion 3	Sub-Total
Small opacities					
Rounded					
p	(up to 1.5 mm diameter)	44	3	0	47
q	(1.5 to 3.0 mm diameter)	5	3	0	8
r	(3.0 to 10.0 mm diameter)	1	3	0	4
Irregular					
s	(fine irregular or linear)	2	0	0	2
t	(medium irregular)	0	0	0	0
u	(coarse irregular)	0	0	0	0
Sub-total		52	9	0	61
Combined opacities		-	-	-	0
N. A.		-	-	-	0
Total					61

5 out of the 61 patients have large opacities as follows :

Large opacities		
A	(Single opacity 1 - 5 cm or multiple opacities > 1 cm each but sum of diameter < 5 cm)	4
B	(Single or multiple opacities with combined area < the equivalent of right upper zone)	0
C	(Single or multiple opacities with combined area > the equivalent of right upper zone)	1
Total		5

Appendix 7

History of Tuberculosis (TB) among Patients with Pneumoconiosis confirmed in 2018

History of TB		Number of Cases	%
History of TB	Bacteriological Positive	12	20
	Bacteriological Negative	3	5
	Not Available	1	2
No History of TB		45	73
Total		61	100

Appendix 8

Pneumoconiosis Patients confirmed in 2018 by Other Particulars

Characteristics		Number of Cases	%
Smoking	Smoker/Ex-smoker	49	80
	Non-smoker	12	20
	Unknown	0	0
	Total	61	100
Still exposed to dust when seen by the Pneumoconiosis Clinic	Yes	23	38
	No	38	62
	Unknown	0	0
	Total	61	100
General Condition	Good	59	97
	Fair	2	3
	Poor	0	0
	Died	0	0
	Total	61	100

Part 3

ANNEX

Part 3 – Annex : Contents

Annex No.

Annex 1(a)

TB Among Chinese New Immigrants

Number of all notified TB cases and TB cases who are Chinese new immigrants (with years of arrival in Hong Kong)

	Years of arrival	2014	2015	2016	2017	2018
Notified TB cases who are Chinese New Immigrants (with years of arrival in Hong Kong)	< 1 year	12	10	12	13	18
	1 ≤ and < 2 year	15	14	7	11	15
	2 ≤ and < 3 year	12	12	10	13	16
	3 ≤ and < 4 year	14	16	14	12	14
	4 ≤ and < 5 year	12	10	7	10	9
	5 ≤ and < 6 year	7	7	13	16	13
	6 ≤ and < 7 year	13	13	4	3	7
	Total	85	82	67	78	92
Overall notified TB cases		4 705	4 418	4 346	4 250	4 268

The above table shows the number of all notified TB cases in Hong Kong from 2014 to 2018 and the number of TB cases among the Chinese new immigrants (staying in Hong Kong for less than 7 years) according to the number of years they have arrived in Hong Kong.

In Annex 1(b), the tables show the number of notified TB cases among the Chinese new immigrants by age and sex, and the estimated rates. In Annex 1(c), the table shows the number of all notified TB cases in Hong Kong by age and sex, and the rates.

As shown from Annex 1(c), the rates of TB among males are in general higher than that among females, and higher in the older age groups. The overall rates (per 100 000) from 2014 to 2018 are 65.0, 60.5, 59.2, 57.5 and 57.3 respectively.

From Annex 1(b), the overall estimated rates (per 100 000) among the new immigrants from 2014 to 2018 are 26.9, 26.2, 20.8, 23.9 and 28.3 respectively. The rates are lower than those of the general Hong Kong population. Although Mainland China has been classified by the World Health Organization as among one of the high TB burden countries in the world, the new immigrants coming to Hong Kong are likely to be a “selected” group. Their demographics and health condition may be quite different from and not representative of the whole population in China. For example, they may be younger, more ‘fit’, or with better socioeconomic condition. Hence, the rate of TB among this group may be lower.

Annex 1(b)

TB Notification and Estimated Rates Among Chinese New Immigrants By Age & Sex (2014-2018)

Notified TB cases who are Chinese new immigrants (coming to HK < 7 years), by age and sex

	2014	2014	2014	2015	2015	2015	2016	2016	2016	2017	2017	2017	2018	2018	2018
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-19	5	2	7	3	3	6	4	2	6	5	1	6	3	1	4
20-39	20	30	50	9	35	44	8	24	32	9	27	36	16	31	47
40-59	12	12	24	10	16	26	7	14	21	9	20	29	19	10	29
60+	2	2	4	5	1	6	6	2	8	6	1	7	6	6	12
Total	39	46	85	27	55	82	25	42	67	29	49	78	44	48	92

Estimated rate of TB (per 100 000) among Chinese new immigrants (coming to HK < 7 years)

	2014	2014	2014	2015	2015	2015	2016	2016	2016	2017	2017	2017	2018	2018	2018
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-19	11.6	5.0	8.4	7.3	8.0	7.6	9.4	5.1	7.4	11.6	2.6	7.3	6.9	2.6	4.8
20-39	68.6	24.1	32.5	30.1	28.9	29.2	25.1	21.1	22.0	27.0	25.1	25.5	46.2	30.5	34.5
40-59	49.9	25.6	33.8	39.7	32.4	34.9	23.2	26.0	25.0	26.7	35.7	32.3	53.7	17.8	31.7
60+	59.8	40.0	48.0	132.4	18.8	65.9	123.7	32.5	72.7	98.2	14.2	53.2	85.7	77.5	81.4
Total	39.1	21.2	26.9	27.1	25.8	26.2	22.9	19.8	20.8	24.9	23.3	23.9	36.5	23.4	28.3

Annex 1(c)

TB Notification and Rates (All Cases) By Age & Sex (2014-2018)

