

ANNUAL REPORT 2002

TUBERCULOSIS & CHEST SERVICE

OF THE

DEPARTMENT OF HEALTH

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PREFACE

In recent years, tuberculosis (TB) has become resurgent alongside rampant drug resistance and HIV co-infection in various parts of the world. In April 1993, the World Health Organization (WHO) declared TB as a global emergency. In May 1998, a resolution in the 51st World Health Assembly urged all member states to turn their policies into action and to make strong political commitment on TB control. In September 1999, “TB crisis” was declared in the Western Pacific Region and the project of “Stop TB in the Western Pacific Region” was initiated. A stagnated TB decline has been observed in the past decade in Hong Kong, Singapore, Malaysia, Japan, and Brunei, which are classified by WHO together as “places with intermediate TB burden and a good health infrastructure”.

TB has been a notifiable disease in Hong Kong since 1939. The notification rates were as high as 689/100,000 in 1951 and 697/100,000 in 1952 (Appendix 1). After reaching its record high, the TB notification rate declined relatively rapidly to 397/100,000 in 1961, 223/100,000 in 1971, 149/100,000 in 1981, and 109/100,000 in 1991. These corresponded to an annual decrease of 5.4%, 5.6%, 4.0%, and 3.1% in the respective decades. In the past decade, the downward trend has apparently halted. Initially, the TB rate continued to decrease to 101/100,000 in 1995 with an annual rate of 2.0%. Then it picked up to 114/100,000 in 1999. A closer look at the surveillance statistics shows that the number of notifications from the general public hospitals and the private sector increased drastically from 553 cases in 1995 to 1,938 cases in 1999. The change approximated the increase in the total number of notifications from 6,212 to 7,512 over the same period. Wider publicity, continuous medical education, and active retrieval of TB information from laboratories and death certificates might have contributed to the improvement in the local TB surveillance system. After 1999, the rate started to fall again. In 2002, there were 6,602 notified cases at a rate of 97/100,000.

Ageing of the TB epidemic in an ageing population probably underlies the recently observed stagnant trend. The introduction of effective anti-TB drugs has hastened the “ageing of the TB epidemic” in the intermediate TB burden countries since the 1950s. Chemotherapy, particularly directly observed treatment (DOT), is highly effective in curing patients of the disease. Removal of the infectious sources rapidly contains the transmission of TB. However, endogenous reactivation of the disease continues from the large pool of infected individuals accumulated in the past. Indeed, preliminary data on restriction fragment analysis of positive TB cultures on the Hong Kong Island suggested that reactivation by far

outweighed recent transmission as a cause of disease in recent years. Ageing also increases the risk of progression from latent infection to disease. The proportion of elderly aged 65 and above in the TB patient population was 37.8%, while the proportion of the same age group in the general population was only 11.4%. The high TB rate among the elderly likely resulted from a combination of high proportion of infected persons and a high risk of reactivation. While a large infected pool is expected from the high burden of disease in the past, the reason for the high risk of reactivation is less certain. Smoking and co-morbidity are likely to contribute, but other factors like genetic susceptibility may also be involved.

The TB services in Hong Kong were under periodic review in the past few decades and a number of reports with recommendations had been prepared by experts in the field. The development of TB services largely tied in with the recommendations. A website has been set up for dissemination of information about TB in early 2002, and a CDROM containing similar information was also distributed to all medical practitioners in Hong Kong. In view of the relatively high incidence of hepatotoxicity, especially among the elderly and hepatitis B carriers, recommendations have been made by the TB Control Coordinating Committee on the monitoring of liver function test for those patients at risk, as attached in the Supplement section of this Report. Studies were carried out, either alone or in collaboration with various parties, to address different issues of TB control in Hong Kong. Two related studies were carried out to compare the safety and efficacy of different regimens for the treatment of latent TB infection among close contacts and silicotic patients. Representatives were also sent to attend a number of international meetings, including the Third Technical Advisory Group Meeting held by Western Pacific Regional Office of WHO in Osaka in February 2002.

The medical social services for out-patients of chest clinics were reorganized, with the implementation of a community-based mode of service delivery in January 2002. Under the new arrangement, patients in need of social and/ or financial support were referred to Family Services Centres/ Integrated Family Service Centres (FSCs/ IFSCs) near their homes. The Radiology Services, with the Kowloon Bay and Fanling Radiology Centres, were also incorporated under the TB&CS.

During the year, 110,564 patients attended the TB&CS as compared to 110,516 in 2001, and the total attendance was 909,046 in comparison with 961,475 in 2001. Among the 110,564 patients, 34,788 patients were new attendants, of whom 22.2% were found free of any chest diseases. The diagnoses among other new patients included active pulmonary tuberculosis (11.0%), active tuberculosis of other forms (2.6%), inactive tuberculosis (10.3%), bronchitis not specified as acute or chronic (17.6%), acute respiratory infection (9.7%),

pneumonia (4.9%), malignant neoplasm of trachea and bronchus (1.7%), bronchiectasis (1.2%), asthma (0.8%) and emphysema (0.2%). Among all the attendance, 5,183 hospital admissions were arranged.

Part 1: Tuberculosis

The number of tuberculosis notification in 2002 was 6,602, making a notification rate of 97.3 per 100,000 population. The corresponding figures in 2001 were 7,262 and 108.0 respectively.

The number of tuberculosis deaths was 267 in 2002 as compared with 311 in 2001. The corresponding tuberculosis mortality rates were 3.9 and 4.6 per 100,000 respectively.

Tuberculosis stayed outside the top ten causes of death in 2002. Tuberculosis deaths accounted for 0.8% of the total registered deaths in Hong Kong. The average age of tuberculosis deaths was 74.0.

In 2002, 99.7% of the newborns were given direct BCG vaccination at birth. The BCG revaccination programme for primary school children was stopped since the school year starting from September 2000.

HIV testing was done among tuberculosis patients of the TB&CS on a voluntary basis after counselling and consent. The positive rate remained low. Besides this, unlinked anonymous screening (UAS) continued to be carried out among a consecutive sample of TB patients annually.

Part 2: Pneumoconiosis

The Pneumoconiosis Compensation Ordinance was first introduced in 1980 for compensation of workers who acquired pneumoconiosis as a result of occupational exposure to silica and asbestos dusts. 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. The Ordinance was amended in 1993 to replace the lump sum payment with monthly payment. 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 applied for reassessment under the revised scheme, irrespective of whether there was additional degree of incapacity over previous lump-sum compensation. The 1996 amendment also allowed the Pneumoconiosis Medical Board to take other tests into consideration in adjusting the degree of incapacity as determined by FVC test 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.

The Pneumoconiosis Clinic continued to provide a full range of outpatient services to patients with suspected or confirmed pneumoconiosis. These services covered not only the assessment aspect, but also addressed the patients' diversified needs in terms of treatment, prevention and rehabilitation. The attendance at the clinic was 9,120 in 2002 compared with 10,889 in 2001. In 2002, 215 new cases of pneumoconiosis were registered in the TB&CS, and 118 new cases (including 9 cases of asbestos-related lung diseases) were confirmed by the Pneumoconiosis Medical Board. Up to the end of 2002, a total of 5,362 patients had been compensated.

Part 1

TUBERCULOSIS

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APPENDIX 1

TB Notifications & Death Rate of Tuberculosis (All Forms)

1947 - 2002

Year	TB Notifications	Notification Rate per 100,000 Pop	TB Deaths	Death Rate per 100,000 Pop	Ratio (Notifications/ Deaths)	Deaths ----- Notifications x 100%
1947	4855	277.4	1861	106.3	2.61	38.33
1948	6279	348.8	1961	108.9	3.20	31.23
1949	7510	404.4	2611	140.6	2.88	34.77
1950	9067	405.3	3263	145.9	2.78	35.99
1951	13886	689.0	4190	207.9	3.31	30.17
1952	14821	697.2	3573	168.1	4.15	24.11
1953	11900	530.7	2939	131.1	4.05	24.70
1954	12508	528.9	2876	121.6	4.35	22.99
1955	14148	568.1	2810	112.8	5.03	19.86
1956	12155	464.9	2629	100.6	4.62	21.63
1957	13665	499.4	2675	97.8	5.11	19.58
1958	13485	472.5	2302	80.7	5.86	17.07
1959	14302	482.0	2178	73.4	6.57	15.23
1960	12425	405.5	2085	68.0	5.96	16.78
1961	12584	397.2	1907	60.2	6.60	15.15
1962	14263	431.5	1881	56.9	7.58	13.19
1963	13031	380.9	1762	51.5	7.40	13.52
1964	12557	358.3	1441	41.1	8.71	11.48
1965	9927	275.9	1278	35.5	7.77	12.87
1966	11427	314.8	1515	41.7	7.54	13.26
1967	15253	409.7	1493	40.1	10.22	9.79
1968	9792	257.5	1483	39.0	6.60	15.15
1969	11072	286.5	1470	38.0	7.53	13.28
1970	10077	254.5	1436	36.3	7.02	14.25
1971	9028	223.2	1250	30.9	7.22	13.85
1972	8420	204.2	1312	31.8	6.42	15.58
1973	8152	192.2	1154	27.2	7.06	14.16
1974	8320	190.0	974	22.2	8.54	11.71
1975	8192	183.6	646	14.5	12.68	7.89
1976	7928	175.5	568	12.6	13.96	7.16
1977	7191	156.9	532	11.6	13.52	7.40
1978	6623	141.9	420	9.0	15.77	6.34
1979	7907 (498) *	160.4	523	10.6	15.12	6.61
1980	8065 (712)	159.3	551	10.9	14.64	6.83
1981	7729 (254)	149.1	489	9.4	15.81	6.33
1982	7527 (112)	143.0	454	8.6	16.58	6.03
1983	7301 (73)	136.6	446	8.3	16.37	6.11
1984	7843 (69)	145.3	420	7.8	18.67	5.36
1985	7545 (59) 580 #	138.3	409	7.5	18.45	5.42
1986	7432 (46) 544	134.5	407	7.4	18.26	5.48
1987	7269 (41) 495	130.3	405	7.3	17.95	5.57
1988	7021 (121) 433	124.8	388	6.9	18.10	5.53
1989	6704 (226) 387	117.9	403	7.1	16.64	6.01
1990	6510 (288) 341	114.1	382	6.7	17.04	5.87
1991	6283 (281) 293	109.2	409	7.1	15.36	6.51
1992	6534 (309) 264	112.6	410	7.1	15.94	6.27
1993	6537 (264) 89	110.8	396	6.7	16.51	6.06
1994	6319 (230) 87	104.7	409	6.8	15.45	6.47
1995	6212 (175) 102	100.9	418	6.8	14.86	6.73
1996	6501 (88) 162	101.0	292	4.5	22.26	4.49
1997	7072 (34) 156	109.0	252	3.9	28.06	3.56
1998	7673 (7) 169	117.3	270	4.1	28.42	3.52
1999	7512 (5) 166	113.7	312	4.7	24.08	4.15
2000	7578 (7) 152	113.7	299	4.5	25.34	3.95
2001	7262 (0) 192	108.0	311	4.6	23.35	4.28
2002	6602 (0) 186	97.3	267	3.9	24.73	4.04

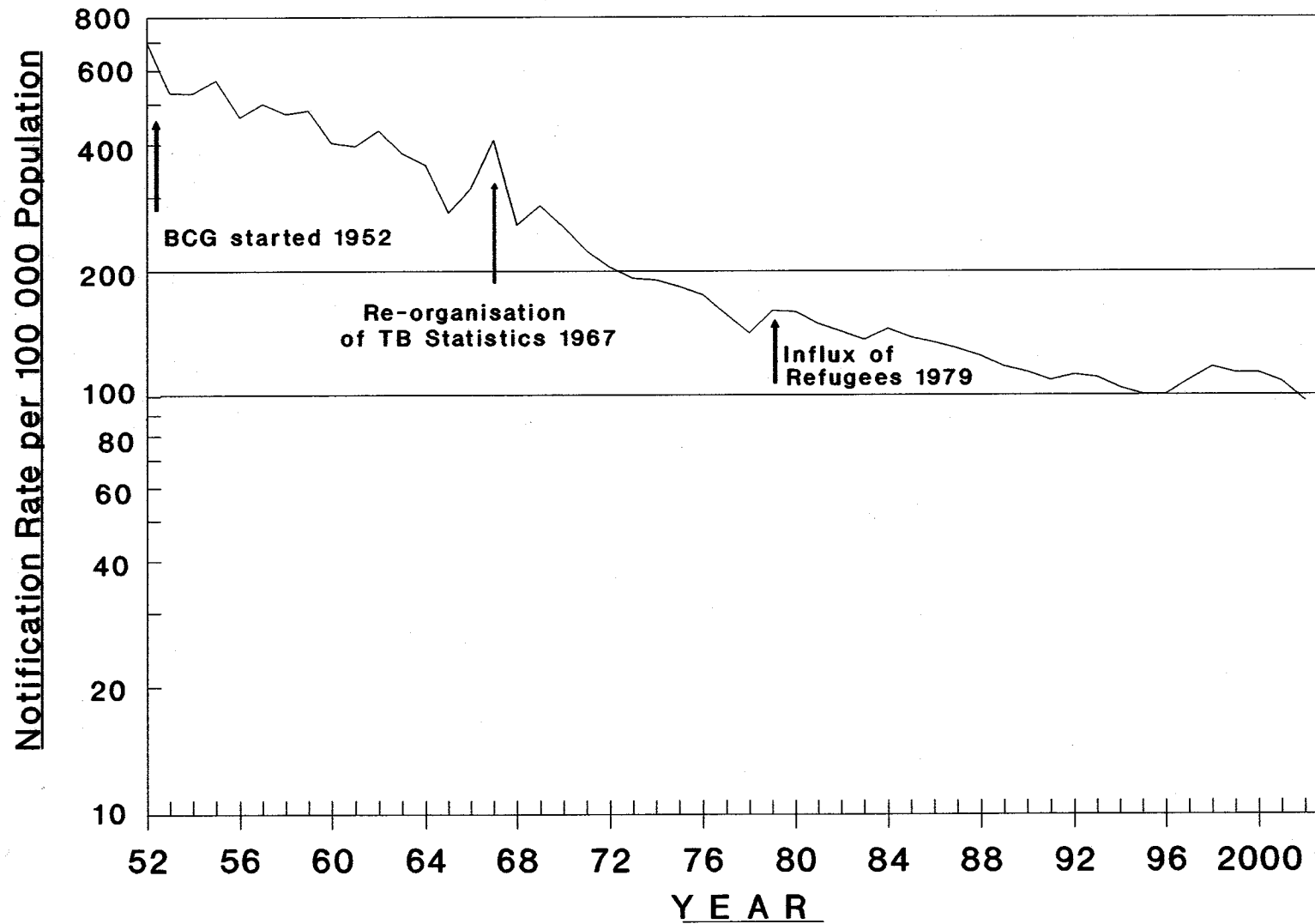
* Figures in brackets denote the number of Vietnamese refugees included.

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

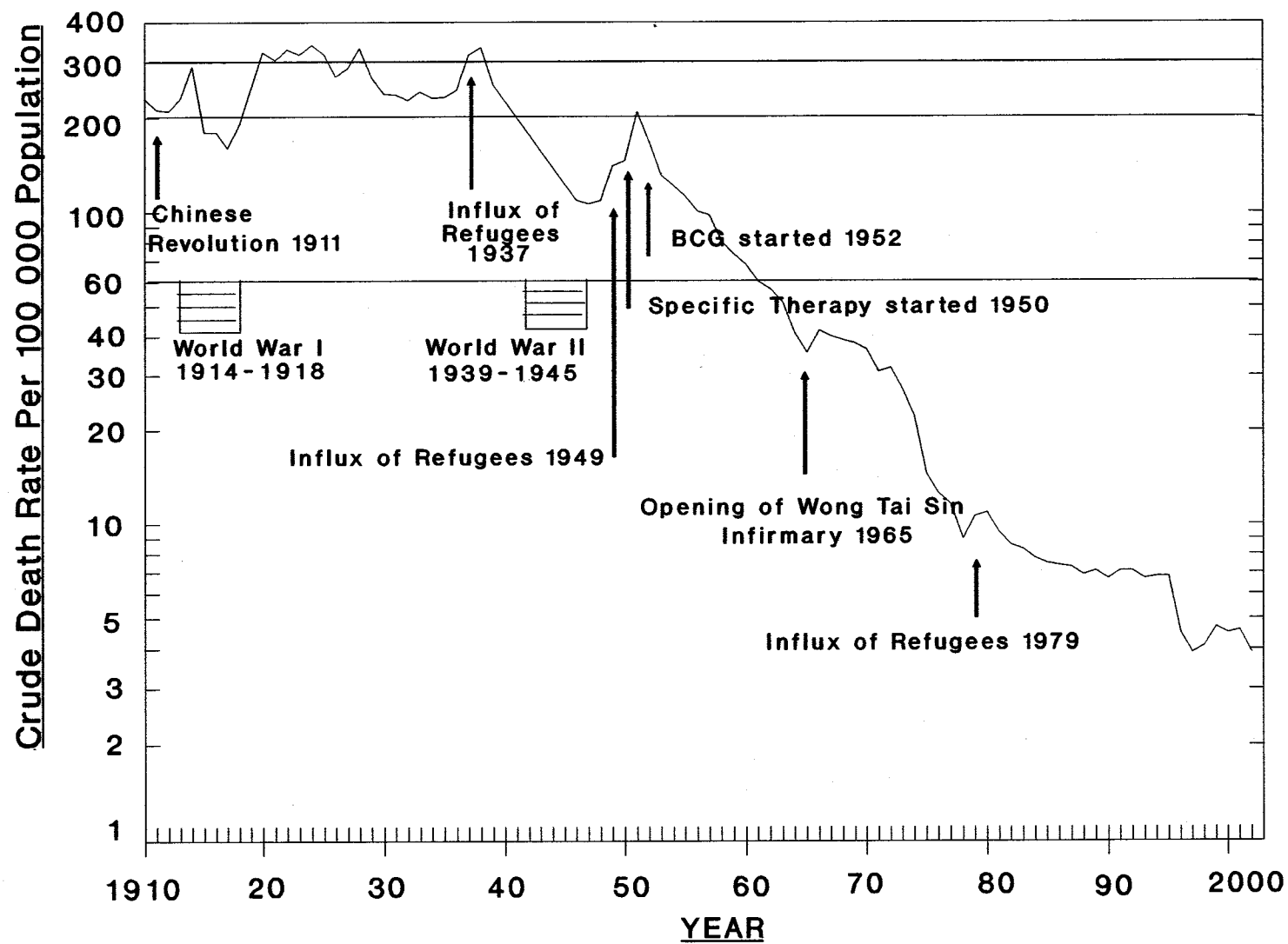
NB The rates from the year 1996 onwards have been updated to reflect the adoption of the "Resident Population" approach by the Census & Statistics Department in August 2000 and the revision based on the latest results of the 2001 Population Census.

