ANNUAL REPORT 2001

TUBERCULOSIS & CHEST SERVICE

OF THE

DEPARTMENT OF HEALTH

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PREFACE

Today, tuberculosis (TB) continues to be an infectious disease of high public health importance. In various parts of the world, TB has become resurgent alongside rampant drug resistance and HIV co-infection. 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.

TB has been a notifiable disease in Hong Kong since 1939. After reaching a record high of around 700 cases per 100,000 population in 1952, the TB notification rate declined significantly in the next 40 years. However, in the past decade, the downward trend has apparently halted, and the rate has fluctuated around 110 per 100,000. In 2001, there were 7,262 notified cases at a rate of 108 per 100,000, accounting for 28% of the total notifiable infectious diseases, second only to chickenpox. The phenomenon of a slow-down or reversal of the annual decline of the crude notification rate has been defined as stagnation. A stagnated decline has also been observed in the past decade in some neighbouring countries such as Singapore, Malaysia, Japan, and Brunei, which are classified together with Hong Kong as "places with intermediate TB burden and a good health infrastructure".

More effective surveillance system has probably confounded the TB trend as observed in Hong Kong. A closer look at our surveillance statistics shows that the number of notifications from the chest clinics and the chest hospitals changed little, while the figures 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. This increase is largely attributable to improvement in notification from the public hospitals, where a very substantial degree of under-notification had been documented by an audit of medical records. Wider publicity, continuous medical education, and active retrieval of TB information from laboratories and death certificates may have contributed to the improvement in the local TB surveillance system.

Ageing of the TB epidemic in an ageing population may be a more fundamental factor that underlies the recently observed stagnant trend. The discovery of effective anti-TB drugs in the 1950s and the advent of the short course chemotherapy in the 1970s have hastened the "ageing of the TB epidemic" in the intermediate TB burden countries. 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. Fewer cases therefore develop from recent infection (either progressive primary infection or exogenous reinfection). However, endogenous

reactivation of the disease will continue from the large pool of infected individuals accumulated in the past. Ageing also increases the risk of progression from latent infection to disease and this is reflected by the age-specific TB notification rates. In 2001, the age-specific rate of elderly aged 65 and above was 349 per 100,000, which was about three times the crude rate of the general population. The proportion of elderly aged 65 and above in the TB patient population was 36%, while the proportion of the same age group in the general population was only 11%. As the local population is ageing fairly rapidly, TB will continue to be an important infectious disease in the foreseeable future.

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 brief account of TB control in Hong Kong has been presented in Annex 4 of the Annual Report for the year 2000. To tie in with the recent actions of WHO, an "Ad Hoc Working Group on Control of TB" (the Working Group) was formed in June 2000. The tasks of the Working Group were to critically review the epidemiology, examine the various contributing factors to the changes which had taken place, re-examine areas of concern and the actions taken, and to formulate strategies for TB control for the coming decade.

The Working Group produced its Report in December 2000, which was submitted to the Secretary for Health and Welfare in January 2001 for formulation of the action plan for TB control in the coming years. The Working Group reconfirmed the crucial importance of collaboration between the Department of Health (DH), the Hospital Authority, and the private sector in the control of tuberculosis in Hong Kong. A good information system was also considered essential in epidemiological surveillance, monitoring of patients' progress and evaluation of outcome. The issue of treatment defaulters has been an area of much concern as they pose persistent hazard in the community owing to their potentially prolonged duration of infectiousness. While there has been little question on the need to explore further means to promote treatment adherence, there are much controversies within the local community in the use of drastic negative measures like quarantine and legal sanction in the management of treatment defaulters. Social stigma, further barrier to care with disturbance of the doctor-patient relationship, and negative impact on the overall control programme, are issues of genuine concern. Socially more acceptable positive measures, like the use of enablers and incentives, are probably preferred options that should be exhausted before any of these drastic negative actions.

In January 2001, Dr. Takashi Yoshiyama and Dr. Maarten R.A. Van Cleefe, WHO consultants (Western Pacific Regional Office, WPRO), visited Hong Kong to discuss about the TB situation in the Region and the strategies for TB control. In December 2001, Dr. Takeshi Kasai and Dr. Dongil Ahn from WHO WPRO visited Hong Kong again to review the TB situation and make arrangement for preparation of the third TAG (Technical Advisory Group) Meeting which was planned to be held in Osaka, Japan in February 2002.