All TB cases by age and sex

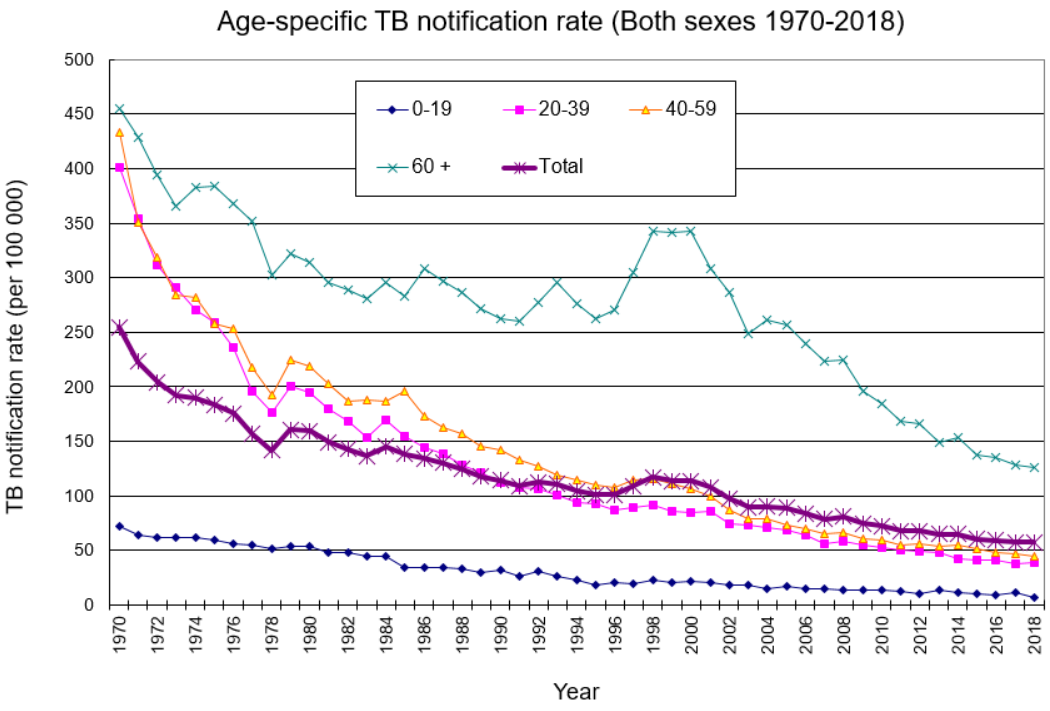
	2014	2014	2014	2015	2015	2015	2016	2016	2016	2017	2017	2017	2018	2018	2018
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-19	83	55	138	75	52	127	62	43	105	74	56	130	44	40	84
20-39	400	493	893	370	490	860	352	503	855	317	468	785	326	482	808
40-59	806	532	1 338	774	477	1 251	665	485	1 150	656	459	1 115	625	451	1 076
60+	1 709	627	2 336	1 607	573	2 180	1 618	618	2 236	1 627	593	2 220	1 709	591	2 300
Total	2 998	1 707	4 705	2 826	1 592	4 418	2 697	1 649	4 346	2 674	1 576	4 250	2 704	1 564	4 268

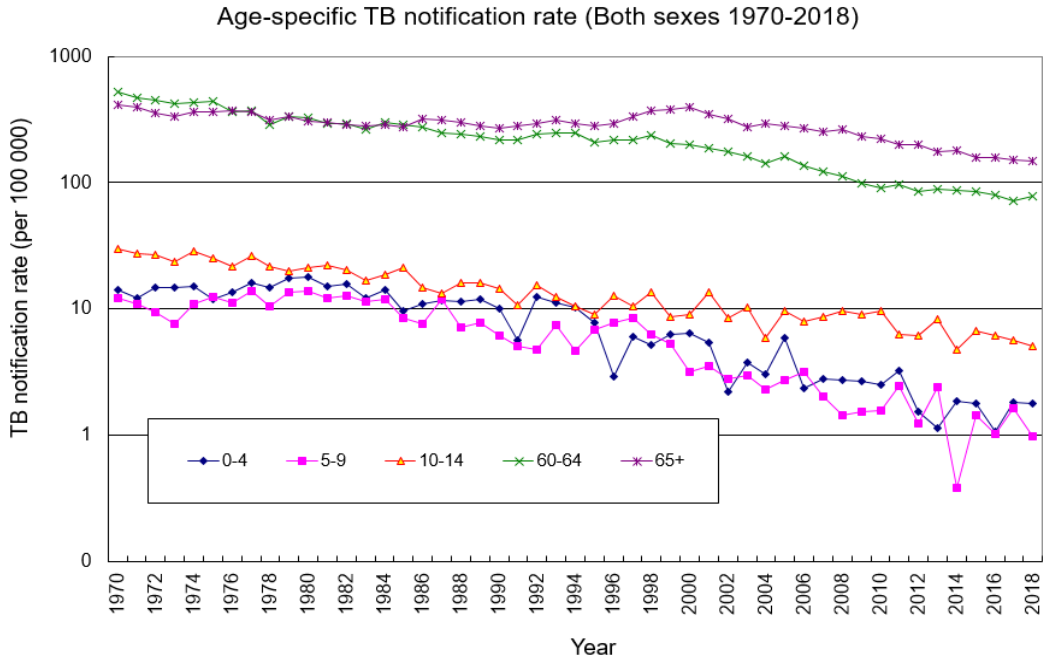
Rate of TB (all notified cases) (per 100 000)

	2014	2014	2014	2015	2015	2015	2016	2016	2016	2017	2017	2017	2018	2018	2018
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-19	13.5	9.5	11.6	12.2	9.0	10.7	10.3	7.6	9.0	12.3	10.0	11.2	7.3	7.1	7.2
20-39	44.1	41.1	42.4	40.8	40.9	40.8	38.7	42.1	40.6	34.9	39.3	37.4	36.0	40.6	38.6
40-59	73.3	40.3	55.3	71.0	35.9	51.7	61.9	36.5	47.9	61.8	34.4	46.6	59.8	33.7	45.2
60+	235.8	78.2	153.0	212.6	68.5	136.9	205.6	70.9	134.8	197.4	65.0	127.8	198.2	61.9	126.5
Total	89.6	43.8	65.0	83.9	40.4	60.5	79.9	41.6	59.2	78.8	39.4	57.5	79.3	38.7	57.3