APPENDIX 2

TB Notification Rate (All Forms) 1952-2002



APPENDIX 3
Crude Death Rate due to Tuberculosis (All Forms) 1910-2002



APPENDIX 4 (a)

Tuberculosis Notifications (All Forms) & Rate by Age & Sex 2002

Age Group	Tuberculosis Notifications (All Forms)			Tuberculosis Notification Rate (per 100,000 population)		
	Male	Female	Total	Male	Female	Total
Under 1	0	1	1	0.7	3.9	2.2
1	0	0	0			
2	0	2	2			
3	0	1	1			
4	1	1	2			
5-9	6	5	11	3.0	2.6	2.8
10-14	15	22	37	6.7	10.4	8.5
15-19	117	108	225	51.6	50.6	51.1
20-24	195	195	390	87.5	85.9	86.7
25-29	193	252	445	81.5	91.7	87.0
30-34	203	218	421	80.0	65.1	71.5
35-39	187	218	405	61.9	58.5	60.0
40-44	307	165	472	91.1	46.3	68.1
45-49	277	144	421	97.8	49.9	73.6
50-54	345	137	482	146.8	60.8	104.7
55-59	286	82	368	191.2	61.3	129.9
60-64	346	79	425	268.8	70.2	176.1
65-69	448	96	544	347.8	78.1	216.1
70-74	473	150	623	449.2	135.9	288.8
75-79	390	142	532	712.6	236.6	428.6
80-84	284	123	407			
85 & over	216	172	388			
Total	4289	2313	6602	130.0	66.3	97.3

APPENDIX 4 (b)

Pulmonary TB Notifications by Age & Sex 2002 **

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	1	1	0	1	1
1	0	0	0	0	0	0	0	0	0
2	0	1	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	4	4	8	2	1	3	1	1	2
10 - 14	7	19	26	4	8	12	1	6	7
15 - 19	105	94	199	65	62	127	38	37	75
20 - 24	180	159	339	104	99	203	64	62	126
25 - 29	176	197	373	98	115	213	55	66	121
30 - 34	178	160	338	103	106	209	55	54	109
35 - 39	170	169	339	110	99	209	68	53	121
40 - 44	278	109	387	184	67	251	115	44	159
45 - 49	255	96	351	163	60	223	94	28	122
50 - 54	319	89	408	225	57	282	136	30	166
55 - 59	269	65	334	198	37	235	119	19	138
60 - 64	326	62	388	248	42	290	146	22	168
65 - 69	418	68	486	314	54	368	167	25	192
70 - 74	441	121	562	344	84	428	160	31	191
75 - 79	371	117	488	287	93	380	139	42	181
80 - 84	267	103	370	217	83	300	100	29	129
85 & over	210	154	364	164	119	283	78	36	114
Total	3975	1788	5763	2830	1187	4017	1536	586	2122

** Pulmonary TB with or without extrapulmonary TB
 * Either smear or culture positive

APPENDIX 4 (c)

Rate of Pulmonary TB Notification by Age & Sex 2002 **

(Rate per 100,000 Population)

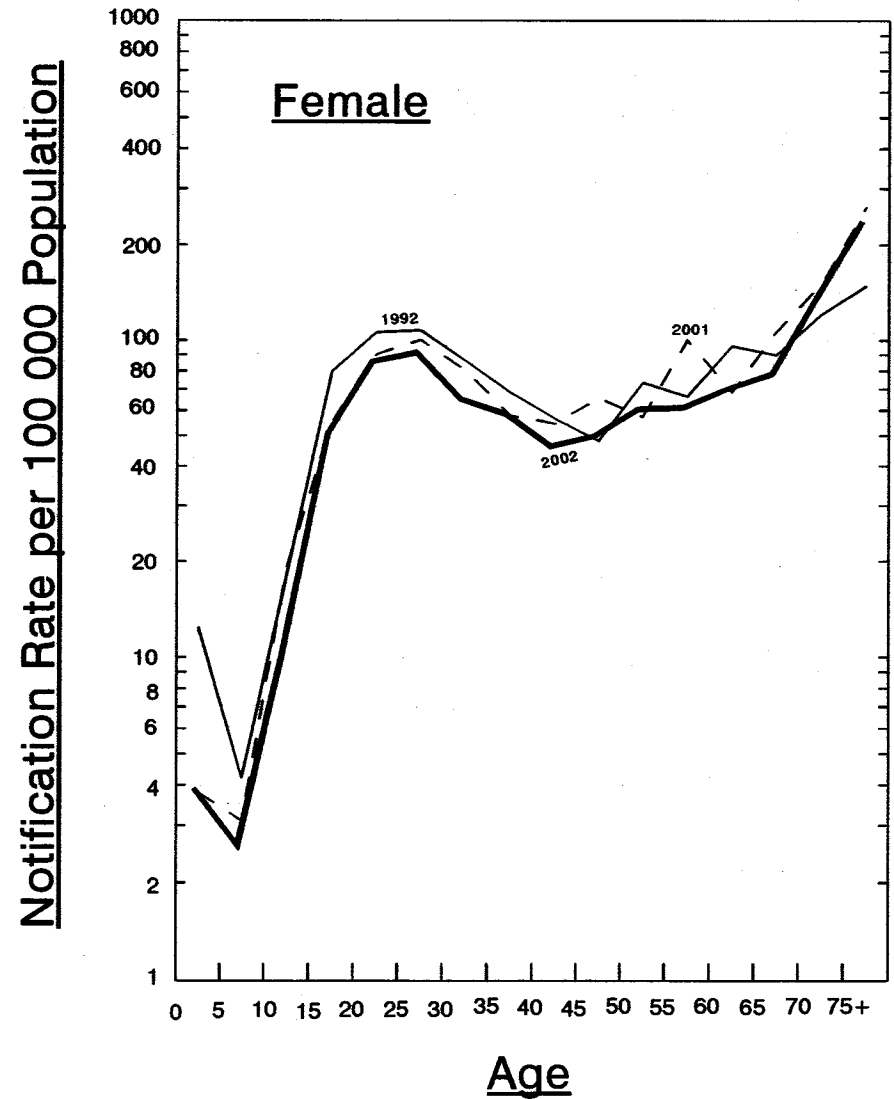
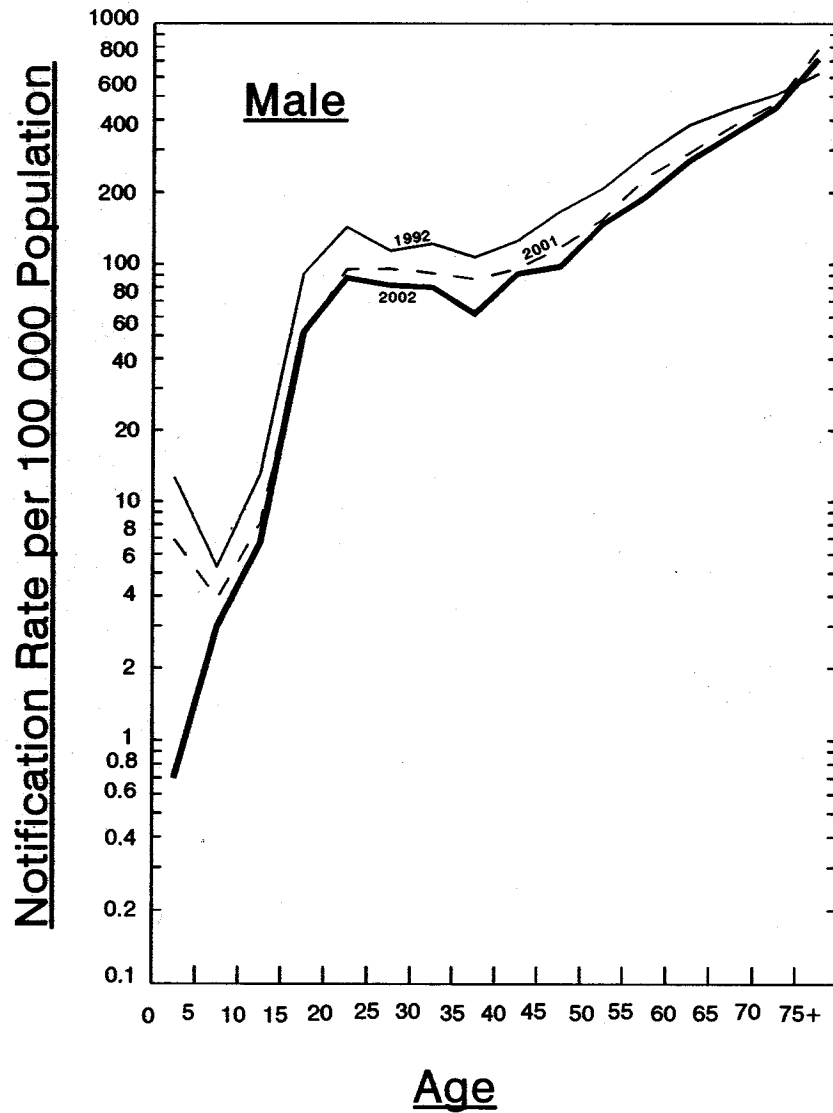
Age Group	Pulmonary TB			Bacteriologically * Positive Pulmonary TB			Smear Positive Pulmonary TB		
	M	F	T	M	F	T	M	F	T
0-4	0.7	1.6	1.1	0.0	0.8	0.4	0.0	0.8	0.4
5 - 9	2.0	2.1	2.0	1.0	0.5	0.8	0.5	0.5	0.5
10 - 14	3.1	9.0	6.0	1.8	3.8	2.8	0.4	2.8	1.6
15 - 19	46.3	44.0	45.2	28.7	29.0	28.9	16.8	17.3	17.0
20 - 24	80.8	70.0	75.4	46.7	43.6	45.1	28.7	27.3	28.0
25 - 29	74.3	71.7	72.9	41.4	41.9	41.6	23.2	24.0	23.7
30 - 34	70.2	47.8	57.4	40.6	31.7	35.5	21.7	16.1	18.5
35 - 39	56.3	45.3	50.2	36.4	26.5	31.0	22.5	14.2	17.9
40 - 44	82.5	30.6	55.8	54.6	18.8	36.2	34.1	12.3	22.9
45 - 49	90.0	33.3	61.4	57.5	20.8	39.0	33.2	9.7	21.3
50 - 54	135.7	39.5	88.6	95.7	25.3	61.2	57.9	13.3	36.0
55 - 59	179.8	48.6	117.9	132.4	27.7	82.9	79.5	14.2	48.7
60 - 64	253.3	55.1	160.8	192.7	37.3	120.2	113.4	19.5	69.6
65 - 69	324.5	55.3	193.1	243.8	43.9	146.2	129.7	20.3	76.3
70 - 74	418.8	109.6	260.5	326.7	76.1	198.4	151.9	28.1	88.5
75+	678.9	202.5	394.7	534.8	159.7	311.0	253.8	57.9	137.0
Total	120.5	51.3	84.9	85.8	34.0	59.2	46.5	16.8	31.3

** Pulmonary TB with or without extrapulmonary TB

* Either smear or culture positive

APPENDIX 5

TB Notification Rate by Age & Sex 1992, 2001 & 2002



APPENDIX 6

Notifications of Tuberculosis by Type by Age & Sex 2002

Age Group	Pulmonary only #			Miliary			Meninges			Bones & Joints			Others		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Under 1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	1	1	-	-	-	-	-	-	-	-	-	-	1	1
3	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
4	1	-	1	-	-	-	-	-	-	-	1	1	-	-	-
5 - 9	4	4	8	-	-	-	-	-	-	-	-	-	2	1	3
10 - 14	7	19	26	-	-	-	-	1	1	2	-	2	6	2	8
15 - 19	99	91	190	-	-	-	-	2	2	-	-	-	18	15	33
20 - 24	169	152	321	3	4	7	2	2	4	1	1	2	20	36	56
25 - 29	171	189	360	1	2	3	-	-	-	-	3	3	21	58	79
30 - 34	170	150	320	1	3	4	-	2	2	2	3	5	30	60	90
35 - 39	159	158	317	3	-	3	1	-	1	-	2	2	24	58	82
40 - 44	269	104	373	3	1	4	1	1	2	1	4	5	33	55	88
45 - 49	250	92	342	-	1	1	2	2	4	-	1	1	25	48	73
50 - 54	312	85	397	1	-	1	1	-	1	4	7	11	27	45	72
55 - 59	265	62	327	1	3	4	2	-	2	-	3	3	18	14	32
60 - 64	314	61	375	2	1	3	1	1	2	2	2	4	27	14	41
65 - 69	412	67	479	1	1	2	-	1	1	4	3	7	31	24	55
70 - 74	430	117	547	3	3	6	3	1	4	3	8	11	34	21	55
75 - 79	362	113	475	3	2	5	1	-	1	5	4	9	19	23	42
80 - 84	260	96	356	1	2	3	-	2	2	4	2	6	19	21	40
85 & over	207	148	355	1	3	4	-	-	-	-	3	3	8	18	26
Total	3861	1710	5571	24	26	50 (a)	14	15	29 (b)	28	47	75 (c)	362	515	877 (d) *

* Including: TB Lymph Node 369
 TB Kidney/Urinary System 37
 TB Peritonitis 28
 TB Pleural Effusion 113
 TB Laryngitis 8
 TB Skin 14
 Others 36
 Unspecified 272

(a) All Miliary TB cases has coexisting Pulmonary TB; also include 13 cases with coexisting TB of other extrapulmonary sites.

(b) Including 3 cases with coexisting Pulmonary TB and 1 case with coexisting TB of other extrapulmonary site.

(c) Including 7 cases with coexisting Pulmonary TB and 6 cases with coexisting TB of other extrapulmonary sites.

(d) Including 132 cases with coexisting Pulmonary TB and 4 cases with coexisting TB of other extrapulmonary site.

Pulmonary TB only, without extrapulmonary site involvement

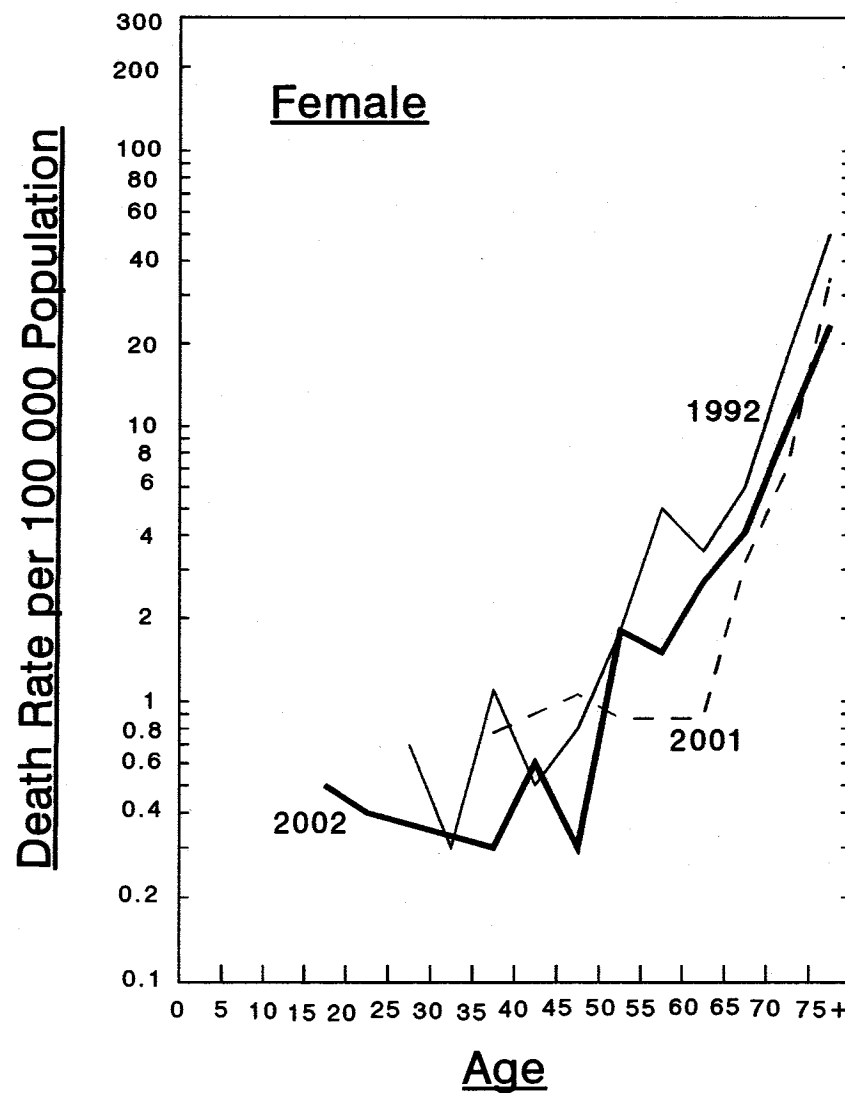
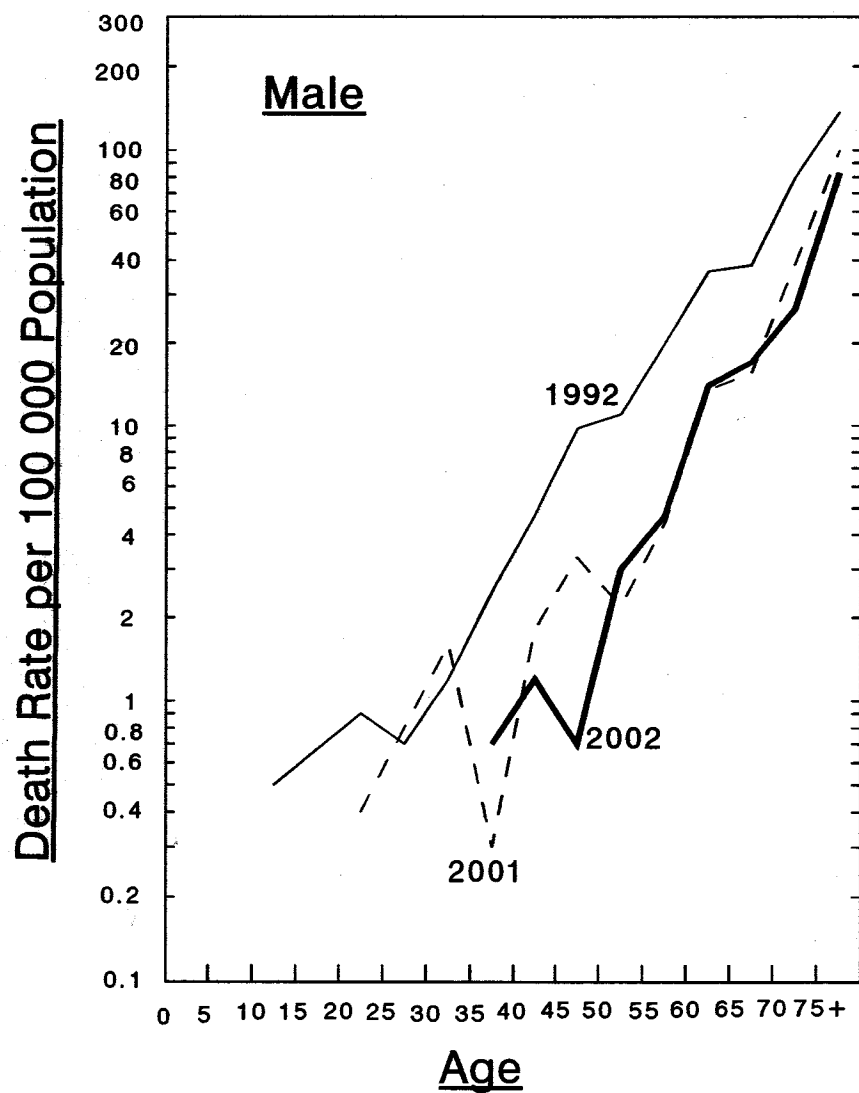
APPENDIX 7

TB Death (All Forms) & Death Rate by Age & Sex 2002

Age Group	Tuberculosis Death (All Forms)			Death Rate (per 100,000 population)		
	Male	Female	Total	Male	Female	Total
Under 1	-	-	-	-	-	-
1	-	-	-			
2	-	-	-			
3	-	-	-			
4	-	-	-			
5-9	-	-	-	-	-	-
10-14	-	-	-	-	-	-
15-19	-	1	1	-	0.5	0.2
20-24	-	1	1	-	0.4	0.2
25-29	-	-	-	-	-	-
30-34	-	-	-	-	-	-
35-39	2	1	3	0.7	0.3	0.4
40-44	4	2	6	1.2	0.6	0.9
45-49	2	1	3	0.7	0.3	0.5
50-54	7	4	11	3.0	1.8	2.4
55-59	7	2	9	4.7	1.5	3.2
60-64	18	3	21	14.0	2.7	8.7
65-69	22	5	27	17.1	4.1	10.7
70-74	28	11	39	26.6	10.0	18.1
75-79	33	3	36	82.5	23.3	47.2
80-84	34	19	53			
85 & over	36	21	57			
Total	193	74	267	5.8	2.1	3.9

APPENDIX 8

TB Mortality Rate by Age & Sex 1992, 2001 & 2002



APPENDIX 9

TB Deaths by Type by Age & Sex 2002

Age Group	Pulmonary only #			Miliary			Meninges			Bones & joints			Others		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Under 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5 - 9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10 - 14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15 - 19	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
20 - 24	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
25 - 29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30 - 34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35 - 39	1	-	1	1	-	1	-	1	1	-	-	-	-	-	-
40 - 44	3	1	4	-	1	1	1	-	1	-	-	-	-	-	-
45 - 49	2	-	2	-	-	1	-	1	1	-	-	-	-	-	-
50 - 54	6	2	8	1	-	2	-	-	-	-	-	-	-	2	2
55 - 59	5	-	5	1	-	-	-	-	-	-	-	-	1	2	3
60 - 64	14	2	16	1	-	1	-	-	-	-	-	-	3	1	4
65 - 69	19	2	21	1	-	1	-	1	1	-	-	-	2	2	4
70 - 74	24	6	30	-	2	2	-	-	-	-	-	-	4	3	7
75 - 79	22	3	25	3	-	3	-	-	-	-	-	-	8	-	8
80 - 84	27	12	39	1	1	2	-	-	-	-	-	-	6	6	12
85 & over	30	18	48	1	1	2	-	-	-	1	-	1	4	2	6
Total	153	47	200	10	6	16	1	3	4	1	-	1	28	18	46 *

* Breakdown of Deaths from other forms of TB: -

Number

Intestines, peritoneum & mesenteric glands

3

Genito-urinary system

2

Tuberculosis of other organ

2

Late effects of Tuberculosis

39

Total

46

Pulmonary TB only, without extrapulmonary site involvement

APPENDIX 10**Tuberculosis Mortality**
1950 - 2002

Year	% of TB Deaths below 5 years	% of TB Deaths 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 Deaths
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