During the year, 110,516 patients attended the TB&CS as compared to 112,903 in 2000, and the total attendance was 961,475 in comparison with 990,513 in 2000. Among the 110,516 patients, 41,109 patients were new attendants, of whom 21.5% were found free of any chest diseases. The diagnoses among other new patients included active pulmonary tuberculosis (10.1%), active tuberculosis of other forms (2.2%), inactive tuberculosis (10.2%), bronchitis not specified as acute or chronic (21.0%), acute respiratory infection (10.2%), pneumonia (5.6%), malignant neoplasm of trachea and bronchus (1.4%), bronchiectasis (1.3%), asthma (0.7%) and emphysema (0.2%). Among all the attendance, 5,317 hospital admissions were arranged.

In this Annual Report, there are a number of new/ modified items and points to note:

(i) The drug resistance rates for ofloxacin among some culture isolates done in the TB Reference Laboratory of the Department of Health for the years 1999 and 2000 are presented in Appendices 19(c).

(ii) A detail analysis of the treatment outcomes at 2 year of the cohort of patients seen at chest clinics in 1998 are presented in Annex 1.

(iii) The notified numbers and estimated rates of TB among Chinese new immigrants are presented in Annex 2.

(iv) The results of tuberculin tests among children aged under 5 who are TB contacts in kindergartens/ nurseries are shown at Annex 3.

(v) The results of tuberculin tests among certain groups of university entrants are shown at Annex 4.

(vi) The updated TB treatment guidelines “Chemotherapy of Tuberuclosis – Update in 2001” is attached as a Supplement in this Annual Report.

Part 1: Tuberculosis

The number of tuberculosis notification in 2001 was 7,262, making a notification rate of 108.0 per 100,000 population. The corresponding figures in 2000 were 7,578 and 113.7 respectively.

The number of tuberculosis deaths was 311 in 2001 compared with 299 in 2000, with the mortality rate for both years being 4.6 and 4.5 per 100,000 respectively.

Deaths of tuberculosis in 2001 stayed outside the top ten causes of death. Tuberculosis deaths accounted for 0.9% of the total registered deaths in Hong Kong. The average age of tuberculosis deaths was 74.3.

In 2001, 99.0% of the newborns were given direct BCG vaccination at birth. The BCG revaccination pogramme 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 obtaining their consent. The positive rate remained low. Besides, unlinked anonymous screening (UAS) continued to be done among a consecutive sample of TB patients attending the TB&CS at yearly intervals.

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 10,889 in 2001 compared with 11,023 in 2000. In 2001, 236 new cases of pneumoconiosis were registered in the TB&CS, and 132 new cases (including 9 cases of asbestos-related lung diseases) were confirmed by the Pneumoconiosis Medical Board. Up to the end of 2001, a total of 5,245 patients had been compensated.

Part 1

TUBERCULOSIS

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APPENDIX 1

TB Notifications & Death Rate of Tuberculosis (All Forms)
1947 - 2001

Year	TB Notifications			Notification Rate per 100,000 Pop	TB Deaths	Death Rate per 100,000 Pop	Ratio (Notifications/ Deaths)	Deaths ---------- x 100% Notifications
1947	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	(1)	192	108.0	311	4.6	23.35	4.28