Annex 2

Trend of age-specific TB notification rates (1970-2018)





- All the age-specific TB notification rates, particularly those of the younger age groups, show a generally declining trend.
- TB cases can develop from progressive primary infection, exogenous re-infection, or endogenous reactivation. The trend of progressive primary infection is best reflected by the trends of the younger age groups, in particular that of the 0-4 age group. On the other hand, endogenous reactivation is better reflected by the trends of the older age groups, which generally show slower rates of decline than those of the younger age groups.
- The transient increase in rates for the age group 60+ during the period 1997 to 2000 (top graph) is likely due to strengthened surveillance measures targeting at bacteriologically positive and death cases through laboratory data and data from death certificates.

Annex 3(a)

TB-HIV Registry

A total of 29 cases with TB-HIV co-infection were reported to the TB-HIV Registry in 2018. The cumulative number of cases reported to the TB-HIV Registry from all sources as in 2018 was 706 (Table 1).

Information on TB as a primary AIDS-defining illness is available in 24 out of 29 cases reported to the TB-HIV Registry in 2018. Of these 24 cases, 13 (54.2%) had TB as a primary AIDS-defining illness (Table 2). The proportion of patients with pulmonary TB and a low CD4 count below 200/μL was slightly higher than extra-pulmonary TB as primary AIDS-defining illness in 2018.

The pre-treatment drug susceptibility pattern among culture-positive (sputum or other specimens) TB-HIV cases for the years 1996-2018 is shown in Table 3. Eighteen patients reported to the TB-HIV Registry had a positive sputum and/or other specimen culture in 2018. Sixteen (88.9%) had disease due to *Mycobacterium tuberculosis* with favourable susceptibility pattern. Two had bacillary resistance to streptomycin. One additional patient with negative culture had RR-TB based on molecular test. Among all the 496 cases reported to TB-HIV Registry with a positive sputum or other specimen culture between 1996 and 2018, 9 (1.8%) had MDRTB. This figure is slightly higher than the MDRTB rate of around 1% in general population. There is no XDR-TB cases detected among the reported TB-HIV cases so far. DH will continue to monitor prevalence of drug resistance in the context of HIV.

Table 4 shows the characteristics of 29 patients seen at chest clinics and/or SPP in 2018. The characteristics of these patients are similar to those of the 2017 cohort. The median CD4 count was 110 /μL at time of TB diagnosis. Extra-pulmonary involvement is common, with nearly two-third of the patients having TB involving one or more extra-pulmonary sites.

Annex 3 (b)

Table 1. Total number of TB-HIV cases reported to TB-HIV Registry, all sources (1996-2018)*

Year	Number of TB-HIV cases**
1996	22
1997	19
1998	22
1999	25
2000	24
2001	34
2002	22
2003	28
2004	35
2005	42
2006	50
2007	56
2008	50
2009	38
2010	25
2011	28
2012	20
2013	21
2014	25
2015	24
2016	36
2017	31
2018	29
Total	706

* Including cases reported from all sources (chest clinics, SPP, HA hospitals and private centres).
** Some of the figures in the table for the previous years have been updated after (1) taking out some mismatched cases and cases with a revised diagnosis (2) adding some cases which were previously unreported.

Annex 3 (c)

Table 2. TB as primary AIDS-defining illness among 520 cases reported to chest clinics and/or SPP (1996-2018)*

Year	TB as primary AIDS-defining illness					Total
	Yes			No	Information not available	
	Extra-pulmonary	Pulmonary and TB cervical lymph node with CD4 < 200 µL	Subtotal			
1996	1	7	8	1	0	9
1997	2	3	5	2	0	7
1998	6	3	9	3	0	12
1999	7	6	13	3	0	16
2000	3	4	7	5	0	12
2001	4	6	10	7	0	17
2002	4	9	13	2	0	15
2003	1	10	11	5	0	16
2004	5	7	12	11	0	23
2005	8	14	22	7	0	29
2006	9	19	28	7	0	35
2007	10	17	27	8	2	37
2008	14	13	27	6	0	33
2009	9	3	12	6	5	23
2010	4	10	14	5	3	22
2011	6	8	14	8	6	28
2012	4	9	13	5	2	20
2013	7	10	17	1	3	21
2014	7	8	15	9	1	25
2015	7	5	12	8	4	24
2016	8	8	16	17	3	36
2017	8	6	14	12	5	31
2018	5	8	13	11	5	29
Total	139	193	332	149	39	520

* Some of the figures in the table for the previous years have been updated. Of all the cases reported to the TB-HIV Registry from 1996 to 2018, 520 cases were seen at chest clinics and/or SPP. The table is compiled basing on data of these 520 cases.

Table 3. Pre-treatment drug sensitivity pattern among culture positive (sputum and/or other specimens) TB-HIV cases from TB-HIV Registry, all sources (1996-2018)*

Year	Susceptible to SHRE	Any resistance** (non-MDR/XDR)	RR/MDR	XDR	Total number of culture positive cases
1996	7	1	0	0	8
1997	5	1	0	0	6
1998	13	1	0	0	14
1999	16	4	1	0	21
2000	13	2	0	0	15
2001	23	5	0	0	28
2002	11	3	1	0	15
2003	18	3***	0 (+1)***	0	21
2004	20	6	0	0	26
2005	29	5	0	0	34
2006	32	3	0	0	35
2007	30	7	1	0	38
2008	30	3	0	0	33
2009	22	7	0	0	29
2010	12	2	0	0	14
2011	12	4	0	0	16
2012	13	2	1	0	16
2013	13	5	0	0	18
2014	11	7	0	0	19****
2015	15	1	1 (+1)*****	0	19****
2016	27	3	0	0	30
2017	19	2	2******	0	23
2018	16	2	0*******	0	18
Total	407	79	7 (+2)	0	496****