APPENDIX 11

Top Ten Causes of Death 2002

Rank	Causes of Death	Detailed List No. ICD 10th Revision	2001		
			Male	Female	Total
	All Causes		19,523	14,791	34,316 (2)
1	Malignant neoplasms	C00-C97	7,155	4,503	11,658
2	Diseases of heart	I00-I09, I11 I13, I20-I51	2,560	2,409	4,969
3	Cerebrovascular diseases	I60-I69	1,565	1,653	3,218
4	Pneumonia	J12-J18	1,725	1,469	3,194
5	Chronic lower respiratory diseases *	J40-J47	1,427	648	2,075
6	External causes of morbidity and mortality #	V01-Y89	1387	681	2,068
7	Nephritis, nephrotic syndrome and nephrosis	N00-N07, N17-N19, N25-N27	496	559	1,055
8	Diabetes mellitus	E10-E14	243	331	574
9	Septicaemia	A40-A41	221	246	467
10	Aortic aneurysm and dissection	I71	241	136	377
	Tuberculosis (including late effects of tuberculosis)		193	74	267
	All other causes	Residues of all causes	2,310	2,082	4,394 (2)

- 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
1992 - 2002**

Origin	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Origin
East Kowloon Chest Clinic	280	298	280	158	190	175	225	118	192	173	144	East Kowloon Chest Clinic
Kowloon Chest Clinic	950	894	823	788	742	667	529	608	477	413	420	Kowloon Chest Clinic
Kwai Chung Chest Clinic	556	583	552	554	581	547	531	439	342	339	279	Kwai Chung Chest Clinic
Sai Ying Pun Chest Clinic (a)	262	288	271	261	254	180	216	198	196	194	142	Sai Ying Pun Chest Clinic (a)
Shauiwan Chest Clinic	188	180	176	189	195	181	199	158	169	158	148	Shauiwan Chest Clinic
					31	31	50	29	25	23	27	Shauiwan Pneumoconiosis
Shek Kip Mei Chest Clinic	392	290	272	256	243	302	282	266	232	208	180	Shek Kip Mei Chest Clinic
Wanchai Chest Clinic	729	717	603	593	590	502	461	365	375	384	279	Wanchai Chest Clinic
Yaumati Chest Clinic	343	296	349	181	325	280	389	344	339	373	271	Yaumati Chest Clinic
Yan Oi Chest Clinic	291	313	303	363	170	428	419	440	425	396	355	Yan Oi Chest Clinic
Yung Fung Shee Chest Clinic	281	276	296	301	300	240	285	331	222	213	218	Yung Fung Shee Chest Clinic
NT Chest Clinic	422	511	706	650	630	561						NT Chest Clinic (e)
							6	13	26	24	35	Tung Chung Chest Clinic
							420	395	308	288	223	Yuen Chau Kok Chest Clinic
							102	97	103	81	96	Sheung Shui Chest Clinic
							98	92	88	84	96	Tai Po Chest Clinic
							94	94	111	96	103	Yuen Long Chest Clinic
							13	8	4	4	11	Sai Kung Chest Clinic
Sub-total	4694	4646	4631	4294	4251	4094	4319	3995	3634	3451	3027	Sub-total
Tung Wah Group (b)	238	338	274	322	335	384	339	426	443	322	237	Kowloon Hospital
Ruttonjee Hospital	305	346	418	372	330	442	458	431	352	330	263	Wong Tai Sin Hospital
Grantham Hospital	273	269	290	229	235	333	275	324	326	305	236	Ruttonjee Hospital
Haven of Hope Hospital	91	117	208	338	285	360	316	296	358	259	249	Grantham Hospital
Other Govt Institutions (c)	593	612	80	88	97	72	117	105	141	116	147	Haven of Hope Hospital
			18	16	3	5	7	42	43	113	107	Other Govt. Institutions (f)
			327	277	287	740	1244	1682	2081	2176	2133	Other H.A. Hospitals
Maryknoll Hospital	55	48										
United Christian Hospital	32	36										
Caritas Medical Centre	11	29										
Others (d)	219	89	53	253	589	413	343	157	121	125	130	Private Practitioners
Private Hospitals	23	7	20	23	89	229	255	54	79	65	73	Private Hospitals
Total	6534	6537	6319	6212	6501	7072	7673	7512	7578	7262	6602	Total
% of cases from Chest Clinics among the total	71.8	71.1	73.3	69.1	65.4	57.9	56.3	53.2	48.0	47.5	45.8	% of cases from Chest Clinics among the total
			20.1	21.7	19.7	22.5	19.6	21.1	21.4	18.3	17.1	% from Chest Hospitals (g)
			5.5	4.7	4.5	10.5	16.3	22.9	28.0	31.5	33.9	% from Other Public Hospitals
			1.2	4.4	10.4	9.1	7.8	2.8	2.6	2.6	3.1	% from Private Sector

Note : (a) Including Notifications from Cheung Chau Chest Clinic.

(b) Most of the notifications are from Wong Tai Sin Hospital.

(c) Sources are from former Government Hospitals, Public Mortuaries, Prison Hospitals, Army Hospitals.

(d) Sources are mainly from Private Practitioners.

(e) Including Yuen Chau Kok Chest Clinic.

(f) Sources are from Public Mortuaries, Prison Hospitals, & Army Hospitals.

(g) Chest Hospitals include Kowloon Hospital, Wong Tai Sin Hospital, Ruttonjee Hospital, Grantham Hospital and Haven of Hope Hospital.

APPENDIX 12 (b)

**Breakdown of Origin of TB
Notifications for "Other H.A. Hospitals" 2002**

Name of Hospital	No. of TB Notification
Alice Ho Miu Ling Nethersole Hospital	115
Caritas Medical Centre	97
Castle Peak Hospital	6
Fung Yiu King Hospital	1
Hong Kong Buddhist Hospital	2
Kwong Wah Hospital	122
Nam Long Hospital	3
North District Hospital	146
Our Lady of Maryknoll Hospital	16
Pamela Youde Nethersole Eastern Hospital	149
Pok Oi Hospital	2
Prince of Wales Hospital	232
Princess Margaret Hospital	175
Queen Elizabeth Hospital	237
Queen Mary Hospital	131
Sha Tin Hospital	13
Tai Po Hospital	16
Tseung Kwan O Hospital	99
Tuen Mun Hospital	184
Tung Wah Hospital	14
United Christian Hospital	280
Yan Chai Hospital	93
Total	2133

APPENDIX 13

Tuberculosis Notifications & Notification Rates by Epidemiological Districts

Epidemiological Districts	2002	
	Notification	Notification Rate (per 100,000 pop.)
<u>Hong Kong Island</u>	1216	94.2
Central & Western	264	108.3
Wanchai	225	144.8
Eastern	458	75.3
Southern	269	94.9
<u>Kowloon</u>	2524	124.7
Yau Tsim Mong	482	170.6
Sham Shui Po	438	122.1
Kowloon City	334	91.3
Wong Tai Sin	611	135.7
Kwun Tong	659	116.1
<u>New Territories (East)</u>	1365	81.0
North	258	88.8
Tai Po	262	85.8
Shatin	511	80.8
Sai Kung	238	66.6
Islands	96	96.8
<u>New Territories (West)</u>	1468	83.1
Tsuen Wan	215	80.2
Kwai Chung & Tsing Yi	461	93.3
Tuen Mun	389	77.6
Yuen Long	403	80.1
Unknown	29	
Total	6602	97.3

APPENDIX 14

Establishment & Strength of TB & Chest Service As at 31.12.2002

Post	Establishment	Strength
Consultant Chest Physician i/c	1	1
Consultant Chest Physician	1	1
Senior Medical & Health Officer	8 (a)	5
Medical & Health Officer	23	25 (b)
Senior Nursing Officer	-	1
Nursing Officer	16	12
Registered Nurse	58	64
Enrolled Nurse	113	107
Senior Dispenser	9	9
Dispenser	1	4
Senior Inoculator	2	1
Inoculator	9	5
Executive Officer I	1	1
Statistical Officer II	2	2
Personal Secretary I	1	1
Clerical Officer	17	17
Assistant Clerical Officer	19	17
Clerical Assistant	52	56
Office Assistant	12	10
Workman II	55	63
General Worker (NSC)	-	1
Watchman	2	2
Senior Radiographer	1	1
Radiographer II	15	22
Senior Radiographic Technician	3	1
Radiographic Technician	5	5
Darkroom Technician	12	15

(a) Including 1 SMO (Radiologist) in Chest Service.

(b) Including 1 MO as Medical staff exchange programme with Ruttonjee Hospital.

APPENDIX 15

Total Attendances at Chest Clinics 1992 - 2002

Clinic/Hospital	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
East Kowloon Chest Clinic	64659	64473	64845	54430	54921	58862	65220	56317	64102	64820	60693
Kowloon Chest Clinic	77817	80576	83223	95667	104572	120663	117678	112291	119624	106321	98403
Sai Ying Pun Chest Clinic	52478	51036	47995	48537	55967	50875	56233	58380	57916	53854	51792
Shaukiwan Chest Clinic	46348	45250	43128	48215	55737	54639	54732	52446	53011	57215	57968
Shaukiwan Pneumoconiosis	-	-	-	9944	9664	9185	10821	12182	11023	10889	9120
Shek Kip Mei Chest Clinic	67636	59342	65676	56871	63462	72274	75610	68971	70941	71134	65534
South Kwai Chung Chest Clinic	84721	86912	91095	94000	101041	111683	113185	108654	99012	90448	84921
Tai Po Chest Clinic (Full Time)	-	-	-	-	-	-	-	-	-	-	7866
Tung Chung	-	-	-	-	-	101	3730	4687	4601	6241	6129
Wanchai Chest Clinic	89945	88826	85106	79964	89391	92697	91331	85109	84960	79212	70500
Yan Oi Chest Clinic	52075	51077	59698	64091	70741	69581	70979	78840	79188	72982	66905
Yaumati Chest Clinic	74709	78565	83555	79224	80341	89759	103198	108226	111959	114499	95700
Yuen Chau Kok Chest Clinic	-	10944	51089	54642	55615	61160	76626	71273	66192	65190	64748
Yung Fung Shee Chest Clinic	53042	53726	55740	56908	58139	58841	66567	74735	73255	73663	77078
Castle Peak Hospital	4850	3736	2442	1932	1773	1169	1283	1151	868	1010	416
Cheung Chau Chest Clinic	1903	1927	1781	2414	2490	2808	2943	2706	2611	1640	2404
Sai Kung Chest Clinic	1529	1504	1446	1412	1451	1444	1682	1905	2141	1945	2119
Sheung Shui Chest Clinic	6770	7217	7644	7710	10151	15330	18756	21256	22383	24271	25040
Tai Po Chest Clinic (Part Time)	9385	10852	9620	8083	8773	15760	20350	20758	24688	25636	17761
Yuen Long Chest Clinic	11149	11618	8963	9822	11687	18742	21677	24075	27603	27208	29393
Shatin Chest Clinic	16567	12974	-	-	-	-	-	-	-	-	-
Hei Ling Chau ATC	1636	1335	1232	1550	3187	2600	2664	1855	3726	2474	2302
Pik Uk Prison	112	46	1	87	-	-	-	-	-	-	-
Shek Pik Prison Hospital	584	882	594	1239	943	725	173	266	241	291	277
Stanley Prison Hospital	9166	7745	9991	5925	7751	6053	7380	9062	10468	10532	11977
Total	727081	730563	774864	782667	847797	914951	982818	975145	990513	961475	909046

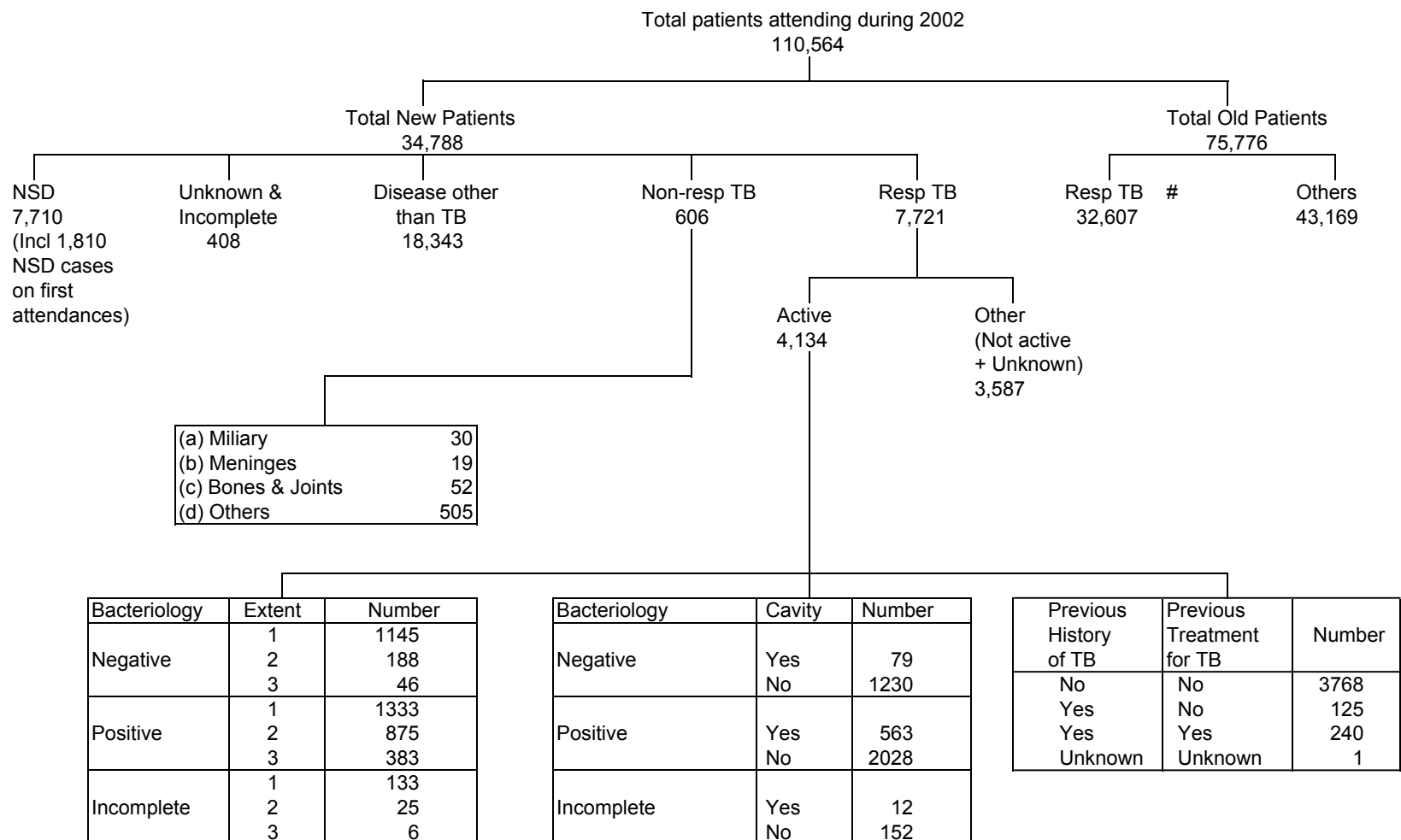
APPENDIX 16**No. of Doctor Sessions, Cases Seen by Doctor and Patient/Doctor Session 2002**

Clinic/Hospital	Doctor Sessions	Cases Seen by Doctor	Patient/ Doctor Session
East Kowloon Chest Clinic	591	18174	31
Kowloon Chest Clinic	1188	37738	32
South Kwai Chung Chest Clinic	1144	34077	30
Sai Ying Pun Chest Clinic	642	17806	28
Shauiwan Chest Clinic	542	18339	34
Shauiwan Pneumoconiosis	542	8845	16
Shek Kip Mei Chest Clinic	640	18328	29
Tung Chung Chest Clinic	542	2529	5
Wanchai Chest Clinic	1236	27612	22
Yan Oi Chest Clinic	887	24013	27
Yaumati Chest Clinic	1084	42058	39
Yuen Chau Kok Chest Clinic	878	20567	23
Yung Fung Shee Chest Clinic	542	19543	36
Castle Peak Hospital	24	416	17
Cheung Chau Chest Clinic	26	562	22
Sai Kung Chest Clinic	50	892	18
Sheung Shui Chest Clinic	277	8180	30
Tai Po Chest Clinic	386	8120	21
Yuen Long Chest Clinic	391	8074	21
Hei Ling Chau ATC	13	206	16
Shek Pik Prison Hospital	12	142	12
Stanley Prison Hospital	26	764	29
Total	11663	316985	27

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

APPENDIX 17

Flow Chart of Patients Attending Chest Clinics 2002



Refer to cases with pulmonary TB only, without coexisting TB of extrapulmonary sites.

APPENDIX 18

Classification of Patients of First Attendance with New Case Card Completed By Clinics According to International Classification of Diseases Code 2002

Code	Classification	Total
010	Primary Tuberculosis Infection	1
011	Pulmonary Tuberculosis	3830
012	Other Respiratory Tuberculosis	303
013	Tuberculosis of Meninges	19
014	Tuberculosis of Intestines	41
015	Tuberculosis of Bones & Joints	52
016	Tuberculosis of Genito-urinary System	49
017	Tuberculosis of Other Organs	415
018	Miliary Tuberculosis	30
137	Late effects of Tuberculosis	3587
160-165	Malignant Neoplasm of Respiratory System	598
212	Benign Neoplasm of Respiratory System	2
460-466	Acute Respiratory Infection	3386
470-478	Other Diseases of Upper Resp Tract	158
480-486	Pneumonia	1693
487	Influenza	1
490-491	Bronchitis, (not specified as acute or chronic) & chronic brochitis	6184
492	Emphysema	73
493	Asthma	268
494	Bronchiectasis	410
495-496	Others	437
501	Asbestosis	2
502	Silicosis	8
505	Pneumoconiosis, unspecified	13
506-508	Others	1
510	Empyema	10
511	Pleurisy	104
512	Pneumothorax	51
513-519	Other Diseases of Respiratory System	429
786	Unknown	2612
V71	N.S.D.	3181
	Diseases Other than TB & Resp System	4515
Total		32463

APPENDIX 19 (a)

Extent of Active Respiratory TB in First Attenders at Chest Clinics # **2000 -2002**

Extent	2000		2001		2002	
	No.	%	No.	%	No.	%
1. Minimal	2993	64.1	2859	63.9	2611	63.2
2. Moderate	1190	25.5	1174	26.2	1088	26.3
3. Extensive	484	10.4	442	9.9	435	10.5
Total	4667	100.0	4475	100.0	4134	100.0
No.of first attenders	39257		41109		34788	
% of active TB	11.9		10.9		11.9	

- * 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 2002**

	Number	%
Smear+	1515	36.6
Smear-Culture+	1056	25.5
Smear-Culture-	1324	32.0
Incomplete	239	5.8
Total	4134	100.0%

Refer to cases with pulmonary TB only, without coexisting TB of extrapulmonary sites.

APPENDIX 19 (b)

Rate of Drug-resistant Tuberculosis

Rate of drug resistance among 1415 TB cases with drug susceptibility data captured by programme forms (majority are seen at chest clinics) during the period January to June 2002:

Category	% resistant to				% resistant to *			MDR-TB	Total % resistance #	Total no. of cases analysed
	E	R	H	S	1 drug	2 drugs	≥ 3 drugs			
New cases	0.90	0.41	5.18	8.55	6.74	1.81	0.58	0.33	9.12	1217
Previously treated cases	2.02	5.56	9.09	11.62	7.07	2.02	4.04	4.55	13.13	198
Overall	1.06	1.13	5.72	8.98	6.78	1.84	1.06	0.92	9.68	1415

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
 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.

APPENDIX 19 (c)

Rate of Drug-resistant Tuberculosis

Among cases seen at chest clinics with date of starting treatment during the period January to December 2001

Age group	Category	% resistant to				% resistant to			MDR-TB	Total % resistance	Total no. of cases analysed
		E	R	H	S	1 drug	2 drugs	≥ 3 drugs			
0-19	New cases	1.81	0.60	4.22	7.23	6.02	3.61	0.00	0.00	9.64	166
	Retreatment cases	0.00	5.56	16.67	16.67	5.56	5.56	5.56	5.56	16.67	18
	Overall	1.63	1.09	5.43	8.15	5.98	3.80	0.54	0.54	10.33	184
20-39	New cases	1.06	1.17	5.52	7.63	5.52	2.35	0.94	0.94	8.80	852
	Retreatment cases	7.04	7.04	14.08	14.08	4.23	4.23	7.04	5.63	15.49	71
	Overall	1.52	1.63	6.18	8.13	5.42	2.49	1.41	1.30	9.32	923
40-59	New cases	0.87	0.99	5.46	7.20	4.59	2.23	0.99	0.62	7.82	806
	Retreatment cases	1.91	5.10	12.74	8.92	1.91	5.73	3.18	5.10	10.83	157
	Overall	1.04	1.66	6.65	7.48	4.15	2.80	1.35	1.35	8.31	963
60up	New cases	0.67	0.37	3.58	5.97	4.63	1.72	0.30	0.22	6.65	1339
	Retreatment cases	0.86	2.31	10.66	10.95	5.76	5.19	1.44	2.31	12.39	347
	Overall	0.71	0.77	5.04	7.00	4.86	2.43	0.53	0.65	7.83	1686
All	New cases	0.96	0.83	5.02	7.39	5.36	2.30	0.69	0.55	8.36	2908
	Retreatment cases	1.85	3.71	11.80	10.96	4.55	5.23	2.70	3.54	12.48	593
	Overall	1.04	1.22	5.75	7.45	4.87	2.61	0.96	0.99	8.44	3756

APPENDIX 19 (d)

Rate of Resistance to Ofloxacin

Drug susceptibility testing to ofloxacin has been performed for Mycobacterium tuberculosis strains isolated in TB Reference Laboratory of Department of Health. The rates of resistance to ofloxacin are tabulated as follows for the years 1999 to 2001. However, the data should be interpreted with caution as susceptibility testing to ofloxacin for Cat [B], [C] and [D] are done only if requested by the attending doctor, and not all such strains are included. Thus, the resistance rates among Cat [B], [C] and [D] are probably somewhat over-estimated. For Cat [E], the test is done for all MDR-TB strains and thus the rates are more representative of the true picture.