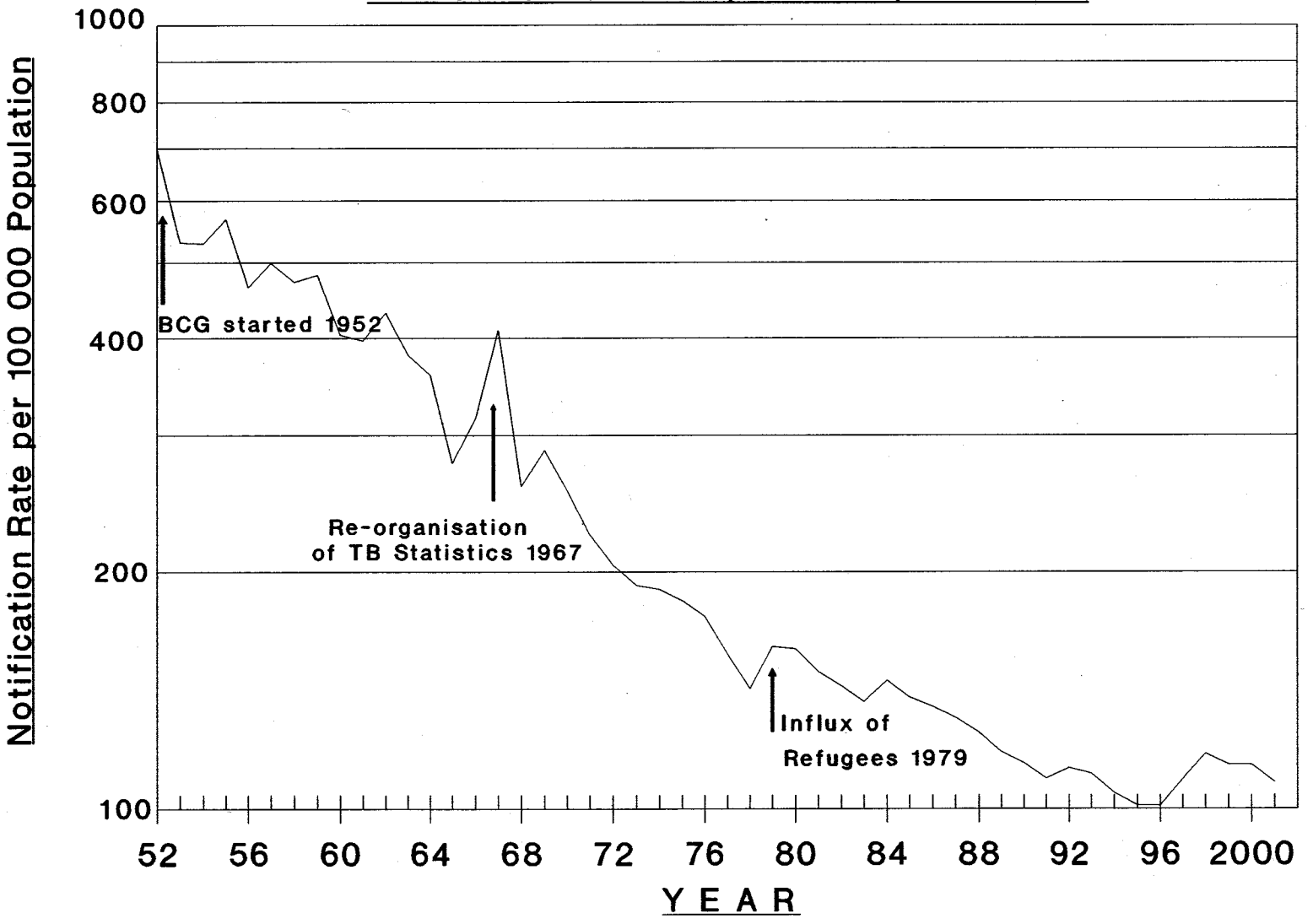
* Figures in brackets denote the number of Vietnamese refugees included.

\# 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.