* Of all the cases reported to the TB-HIV Registry from 1996 to 2018, 496 had a positive culture (sputum or other specimens). The table is compiled basing on data of these 496 cases.
** Any pattern of drug resistance except MDR (i.e. resistant to at least both H and R) and XDR (i.e resistance to any fluoroquinolones, and at least one of the injectable drugs, in addition to MDR).
*** One of these patients had extremely poor treatment adherence, developed acquired resistance during anti-TB treatment and became MDR-TB.
**** Drug susceptibility result unknown in one patient in 2014 and two patients in 2015 with positive culture.
***** One patient's pre-treatment sputum culture showed MTB with favourable drug susceptibility pattern; sputum culture at 3 month showed MDRTB, which might represent mixed population or acquired drug resistance
****** One case had negative sputum culture but molecular test showed rpoB gene mutation associated with rifampicin resistance
******* One case had negative culture but BAL molecular test showed rpoB gene mutation associated with rifampicin resistance

Annex 3 (d)

Table 4 Characteristics of 29 TB-HIV cases reported from chest clinics and SPP in 2018

	Number	Proportion
Age distribution		
0 to 19	0	0.0%
20 to 39	13	44.8%
40 to 59	12	41.4%
60+	4	13.8%
Sex distribution		
Male	19	65.5%
Female	10	34.5%
Ethnicity		
Chinese	19	65.5%
Asians, non-Chinese	6	20.7%
African	3	10.3%
Others	1	3.4%
Case category		
New case	22	75.9%
Relapse	4	13.8%
Treatment after default	0	0.0%
Failure of previous treatment	0	0.0%
Others	0	0.0%
Unknown	3	10.3%
TB as a primary AIDS defining illness*		
Yes	13	54.2%
No	11	45.8%
CD4 count at time of co-infection (median, IQR)**	110 (50-202) /µL	
Anti-retroviral therapy at time of co-infection		
Yes	8	27.6%
No	21	72.4%
Presence of extra-pulmonary TB		
Yes	19	65.5%
No	10	34.5%
Extent of Respiratory TB***		
Minimal	9	45.0%
Moderate	4	20.0%
Extensive	7	35.0%
Sputum bacteriological status (pre-treatment)****		
Smear + culture +	4	17.4%
Smear - culture +	8	34.8%
Smear + culture -	0	0.0%
Smear - culture -	11	47.8%
Drug resistance pattern (pre-treatment) (based on sputum and/or other specimen culture)*****		
Susceptible to SHRE	16	88.9%
Resistant to streptomycin alone	2	11.1%
Resistant to rifampicin alone	0******	0.0%
MDR	0	0.0%
XDR	0	0.0%

* Information on TB as primary AIDS-defining illness unknown in 5 patients.
** Information on CD4 count unknown in 2 patients.
*** 20 out of 29 cases had lung parenchymal lesion on CXR.
**** Sputum test not performed/incomplete in 6 cases; 12 out of remaining 23 cases had a positive sputum culture
***** 18 of 29 cases had a positive sputum and/or other specimen culture.
****** One patient who had negative sputum culture had BAL molecular test showing rpoB gene mutation associated with rifampicin resistance

Annex 4

Crude and Standardised Death Rate and Notification Rate 1981 - 2018
(per 100 000 population)

Year	Crude Death Rate	Standardised Death Rate *	Crude Notification Rate	Standardised Notification Rate *
1981	9.4	9.4	149.1	149.1
1982	8.6	8.4	140.3	142.1
1983	8.3	7.2	136.6	135.2
1984	7.8	7.9	145.3	142.7
1985	7.5	6.9	138.3	134.6
1986	7.4	6.6	134.5	134.6
1987	7.3	6.3	130.3	124.2
1988	6.9	5.8	124.8	122.1
1989	7.1	5.9	117.9	111.4
1990	6.7	5.7	114.1	107.7
1991	7.1	5.6	109.2	100.5
1992	7.1	5.5	112.6	107.9
1993	6.7	5.1	110.8	100.2
1994	6.8	5.0	104.7	88.9
1995	6.8	4.8	100.9	88.9
1996	4.5	3.1	101.0	88.7
1997	3.9	2.6	109.0	93.1
1998	4.1	2.8	117.3	98.6
1999	4.7	3.1	113.7	93.9
2000	4.5	2.8	113.7	93.4
2001	4.6	2.8	108.2	88.6
2002	4.0	2.4	97.9	78.9
2003	4.1	2.5	89.5	72.3
2004	4.2	2.4	91.8	71.1
2005	4.0	2.2	90.4	70.5
2006	4.3	2.4	84.1	63.3
2007	3.3	1.8	79.0	58.5
2008	3.3	1.7	81.0	59.3
2009	2.9	1.5	74.5	54.1
2010	2.7	1.4	72.5	52.0
2011	2.6	1.3	67.8	48.4
2012	2.8	1.4	67.9	47.2
2013	2.5	1.2	64.9	46.1
2014	2.6	1.3	65.0	44.2
2015	2.3	1.0	60.5	41.2
2016	2.2	0.9	59.2	39.4
2017	2.5	1.1	57.5	38.3
2018	2.5	1.1	57.3	37.1

* Age and sex-standardisation, using the mid-1981 population as the standard population.

Annex 5

HBsAg Seroprevalence Survey Among TB Patients Seen at Chest Clinics (2018)

In a sample survey conducted by the TB & Chest Service of the Department of Health in 2018 (2-month period from 1.3.2018 to 31.5.2018), the overall HBsAg seropositive rate among TB patients seen at chest clinics was 9.61%.