Year			All strains [A] (=B+C)	Strains with full susceptibility to SHRE [B]	Strains with resistance to any one drug of SHRE [C] (=D+E)	Non-MDR resistant strains [D]	MDR-TB strains [E]
1999	Total number tested		349	146	203	153	50
	Resistant to Ofloxacin	Number	17	2	15	4	11
		%	(4.9%)	(1.4%)	(7.4%)	(2.61%)	(22%)
2000	Total number tested		343	153	190	135	55
	Resistant to Ofloxacin	Number	14	0	14	3	11
		%	(4.1%)	(0%)	(7.4%)	(2.2%)	(20%)
2001	Total number tested		288	123	165	121	44
	Resistant to Ofloxacin	Number	15	1	14	5	9
		%	(5.2%)	(0.8%)	(8.5%)	(4.1%)	(20.5%)

APPENDIX 20 (a)

Treatment Return 2002

Name of clinic/hospital	N p u u m m t t b b e e o o r r n Rx b/f	Service regimen																									
		Brought in					Treatment completed				Transfer out to		Interrup. Rx temp.	Died	Drop out				Complete defaulter				N s u t m i b l e l o n Rx c/f	Unsup Rx	Incomp super. Rx	No.def. >2m, <3m	
											hosp	other cc			Rx by GP	Leave HK	Def. >1x	AMA	<2M	>2M, <3M	>3M	%					
		1	2	3	4	5	<6M	at6m	>6m	%																	
<u>FULL TIME CLINICS</u>		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
East Kowloon	220	152	13	14	158	189	14	123	181	90.5	81	59	0	8	1	4	0	3	1	7	8	4.8	256	16	66	5	
Kowloon	79	343	41	22	234	152	22	119	305	82.0	117	194	0	29	5	20	0	11	11	8	9	5.4	21	0	164	3	
South Kwai Chung	336	296	15	26	230	124	13	210	291	88.7	108	29	0	20	7	11	0	10	9	5	2	2.8	312	0	143	0	
Sai Ying Pun	181	159	11	17	137	103	6	125	158	89.6	97	22	0	6	2	16	0	1	2	0	6	2.5	167	0	81	0	
Shauiwan	195	127	2	11	176	179	3	93	220	89.9	124	50	9	13	0	15	1	7	0	0	0	0.0	155	0	92	3	
Shek Kip mei	185	172	7	7	145	152	7	131	165	88.6	107	33	1	10	0	5	14	14	2	0	7	2.7	172	0	70	0	
Wanchai	326	216	9	9	160	163	10	180	227	86.2	137	37	0	7	6	30	0	8	3	1	10	3.0	227	0	89	14	
Yan Oi	325	343	5	27	135	168	17	192	284	88.0	119	49	1	17	2	19	1	10	9	6	2	3.1	275	20	83	6	
Yaumatei	318	266	11	22	173	175	17	202	242	87.6	77	65	1	13	2	16	7	15	2	6	9	3.4	291	0	72	12	
Yuen Chau Kok	316	235	12	11	187	99	16	165	226	89.5	61	44	0	14	0	13	7	15	0	1	3	0.9	295	13	152	1	
Yung Fung Shee	252	245	25	21	241	108	6	173	191	92.9	59	106	0	11	3	7	0	6	0	0	1	0.3	329	0	161	1	
Tung Chung	35	26	2	3	10	18	3	21	26	83.9	7	4	0	2	2	3	1	1	0	0	1	1.8	23	0	15	0	
sub-total	2768	2580	153	190	1986	1630	134	1734	2516	88.2	1094	692	12	150	30	159	31	101	39	34	58	2.7	2523	49	1188	45	
<u>HOSPITAL DISCHARGE CLINICS</u>																											
East Kowloon	5	0	0	0	1	2	0	0	7	100.0	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	
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	
sub-total	5	0	0	0	1	2	0	0	7	100.0	1	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	
<u>PART TIME CLINICS</u>																											
Castle Peak	6	10	0	0	0	1	0	0	9	100.0	0	4	0	0	0	0	0	0	0	0	0	0.0	4	0	0	0	
Cheung Chau	8	4	0	0	5	6	0	4	6	100.0	4	4	0	0	0	0	0	0	0	0	0	0.0	5	0	0	0	
Sai Kung	13	8	1	1	6	9	0	2	11	100.0	1	1	0	0	0	0	0	0	0	0	0	0.0	23	0	4	0	
Sheung Shui	137	95	2	7	76	38	8	48	94	86.6	20	20	2	7	1	5	1	6	1	0	2	1.8	140	0	99	0	
Tai Po	150	81	3	3	56	55	7	44	78	89.7	27	21	0	3	0	5	2	0	1	1	4	4.4	155	0	63	0	
Yuen long	107	98	2	3	48	49	1	57	88	91.2	14	16	0	5	1	4	1	2	0	0	2	1.3	116	0	93	7	
sub-total	421	296	8	14	191	158	16	155	286	89.8	66	66	2	15	2	14	4	8	2	1	8	2.2	443	0	259	7	
<u>INSTITUTIONS CORRECTIONAL SERVICE DEPT.</u>																											
Hei Ling Chau	3	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	3	0	0	0	
Stanley Prison	23	54	0	0	0	0	45	0	2	100.0	0	0	0	0	0	0	0	0	0	0	0	0.0	30	0	0	0	
Shek Pik Prison	11	6	0	0	0	0	0	0	3	100.0	0	0	1	0	0	0	0	0	0	0	0	0.0	13	0	0	0	
sub-total	37	60	0	0	0	0	45	0	5	100.0	0	0	1	0	0	0	0	0	0	0	0	0.0	46	0	0	0	
TOTAL	3231	2936	161	204	2178	1790	195	1889	2814	88.3	1161	758	15	165	32	173	35	109	41	35	66	2.7	3012	49	1447	52	

APPENDIX 20 (b)

Treatment Return 2002 (Cont'd)

Name of clinic/hospital	N p u m t b e o r n Rx	Other regimens																					N s u t m i b l e l o n Rx c/f	Unsup. Rx	Incomp. super. Rx	No.def. >2m, <3m		
		Brought in					Treatment completed					Transfer out to		Interrup. Rx temp.	Died	Drop out				Complete defaulter								
	b/f	1	2	3	4	5	<6M	at6m	>6m	%	hosp	other cc	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
	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		
<u>FULL TIME CLINICS</u>																												
East Kowloon	35	3	5	2	46	30	4	3	35	88.4	21	16		0	5	0	0	0	0	0	0	0.0	37	3	23	2		
Kowloon	174	13	5	4	41	41	1	8	47	85.9	20	16		0	6	0	0	0	0	1	1	1	4.7	177	0	29	0	
South Kwai Chung	62	1	2	11	28	15	1	6	33	83.0	20	1		0	6	0	0	1	1	0	0	1	2.1	49	0	11	0	
Sai Ying Pun	22	5	0	4	10	3	0	2	12	87.5	4	0		0	0	0	1	0	0	0	0	6.3	24	0	5	0		
Shauiwan	17	0	0	0	17	17	1	2	11	86.7	13	3		0	2	0	0	0	0	0	0	0.0	19	0	7	0		
Shek Kip mei	73	2	1	5	87	18	2	3	36	90.7	14	6		0	2	0	0	1	1	0	0	1	2.3	120	0	25	0	
Wanchai	23	0	3	4	22	16	3	0	27	87.1	17	1		1	3	0	0	0	0	0	1	0	0	3.2	15	1	17	0
Yan Oi	32	1	0	1	5	4	0	0	9	100.0	1	0		0	0	0	0	0	0	0	0	0.0	33	0	1	0		
Yaumatei	40	3	2	4	21	10	2	10	31	91.1	6	7		0	3	0	0	1	1	0	0	0	0.0	19	0	11	0	
Yuen Chau Kok	32	8	5	10	16	21	1	4	28	84.2	17	2		0	2	1	1	0	1	0	0	1	2.6	34	3	19	0	
Yung Fung Shee	27	6	2	3	24	10	0	3	21	88.9	9	12		0	3	0	0	0	0	0	0	0	0.0	24	0	13	0	
Tung Chung	2	0	0	0	3	0	0	0	2	66.7	0	0		0	1	0	0	0	0	0	0	0.0	2	0	1	0		
sub-total	539	42	25	48	320	185	15	41	292	87.4	142	64		1	33	1	2	3	4	3	1	4	2.1	553	7	162	2	
<u>HOSPITAL DISCHARGE CLINICS</u>																												
East Kowloon	6	1	0	2	4	7	2	1	5	100.0	8	0		0	0	0	0	0	0	0	0	0.0	4	1	0	0		
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		
sub-total	6	1	0	2	4	7	2	1	5	100.0	8	0		0	0	0	0	0	0	0	0	0.0	4	1	0	0		
<u>PART TIME CLINICS</u>																												
Castle Peak	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		
Cheung 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		
Sai Kung	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		
Sheung Shui	5	2	0	0	4	4	0	0	5	83.3	3	2		0	1	0	0	0	0	0	0	0.0	4	0	7	0		
Tai Po	7	0	0	1	6	4	0	0	2	33.3	3	0		0	4	0	0	0	0	0	0	0.0	9	0	33	0		
Yuen long	7	2	0	0	4	1	0	0	6	100.0	1	0		0	0	0	0	0	0	0	0	0.0	7	0	13	0		
sub-total	19	4	0	1	14	9	0	0	13	72.2	7	2		0	5	0	0	0	0	0	0	0.0	20	0	53	0		
<u>INSTITUTIONS CORRECTIONAL SERVICE DEPT.</u>																												
Hei Ling Chau	0	8	1	0	6	7	6	7	0	100.0	0	4		0	0	0	0	0	0	0	0	0.0	5	0	0	0		
Stanley Prison	6	0	0	0	0	0	0	0	0	0.0	0	0		0	0	0	0	0	0	0	0	0.0	6	0	0	0		
Shek Pik Prison	6	0	0	0	0	0	0	0	0	0.0	0	0		0	0	0	0	0	0	0	0	0.0	6	0	0	0		
sub-total	12	8	1	0	6	7	6	7	0	100.0	0	4		0	0	0	0	0	0	0	0	0.0	17	0	0	0		
TOTAL	576	55	26	51	344	208	23	49	310	87.1	157	70		1	38	1	2	3	4	3	1	4	1.9	594	8	215	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
											hospi- tal	other cc			Rx by GP	Leave HK	Def. >1x	AMA	<2M	>2M, <3M	>3M	%				
		<6M	at 6M	>6M	%	K	L	M	N	O	P	Q			R	S	T	U	V	W	X	Y				
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	
<div>J = <div><div>H + I</div><div>A + B + C + D + E + F - G - K - L - M - Q - W</div></div>➡</div>																										
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>											<div><div>V = <div><div>S + T + U</div><div>A + B + C + D + E + F - G - K - L - M - Q - W</div></div>➡</div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div><div>W = (A+B+C+D+E+F) - (G+H+I+K+L+M+N+O+P+Q+R+S+T+U)</div>➡</div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div></div>															

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

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

Examination of Contacts in the Chest Clinics 2002

Particulars	Smear Positive Index Cases	Smear Negative Index Cases	Total
No. of patients (new & old) listed	2009	4490	6499
No. of contacts listed	6053	12428	18481
Number of contacts x-rayed	5598 (100.00%)	10776 (100.00%)	16374 (100.00%)
<u>Results</u>			
(a) NSD & Unknown	4871 (87.01%)	9405 (87.28%)	14276 (87.19%)
(b) Disease other than TB	411 (7.34%)	803 (7.45%)	1214 (7.41%)
(c) Inactive respiratory TB	203 (3.63%)	405 (3.76%)	608 (3.71%)
(d) Active respiratory TB			
A (radiologically)	35 (0.63%)	35 (0.32%)	70 (0.43%)
B (bacteriologically)	10 (0.18%) > 52 (0.93%)	12 (0.11%) > 54 (0.50%)	22 (0.13%) > 106 (0.65%)
C (incomplete)	7 (0.12%)	7 (0.07%)	14 (0.09%)
(e) Non-respiratory TB	8 (0.14%)	17 (0.16%)	25 (0.15%)
(f) Result not yet known	53 (0.95%)	92 (0.85%)	145 (0.89%)

APPENDIX 22 (a)

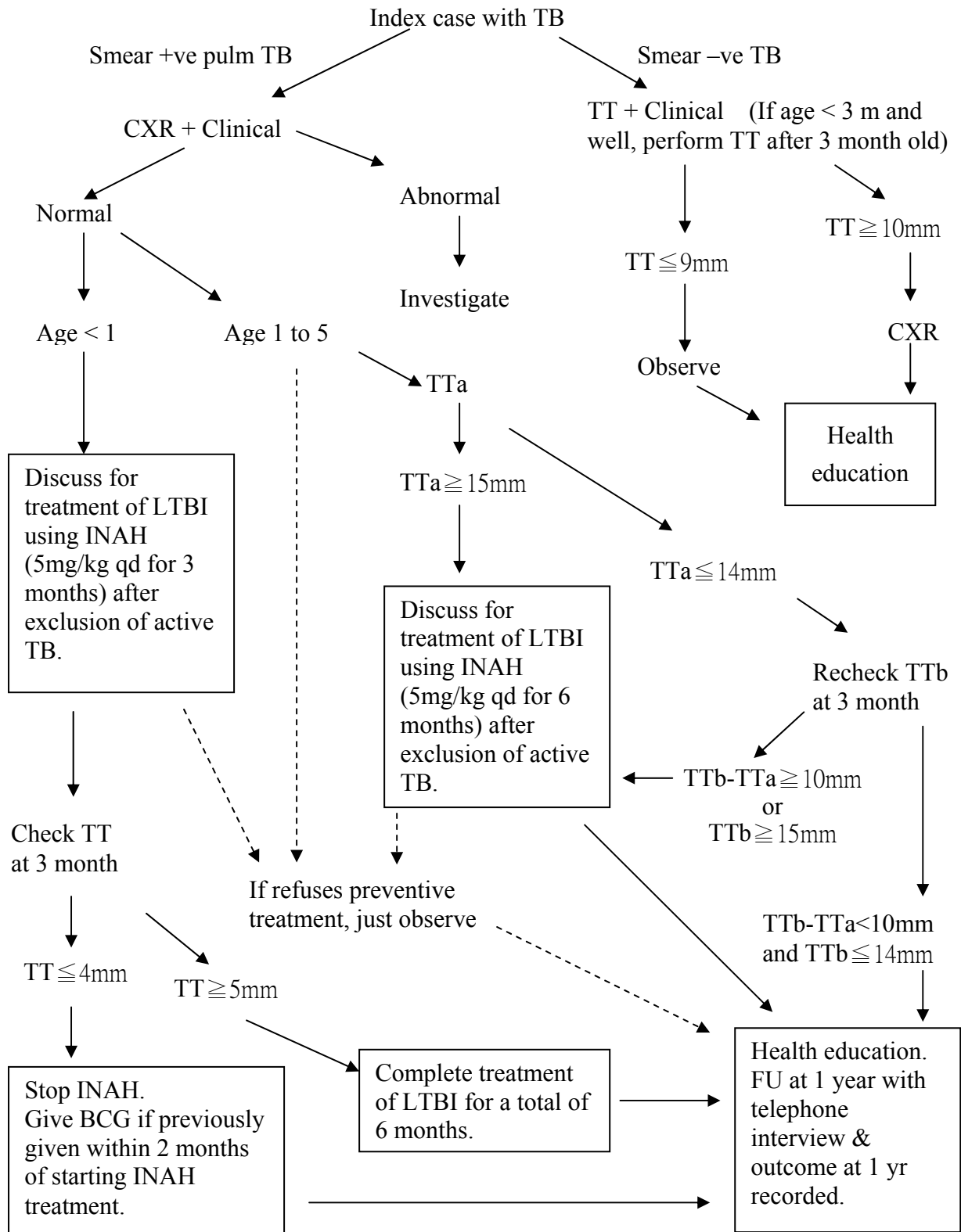
Scheme for Tuberculin Testing and BCG Administration in Hong Kong, 2002

<u>Population Group</u>		<u>Procedure</u>
Newborns		Direct BCG <ul style="list-style-type: none">• Government and most other inoculators using intradermal method• A small proportion of other inoculators using percutaneous method
Children under the age of 15 (excluding close contacts)	Negative BCG history and/or negative BCG scar	Direct BCG with intradermal method (since September 2000)
	BCG history and BCG scar	No action
Primary School Children (aged 6-10)		BCG revaccination programme stopped since September 2000
Close contacts	Under 5	See Appendix 22 (b)
	5 years and over	Chest X-ray

- 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)

Household Contacts below 5 (with history of previous BCG vaccination)



Note: Tuberculin test (TT) is done by intradermal method using 2 TU (in 0.1 ml) of PPD-RT23. In general, the criteria for a positive TT is a reaction at 48-72 hour with diameter of induration at 10 mm or above. However, special criteria for TT is being used in the above flow chart for the special groups under consideration. [5 TU of PPD-S, which is widely used in the United States, is equivalent to 2 TU of PPD-RT23.]

APPENDIX 23

BCG Vaccinations at Birth 2002

Institution		No. of Live-births	BCG Vaccination	% Vaccinated
Hospital under HA management	P.Y. Nethersole	4068	4053	99.6
	Queen Mary	3555	3665	103.1 *
Private Hospital	Canossa	653	655	100.3
	H.K. Adventist	710	682	96.1
	HK Sanatorium	597	588	98.5
	Matilda	819	753	91.9
	St. Paul's	1113	1109	99.6
Total (HK Island)		11515	11505	99.9
Hospital under HA management	Kwong Wah	6058	6019	99.4
	Queen Elizabeth	4334	4347	100.3 *
Private Hospital	United Christian	3833	3830	99.9 *
	Baptist	3041	3026	99.5
	St. Teresa's	2256	2215	98.2
Total (Kowloon)		19522	19437	99.6
Hospital under HA management	Prince of Wales	5498	5465	99.4
	Princess Margaret	3977	3970	99.8
	Alice H.M.L. Nethersole	172	172	100.0
	Tuen Mun	5692	5680	99.8
Private Hospital	Adventist	697	694	99.6
	Union	1165	1158	99.4
Government Maternity Home		-	-	-
Total (NT Areas)		17201	17139	99.6
GRAND TOTAL		48238	48081	99.7

Note : * Including vaccinations of live births transferred from other maternity institutions and vaccinations of live births at end of 2001

Vaccination Method 2002	Percentage
Intradermal	71.2
Percutaneous	28.8

APPENDIX 24

Tuberculin Tests and BCG Vaccination of School Children 1962 - 2000

Year	Number (a) Eligible	% Agree for TT	Number TT Tested	Number TT Negative (TT ≤ 9mm)	Number Given BCG	% of TT Tested Given BCG
1962			49567		22903	46.2
1963			34793		10706	30.8
1964			38871		9764	25.1
1965			76407		10845	14.2
1966			77447		10911	14.1
1967	224666	56.1	125975	25794	25766	20.5
1968	208029	68.2	141922	30328	30314	21.4
1969	126906	70.4	89306	16831	16821	18.8
1970	194298	65.7	127680	49655	49547	38.8
1971	213457	68.0	145205	50115	50020	34.4
1972	201537	61.7	124385	54340	54100	43.5
1973	120797	69.4	83882	29713	29554	35.2
1974	295287	60.7	179169	47591	47378	26.4
1975	136175	65.3	88987	38334	(b) 39120	44.0
1976	230861	63.7	147057	77085	76790	52.2
1977	137465	55.4	76143	43752	43502	57.1
1978	134218	66.9	89732	52504	54137	60.3
1979	133697	66.1	88375	49555	49355	55.8
1980	101215	66.8	67633	42419	43830	64.8
1981	111121	68.7	76342	47093	47089	61.7
1982	115042	71.9	82675	52654	52455	63.4
1983	121392	77.9	94578	65487	65627	69.4
1984	71950	85.3	61359	47086	47705	77.7
1985	90771	82.4	74802	56646	56625	75.7
1986	100116	82.0	82057	65251	64985	79.2
1987	84610	79.2	67038	53695	53419	79.7
1988	78806	89.2	70318	58796	59237	84.2
1989	68367	91.3	62390	50747	50794	81.4
1990	121280	86.0	104263	78244	78540	75.3
1991	120705	91.3	110193	75343	75107	68.2
1992	102580	91.2	93533	63550	(c) 63234	67.6
1993	100895	96.3	97189	69723	68598	70.6
1994	91593	94.8	86817	65075	66372	76.5
1995	94614	93.4	88378	65044	64005	72.4
1996	73265	92.3	67625	49619	49113	72.6
1997	61445	97.2	59746	49824	49336	82.6
1998	91523	95.4	87271	74199	74008	84.8
1999	106483	92.1	98069	80322	80103	81.7
2000 (d)	16542	99.0	16377	13603	13209	80.7
2001 onwards	Programme Stopped					

- Note : (a) By "number eligible" is meant the total population in the specified age group which it was intended to test and/or vaccinate, i.e. the number of persons in each area who could have been tested and/or vaccinated during the period of reporting according to the prevailing policy, by the staff assigned to that area.
- (b) Direct BCG was introduced in remote areas w.e.f. 27.10.1975 and number of BCG given includes direct BCG without TT.
- (c) No direct BCG was given in 1992 and number of direct BCG given in previous years were not recorded separately.
- (d) The BCG revaccination programme was stopped since September 2000.