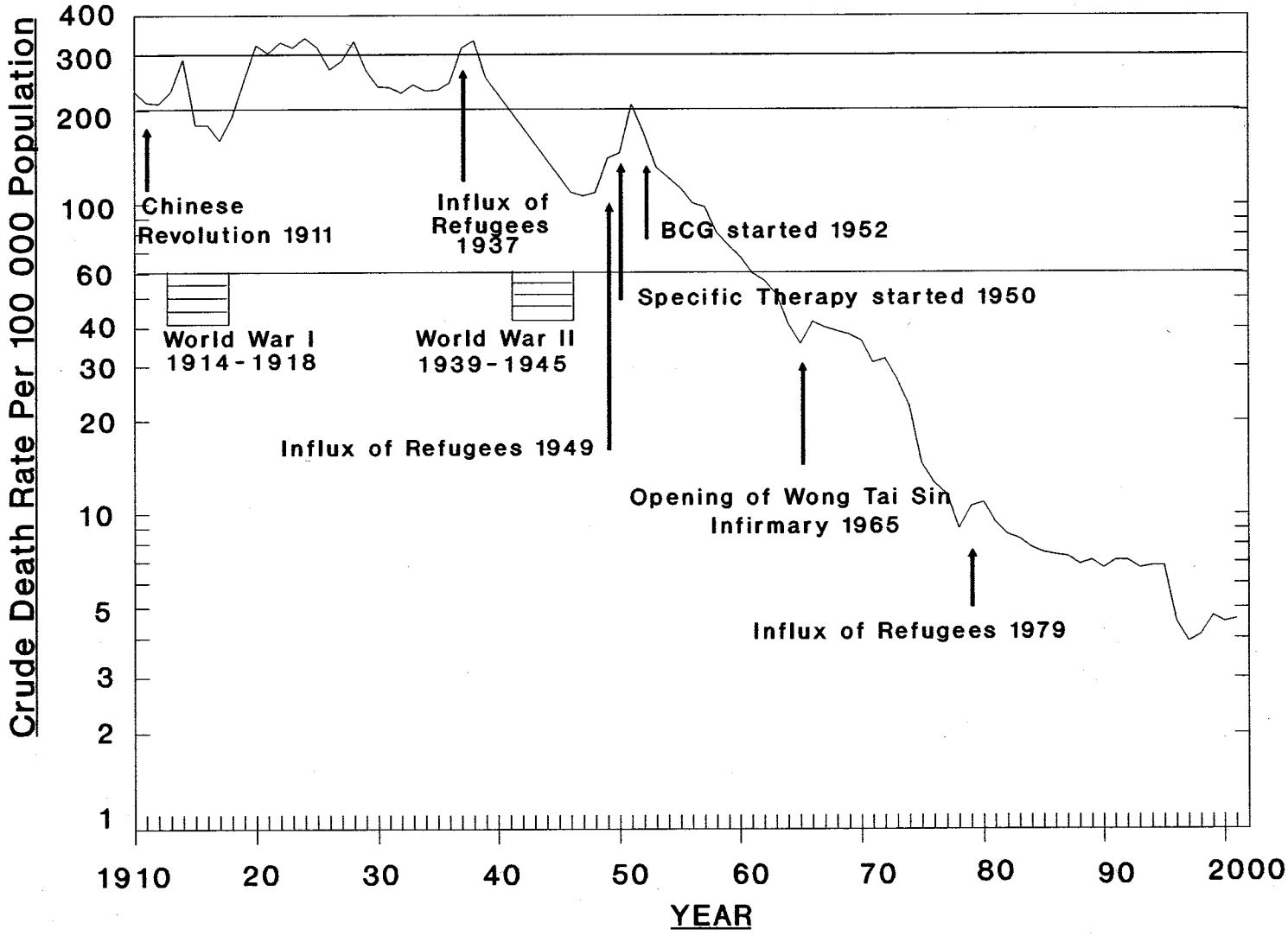
APPENDIX 2

TB Notification Rate (All Forms) 1952-2001



APPENDIX 3

Crude Death Rate due to Tuberculosis (All Forms) 1910-2001



APPENDIX 4 (a)

Tuberculosis Notifications (All Forms) & Rate by Age & Sex 2001

Age Group	Tuberculosis Notifications (All Forms)			Tuberculosis Notification Rate (per 100,000 population)		
	Male	Female	Total	Male	Female	Total
Under 1	1	0	1	6.9	3.8	5.4
1	2	0	2			
2	5	2	7			
3	0	2	2			
4	2	1	3			
5-9	8	6	14	3.9	3.1	3.5
10-14	18	40	58	8.1	19.2	13.5
15-19	114	120	234	49.7	55.4	52.5
20-24	214	219	433	95.1	90.6	92.8
25-29	230	285	515	95.6	100.3	98.1
30-34	235	264	499	91.7	80.6	85.5
35-39	271	215	486	86.6	57.8	71.0
40-44	320	188	508	95.3	54.6	74.7
45-49	318	177	495	117.6	65.7	91.7
50-54	351	121	472	154.6	57.4	107.8
55-59	314	117	431	230.9	100.2	170.5
60-64	389	80	469	290.7	68.4	187.0
65-69	483	130	613	376.5	106.6	244.9
70-74	482	162	644	470.2	150.1	306.1
75-79	433	156	589	779.6	262.3	469.8
80-84	266	123	389			
85 & over	217	181	398			
Total	4673	2589	7262	142.2	75.3	108.0

APPENDIX 4 (b)

Pulmonary TB Notifications by Age & Sex 2001 **

Age Group	Pulmonary TB			Bacteriologically * Positive Pulmonary TB			Smear Positive Pulmonary TB		
	M	F	T	M	F	T	M	F	T
Under 1									
1	2	0	2	1	0	1	1	0	1
2	2	2	4	0	0	0	0	0	0
3	0	2	2	0	0	0	0	0	0
4	2	1	3	1	0	1	0	0	0
5 - 9	5	4	9	2	2	4	1	2	3
10 - 14	13	34	47	7	16	23	4	11	15
15 - 19	106	101	207	56	57	113	32	36	68
20 - 24	200	177	377	98	88	186	49	54	103
25 - 29	200	224	424	88	111	199	49	66	115
30 - 34	205	205	410	106	107	213	58	59	117
35 - 39	243	166	409	126	81	207	71	45	116
40 - 44	293	138	431	154	84	238	103	44	147
45 - 49	287	121	408	171	77	248	109	35	144
50 - 54	326	91	417	193	51	244	110	26	136
55 - 59	292	82	374	188	50	238	104	23	127
60 - 64	368	65	433	228	46	274	131	19	150
65 - 69	453	109	562	307	76	383	164	43	207
70 - 74	465	130	595	339	102	441	177	45	222
75 - 79	408	140	548	309	102	411	160	42	202
80 - 84	254	101	355	189	75	264	76	41	117
85 & over	210	163	373	158	116	274	51	49	100
Total	4334	2056	6390	2721	1241	3962	1450	640	2090