Sex/Age group	HBsAg status			HBsAg seropositive rate (%)*	Total
	Positive	Negative	Unknown		
Male					
0-19	1	11	1	8.33	13
20-39	6	79	2	7.06	87
40-59	25	145	1	14.71	171
≥60	44	349	2	11.20	395
Female					
0-19	0	20	3	0.00	23
20-39	5	104	1	4.59	110
40-59	11	127	2	7.97	140
≥60	11	134	7	7.59	152
Total	103	969	19	9.61	1 091

* *HBsAg seropositivity rate = number of HBsAg positive patients/ (number of HBsAg positive patients + number of HBsAg negative patients)*

HBsAg Seroprevalence Survey 2017-2018

Sex/Age group	HBsAg seropositive rate (%)	
	2017	2018
Male		
0-19	0.00	8.33
20-39	4.55	7.06
40-59	13.04	14.71
≥60	8.71	11.20
Female		
0-19	0.00	0.00
20-39	3.57	4.59
40-59	10.20	7.97
≥60	8.57	7.59
Total	8.38	9.61

Part 4

SUPPLEMENT

Part 4 – Supplement : Contents

Supplement

FORM 1

PREVENTION AND CONTROL OF DISEASE ORDINANCE

(Cap. 599)

TUBERCULOSIS NOTIFICATION

Particulars of Infected Person

Name in English:	Name in Chinese:	Age / Sex:	I.D. Card / Passport No.:
Residential Address:			Telephone No.: (Home) : (Mobile) : Patient : Family member : (Office / school / others):
Name and address of workplace / school / other institution:			
Job title / Class attended :			
Hospital / Clinic sent to (if any):			Hospital No.:

Site of TB (please ✓ all applicable)		Sputum (please ✓ and attach laboratory report if available)				Other specimens (specify and ✓ below):	
☐ Lung	☐ Meninges						
☐ Pleura	☐ Bone & Joint						
☐ Lymph node	☐ Urinary system		Smear	Culture	PCR test	Smear	Culture
☐ Miliary	☐ Genital system	Positive					
☐ Other(s) (please specify):		Negative					
		Unknown					
		Not done					

Duration of stay in Hong Kong: _____ Years

History of past treatment for TB
(delete whichever not applicable): Yes / No

If yes, YEAR first receiving treatment: _____

Disposal (please ✓ in front boxes and specify):

☐ Treatment started on: _____ (Date: dd/mm/yyyy)

☐ On observation

☐ Referred to _____ Hospital / Clinic / Private Practitioner

☐ Died on: _____ (Date: dd/mm/yyyy)

(Please DELETE whichever is not applicable)

I will arrange for examination of contacts myself. / Please arrange for examination of contacts.

Further Remarks:

Notified under the Prevention and Control of Disease Regulation by

Dr. _____ of _____Hospital / Clinic / Private Practice
(Full Name in BLOCK Letters)

_____ Ward / Unit / Specialty on _____ / _____ / _____ (Date: dd/mm/yyyy)

Telephone No.: _____ Fax No.: _____ _____
(Signature)

[Part 1: To be completed by DOCTOR requesting TB denotification]

To: Statistics Unit, Wanchai Chest Clinic, 99 Kennedy Road, Hong Kong (Fax: 2572 8921)

Denotification of Previously Notified TB Case

Clinic/ Hospital:		Clinic Hospital number:	
Name of patient:		HKID/ passport number:	
Date notified:		Smear:	Positive / Negative / Unknown
Revised diagnosis or other remarks:		Culture:	Negative / M tuberculosis / Non-tuberculous mycobacteria / Unknown / Others _____
Denotification requested by (Name and signature of doctor):		Tel: Fax:	Date:

++

[Part 2: To be completed by Statistics Unit of TB&CS]

From: Statistics Unit of TB&CS

To: DOCTOR who sent in this request for denotification (Fax no.)

It is confirmed that the above TB denotification request has been received by the Statistics Unit of TB & Chest Service at Wanchai Chest Clinic.

Date:

Chop or signature:

++

[Part 3: To be completed by Statistics Unit of TB&CS]

From: Statistics Unit of TB&CS

To: _____ Chest Clinic (AE Chest Clinic) (Fax no.:)

Please note the above request for denotification for further necessary actions.

++

[Part 4: To be completed by AE Chest Clinic]

We have taken note of the above request for denotification. We have the following comments:

- ☐ No comments
- ☐ Agree with the request for denotification
- ☐ Please ignore the request for denotification, reason:

Signature and name of Chest Clinic doctor:		Chest Clinic:	Date:

Notes for using the Form "TBdenotification/1403" for requesting denotification of a case previously notified as TB

1. If a doctor wants to request for denotification of a previously notified TB case, he fills in Part 1 and fax the form to Wanchai Chest Clinic (Fax: 2572 8921; Attention: Statistics Unit of TB&CS).
2. Upon receiving the request for denotification, Statistics Unit of TB&CS fills in Part 2 and fax back to the doctor for acknowledgment of receiving the request.
3. The Statistics Unit of TB&CS then fills in Part 3, and fax the form to the NO of the relevant Chest Clinic (the AE Chest Clinic) which has been handling this case as AE case, for further necessary actions.
4. The health nurse of AE Chest Clinic, upon receiving the fax, will take note of the denotification for further necessary actions. For example, if there is no evidence to suggest otherwise, the AE Chest Clinic will treat the case now as not a TB case, and discontinue the public health actions which would then become unnecessary. Alternatively, if the AE Chest Clinic, with the input of the doctor i/c of the case (when necessary), is of the opinion that the case should not be denotified, it will continue to carry out the necessary public health actions and inform Statistics Unit of TB&CS to ignore the request for denotification. Thus, the doctor i/c of the AE Chest Clinic fills in Part 4 and tick the appropriate item, and fax the form back to Statistics Unit of TB&CS. If the AE chest clinic does not have any additional information on whether to support or refute the denotification (e.g., patient is not being followed up at chest clinic), the doctor i/c of the AE Chest Clinic may tick the item "No comments".
5. Upon receiving the fax return back from the AE Chest Clinic, the Statistics Unit will act accordingly, e.g., denotify the case or ignore the denotification request.
6. For cases denotified by chest clinic doctors, there is no need to fill in Part 3 and Part 4.