APPENDIX 25**Beds for Treatment of Tuberculosis, 2002**

Hospital		No. of TB Beds
Hospital Authority	Grantham Hospital	196
	Kowloon Hospital	128 *
	Ruttonjee Hospital	157
	Haven of Hope Hospital	133
	Wong Tai Sin Hospital	165
Total (Hospital Authority)		779
Private	St. Paul's Hospital	-
	Hong Kong Sanatorium	-
Total (Private)		0
Custody	Victoria Prison Hospital	-
	Stanley Prison Hospital	20
	Tai Lam Correctional Institution	-
Total (Custody)		20
Grand Total (2002)		799
Grand Total (2001)		793
Grand Total (2000)		795

* Including two beds in the Intensive Care Unit

APPENDIX 26

Annual Admissions to Hospitals from Government Chest Clinics 1991 - 2002

Year	Total Admissions
1991	5056
1992	5229
1993	5159
1994	5176
1995	5392
1996	4607
1997	4597
1998	4709
1999	5012
2000	5408
2001	5317
2002	5183

Admissions by Clinic	Year 2002
East Kowloon	438
Kowloon	830
Kwai Chung	572
Sai Ying Pun	322
Shau Kei Wan	327
Shau Kei Wan Pneumoconiosis	107
Shek Kip Mei	331
Wanchai	477
Yaumati	447
NT Unit	194
Yan Oi	342
Yuen Chau Kok	397
Yung Fung Shee	340
Tung Chung	20
Cheung Chau	28
	11
Total	5183

APPENDIX 27

Unlinked Anonymous Screening (UAS) for HIV in TB & Chest Service (2002)

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
< 20	14	19	33
20-29	57	76 (1)	133 (1)
30-39	67 (1)	93 (2)	160 (3)
40-49	85 (1)	57 (1)	142 (2)
50-59	122 (1)	46	168 (1)
≥ 60	260 (1)	93	353 (1)
Unknown	11	0	11
Total	616 (4)	384 (4)	1000 (8)

UAS for HIV in TB & Chest Service (1990 to 2002)

<u>Period</u>	<u>Category</u>	<u>Sample</u>	<u>Number Tested</u> (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%)

APPENDIX 28

Number of 'Confirmed' cases of TB in health care staff Notified to Labour Department (1993 – 2002)

Year	Number
1993	0
1994	1
1995	2
1996	2
1997	10
1998	39
1999	57
2000	39
2001	41
2002	29

'Confirmed' Cases of TB in Health Care Staff Notified to Labour Department (2002) by Age and Job Title

Age Group	Doctor	Nurse (a)	Other Allied Health Professional	Other Supporting Staff (b)	Total
20 – 24		6		1	7
25 – 29		4	1		5
30 – 34	2	2	1		5
35 – 39		3	3		6
40 – 44		1		1	2
45 – 49				2	2
50 – 54				1	1
55 – 59				1	1
60 – 64					
Total	2	16	5	6	29

Note:

(a) Nurse – include student nurses

(b) Other supporting staff – includes service assistants and health care assistants

Appendix 29 (a)

Cohort of TB Patients in 2001

Among 7262 notified TB cases in 2001, 'Programme Forms' have been completed for a total of 5911 TB patients seen at chest clinics. They are categorised as follows:

	DOTS	Non-DOTS	Total
(I) New pulmonary smear positive	1450	407	1857
(II) New pulmonary smear negative	2748	546	3294
(III) New pulmonary: no smear or results unknown	472	112	584
(IV) New extrapulmonary	606	215	821
(V) Relapse smear positive	209	23	232
(VI) All other retreatment cases (not included in (V)) [i.e., including relapses (pulmonary, smear negative or unknown or not done; and extrapulmonary) and retreatment after failure or default (pulmonary, smear negative or unknown or not done; and extrapulmonary)]	426	48	474
(VII) Total notifications [(I) – (VI)]	5911	1351	7262
New pulmonary bacteriologically confirmed	2764	776	3540

NB: 'Pulmonary TB' includes cases with both pulmonary and extrapulmonary involvement. 'Extrapulmonary TB' refers to those with extrapulmonary but without pulmonary involvement.

APPENDIX 29 (b)

Cohort of TB patients in 2001 (smear positive cases)

		New smear positive cases		Retreatment cases	
		DOTS	Non-DOTS	DOTS	Non-DOTS
Z	Cohort registered for treatment	1,450 %	407 %	209 %	
A	Cured	1,038 71.6	18 4	119 56.9	3
B	Completed	93 6.4	17 4	16 7.7	0
C	Died	(Note 1) 60 4.1	(Note 3) 105 26	(Note 5) 17 8.1	(Note 7) 18
D	Failed	(Note 2) 125 8.6	(Note 4) 5 1	(Note 6) 19 9.1	(Note 8) 1
E	Defaulted	50 3.4	2 0	20 9.6	0
F	Transferred out	43 3.0	23 6	7 3.3	6
<i>total evaluated:</i>		1,409	170	198	28

For those under DOTS, the treatment success rate (as at 12 month) for (a) new smear positive cases is 78.0% (71.6+6.4%), (b) retreatment smear positive cases is 64.6% (56.9+7.7%).

Note 1: Among the 60 "died" cases, the causes of death were: 3 TB-related, 36 non-TB related, and 21 unknown.

Note 2: Among the 125 "failed" cases, all were still on treatment at 12 month, while among them, their smear status between 7-12 month were: 109 converted negative, 5 positive, 11 unknown.

Note 3: Among the 105 "died" cases, the causes of death were: 18 TB-related, 26 non-TB related, and 61 unknown.

Note 4: Among the 5 "failed" cases, all were still on treatment at 12 month, while among them, their smear status between 7-12 month were: 4 converted negative, 0 positive, 1 unknown.

Note 5: Among the 17 "died" cases, the causes of death were: 1 TB-related, 11 non-TB related, and 5 unknown.

Note 6: Among the 19 "failed" cases, all were still on treatment at 12 month, while among them, their smear status between 7-12 month were: 15 converted negative, 1 positive, 3 unknown.

Note 7: Among the 18 "died" cases, the causes of death were: 1 TB-related, 6 non-TB related, and 11 unknown.

Note 8: Among the 1 "failed" cases, all were still on treatment at 12 month, while among them, their smear status between 7-12 month were: 1 converted negative, 0 positive, 0 unknown.

APPENDIX 29 (c)

Cohort of TB patients in 2001 (bacteriologically positive cases)

		New bacteriologically positive cases		Retreatment cases	
		DOTS	Non-DOTS	DOTS	Non-DOTS
Z	Cohort registered for treatment	2,764 %	776 %	413 %	
A	Cured	1,877 67.9	28 4	253 61.3	7
B	Completed	246 8.9	38 5	31 7.5	3
C	Died	(Note 1) 140 5.1	(Note 3) 203 26	(Note 5) 31 7.5	(Note 7) 26
D	Failed	(Note 2) 222 8.0	(Note 4) 8 1	(Note 6) 35 8.5	(Note 8) 2
E	Defaulted	108 3.9	8 1	36 8.7	1
F	Transferred out	77 2.8	42 5	11 2.7	9
<i>total evaluated:</i>		2,670	327	397	48

For those under DOTS, the treatment success rate (as at 12 month) for (a) new bacteriologically positive cases is 76.8% (67.9+8.9%), (b) retreatment bacteriologically positive cases is 68.8% (61.3+7.5%).

Note 1: Among the 140 "died" cases, the causes of death were: 7 TB-related, 88 non-TB related, and 45 unknown.

Note 2: Among the 222 "failed" cases, all were still on treatment at 12 month, while among them, their smear status between 7-12 month were: 190 converted negative, 5 positive, 27 unknown.

Note 3: Among the 203 "died" cases, the causes of death were: 22 TB-related, 58 non-TB related, and 123 unknown.

Note 4: Among the 8 "failed" cases, all were still on treatment at 12 month, while among them, their smear status between 7-12 month were: 6 converted negative, 0 positive, 2 unknown.

Note 5: Among the 31 "died" cases, the causes of death were: 3 TB-related, 19 non-TB related, and 9 unknown.

Note 6: Among the 35 "failed" cases, all were still on treatment at 12 month, while among them, their smear status between 7-12 month were: 31 converted negative, 0 positive, 4 unknown.

Note 7: Among the 26 "died" cases, the causes of death were: 1 TB-related, 10 non-TB related, and 15 unknown.

Note 8: Among the 2 "failed" cases, all were still on treatment at 12 month, while among them, their smear status between 7-12 month were: 2 converted negative, 0 positive, 0 unknown.

Part 2

PNEUMOCONIOSIS

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APPENDIX 1

New Cases of Suspected Pneumoconiosis attending the Pneumoconiosis Clinic in Hong Kong 1956 - 2002

Year	Number of New Cases Undergoing Assessment					Cumulative Total Compensated	
	Government Workers	Non-government Workers	Total	Cumulative Total		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 (a)	544	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 (b)	3829	1479	1322	
1986	3	176	179 (3)	4008	1485	1513	
1987	4	166	170 (2)	4178	1485	1679	
1988	6	172	178 (4)	4356	1488	1877	
1989	-	156	156 (1)	4512	1488	2023	
1990	2	147	149 (1)	4661	1489	2142	
1991	-	171	171 (1)	4832	1489	2151	
1992	2	171	173 (3)	5005	1490	2340	
1993	2	247	249 (4)	5254	1492	2492	
1994	-	327	327 (7)	5581	1493	2770	
1995	9	245	254 (9)	5835	1494	3000	
1996	4	193	197 (9)	6032	1494	3119	
1997	4	154	158 (7)	6190	1494	3242	
1998	2	197	199 (5)	6389	1494	3351	
1999	-	291	291 (15)	6680	1494	3505	
2000	3	235	238 (11)	6918	1494	3619	
2001	6	230	236 (9)	7154	1494	3751	
2002	3	212	215 (c)	7369	1494 (d)	3868	

- Note :
- (a) The Pneumoconiosis Compensation Scheme was initiated in 1980, before that reporting were voluntary.
 - (b) The figures in this column denote the number of patient with asbestos-related lung disease.
 - (c) Up to the moment that this report is being compiled, only 117 of the 215 cases in 2002 had been assessed and confirmed pneumoconiosis by the Pneumoconiosis Medical Board. And the following tables (Appendix 2 to Appendix 8) are compiled basing on the data of these 117 cases.
 - (d) Under Revised Ordinance 1993 : 583 out of 1494 pneumoconiotics had joined the pneumoconiosis ex-gratia scheme up to the year 2002. 305 living pneumoconiotics were each receiving a monthly ex-gratia payment of \$4710.00 in 2002.

APPENDIX 2

Age Distribution of Pneumoconiosis Cases 2002

Age	Number of Cases	%
25 - 29	-	-
30 - 34	-	-
35 - 39	-	-
40 - 44	2	2
45 - 49	13	11
50 - 54	18	15
55 - 59	8	7
60 - 64	25	21
65 - 69	13	11
70 - 74	16	14
75+	23	19
Total	118	100

APPENDIX 3

Occupation Distribution of Confirmed Pneumoconiosis 2002

Type of Occupation	Number of Cases	%
Construction	77	65
Construction/Quarry	23	20
Others	18	15
Total	118	100

APPENDIX 4

Pneumoconiosis Patients by Duration of Exposure to Dust 2002

Duration	Number of Cases	%
< 5 years	3	3
5 - 9	6	5
10 - 14	11	9
15 - 19	18	15
20 - 24	28	24
25 - 29	11	9
30+	34	29
Unknown	7 *	6
Total	118	100

* Fatal cases, no reliable information available.

APPENDIX 5

Pneumoconiosis Patients by Degree of Incapacity 2002

Degree of Incapacity (%)	No. of New Cases Compensated under Compensation Ordinance
5	41
10	33
15	15
20	6
25	6
30	0
35	1
40	2
45	1
50	3
60	2
70	1
80	0
100	0
N.A.	7
Total	118

APPENDIX 6

Confirmed Pneumoconiosis Patients Classified by Radiological Appearance 2002

Type of Opacity	Profusion			Sub-Total
	1	2	3	
<u>Small opacities</u>				
<u>Rounded</u>				
p (up to 1.5 mm diameter)	4	-	-	4
q (1.5 to 3.0 mm diameter)	60	7	-	67
r (3.0 to 10.0 mm diameter)	4	3	-	7
<u>Irregular</u>				
s (fine irregular or linear)	2	-	-	2
t (medium irregular)	8	1	1	10
u (coarse irregular)	1	-	-	1
Sub-total	79	11	1	91
<u>Combined opacities</u>	13	3	-	16
<u>N.A.</u>	-	-	-	11
Total				118

33 out of the 132 patients have large opacities as follows :

<u>Large opacities</u>	
A (Single opacity 1 - 5 cm or multiple opacities > 1 cm each but sum of diameter < 5 cm)	17
B (Single or multiple opacities with combined area < the equivalent of right upper zone)	9
C (Single or multiple opacities with combined area > the equivalent of right upper zone)	1
Total	27

APPENDIX 7

Pneumoconiosis Patients with Tuberculosis 2002

Type of T.B.	Number of Cases	%
Bacteriological Positive	33	28
Bacteriological Negative	18	15
No T.B.	60	51
N.A.	7	6
Total	118	100

APPENDIX 8

Confirmed Pneumoconiosis Patients by Other Particulars 2002

Characteristics		Number of Cases	%
Smoking	Smoker/Ex-smoker	97	82
	Non-smoker	14	12
	Unknown	7	6
	Total	118	100
Still exposed to dust when seen by the Pneumoconiosis Clinic	Yes	24	20
	No	87	74
	Unknown	7	6
	Total	118	100
General Condition	Good	105	89
	Fair	5	4
	Poor	1	1
	Died	7	6
	Total	118	100

Part 3

ANNEX

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- 1(a) Treatment Outcomes at 2 year of the 1999 Cohort of TB Patients
- 1(b) Analysis for Various Age Groups
- 1(c) Analysis for Pulmonary Retreatment Smear Positive, Pretreatment Culture Positive, and MDR-TB Cases
- 1(d) Analysis for New Pulmonary Smear Positive and Retreatment Pulmonary Smear Positive Cases
- 1(e) Analysis for Treatment Defaulters
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- 2(a) TB among Chinese New Immigrants
- 2(b) TB Notification and Estimated Rates among Chinese New Immigrants by Age & Sex (1998-2002)
- 2(c) TB Notification and Rates (All Cases) by Age & Sex (1998-2002)

Annex 1 (a)

Treatment Outcomes at 2 year of the 1999 Cohort of TB Patients

"Programme Forms" have been completed for a total of 6229 TB patients who were seen at chest clinics with DOS (date of starting treatment) from 1.1.1999 to 31.12.1999. They are categorised as follows:

Categories		N	%
(A)	New pulmonary, smear positive	1563	25.1
(B)	New pulmonary, smear negative	2876	46.2
(C)	New pulmonary, smear not done/ unknown	230	3.7
(D)	New extra-pulmonary	761	12.2
(E)	Relapse pulmonary, smear positive	242	3.9
(F)	Pulmonary smear-positive retreatment after failure or default	23	0.4
(G)	Other retreatment cases (not included in E and F) [i.e., including relapses (pulmonary, smear negative or unknown or not done; and extrapulmonary) and retreatment after failure or default (pulmonary, smear negative or unknown or not done; and extrapulmonary)]	534	8.6
Total		6229	100.0

Analysis has been done on this cohort of patients and the results are shown in the following Annexes:

Annex 1 (b)	Various age groups (0-19), (20-39), (40-59), (60+), and all age groups
Annex 1 (c)	Pulmonary retreatment smear positive, pretreatment culture positive, and MDR-TB cases
Annex 1 (d)	New pulmonary smear positive and retreatment pulmonary smear positive cases
Annex 1 (e)	Treatment defaulters (outcome at 2 year = defaulting)
Annex 1 (f)	Sample of the set of "Programme Form" used for the cohort of patients in 1999

Annex 1 (b1)

Age group	0 to 19		20 to 39		40 to 59		60+		All	
	N	%	N	%	N	%	N	%	N	%

Female	148	54.0	857	48.9	501	28.7	635	25.9	2141	34.4
Male	126	46.0	897	51.1	1244	71.3	1821	74.1	4088	65.6
Total	274	100.0	1754	100.0	1745	100.0	2456	100.0	6229	100.0

Residential status

Permanent resident	248	90.5	1485	84.7	1668	95.6	2430	98.9	5831	93.6
Chinese immigrant	14	5.1	76	4.3	35	2.0	9	0.4	134	2.2
Illegal immigrant	1	0.4	17	1.0	1	0.1	0	0.0	19	0.3
Chinese (other types)	1	0.4	17	1.0	2	0.1	1	0.0	21	0.3
Vietnamese migrants	0	0.0	4	0.2	0	0.0	0	0.0	4	0.1
Others	9	3.3	148	8.4	27	1.5	4	0.2	188	3.0
Unknown	1	0.4	7	0.4	12	0.7	12	0.5	32	0.5
Total	274	100.0	1754	100.0	1745	100.0	2456	100.0	6229	100.0

Ethnicity

Chinese	262	95.6	1569	89.5	1689	96.8	2435	99.1	5955	95.6
Non-Chinese	11	4.0	180	10.3	47	2.7	9	0.4	247	4.0
Unknown	1	0.4	5	0.3	9	0.5	12	0.5	27	0.4
Total	274	100.0	1754	100.0	1745	100.0	2456	100.0	6229	100.0

Occupation

Medical	1	0.4	2	0.1	1	0.1	0	0.0	4	0.1
Paramedical	1	0.4	16	0.9	8	0.5	0	0.0	25	0.4
Domestic helper	0	0.0	82	4.7	20	1.1	8	0.3	110	1.8
Not employed	19	6.9	118	6.7	221	12.7	86	3.5	444	7.1
Retired	0	0.0	12	0.7	119	6.8	1305	53.1	1438	23.1
Others	243	88.7	1488	84.8	1328	76.1	976	39.7	4035	64.8
Unknown	10	3.6	36	2.1	48	2.8	81	3.3	173	2.8
Total	274	100.0	1754	100.0	1745	100.0	2456	100.0	6229	100.0

Presentation

Symptoms	228	83.2	1523	86.8	1511	86.6	2060	83.9	5322	85.4
Post-Rx FU	2	0.7	19	1.1	31	1.8	41	1.7	93	1.5
Self check up	5	1.8	46	2.6	21	1.2	10	0.4	82	1.3
Other check up	12	4.4	65	3.7	47	2.7	87	3.5	211	3.4
Contact examination	16	5.8	40	2.3	27	1.5	24	1.0	107	1.7
High risk screening	3	1.1	2	0.1	6	0.3	4	0.2	15	0.2
Coincidental	0	0.0	19	1.1	61	3.5	157	6.4	237	3.8
Others	6	2.2	27	1.5	26	1.5	51	2.1	110	1.8
Unknown	2	0.7	13	0.7	15	0.9	22	0.9	52	0.8
Total	274	100.0	1754	100.0	1745	100.0	2456	100.0	6229	100.0