** Pulmonary TB with or without extrapulmonary TB

* Either smear or culture positive

APPENDIX 4 (c)

Rate of Pulmonary TB Notification by Age & Sex 2001 **

(Rate per 100,000 Population)

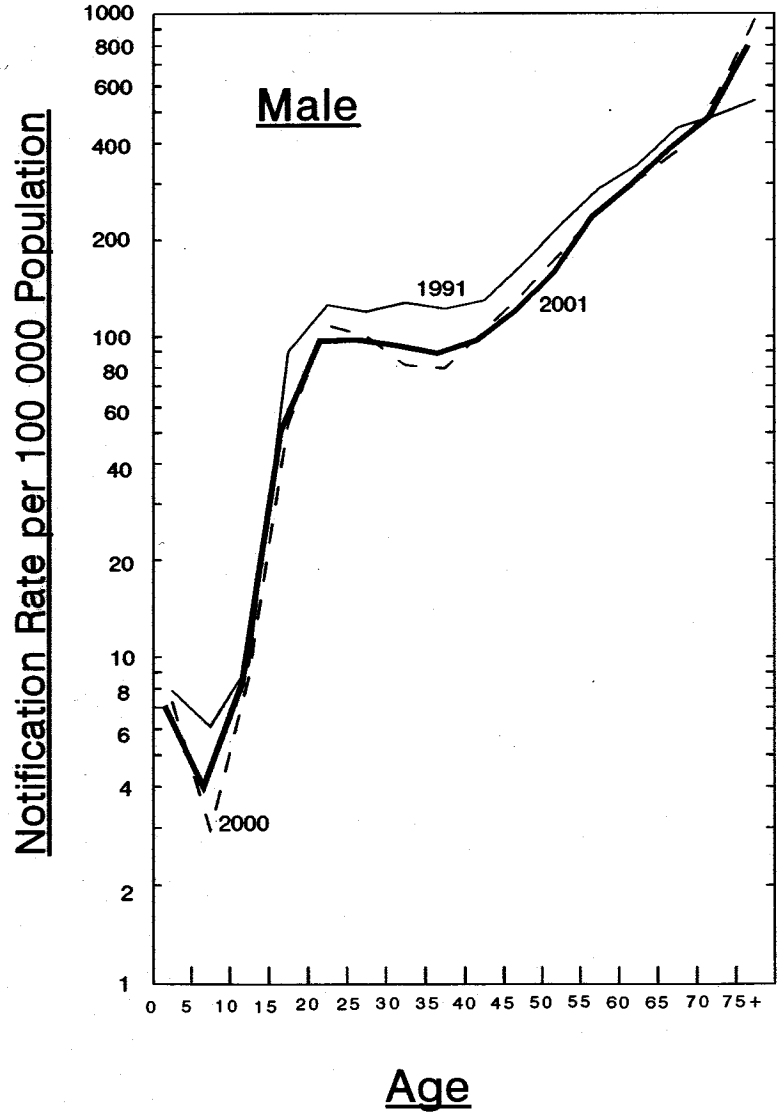
Age Group	Pulmonary TB			Bacteriologically * Positive Pulmonary TB			Smear Positive Pulmonary TB		
	M	F	T	M	F	T	M	F	T
0-4	4.2	3.8	4.0	1.4	-	0.7	0.7	-	0.4
5 - 9	2.4	2.1	2.3	1.0	1.0	1.0	0.5	1.0	0.8
10 - 14	5.9	16.3	10.9	3.2	7.7	5.3	1.8	5.3	3.5
15 - 19	46.2	46.7	46.4	24.4	26.3	25.3	13.9	16.6	15.2
20 - 24	88.8	73.3	80.8	43.5	36.4	39.9	21.8	22.4	22.1
25 - 29	83.1	78.8	80.8	36.6	39.1	37.9	20.4	23.2	21.9
30 - 34	80.0	62.6	70.2	41.4	32.7	36.5	22.6	18.0	20.0
35 - 39	77.7	44.7	59.7	40.3	21.8	30.2	22.7	12.1	16.9
40 - 44	87.3	40.1	63.4	45.9	24.4	35.0	30.7	12.8	21.6
45 - 49	106.1	44.9	75.6	63.2	28.6	45.9	40.3	13.0	26.7
50 - 54	143.6	43.2	95.2	85.0	24.2	55.7	48.5	12.3	31.1
55 - 59	214.7	70.2	147.9	138.2	42.8	94.1	76.5	19.7	50.2
60 - 64	275.0	55.6	172.6	170.4	39.3	109.3	97.9	16.2	59.8
65 - 69	353.1	89.3	224.5	239.3	62.3	153.0	127.8	35.2	82.7
70 - 74	453.7	120.5	282.8	330.7	94.5	209.6	172.7	41.7	105.5
75+	742.1	230.3	435.6	558.3	167.0	324.0	244.3	75.3	143.1
Total	131.9	59.8	95.0	82.8	36.1	58.9	44.1	18.6	31.1