OCCUPATIONAL SAFETY AND HEALTH ORDINANCE
NOTIFICATION OF OCCUPATIONAL DISEASES

To : Commissioner for Labour

PARTICULARS OF PATIENT

Name: _____ HKID/Passport no.: _____

Male/Female* Date of birth: ___ /___ /____ Occupation: _____

Home address: _____

_____

Telephone no. (Home) _____ (Office) _____ (Pager/Mobile) _____

Name and address of employer: _____

_____ Telephone no. (Employer) _____

Workplace address (if different from employer's address): _____

_____

For Internal use:

Code: ____

Code: ____

Code: ____

Code: ____

NOTIFIABLE OCCUPATIONAL DISEASES (*Please put a tick in* □)

□1	Radiation Illness	□18	Lead Poisoning	□35	Chrome Ulceration
□2	Heat Cataract	□19	Manganese Poisoning	□36	Urinary Tract Cancer
□3	Compressed Air Illness	□20	Phosphorus Poisoning	□37	Peripheral Polyneuropathy
□4	Cramp of Hand or Forearm	□21	Arsenic Poisoning	□38	Localised Papillomatous or Keratotic New Skin Growth
□5	Beat Hand	□22	Mercury Poisoning	□39	Occupational Vitiligo
□6	Beat Knee	□23	Carbon Bisulphide Poisoning	□40	Occupational Dermatitis
□7	Beat Elbow	□24	Benzene Poisoning	□41	Chemical Induced Upper Respiratory Tract Inflammation
□8	Tenosynovitis of Hand or Forearm	□25	Poisoning by Nitro-, Amino-, or Chloro- Derivatives of Benzene	□42	Nasal or Paranasal Sinus Cancer
□9	Anthrax	□26	Dinitrophenol Poisoning	□43	Byssinosis
□10	Glanders	□27	Poisoning by Halogen Derivatives of Hydrocarbons	□44	Occupational Asthma
□11	Leptospirosis	□28	Diethylene Dioxide Poisoning	□45	Silicosis
□12	Extrinsic Allergic Alveolitis	□29	Chlorinated Naphthalene Poisoning	□46	Asbestos-Related Diseases
□13	Brucellosis	□30	Poisoning by Oxides of Nitrogen	□47	Occupational Deafness
□14	Tuberculosis in health care workers	□31	Beryllium Poisoning	□48	Carpal Tunnel Syndrome
□15	Parenterally Contracted Viral Hepatitis in health care workers	□32	Cadmium Poisoning	□49	Legionnaires' Disease
□16	Streptococcus suis Infection	□33	Dystrophy of the Cornea	□50	Severe Acute Respiratory Syndrome
□17	Avian Chlamydiosis	□34	Skin Cancer	□51	Avian Influenza A

Diagnosis: Confirm/Suspect* Date of onset of illness: _____ / _____ / _____

Follow-up of patient: Treated/Referred to hospital/Others(specify)*: _____

Other relevant information: _____

Name of notifying medical practitioner: _____

Address of notifying medical practitioner: _____

_____

Telephone no. of notifying medical practitioner: _____

Fax no. of notifying medical practitioner: _____

Date: _____ Signature: _____

**Delete whichever is inapplicable*

*Please return this form by **fax (no. 25812049)** or by **mail** to Occupational Health Service, Labour Department, 15/F Harbour Building, 38 Pier Road, Central, Hong Kong.*

For details of Notifiable Occupational Diseases and their related occupations, please refer to Schedule 2 of the Occupational Safety & Health Ordinance and to the Labour Department publication "Guidance Notes on the Diagnosis of Notifiable Occupational Diseases". Enquiry telephone no. : 2852 4041.

LD483 (Rev. 8.2.2005)

GUM LABEL of patient	DOS: _ _/_ _/_ _ _ _ ***(for chest clinic use only)*** AE no.: _____ Cat.: _____ Tx no.: _____ DOA: _ _/_ _/_ _ _ _

PFA1 - To be completed at around DOS (for TB patients) *[DOS = date of starting treatment (or, if patient defaulted>2 months before starting anti-TB treatment, put down the date of diagnosis)]*

Part (A) Information on this episode of TB:

Reason for presentation: 1. Symptom / 2. Contact Screening / 3. Pre-employment / 4. Pre-emigration/ 5. Other body check / 6. Incidental to other illness / 7. Others: _____

Contact with TB patients: N / Y: 1. Household / 2. Work / 3. Casual
1. within 2 year / 2. over 2 year

Part (B) Case category (choose 1 item only):

1. New case (< 1m previous Rx)
(<1m previous Rx)
2. Relapse case.
3. Treatment after default.
4. Failure of previous treatment.

Date of last treatment (mm/yyyy): _ _ / _ _ _ _ Duration of last treatment: _ _ months

Part (C) Disease classification: (please circle ≥1 item)

1. Pulmonary tuberculosis
Extent of disease: 1minimal (total area< RUL)/ 2moderate (> RUL)/ 3advanced (> 1 lung) Cavity: N / Y

Extra-pulmonary tuberculosis:

2. Pleura
3. Lymph node
4. Meninges
5. Miliary
6. Abdomen
7. Bone and joint (other than spine)
8. Spine
9. Genito-urinary tract
10. Naso/oro-pharynx
11. Larynx
12. Pericardium
13. Skin
14. Other site(1), specify _____
15. Other site(2), specify _____
16. Other site(3), specify _____

Part (D) Risk Factors/co-morbidities N/Y (If Y, please circle whichever applicable)