Disease Classification

Pulmonary TB only	202	73.7	1237	70.5	1375	78.8	2065	84.1	4879	78.3
Extrapulmonary TB only	50	18.2	323	18.4	234	13.4	220	9.0	827	13.3
Both	22	8.0	194	11.1	136	7.8	171	7.0	523	8.4
Total	274	100.0	1754	100.0	1745	100.0	2456	100.0	6229	100.0

Annex 1 (b2)

Age group	0 to 19		20 to 39		40 to 59		60+		All	
	N	%	N	%	N	%	N	%	N	%

Extrapulmonary TB

1. Pleura	19	6.9	159	9.1	126	7.2	185	7.5	489	7.9
2. Lymph node	41	15.0	255	14.5	133	7.6	83	3.4	512	8.2
3. Meninges	2	0.7	8	0.5	10	0.6	3	0.1	23	0.4
4. Miliary	1	0.4	6	0.3	9	0.5	12	0.5	28	0.4
5. Bones & joint	2	0.7	16	0.9	20	1.1	35	1.4	73	1.2
6. Genitourinary	0	0.0	14	0.8	30	1.7	32	1.3	76	1.2
7. Abdomen	3	1.1	14	0.8	8	0.5	11	0.4	36	0.6
8. Skin	3	1.1	10	0.6	13	0.7	6	0.2	32	0.5
9. Others	1	0.4	22	1.3	20	1.1	19	0.8	62	1.0

Case category

1. New case	262	95.6	1626	92.7	1497	85.8	2045	83.3	5430	87.2
2. Relapse < 5 years	7	2.6	56	3.2	58	3.3	77	3.1	198	3.2
3. Relapse > 5 years	2	0.7	50	2.9	160	9.2	312	12.7	524	8.4
4. Rx defaulter < 5 month	2	0.7	22	1.3	26	1.5	17	0.7	67	1.1
5. Rx defaulter > 5 month	1	0.4	0	0.0	4	0.2	5	0.2	10	0.2
6. Previous failure	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7. Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	274	100.0	1754	100.0	1745	100.0	2456	100.0	6229	100.0

Disease characteristics (pulmonary cases)

Pretreatment smear +ve	55	24.6	429	30.0	552	36.5	792	35.4	1828	33.8
Pretreatment culture +ve	112	50.0	787	55.0	930	61.5	1453	65.0	3282	60.8
Extent = 1	154	68.8	928	64.8	910	60.2	1224	54.7	3216	59.5
Extent=1 & cavity=N	143	63.8	862	60.2	825	54.6	1138	50.9	2968	54.9
Extent=1 & cavity=Y	11	4.9	66	4.6	85	5.6	86	3.8	248	4.6
Extent = 2	52	23.2	358	25.0	422	27.9	745	33.3	1577	29.2
Extent=2 & cavity=N	41	18.3	274	19.1	346	22.9	658	29.4	1319	24.4
Extent=2 & cavity=Y	11	4.9	84	5.9	76	5.0	87	3.9	258	4.8
Extent=3	12	5.4	104	7.3	148	9.8	232	10.4	496	9.2
Extent=3 & cavity=N	6	2.7	73	5.1	94	6.2	173	7.7	346	6.4
Extent=3 & cavity=Y	6	2.7	31	2.2	54	3.6	59	2.6	150	2.8
Extent=not specified	6	2.7	41	2.9	31	2.1	35	1.6	113	2.1
Extent=ns & cavity=N	6	2.7	41	2.9	31	2.1	34	1.5	112	2.1
Extent=ns & cavity=Y	0	0.0	0	0.0	0	0.0	1	0.0	1	0.0
Cavity=N	196	87.5	1250	87.4	1296	85.8	2003	89.6	4745	87.8
Cavity=Y	28	12.5	181	12.6	215	14.2	233	10.4	657	12.2

Condition at 6 month

1. Rx completed	148	54.0	741	42.2	544	31.2	622	25.3	2055	33.0
2. Still on Rx	105	38.3	836	47.7	1043	59.8	1518	61.8	3502	56.2
3. Changed Rx to others	6	2.2	95	5.4	48	2.8	58	2.4	207	3.3
4. Defaulted	15	5.5	76	4.3	84	4.8	90	3.7	265	4.3
5. Died from TB	0	0.0	0	0.0	4	0.2	12	0.5	16	0.3
6. Died from non-TB	0	0.0	3	0.2	14	0.8	80	3.3	97	1.6
7. Died from unknown	0	0.0	3	0.2	8	0.5	76	3.1	87	1.4
8. Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9. Admitted & not yet back	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	274	100.0	1754	100.0	1745	100.0	2456	100.0	6229	100.0

Annex 1 (b3)

Age group	0 to 19		20 to 39		40 to 59		60+		All	
	N	%	N	%	N	%	N	%	N	%

Outcome at 1 year

1. Rx completed / Total	228	83.2	1416	80.7	1378	79.0	1781	72.5	4803	77.1
1. Rx completed / Bacter con	103		651		785		1132		2671	
1. Rx completed / Rad impro	185		1057		1043		1342		3627	
1. Rx completed / Other evid	50		351		270		286		957	
1. Rx completed / No evid	3	1.1	44		58		103		208	
2. Still on Rx / Total	24	8.8	121	6.9	157	9.0	249	10.1	551	8.8
2. Still on Rx / smear +ve 5m	1		3		7		6		17	
2. Still on Rx / smear -ve 5m	14		71		106		181		372	
2. Still on Rx / smear ukn 5m	9		47		44		62		162	
3. Changed Rx to others	6	2.2	99	5.6	53	3.0	66	2.7	224	3.6
4. Defaulted	15	5.5	111	6.3	112	6.4	104	4.2	342	5.5
5. Failure	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6. Died from TB	0	0.0	0	0.0	6	0.3	13	0.5	19	0.3
7. Died from non-TB	0	0.0	3	0.2	25	1.4	129	5.3	157	2.5
8. Died from unknown	1	0.4	4	0.2	14	0.8	114	4.6	133	2.1
9. Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	274	100.0	1754	100.0	1745	100.0	2456	100.0	6229	100.0

Outcome at 2 year

1. Rx completed / Total	247	90.1	1514	86.3	1508	86.4	1993	81.1	5262	84.5
1. Rx completed / Bacter con	115		763		917		1375		3170	
1. Rx completed / Rad impro	207		1221		1223		1650		4301	
1. Rx completed / Other evid	85		578		516		575		1754	
1. Rx completed / No evid	5		43		67		85		200	
2. Still on Rx	1	0.4	5	0.3	5	0.3	7	0.3	18	0.3
3. Changed Rx to others	6	2.2	107	6.1	62	3.6	79	3.2	254	4.1
4. Defaulted	18	6.6	119	6.8	118	6.8	109	4.4	364	5.8
5. Failure	1	0.4	1	0.1	0	0.0	0	0.0	2	0.0
6. Died from TB	0	0.0	0	0.0	9	0.5	14	0.6	23	0.4
7. Died from non-TB	0	0.0	3	0.2	27	1.5	135	5.5	165	2.6
8. Died from unknown	1	0.4	5	0.3	16	0.9	119	4.8	141	2.3
9. Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	274	100.0	1754	100.0	1745	100.0	2456	100.0	6229	100.0

Relapse at 2 year after Rx completion

Number with Rx completed	247	100.0	1514	100.0	1508	100.0	1993	100.0	5262	100.0
1. No relapse	239	96.8	1472	97.2	1458	96.7	1919	96.3	5088	96.7
2. Relapse / Total	3	1.2	16	1.1	14	0.9	22	1.1	55	1.0
2. Relapse / Bacteriological	1		2		5		15		23	
2. Relapse / Radiological	3		6		8		7		24	
2. Relapse / Other evidence	0		8		1		1		10	
3. Unknown	5	2.0	26	1.7	36	2.4	52	2.6	119	2.3

NB. Bacter con = bacteriological conversion; Radiol impro = radiological improvement; Other evid = other evidence of improvement; No evid = no evidence of improvement

Annex 1 (c1)

Group	PreRx smear +ve		PreRx culture +ve		MDR-TB	
	N	%	N	%	N	%

Age group

0 to 19	55	3.0	112	3.4	0	0.0
Female	33		62		0	
Male	22		50		1	
20 to 39	429	23.5	787	24.0	8	18.2
Female	188		354		4	
Male	241		433		4	
40 to 59	552	30.2	930	28.3	17	38.6
Female	103		201		1	
Male	449		729		16	
60+	792	43.3	1453	44.3	18	40.9
Female	183		333		8	
Male	609		1120		10	
Total	1828	100.0	3282	100.0	44	100.0
Female	507	27.7	950	28.9	13	29.5
Male	1321	72.3	2332	71.1	31	70.5

Residential status

Permanent resident	1748	95.6	3143	95.8	40	90.9
Chinese immigrant	22	1.2	44	1.3	1	2.3
Illegal immigrant	4	0.2	8	0.2	0	0.0
Chinese (other types)	5	0.3	5	0.2	0	0.0
Vietnamese migrants	0	0.0	2	0.1	0	0.0
Others	39	2.1	64	2.0	1	2.3
Unknown	10	0.5	16	0.5	2	4.5
Total	1828	100.0	3282	100.0	44	100.0

Ethnicity

Chinese	1765	96.6	3181	96.9	43	97.7
Non-Chinese	55	3.0	89	2.7	1	2.3
Unknown	8	0.4	12	0.4	0	0.0
Total	1828	100.0	3282	100.0	44	100.0

Occupation

Medical	2	0.1	3	0.1	0	0.0
Paramedical	5	0.3	12	0.4	0	0.0
Domestic helper	25	1.4	44	1.3	2	4.5
Not employed	135	7.4	222	6.8	6	13.6
Retired	476	26.0	884	26.9	9	20.5
Others	1142	62.5	2031	61.9	26	59.1
Unknown	43	2.4	86	2.6	1	2.3
Total	1828	100.0	3282	100.0	44	100.0

Presentation

Symptoms	1651	90.3	2874	87.6	35	79.5
Post-Rx FU	20	1.1	40	1.2	2	4.5
Self check up	8	0.4	29	0.9	1	2.3
Other check up	35	1.9	86	2.6	1	2.3
Contact examination	7	0.4	31	0.9	0	0.0
High risk screening	1	0.1	7	0.2	0	0.0
Coincidental	60	3.3	130	4.0	2	4.5
Others	34	1.9	62	1.9	3	6.8
Unknown	12	0.7	23	0.7	0	0.0
Total	1828	100.0	3282	100.0	44	100.0

Annex 1 (c2)

Group	PreRx smear +ve		PreRx culture +ve		MDR-TB	
	N	%	N	%	N	%

Disease classification

Pulmonary TB only	1734	94.9	3046	92.8	43	97.7
Both pulm & extrapulm	94	5.1	236	7.2	1	2.3
Total	1828	100.0	3282	100.0	44	100.0

Case Category

1. New case	1563	85.5	2836	86.4	22	50.0
2. Relapse < 5 years	52	2.8	65	2.0	7	15.9
3. Relapse > 5 years	190	10.4	337	10.3	7	15.9
4. Rx defaulter < 5 month	20	1.1	36	1.1	4	9.1
5. Rx defaulter > 5 month	3	0.2	8	0.2	4	9.1
6. Previous failure	0	0.0	0	0.0	0	0.0
7. Others	0	0.0	0	0.0	0	0.0
Total	1828	100.0	3282	100.0	44	100.0

Disease characteristics (pulmonary cases)

Extent = 1	743	40.6	1664	50.7	21	47.7
Extent=1 & cavity=N	604	33.0	1472	44.9	18	40.9
Extent=1 & cavity=Y	139	7.6	192	5.9	3	6.8
Extent = 2	731	40.0	1165	35.5	16	36.4
Extent=2 & cavity=N	544	29.8	939	28.6	13	29.5
Extent=2 & cavity=Y	187	10.2	226	6.9	3	6.8
Extent=3	325	17.8	408	12.4	5	11.4
Extent=3 & cavity=N	207	11.3	275	8.4	1	2.3
Extent=3 & cavity=Y	118	6.5	133	4.1	4	9.1
Extent=not specified	29	1.6	45	1.4	2	4.5
Extent=ns & cavity=N	28	1.5	44	1.3	2	4.5
Extent=ns & cavity=Y	1	0.1	1	0.0	0	0.0
Cavity=N	1383	75.7	2730	83.2	34	77.3
Cavity=Y	445	24.3	552	16.8	10	22.7

Condition at 6 months

1. Rx completed	467	25.5	1058	32.2	6	13.6
2. Still on Rx	1197	65.5	1904	58.0	29	65.9
3. Changed Rx to others	41	2.2	82	2.5	4	9.1
4. Defaulted	58	3.2	121	3.7	3	6.8
5. Died from TB	7	0.4	14	0.4	2	4.5
6. Died from non-TB	33	1.8	59	1.8	0	0.0
7. Died from unknown	25	1.4	44	1.3	0	0.0
8. Others	0	0.0	0	0.0	0	0.0
9. Admitted & not yet back	0	0.0	0	0.0	0	0.0
Total	1828	100.0	3282	100.0	44	100.0

Annex 1 (c3)

Group	PreRx smear +ve		PreRx culture +ve		MDR-TB	
	N	%	N	%	N	%

Outcome at 1 year

1. Rx completed / Total	1403	76.8	2554	77.8	13	29.5
1. Rx completed / Bacter con	1258		2388		11	
1. Rx completed / Rad impro	1216		2174		9	
1. Rx completed / Other evid	151		280		3	
1. Rx completed / No evid	24		14		0	
2. Still on Rx / Total	184	10.1	294	9.0	18	40.9
2. Still on Rx / smear +ve 5m	12		14		1	
2. Still on Rx / smear -ve 5m	141		224		16	
2. Still on Rx / smear unkn 5m	31		56		1	
3. Changed Rx to others	52	2.8	94	2.9	5	11.4
4. Defaulted	85	4.6	161	4.9	6	13.6
5. Failure	0	0.0	0	0.0	0	0.0
6. Died from TB	8	0.4	16	0.5	2	4.5
7. Died from non-TB	60	3.3	100	3.0	0	0.0
8. Died from unknown	36	2.0	63	1.9	0	0.0
9. Others	0	0.0	0	0.0	0	0.0
Total	1828	100.0	3282	100.0	44	100.0

Outcome at 2 year

1. Rx completed / Total	1556	85.1	2798	85.3	25	56.8
1. Rx completed / Bacter con	1465		2715		23	
1. Rx completed / Rad impro	1434		2561		19	
1. Rx completed / Other evid	407		691		6	
1. Rx completed / No evid	19		15		1	
2. Still on Rx	7	0.4	10	0.3	3	6.8
3. Changed Rx to others	60	3.3	108	3.3	6	13.6
4. Defaulted	93	5.1	172	5.2	8	18.2
5. Failure	1	0.1	0	0.0	0	0.0
6. Died from TB	10	0.5	19	0.6	2	4.5
7. Died from non-TB	63	3.4	106	3.2	0	0.0
8. Died from unknown	38	2.1	69	2.1	0	0.0
9. Others	0	0.0	0	0.0	0	0.0
Total	1828	100.0	3282	100.0	44	100.0

Relapse at 2 year after Rx completion

Number with Rx completed	1556	100.0	2798	100.0	25	100.0
1. No relapse	1505	96.7	2707	96.7	24	96.0
2. Relapse / Total	17	1.1	30	1.1	1	4.0
2. Relapse / Bacteriological	12		18		1	
2. Relapse / Radiological	5		11		1	
2. Relapse / Other evidence	0		3		0	
3. Unknown	34	2.2	61	2.2	0	0.0

Annex 1 (c4)

Group	PreRx smear +ve		PreRx culture +ve		MDR-TB	
	N	%	N	%	N	%

Sensitivity pattern

Streptomycin - R	174	11.1	296	9.5	38	86.4
Streptomycin - S	1388	88.9	2809	90.5	6	13.6

Isoniazid - R	111	7.1	204	6.6	44	100.0
Isoniazid - S	1451	92.9	2900	93.4	0	0.0

Rifampicin - R	24	1.5	54	1.7	44	100.0
Rifampicin - S	1540	98.5	3051	98.3	0	0.0

Ethambutol - R	20	1.3	34	1.1	23	52.3
Ethambutol - S	1543	98.7	3068	98.9	21	47.7

Pyrazinamide - R	13	12.9	15	7.9	11	34.4
Pyrazinamide - S	88	87.1	176	92.1	21	65.6

Ofloxacin - R	9	7.1	10	4.1	10	26.3
Ofloxacin - S	118	92.9	231	95.9	28	73.7

Smear conversion rates

1. Smear at 2 month = N (a)	1117				8	
2. Smear at 2 month = P (b)	134				2	
2. Sm 2m (P); Sm 3m (N) (c)	70				1	
2. Sm 2m (P); Sm 3m (P) (d)	44				0	
2. Sm 2m (P); Sm 3m (U) (e)	20				1	
3. Smear at 2 month = U (f)	577				8	
3. Sm 2m (U); Sm 3m (N) (g)	238				1	
3. Sm 2m (U); Sm 3m (P) (h)	17				2	
3. Sm 2m (U); Sm 3m (U) (i)	322				5	

Overall percentage of smear conversion at 2m = (a)/ [(a)+(b)]

89.3		-		80.0	
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Overall percentage of smear conversion at 3m = [(a)+(c)+(g)]/ [(a)+(c)+(d)+(g)+(h)]

95.9		-		83.3	
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Culture conversion rates

1. Culture at 2 month = N (a)			1848		12	
2. Culture at 2 month = P (b)			245		9	
2. Cu 2m (P); Cu 3m (N) (c)			131		3	
2. Cu 2m (P); Cu 3m (P) (d)			28		2	
2. Cu 2m (P); Cu 3m (U) (e)			86		4	
3. Culture at 2 month = U (f)			1189		11	
3. Cu 2m (U); Cu 3m (N) (g)			463		3	
3. Cu 2m (U); Cu 3m (P) (h)			22		1	
3. Cu 2m (U); Cu 3m (U) (i)			704		7	

Overall percentage of culture conversion at 2m = (a)/ [(a)+(b)]

-		88.3		57.1	
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Overall percentage of culture conversion at 3m = [(a)+(c)+(g)]/ [(a)+(c)+(d)+(g)+(h)]

-		98.0		85.7	
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Annex 1 (d1)

	New pulmonary smear +ve		ReRx pulmonary smear +ve	
	N	%	N	%
Age group				
0 to 19	53	3.4	2	0.8
Female	32		1	
Male	21		1	
20 to 39	400	25.6	29	10.9
Female	178		10	
Male	222		19	
40 to 59	460	29.4	92	34.7
Female	91		12	
Male	369		80	
60+	650	41.6	142	53.6
Female	159		24	
Male	491		118	
Total	1563	100.0	265	100.0
Female	460	29.4	47	17.7
Male	1103	70.6	218	82.3
Residential status				
Permanent resident	1487	95.1	261	98.5
Chinese immigrant	20	1.3	2	0.8
Illegal immigrant	4	0.3	0	0.0
Chinese (other types)	4	0.3	1	0.4
Vietnamese migrants	0	0.0	0	0.0
Others	39	2.5	0	0.0
Unknown	9	0.6	1	0.4
Total	1563	100.0	265	100.0
Ethnicity				
Chinese	1501	96.0	264	99.6
Non-Chinese	55	3.5	0	0.0
Unknown	7	0.4	1	0.4
Total	1563	100.0	265	100.0
Occupation				
Medical	2	0.1	0	0.0
Paramedical	5	0.3	0	0.0
Domestic helper	23	1.5	2	0.8
Not employed	118	7.5	17	6.4
Retired	379	24.2	97	36.6
Others	998	63.9	144	54.3
Unknown	38	2.4	5	1.9
Total	1563	100.0	265	100.0
Presentation				
Symptoms	1422	91.0	229	86.4
Post-Rx FU	2	0.1	18	6.8
Self check up	8	0.5	0	0.0
Other check up	30	1.9	5	1.9
Contact examination	6	0.4	1	0.4
High risk screening	1	0.1	0	0.0
Coincidental	55	3.5	5	1.9
Others	30	1.9	4	1.5
Unknown	9	0.6	3	1.1
Total	1563	100.0	265	100.0

Annex 1 (d2)

	New pulmonary smear +ve		ReRx pulmonary smear +ve	
	N	%	N	%

Disease classification

Pulmonary TB only	1476	94.4	258	97.4
Both pulm & extrapulm	87	5.6	7	2.6
Total	1563	100.0	265	100.0

Disease characteristics (pulmonary cases)

Extent = 1	638	40.8	105	39.6
Extent=1 & cavity=N	515	32.9	89	33.6
Extent=1 & cavity=Y	123	7.9	16	6.0
Extent = 2	626	40.1	105	39.6
Extent=2 & cavity=N	462	29.6	82	30.9
Extent=2 & cavity=Y	164	10.5	23	8.7
Extent=3	274	17.5	51	19.2
Extent=3 & cavity=N	176	11.3	31	11.7
Extent=3 & cavity=Y	98	6.3	20	7.5
Extent=not specified	25	1.6	4	1.5
Extent=ns & cavity=N	24	1.5	4	1.5
Extent=ns & cavity=Y	1	0.1	0	0.0
Cavity=N	1177	75.3	206	77.7
Cavity=Y	386	24.7	59	22.3

Condition at 6 months

1. Rx completed	460	29.4	7	2.6
2. Still on Rx	973	62.3	224	84.5
3. Changed Rx to others	34	2.2	7	2.6
4. Defaulted	47	3.0	11	4.2
5. Died from TB	5	0.3	2	0.8
6. Died from non-TB	24	1.5	9	3.4
7. Died from unknown	20	1.3	5	1.9
8. Others	0	0.0	0	0.0
9. Admitted & not yet back	0	0.0	0	0.0
Total	1563	100.0	265	100.0

Outcome at 1 year

1. Rx completed / Total	1226	78.4	177	66.8
1. Rx completed / Bacter con	1110		148	
1. Rx completed / Rad impro	1072		144	
1. Rx completed / Other evid	0		0	
1. Rx completed / No evid	17		7	
2. Still on Rx / Total	141	9.0	43	16.2
2. Still on Rx / smear +ve 5m	9		3	
2. Still on Rx / smear -ve 5m	107		34	
2. Still on Rx / smear ukn 5m	25		6	
3. Changed Rx to others	45	2.9	7	2.6
4. Defaulted	70	4.5	15	5.7
5. Failure	0	0.0	0	0.0
6. Died from TB	6	0.4	2	0.8
7. Died from non-TB	46	2.9	14	5.3
8. Died from unknown	29	1.9	7	2.6
9. Others	0	0.0	0	0.0
Total	1563	100.0	265	100.0

Annex 1 (d3)

	New pulmonary smear +ve		ReRx pulmonary smear +ve	
	N	%	N	%

Outcome at 2 year

1. Rx completed / Total	1345	86.1	211	79.6
1. Rx completed / Bacter con	1274		191	
1. Rx completed / Rad impro	1245		189	
1. Rx completed / Other evid	353		54	
1. Rx completed / No evid	15		4	
2. Still on Rx	5	0.3	2	0.8
3. Changed Rx to others	52	3.3	8	3.0
4. Defaulted	75	4.8	18	6.8
5. Failure	1	0.1	0	0.0
6. Died from TB	6	0.4	4	1.5
7. Died from non-TB	49	3.1	14	5.3
8. Died from unknown	30	1.9	8	3.0
9. Others	0	0.0	0	0.0
Total	1563	100.0	265	100.0

Relapse at 2 year after Rx completion

Number with Rx completed	1345	100.0	211	100.0
1. No relapse	1307	97.2	198	93.8
2. Relapse / Total	11	0.8	6	2.8
2. Relapse / Bacteriological	8		4	
2. Relapse / Radiological	4		1	
2. Relapse / Other evidence	0		0	
3. Unknown	27	2.0	7	3.3

Smear conversion rates

1. Smear at 2 month = N (a)	960		157	
2. Smear at 2 month = P (b)	111		23	
2. Sm 2m (P); Sm 3m (N) (c)	58		12	
2. Sm 2m (P); Sm 3m (P) (d)	38		6	
2. Sm 2m (P); Sm 3m (U) (e)	15		5	
3. Smear at 2 month = U (f)	492		85	
3. Sm 2m (U); Sm 3m (N) (g)	206		32	
3. Sm 2m (U); Sm 3m (P) (h)	13		4	
3. Sm 2m (U); Sm 3m (U) (i)	273		49	

Overall percentage of smear conversion at 2m = (a)/ [(a)+(b)]

89.6		87.2	
------	--	------	--

Overall percentage of smear conversion at 3m = [(a)+(c)+(g)]/ [(a)+(c)+(d)+(g)+(h)]

96.0		95.3	
------	--	------	--

Annex 1 (e1)

Analysis for defaulters

	Female		Male		Total	
Age group	N	%	N	%	N	%
0 to 19	9	11.8	9	3.1	18	4.9
20 to 39	38	50.0	81	28.1	119	32.7
40 to 59	15	19.7	103	35.8	118	32.4
60+	14	18.4	95	33.0	109	29.9
Total	76	100.0	288	100.0	364	100.0

Residential status	N	%
Permanent resident	326	89.6
Chinese immigrant	9	2.5
Illegal immigrant	3	0.8
Chinese (other types)	2	0.5
Vietnamese migrants	0	0.0
Others	23	6.3
Unknown	1	0.3
Total	364	100.0

Ethnicity	N	%
Chinese	331	90.9
Non-Chinese	33	9.1

Occupation	N	%
Medical	1	0.3
Paramedical	0	0.0
Domestic helper	14	3.8
Not employed	41	11.3
Retired	67	18.4
Others	229	62.9
Unknown	12	3.3
Total	364	100.0

Presentation	N	%
Symptoms	307	84.3
Post-Rx FU	5	1.4
Self check up	6	1.6
Other check up	15	4.1
Contact examination	3	0.8
High risk screening	1	0.3
Coincidental	13	3.6
Others	13	3.6
Unknown	1	0.3
Total	364	100.0

Disease Classification	N	%
Pulmonary TB only	303	83.2
Extrapulmonary TB only	39	10.7
Both	22	6.0
Total	364	100.0

Defaulting at month

Month	N	%
0	12	3.3
1	78	21.4
2	41	11.3
3	35	9.6
4	29	8.0
5	29	8.0
6	22	6.0
7	11	3.0
8	16	4.4
9	7	1.9
10	2	0.5
11	5	1.4
12	5	1.4
13	2	0.5
14	3	0.8
15	1	0.3
16	0	0.0
17	2	0.5
18	1	0.3
19	0	0.0
20	0	0.0
Unknown	63	17.3
Total	364	100.0

New course of treatment started

Rx restarted	N	%
Yes	53	14.6
No	245	67.3
Unknown	66	18.1
Total	364	100.0

Annex 1 (e2)

Analysis for defaulters

Case category	N	%
1. New case	298	81.9
2. Relapse < 5 years	17	4.7
3. Relapse > 5 years	24	6.6
4. Rx defaulter < 5 month	23	6.3
5. Rx defaulter > 5 month	2	0.5
6. Previous failure	0	0.0
7. Others	0	0.0
Total	364	100.0

Disease characteristics (pulmonary cases)	N	%
Pretreatment smear +ve	93	28.6
Pretreatment culture +ve	172	52.9
Extent = 1	198	60.9
Extent=1 & cavity=N	182	56.0
Extent=1 & cavity=Y	16	4.9
Extent = 2	86	26.5
Extent=2 & cavity=N	69	21.2
Extent=2 & cavity=Y	17	5.2
Extent=3	34	10.5
Extent=3 & cavity=N	23	7.1
Extent=3 & cavity=Y	11	3.4
Extent=not specified	7	2.2
Extent=ns & cavity=N	7	2.2
Extent=ns & cavity=Y	0	0.0
Cavity=N	281	86.5
Cavity=Y	44	13.5

PRF FORM 1/2 (To be completed at 6 mo from DOS)

PRF1/2-1-1-97(Rev)

Name: _____ Sex: *M / F* * Age: ____ / ____ / 19 ____Clinic No.: _____ HKID No.: _____-(____) or *Passport / Birth Cert* * No.: _____*Resident status: PResidents / CImmigrants / IImmigrants / cHOther / VMigrants / OThers / UNKnown / NOne of above* **Ethnicity: CHinese / NOn-Chinese**Occupation (in the past 6 months): MEDical / PAramedical / DOmestiche / NOtemployed / RETired / OThers / UNKnown* *

Last follow-up date: ____ / ____ / 19 ____ (= _____ month from DOS)

Part A: Presented this time mainly because of (choose 1 item only):

- | | | | | | |
|---|---------------------------|---------------|---------------------------|------------------|---------------------------|
| Symptoms | <input type="radio"/> (1) | Post-Rx FU | <input type="radio"/> (2) | Self check-up | <input type="radio"/> (3) |
| Other check-up | <input type="radio"/> (4) | Contact exam. | <input type="radio"/> (5) | H-risk screening | <input type="radio"/> (6) |
| Coincidental finding during investigation of other diseases | <input type="radio"/> (7) | | | Others | <input type="radio"/> (8) |

Part B: Disease classification (choose ≥ 1 item)

- | | | | | | |
|--------------------------------|---------------------------|----------------|---------------------------|--------|---------------------------|
| • Pulmonary Tuberculosis | <input type="radio"/> (P) | | | | |
| • Extra-pulmonary Tuberculosis | <input type="radio"/> (E) | miliary | <input type="radio"/> (4) | skin | <input type="radio"/> (8) |
| pleura | <input type="radio"/> (1) | bone & joint | <input type="radio"/> (5) | others | <input type="radio"/> (9) |
| lymph node | <input type="radio"/> (2) | genito-urinary | <input type="radio"/> (6) | | |
| meninges | <input type="radio"/> (3) | abdomen | <input type="radio"/> (7) | | |

Diagnosis based on

(choose ≥ 1 item): Clinical ☐ (CL) / Radiological ☐ (RA) / Bacteriological ☐ (BA) / Histological ☐ (HI) ***Part C: Extent of disease (for pulmonary tuberculosis only)**Cavity: *Y / N* *

- | | |
|------------------------------|---------------------------|
| Minimal Disease (<RUL) | <input type="radio"/> (1) |
| Moderate Disease (>RUL) | <input type="radio"/> (2) |
| Extensive Disease (> a lung) | <input type="radio"/> (3) |

Part D: Case category (choose 1 item only)

- New case (previous treatment < 1 month) ☐ (1)
- Retreatment case (previous treatment > 1 month): DOS for last episode: ____ / ____ / 19 ____
 - (a) Relapse (previously considered cured):
 - within 5 years from last dose of last course of treatment ☐ (2)
 - more than 5 years from last dose of last course of treatment ☐ (3)
 - (b) Previous treatment defaulter (treatment interval ≤ 5 months for the last episode) ☐ (4)
 - (c) Previous treatment defaulter (treatment interval > 5 months for the last episode) ☐ (5)
 - (d) Previous failure ☐ (6)
- Others (please specify) _____ ☐ (7)

Part E: Condition at 6 month (from DOS) (choose only 1 of the items from (1) to (7))

- Treatment completed, or to be completed in ≤ 2 weeks ☐ (1)
- Still on treatment (beyond 6 month) ☐ (2)
- Changed to be treated by GP/other doctors at _____ month from DOS ☐ (3)
- Defaulted/refused treatment for ≥ 2 months since _____ month from DOS ☐ (4)
- Died at _____ month:
 - from TB-related causes ☐ (5)
 - from non-TB causes: _____ ☐ (6)
 - from unknown cause ☐ (7)
- Others (please specify) _____ ☐ (8)
- Admitted to chest hospital and not yet referred back (with unknown status) ☐ (9)

Part F: Sputum results

	Pre-Rx			At 2 month			At 3 month		
smear	<input type="radio"/> P	<input type="radio"/> N	<input type="radio"/> U	<input type="radio"/> P	<input type="radio"/> N	<input type="radio"/> U	<input type="radio"/> P	<input type="radio"/> N	<input type="radio"/> U
culture (MTB)	<input type="radio"/> P	<input type="radio"/> N	<input type="radio"/> U	<input type="radio"/> P	<input type="radio"/> N	<input type="radio"/> U	<input type="radio"/> P	<input type="radio"/> N	<input type="radio"/> U
culture (NTM)	<input type="radio"/> P			<input type="radio"/> P			<input type="radio"/> P		

Part G: Pre-Rx sensitivity test results

S	<input type="radio"/> S	<input type="radio"/> R		Z	<input type="radio"/> S	<input type="radio"/> R		Cyclo	<input type="radio"/> S	<input type="radio"/> R		(YFS	<input type="radio"/> (1)
H	<input type="radio"/> S	<input type="radio"/> R		Ofi	<input type="radio"/> S	<input type="radio"/> R		Others:	<input type="radio"/> S	<input type="radio"/> R		(TGH	<input type="radio"/> (2)
R	<input type="radio"/> S	<input type="radio"/> R		Ethi	<input type="radio"/> S	<input type="radio"/> R			<input type="radio"/> S	<input type="radio"/> R		Source of ST (RH	<input type="radio"/> (3)
E	<input type="radio"/> S	<input type="radio"/> R		Kana	<input type="radio"/> S	<input type="radio"/> R			<input type="radio"/> S	<input type="radio"/> R		(HOH	<input type="radio"/> (4)
												(Others	<input type="radio"/> (5)

Completed by Dr _____ on ____ / ____ / 19 ____

_____ Chest Clinic

Clinic No.: ____ - ____ - ____ - ____ - ____

DOS: ____ / ____ / 19 ____

HKID No.: ____ - ____ - ____ - (____) or *Passport / Birth Certificate* * No.: _____

Last follow-up date: ____ / ____ / 19 ____ (≡ ____ month from DOS)

Part H: Outcome at 1 year (from DOS)**(I) Sputum results between 5 month and 1 year from DOS**

smear	<input type="radio"/> P	<input type="radio"/> N	<input type="radio"/> U)
culture (MTB)	<input type="radio"/> P	<input type="radio"/> N	<input type="radio"/> U) (report as positive if any one month is positive)
culture (NTM)	<input type="radio"/> P) (excluding false positives)

(II) Outcome at around the time of the last dose of treatment (ignore events afterwards)(choose 1 item only):

- Cured / treatment completed ☐ (1)
 - bacteriological conversion ☐ (a)
 - radiological improvement ☐ (b)
 - other evidence of clinical response ☐ (c)
 - no available evidence of response ☐ (d)
- Still on treatment (beyond 1 year) ☐ (2)
- Changed to be treated by GP/other doctors at ____ month ☐ (3)
- Defaulted treatment at ____ month ☐ (4)
- Failure ☐ (5)
- Died:
 - from TB-related causes ☐ (6)
 - from non-TB causes: _____ ☐ (7)
 - from unknown cause ☐ (8)
- Others (e.g. incorrect diagnosis) _____ ☐ (9)

Part I: Total interval of treatment (from DOS to date of last dose of treatment)(including those who defaulted, died, etc.)

= ____ months / still on treatment * (fill in an integer for the number of months, which can be less than 6)

Completed by Dr _____ on ____ / ____ / 19 ____
Clinic

Chest

PRF FORM 4 (To be completed at 2 year from DOS)

Clinic No.: ____ - ____ - ____ - ____ - ____	DOS: ____ / ____ / 19 ____
HKID No.: ____ - ____ - ____ - ____ - ____ (____) or <i>Passport / Birth Certificate</i> * No.: _____	
Last follow-up date: ____ / ____ / 19 ____ (≡ ____ month from DOS)	

Part J: Total interval of treatment (from DOS to date of last dose of treatment)(including those who defaulted, died, etc.):

- ≤ 12 months / ____ months * ☐ (1)
(Date of last dose of treatment = ____ / ____ / 19 ____)
- Still on treatment (beyond 2 year) ☐ (2)

Part K: Outcome at 2 year (from DOS):**(I) Outcome at around the time of the last dose of treatment (ignore events afterwards)(choose 1 item only):**

- Cured / treatment completed ☐ (1)
 - bacteriological conversion ☐ (a)
 - radiological improvement ☐ (b)
 - other evidence of clinical response ☐ (c)
 - no available evidence of response ☐ (d)
- Still on treatment (beyond 2 year) ☐ (2)
- Changed to be treated by GP/other doctors ____ month ☐ (3)
- Defaulted treatment at ____ month ☐ (4)
- Failure ☐ (5)
- Died: from TB-related causes ☐ (6)
- from non-TB causes: ____ ☐ (7)
- from unknown cause ☐ (8)
- Others (e.g. incorrect diagnosis) ☐ (9)
- ____ ☐ (9)

(II) Status at 2 year:

- (a) Loss to follow up at ____ month from DOS ☐ (LO) / Still being followed up ☐ (FU) *
- (b)
 - Still alive ☐ (AL)
 - Died at ____ month from DOS: ☐ (DI)
 - from TB-related causes ☐ (1)
 - from non-TB causes: ____ ☐ (2)
 - from unknown cause ☐ (3)
 - Unknown survival status ☐ (UN)

(III) For those "Cured / treatment completed" cases (see item (1) of Part K(I)), the status at last FU date:

- No relapse ☐ (NR)
- Relapse at ____ month from DOS: ☐ (RE)
 - Bacteriological relapse ☐ (1)
 - Radiological relapse ☐ (2)
 - Other evidence of relapse ☐ (3)

(IV) Has a new course of treatment been restarted after the outcome in Part K(I) or (III):

Y / N *

If yes, the new DOS is ____ / ____ / ____.

Completed by Dr _____ on ____ / ____ / 19 ____ Chest Clinic

Annex 2 (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	1998	1999	2000	2001	2002
Notified TB cases who are Chinese New Immigrants (with years of arrival in Hong Kong)	≤1 year	59	47	36	42	43
	≤2 year	28	32	20	36	30
	≤3 year	23	26	18	26	13
	≤4 year	11	13	26	25	20
	≤5 year	20	18	15	28	26
	≤6 year	12	12	17	12	30
	≤7 year	16	18	20	23	24
Total		169	166	152	192	186
Overall notified TB cases		7673	7512	7578	7262	6602

The above table shows the number of all notified TB cases in Hong Kong from 1998 to 2002 and the number of TB cases among the Chinese new immigrants (staying in Hong Kong less than 7 years) according to the number of years they have arrived in Hong Kong. The numbers are in general higher in the first year of arrival. This phenomenon has also been observed in the immigrants of some other countries. The exact reason is unknown although some postulate that the stress experienced by the new immigrants upon arrival may be a factor.

In Annex 2 (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 2 (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 2 (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 1998 to 2002 are 117.3, 113.7, 113.7, 108.0 and 97.3 respectively.

From Annex 2 (b), the overall estimated rates (per 100,000) among the new immigrants from 1998 to 2002 are 54.0, 48.9, 41.8, 50.6 and 49.1 respectively. The rates are lower than those of the general Hong Kong population. Although Mainland China has been classified by the World Health Organisation 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 more 'fit', or with better socioeconomic condition. Hence, the rate of TB among this group may be lower.

Annex 2 (b)

TB Notification and Estimated Rates Among Chinese New Immigrants By Age & Sex (1998-2002)

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

	1998	1998	1998	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-19	12	9	21	10	8	18	7	8	15	10	20	30	15	13	28
20-39	23	54	77	16	76	92	14	69	83	26	77	103	16	77	93
40-59	14	33	47	5	34	39	6	31	37	14	32	46	12	34	46
60+	14	10	24	11	6	17	10	7	17	7	6	13	9	10	19
Total	63	106	169	42	124	166	37	115	152	57	135	192	52	134	186

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

	1998	1998	1998	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-19	16.8	14.3	15.6	12.7	11.1	11.9	8.3	10.2	9.2	11.6	24.4	17.9	17.8	16.0	16.9
20-39	90.4	61.5	68.0	66.0	78.2	75.8	59.8	64.6	63.7	102.5	67.0	73.4	65.3	64.5	64.7
40-59	168.3	70.5	85.2	62.6	70.2	69.1	76.5	62.1	64.1	172.6	65.6	80.9	148.8	73.0	84.2
60+	555.1	130.3	235.3	445.9	73.4	159.7	375.2	64.5	125.8	256.9	52.0	91.2	326.8	83.8	129.3
Total	58.5	51.6	54.0	37.0	54.9	48.9	31.4	46.7	41.8	46.7	52.5	50.6	43.6	51.7	49.1

Annex 2 (c)

TB Notification and Rates (All Cases) By Age & Sex (1998-2002)

All TB cases, by age and sex

	1998	1998	1998	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-19	182	188	370	145	184	329	160	176	336	150	171	321	139	140	279
20-39	1081	1041	2122	1000	954	1954	948	967	1915	951	983	1934	778	883	1661
40-59	1406	503	1909	1359	557	1916	1390	552	1942	1303	604	1907	1215	528	1743
60+	2444	828	3272	2383	930	3313	2475	910	3385	2268	832	3100	2157	762	2919
Total	5113	2560	7673	4887	2625	7512	4973	2605	7578	4672	2590	7262	4289	2313	6602

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

	1998	1998	1998	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-19	21.7	23.9	22.8	17.4	23.5	20.3	19.5	23.0	21.2	18.7	22.8	20.7	17.6	18.8	18.2
20-39	98.7	85.9	92.0	93.2	78.5	85.4	90.0	79.2	84.2	91.9	80.2	85.6	76.6	73.0	74.7
40-59	163.3	63.2	115.2	152.0	66.4	110.6	149.4	62.3	106.9	134.5	64.2	99.8	120.9	52.6	86.7
60+	537.5	165.6	342.7	514.9	183.6	341.8	524.4	176.8	343.1	470.4	159.3	308.6	442.3	143.6	286.7
Total	157.3	77.7	117.3	149.7	78.6	113.7	151.8	76.9	113.7	142.1	75.3	108.0	130.0	66.3	97.3

Part 4

SUPPLEMENT

Contents

Supplement

- 1 Monitoring for Hepatotoxicity during Anti-tuberculosis Treatment – General Recommendations (April 2002)
- 2 Preventive Measures Against Drug-induced Ocular Toxicity during Anti-tuberculosis Treatment – General Recommendations (August 2002)
- 3 Notification forms
 - (a) DH1A(s)(Rev.99) (for notification of TB to Department of Health)
 - (b) LD483(Rev.11.6.1999) (for notification of occupational TB and other notifiable occupational diseases to Labour Department)

MONITORING FOR HEPATOTOXICITY DURING ANTITUBERCULOSIS TREATMENT

GENERAL RECOMMENDATIONS

A consensus statement of
the Tuberculosis Control Coordinating Committee of
the Hong Kong Department of Health and
the Tuberculosis Subcommittee of
the Coordinating Committee in Internal Medicine of
the Hospital Authority, Hong Kong

April 2002

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April 2002

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[Extracted from Annual Report (Suppl) 2002, TB & Chest Service, Department of Health, Hong Kong]

Background

Treatment of tuberculosis (TB) involves several drugs in combination for six or more months. An updated set of guidelines has been published by a working group of the Tuberculosis Control Coordinating Committee/ Tuberculosis & Chest Subcommittee of the Department of Health and the Hospital Authority (TBCCC/TBSC).¹ In view of the concern about the risk of hepatotoxicity, this short paper has been prepared to address the issue in greater depth.