1. Diabetes mellitus
2. Lung cancer
3. Other malignancies
4. On cytotoxic drugs
5. On steroid
6. Chronic renal failure
7. **HIV: - ve / + ve / unknown/ pending**
8. Silicosis
9. Alcoholism
10. Drug abuser
11. Gastrectomy
12. General debilitation (e.g., due to old age, immobility, stroke, etc.)
13. On biologics
14. Other(1), specify_____
15. Other(2), specify_____

Part (E) Starting regimen (choose 1 item only): *[Starting regimen = the regimen that the attending physician uses at initiation of anti-TB treatment]*

1. Standard regimen, defined as HRZ ±E or S (irrespective of dosing frequency)
2. Non-standard regimen, defined as regimens other than HRZ ±E or S

Reason for using non-standard regimen: 1.Known or suspected drug resistance/ 2. Known drug intolerance/ 3. Potential drug-drug interaction/ 4.Known medical conditions affecting choice of regimen (e.g. liver disease, poor vision, etc), specify _____ / 5. Others, specify (e.g. old age): _____

Body weight ____ kg; body height / arm span ____ cm

Drug	Dosage and route	Dose interval (e.g. 3/7, 6/7)

Remark:

Completed by: _____ (name) Tel: _____ Fax: _____

Institution: 1.Chest Clinic/ 2.Chest Hospital/ 3.General Hospital/ 4.Private Practice. ; Name (and ward) of institution: _____

[After completion, this form should be sent to:

1. *<u>for chest clinics</u>: General Office, Tung Chung Chest Clinic, 1/F, Tung Chung Health Centre, Block 1, 6 Fu Tung Street, Tung Chung, Lantau Island. Fax: (852)2109 2240.*
2. *<u>for Correctional Services Department</u>: Statistics Unit, Tuberculosis and Chest Service Headquarters, 1/F, Wanchai Polyclinic, 99 Kennedy Road, Hong Kong. Fax: (852)2572 8921.]*

GUM LABEL of patient	DOS: _ _/_ _/_ _ _ _
	(for chest clinic use only) AE no.: _____ Cat.: _____ Tx no.: _____ DOA: _ _/_ _/_ _ _ _

< *PFA2 : for chest clinic use only* >

PFA2 - To be completed at around DOS (for TB patients) *[DOS = date of starting treatment (or, if patient defaulted>2 months before starting anti-TB treatment, put down the date of diagnosis)]*

Part (F) Urine test:

Sugar: positive /negative /not done

Protein: positive /negative /not done

Part (G) Visual acuity test and colour blindness test:

Please stick
the results of visual acuity test and blindness test
here

Completed by: _____ (name) Tel: _____ Fax: _____

Institution: 1.Chest Clinic/ 2.Chest Hospital/ 3.General Hospital/ 4.Private Practice. ; Name (and ward) of institution: _____

[After completion, this form should be sent to:

1. *for chest clinics: General Office, Tung Chung Chest Clinic, 1/F, Tung Chung Health Centre, Block 1, 6 Fu Tung Street, Tung Chung, Lantau Island. Fax: (852)2109 2240.*
2. *for Correctional Services Department: Statistics Unit, Tuberculosis and Chest Service Headquarters, 1/F, Wanchai Polyclinic, 99 Kennedy Road, Hong Kong. Fax: (852)2572 8921.]*

GUM LABEL of patient	DOS: _ _/_ _/_ _ _ _
	(for chest clinic use only) AE no.: _____ Cat.: _____ Tx no.: _____ DOA: _ _/_ _/_ _ _ _

PFB – To be completed at 6 month from DOS (for TB patients)

Part (H) Mode of TB diagnosis: 1a. Bacteriological (based on positive smear and/or culture) 1b Bacteriological (based on molecular test result)/ 2. Histological/ 3. Clinical-radiological/ 4. Clinical only (choose 1 item, priority from left to right)

Bacteriological examination for MTB: P (positive), N (negative) , U (not done), NTM (Non-tuberculous Mycobacteria)

	Sputum			**Other type of specimen:** 1. gastric aspirate/ 2. pleural fluid/ 3. bronchial washing/ 4. urine/ 5. biopsy or others, specify: _____
	Pre-treatment	2 months	3 months	Pre-treatment
Smear	P / N / U	P / N / U	P / N / U	P / N / U
Culture	P / N / U / NTM	P / N / U / NTM	P / N / U / NTM	P / N / U / NTM
PCR	P / N / U			P/N/U
rpoB mutation (if PCR positive)	P / N / U			P/N/U

- **If pre-treatment culture is positive for MTB, is the ST favourable? (i.e., sensitive to HRES)**: N / Y / U (ST not done)

  If unfavourable ST, please mark S (sensitive) or R (resistant) for all ST done:

Isoniazid (H)	: S / R	Pyrazinamide	: S / R	Cycloserine	: S / R
Rifampicin (R)	: S / R	Ofloxacin	: S / R	Other (1) _____	: S / R
Ethambutol (E)	: S / R	Ethionamide	: S / R	Other (2) _____	: S / R
Streptomycin (S)	: S / R	Kanamycin	: S / R		

The ST result is based on phenotypic/genotypic test.