Many of the commonly used anti-TB drugs are associated with significant potential of causing hepatotoxicity. While the occurrence of drug-induced hepatitis is difficult to predict, it has been observed that certain patients are at higher risk of developing drug-induced hepatitis during the course of anti-TB chemotherapy. These include patients with pre-existing liver diseases, particularly those associated with chronic viral infection due to Hepatitis B, Hepatitis C, and HIV, the alcoholics, the elderly and the malnourished.²⁻⁴

The exact role of regular monitoring of liver function tests in patients receiving antituberculosis drugs remains controversial. Certain guidelines only emphasize the need of clinical monitoring without mentioning regular biochemical monitoring,^{5,6} while a number of authorities recommend routine biochemical monitoring among the high risk groups.⁷⁻⁹

Transient changes in alanine transaminase and bilirubin levels are relatively common during antituberculosis chemotherapy and do not signify true hepatotoxicity. However, progressive rise in alanine transaminase and bilirubin levels is much more ominous. Existing data do not allow reliable prediction of the exact clinical course of asymptomatic patients with moderate degree of biochemical derangement. Opinions therefore differ as at what cut-off level of liver dysfunction should modification of treatment regimen be initiated. For the alanine transaminase level, some recommend stopping the hepatotoxic drugs three times or above that of normal,⁸⁻¹² while others recommend five times.^{6,7,13} The recommendations regarding the level of bilirubin are also not uniform.¹³

Furthermore, opinions on the frequency and duration of biochemical monitoring also differ. While more frequent testing may be more likely to pick up those cases with rapid progression, cost-effectiveness and patient acceptance are practical issues among those without clinical symptoms. Whether monitoring should be performed throughout the whole course of anti-TB treatment, or just during the initial treatment phase also requires deliberation.

More recently, a number of fatal cases of drug-induced hepatitis have been reported during the course of treatment of latent TB infection (LTBI) since the publication of the guidelines for the treatment of LTBI by ATS/CDC.¹⁴ Although the

absence of data on the denominator precludes an accurate assessment of the risk, an updated statement has been promulgated recommending more vigilant measures in liver function and clinical monitoring.¹³

A recent study in Hong Kong showed that among patients treated with anti-TB drugs, the incidences of liver dysfunction and symptomatic hepatitis were rather high among Hepatitis B carriers compared with non-carriers² (Table 1). Another local study also quoted a significant rate at 12% of clinically symptomatic hepatic dysfunction among 1,181 hospital patients who received rifampicin, isoniazid with or without pyrazinamide and other drugs.¹⁵ Although the definitions employed for those hepatic reactions are not exactly similar, the rates of liver dysfunction found in these local studies are clearly higher than those reported elsewhere.^{16,17}

Recommendations

Basing on the available clinical information, international guidelines, and experiences from local experts, a consensus statement has been prepared by a working group of the TBCCC/TBSC on clinical and biochemical monitoring of hepatotoxicity during anti-TB treatment in the local setting:

- (a) For all patients undergoing treatment with potentially hepatotoxic anti-TB drugs, health education should be provided to alert them of the symptoms suggestive of hepatitis, which include loss of appetite, nausea, vomiting, fever, and jaundice. They should be advised to report such symptoms promptly to the nursing or medical staff should these arise.
- (b) During medical consultations in the course of anti-TB treatment, all patients should be assessed clinically for symptoms and signs suggestive of hepatitis.
- (c) Directly observed treatment (DOT), apart from ensuring treatment adherence, also allows health care workers to monitor the patients closely for such symptoms and signs.
- (d) Patients developing symptoms suspicious of hepatitis should have liver function tests checked, and in the case of clinical suspicion of significant hepatic reactions, the anti-TB drugs may have to be stopped even before the availability of the test results.

- (e) Patients at risk of developing drug-induced hepatitis should be identified at the beginning of the treatment course. Patients with pre-existing liver diseases, the alcoholics, the elderly and the malnourished constitute the most clearly defined risk groups. Liver function tests should therefore be checked before the start of anti-TB treatment.
- (f) For those who belong to the risk groups as mentioned in (e), it would be desirable to monitor liver function tests once every two weeks during the initial two months of treatment, or more frequently as clinically indicated.
- (g) In view of the high Hepatitis B carrier rate and the high incidence of drug-induced hepatic dysfunction among them locally, it is also desirable to check the HBsAg status of patients who need to receive anti-TB treatment. Close clinical and biochemical monitoring should also be considered for hepatitis B carriers as in (f).
- (h) Regarding the cut-off levels of liver dysfunction for withholding potentially hepatotoxic anti-TB drugs in patients without symptoms, the followings are recommended:
 - (i) Alanine transaminase level rising to three times or above the upper limit of normal;
 - (ii) Bilirubin level rising to two times or above the upper limit of normal.

Discussion and conclusions

Biochemical monitoring is not a replacement for close clinical monitoring. Clinical heterogeneity dictates that each case should be assessed individually with the monitoring procedures tailored accordingly. More frequent and intensive biochemical monitoring may be indicated in situations where the patient's condition or the liver enzyme levels change rapidly. If the anti-TB drugs are given for the treatment of latent TB infection, the standard for safety monitoring is clearly higher than that for the treatment of active disease.¹⁸

Not uncommonly, mildly elevated pretreatment liver enzymes are encountered among TB patients without any other evidence of liver disease. When these patients are given the full treatment regimen,¹ their enzyme levels are often observed to revert to normal and this phenomenon is presumably related to the

resolution of hepatic TB microgranulomas. However, for those patients with evidence of underlying chronic liver diseases, anti-TB drugs should be started carefully. Depending on the nature of the underlying liver problem, it may be necessary to begin with a potentially less hepatotoxic combination of drugs, and then modify the regimen according to tolerance.

If significant drug-induced hepatitis develops, careful balance of all factors is required to decide on when and how to resume treatment. In case of doubt, experts in the field should be consulted. It should be noted that patients with active TB disease would develop detrimental consequences if the TB is left untreated, particularly if the disease is extensive. Hence, the decision on when to resume treatment with anti-TB drugs should be made not only by the time the liver function tests reverting to the normal or pretreatment level, but also on the rate of TB disease progression and the disease severity. Sometimes, a regimen with less hepatotoxic drugs or a combination of drugs without potential hepatotoxicity may have to be tried first, with the more potent but potentially hepatotoxic drugs added subsequently one after the other (Table 2). It is generally desirable to include both isoniazid and rifampicin in the final regimen whenever possible, so that the duration of treatment does not need to be excessively prolonged. During resumption of the treatment, the liver chemistry should be closely monitored, and the frequency of monitoring usually depends on the severity of the liver dysfunction that has had occurred and the drugs on trial. It has to be noted that the cause of that hepatitis, apart from being drug-induced, could be due to alternatives such as viral infections, or induction by other drugs used at the same time. Resumption of treatment utilizing the original full drug regimen may rarely be possible.

Although there has been substantial progress in the treatment of certain liver diseases, like chronic viral hepatitis, the implications of these advances on the treatment of tuberculosis have not yet been fully clarified. The above guidelines and recommendations need to be reviewed periodically with the availability of future updates in scientific data and medical literature, as well as further accumulation of local experience.

Table 1. Rate of liver dysfunction and symptomatic hepatitis among patients given anti-TB drugs, among HBV carriers as compared with non-carriers, and among HBV carriers not given anti-TB drugs²

	HBV carriers given anti-TB drugs	Non-carriers given anti-TB drugs	HBV carriers not given anti-TB drugs
Total number	43	276	86
Liver dysfunction *	15 (34.9%)	26 (9.4%)	7 (8.1%)
Symptomatic hepatitis #	7 (16.3%)	13 (4.7%)	1 (1.2%)

* Liver dysfunction is defined as an increase in ALT levels to 1.5 times above the upper limit of normal on at least 2 consecutive occasions within 4 weeks. For patients with increased pretreatment ALT, the elevation in ALT had to be greater than 1.5 times the baseline level.

Symptomatic hepatitis is defined as the presence of malaise, nausea, vomiting, lethargy and/or right upper quadrant discomfort together with the presence of liver dysfunction irrespective of the severity of the biochemical abnormality.

Table 2. Anti-TB drugs and potential for hepatotoxicity

Potentially hepatotoxic drugs	Drugs with much lower or little potential for hepatotoxicity
Isoniazid	Streptomycin, Kanamycin, Amikacin, Capreomycin
Rifampicin, Rifabutin	Ethambutol
Pyrazinamide	Ofloxacin, Levofloxacin, Ciprofloxacin
Ethionamide, Prothionamide	Cycloserine
Para-aminosalicylic acid	

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PREVENTIVE MEASURES
AGAINST
DRUG-INDUCED OCULAR TOXICITY
DURING
ANTI-TUBERCULOSIS TREATMENT

(GENERAL RECOMMENDATIONS)

(August 2002)

Internal guidelines of
the Tuberculosis & Chest Service of
the Department of Health of
the Government of the Hong Kong SAR

[Extracted from Annual Report (Suppl) 2002, TB & Chest Service, Department of Health, Hong Kong]

Background

Ethambutol (EMB) is one of the important first line drugs in the treatment of tuberculosis (TB). It is also commonly employed in the treatment of non-tuberculous mycobacterial infection. EMB may occasionally cause ocular toxicity but evidence suggests that it is as safe as or safer than the other standard anti-TB drugs provided proper precautions are taken when prescribing the drug. [1] It has been reported to compare favourably to isoniazid (INH), rifampicin (RMP) and pyrazinamide (PZA). [1]

The ocular side effects of EMB therapy were first described by Carr and Henkind in 1962. [2] Retrobulbar neuritis is the most important potential side effect from EMB. It is reversible in most cases and is related to the dose and duration of treatment, but may occasionally become irreversible resulting in permanent visual disability especially in the older population. It has been said that there is no so-called “safe-dosage” for EMB. [3] The reported incidence of retrobulbar neuritis when EMB is taken for more than 2 months is 18% in subjects receiving greater than 35 mg/kg/day, 5-6% with 25 mg/kg/day, and less than 1% with 15 mg/kg/day. [4,5]

Two types of retro-bulbar neuritis have been described, with involvement of either the central fibres (central toxicity) or uncommonly the peripheral fibres (peripheral toxicity) of the optic nerve. [5] Symptoms and signs of central toxicity include visual blurring, impaired visual acuity on physical examination, central scotoma and loss of perception of red-green colour. Peripheral toxicity may cause few visual symptoms but there is peripheral constriction of visual fields on physical examination. In most instances, the optic disc appears normal.

The exact mechanism by which EMB produces retro-bulbar neuritis is not known; it may be due to its ability to chelate zinc. In animal studies, EMB has been shown to deplete zinc from the optic nerves. [6] Unusual idiosyncratic hypersensitivity with irreversible blindness occurring after six days of treatment with EMB 15 mg/kg/day has also been described. [7]

Apart from EMB, INH, though to a lesser extent, has also been implicated in the development of visually related side effects. [8,9] Thus, the potential ocular toxicity of INH should not be overlooked.

Recommendations on monitoring and preventive measures for ocular toxicity during anti-TB treatment have been made by various authorities. [10-12] Opinions do differ on the dose of EMB either throughout or during the initial treatment phase, and the timing and periodicity of the use of visual tests. It would be useful to summarise the existing data on these issues and lay down some guidelines for reference of the chest clinic medical staff.

Recommendations

Basing on the available clinical information, international guidelines, and experiences from local experts, the following measures are recommended for the prevention of drug-induced ocular toxicity during anti-TB treatment.

- (a) Upon commencement of anti-TB treatment, patients should be assessed for feasibility and contraindications of using EMB. In situations where there is an increased risk of ocular toxicity, the benefit of using EMB should be carefully balanced against its risk. The availability, efficacy and toxic profile of alternate drugs should be taken into account in the choice of an effective treatment regimen. EMB may be contraindicated or dosage reduction may be indicated in the some situations:
 - i. Impaired baseline vision may make visual monitoring difficult. However, in conditions like refractive error, which is correctable with the use of spectacles, and mild cataract which is unlikely to affect visual changes rapidly, continuous monitoring of vision can be conducted during treatment with EMB. EMB should be avoided in patients with significantly reduced vision.
 - ii. Patients with difficulty in appreciating and reporting visual symptoms or changes in vision, like young children, persons with language difficulties, may also make visual monitoring difficult.
 - iii. Impaired renal function can predispose to the development of EMB-related ocular toxicity. Hence, renal function should be checked upon commencement of anti-TB treatment. Recommendations on dosage adjustment of EMB in the case of renal impairment have been described in the recent local TB treatment guidelines. [13]
- (b) For all patients undergoing treatment with anti-TB drugs which includes EMB, health education should be provided to them on the visual side effects of the drug and a high level of awareness of this potential side effect should be emphasized during treatment. The patients should be advised that, in case visual symptoms arise, the drug should be stopped immediately and they should report promptly to the health care staff. The offering of such advice to the patients should be recorded in the medical notes. In case it is necessary to prescribe EMB to young children or patients with language difficulties, appropriate advice should similarly be given to parents or other family members. [10] The use of written instructions or education pamphlets would be beneficial.
- (c) Baseline vision tests for visual acuity and red-green colour perception (e.g., using Snellen chart (Table 1) and Ishihara chart) should be conducted before starting treatment. [10,11,14] There is controversy about the use of regular visual test although this may be considered in certain patients with risk factors, especially when a high dose (25 mg/kg/day, see below) of EMB is

used or the treatment is prolonged. [5,8,12]

- (d) With normal renal function, the recommended daily dose for EMB is 15 mg/kg/day throughout the course of anti-TB treatment. [10] However, the use of a higher dose of 25 mg/kg/day may be considered in certain conditions like severe cavitary TB, drug-resistant TB, or retreatment cases. This higher dose should not be given for more than two months. Ideal body weight should be used in calculations for obese people. [12]
- (e) During medical consultations in the course of anti-TB treatment including EMB, all patients should be assessed clinically for symptoms of visual disturbance. Enquiring monthly about visual symptoms is advisable. [12,15]
- (f) Directly observed treatment (DOT), apart from ensuring treatment adherence, also allows health care workers to monitor the patients closely for such symptoms.
- (g) Patients developing symptoms suspicious of drug-induced ocular toxicity should be documented with vision test (e.g., using Snellen chart (Table 1) and Ishihara chart). Depending on the individual circumstances, EMB may have to be stopped and the patient referred to ophthalmologist for more detail assessment. Formal ophthalmological documentation includes fundal examination, visual acuity, visual field assessment (e.g., finger perimetry) and colour vision. If the impaired vision is due to other causes, e.g., cataract, rather than optic neuritis, EMB may be resumed depending on the feasibility and pros and cons of using alternative drugs. If visual impairment is related to the anti-TB treatment, EMB should continue to be withheld. In such case, reassessment should be made for any change in the occurrence of risk factors, e.g., checking renal function for any recent impairment.
- (h) If severe optic neuritis occurs, INH should also be stopped. In the case of less severe optic neuritis, if INH is being continued, prescription of pyridoxine at high dose (say, 50 to 100 mg daily) may be considered, particularly for those with risk factors like malnutrition, alcoholics and the elderly subjects. If the optic neuritis fails to improve within 6 weeks after stopping EMB, INH should also be stopped. [16]

Discussion and conclusions

There are a number of uncertain and difficult areas in the recommendation of preventive measures against drug-induced ocular toxicity during anti-TB treatment. The use of EMB in a patient with baseline colour vision deficiency, for example, may not be absolutely contraindicated but the standard for safety monitoring will need to be higher. Abnormal colour perception is often an earlier and more sensitive finding

of EMB toxicity than changes in visual acuity [16-18]. If the patient has baseline colour perception problem and subsequently develops some change in colour vision during treatment, one may have difficulty in distinguishing whether this is due to EMB toxicity or test variability. The clinician has to judge the pros and cons of using EMB or alternative agents in each individual circumstance and discuss with the patient for an appropriate and acceptable regimen. A high degree of awareness of this potential ocular side effect of EMB is crucial, both on the part of the health care staff as well as the patient.

Another interesting but uncertain area is the role of zinc supplement. Zinc supplement has been shown to improve diabetic neuropathy [19] and visual acuity in optic neuropathy due to alcohol and tobacco abuse. [20] It has also been reported that patients with lower plasma zinc level have a higher risk of developing EMB-induced optic neuropathy. [21] On the other hand, animal studies showed that zinc supplement may augment the pathological changes in retinal cultures with established EMB-induced vacuolar degeneration and neuronal loss. [22] In addition, correction of zinc deficiency with zinc supplementation must be done cautiously because excessive zinc can interfere with the metabolism of copper and zinc. [23] The use of zinc supplement for the malnourished patients with low zinc level prior to treatment with EMB appears sensible, but there is insufficient data to support the benefit of such strategy.

Despite the potential ocular toxicity of EMB, it is still a very useful anti-TB drug. Sometimes too much emphasis have been placed on blindness with EMB. When compared with other drugs like INH, RMP or PZA, EMB seems to have a lower chance of causing severe drug reactions leading to death. It has been estimated that the chance of occurrence of irreversible ocular toxicity in patients taking EMB is equivalent to the chance of death from drug reactions from PZA therapy. [1] With a high degree of awareness and proper precautions taken when prescribing the drug, EMB should be as safe or safer than the other standard anti-TB drugs. [1] Accumulation of local experience and the availability of more scientific data will help to further improve the above the preventive measures.

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Table 1. Tests for visual acuity

Some tests for visual acuity:

- (a) Standard Snellen chart at 6 m (direct method)
- (b) Snellen chart using a mirror at 3 m
- (c) Near Snellen equivalent at reading distance of about 30 cm (miniature Snellen chart) (e.g., for non-ambulatory patients)

Points to note:

- All the above tests are acceptable if done at the right distance with best corrected spectacles or pin-hole (which reduces the effect of moderate degree of refractive error), and the same test is used during subsequent monitoring if required.
- When the standard Snellen chart is used and the top line cannot be read at 6 m, the test can be done closer to the chart at 2 m or 1 m. If the top line still cannot be read at 1 m, the patient may be asked to count fingers (CF), to appreciate hand movement (HM), or to perceive presence of light (LP).

FORM 1

QUARANTINE AND PREVENTION OF DISEASE ORDINANCE

(Cap. 141)

TUBERCULOSIS NOTIFICATION

Particulars of Infected Person

Name in English		Name in Chinese		Age/Sex:		I.D. Card/Passport No.	
Address:						Telephone Number:	
Place of Work/ School Attended:						Telephone Number:	
Site of TB		Sputum			Disposal		Hospital/Clinic sent to (if any):
Resp. System			Smear	Culture	On Treatment		
Meninges		Positive			On Observation		
Bone & Joint		Negative			Referred		Hospital No.:
Other(s)		Unknown			Died		
Duration of stay in Hong Kong: _____ Years Does patient have a history of past treatment for tuberculosis? __Yes __No If yes, please state the YEAR in which he first received treatment: _____							

Notified under the Prevention of the Spread of Infectious Diseases Regulations by

Dr. _____ on _____ / _____ / _____
 (Full Name in BLOCK Letters) (Date)

Telephone Number: _____ (Signature)

(Please DELETE whichever is not applicable)

"I will arrange for examination of contacts myself."

"Please arrange for examination of contacts to be done by the Government Chest Service."

Further Remarks:

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. of employer: _____

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		
17	Avian Chlamydiosis	34	Skin Cancer		

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: _____

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.

Please
affix
stamp

Occupational Health Service

Labour Department
15/F, Harbour Building
38, Pier Road
Central
Hong Kong