Completed by: _____ (name) Tel: _____ Fax: _____

Institution: 1. Chest Clinic/ 2. Chest Hospital/ 3. General Hospital/ 4. Private Practice. ; Name (and ward) of institution: _____

[After completion, this form should be sent to:

1. *for chest clinics: General Office, Tung Chung Chest Clinic, 1/F, Tung Chung Health Centre, Block 1, 6 Fu Tung Street, Tung Chung, Lantau Island. Fax: (852)2109 2240.*
2. *for Correctional Services Department: Statistics Unit, Tuberculosis and Chest Service Headquarters, 1/F, Wanchai Polyclinic, 99 Kennedy Road, Hong Kong. Fax: (852)2572 8921.]*

GUM LABEL of patient	DOS: _ _/_ _/_ _ _ _
	(for chest clinic use only) AE no.: _____ Cat.: _____ Tx no.: _____ DOA: _ _/_ _/_ _ _ _

PFC – To be completed at 12 month from DOS (for TB patients)

Part (I) Outcome at 12 months (please √, circle and/ or fill in the spaces provided as appropriate)

(1) Cured/ treatment completed ☐ Date treatment completed (mm/yyyy): ____/_____

(a) Status at completion:

- Bacteriological conversion ☐
- Radiological improvement ☐
- Other clinical improvement ☐
- No available evidence of response ☐

(b) After treatment completed:

No relapse ☐

Loss to follow-up ☐ Last visit date (mm/yyyy): ____/_____

Died ☐ Cause: 1.TB-related/ 2.Not TB-related/ 3.Unknown Date of death (mm/yyyy): ____/_____

Relapse ☐ Date relapse (mm/yyyy): ____/_____

- 1.Bacteriological / 2.Histological / 3.Clinical-radiological (choose 1 item, priority from left to right)

(2) Treatment incomplete (including death while on treatment) ☐

- Still on treatment, reason: 1.retreatment/ 2.extrapulm./ 3.extensive/ 4.interrupted treatment/ 5.drug resistance/ 6.poor response/ 7.non-standard regimen/ 8.DM or on immunosuppressives etc/ 9.others, specify: _____
- Died ☐ Cause: 1.TB-related/ 2.Not TB-related/ 3.Unknown Date of death (mm/yyyy): ____/_____

(3) Transferred ☐ to: 1.GP/ 2.Chest Clinic/ 3.Hospital/ 4.Outside HK Details: _____

Last treatment date (mm/yyyy): ____/_____

(4) Defaulted (defaulted treatment for a continuous period > 2m) ☐

- Never found ☐ Last visit date (mm/yyyy): ____/_____
- Retreated after default ☐ Date treatment re-started (mm/yyyy): ____/_____
- Treatment stopped by doctor ☐ Last treatment date (mm/yyyy): ____/_____

(5) Failure (persistent positive bacteriology and treatment stopped) ☐

(6) Wrong/ revised diagnosis ☐ Last treatment date (mm/yyyy): ____/_____

- New diagnosis: _____

Completed by: _____ (name) Tel: _____ Fax: _____

Institution: 1.Chest Clinic/ 2.Chest Hospital/ 3.General Hospital/ 4.Private Practice. ; Name (and ward) of institution: _____

[After completion, this form should be sent to:

1. *<u>for chest clinics</u>: General Office, Tung Chung Chest Clinic, 1/F, Tung Chung Health Centre, Block 1, 6 Fu Tung Street, Tung Chung, Lantau Island. Fax: (852)2109 2240.*
2. *<u>for Correctional Services Department</u>: Statistics Unit, Tuberculosis and Chest Service Headquarters, 1/F, Wanchai Polyclinic, 99 Kennedy Road, Hong Kong. Fax: (852)2572 8921.]*

GUM LABEL of patient	DOS: _ _/_ _/_ _ _ _
	(for chest clinic use only) AE no.: _____ Cat.: _____ Tx no.: _____ DOA: _ _/_ _/_ _ _ _

PFD – To be completed at 24 month from DOS (for TB patients)

Part (J) Outcome at 24 months (please √, circle and/ or fill in the spaces provided as appropriate)

(1) Cured/ treatment completed ☐ Date treatment completed (mm/yyyy): ____/_____

(a) Status at completion:

- Bacteriological conversion ☐
- Radiological improvement ☐
- Other clinical improvement ☐
- No available evidence of response ☐

(b) After treatment completed:

No relapse ☐

Loss to follow-up ☐ Last visit date (mm/yyyy): ____/_____

Died ☐ Cause: 1.TB-related/ 2.Not TB-related/ 3.Unknown Date of death (mm/yyyy): ____/_____

Relapse ☐ Date relapse (mm/yyyy): ____/_____

- 1.Bacteriological / 2.Histological / 3.Clinical-radiological / 4.Clinical only (choose 1 item, priority from left to right)

(2) Treatment incomplete (including death while on treatment) ☐

- Still on treatment, reason: 1.retreatment/ 2.extrapulm./ 3.extensive/ 4.interrupted treatment/ 5.drug resistance/ 6.poor response/ 7.non-standard regimen/ 8.DM or on immunosuppressives etc./ 9.others, specify: _____
- Died ☐ Cause: 1.TB-related/ 2.Not TB-related/ 3.Unknown Date of death (mm/yyyy): ____/_____

(3) Transferred ☐ to: 1.GP/ 2.Chest Clinic/ 3.Hospital/ 4.Outside HK Details: _____

Last treatment date (mm/yyyy): ____/_____

(4) Defaulted (defaulted treatment for a continuous period > 2m) ☐

- Never found ☐ Last visit date (mm/yyyy): ____/_____
- Retreated after default ☐ Date treatment re-started (mm/yyyy): ____/_____
- Treatment stopped by doctor ☐ Last treatment date (mm/yyyy): ____/_____

(5) Failure (persistent positive bacteriology and treatment stopped) ☐

(6) Wrong/ revised diagnosis ☐ Last treatment date (mm/yyyy): ____/_____

- New diagnosis: _____

Completed by: _____ (name) Tel: _____ Fax: _____

Institution: 1.Chest Clinic/ 2.Chest Hospital/ 3.General Hospital/ 4.Private Practice. ; Name (and ward) of institution: _____

[After completion, this form should be sent to:

1. *<u>for chest clinics</u>: General Office, Tung Chung Chest Clinic, 1/F, Tung Chung Health Centre, Block 1, 6 Fu Tung Street, Tung Chung, Lantau Island. Fax: (852)2109 2240.*
2. *<u>for Correctional Services Department</u>: Statistics Unit, Tuberculosis and Chest Service Headquarters, 1/F, Wanchai Polyclinic, 99 Kennedy Road, Hong Kong. Fax: (852)2572 8921.]*