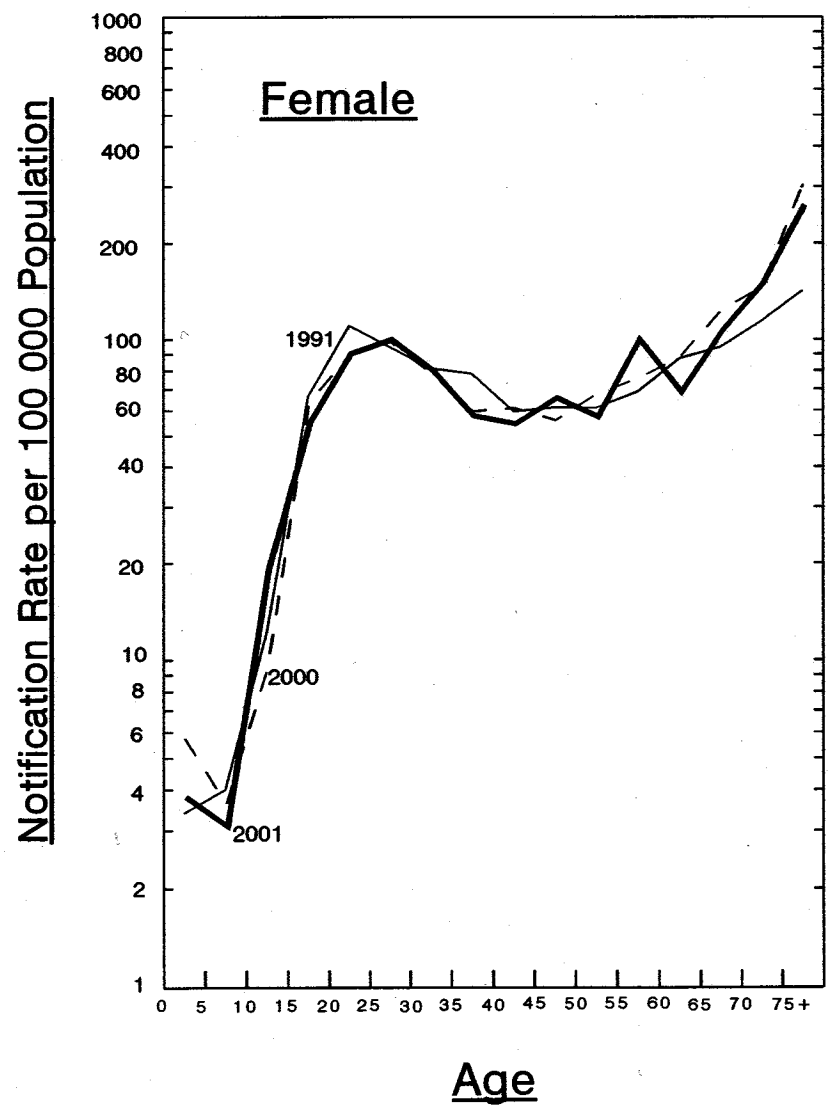
** Pulmonary TB with or without extrapulmonary TB

* Either smear or culture positive

APPENDIX 5

TB Notification Rate by Age & Sex 1991, 2000 & 2001





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APPENDIX 6

Notifications of Tuberculosis by Type by Age & Sex 2001

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	1	-	1	1	-	1	-	-	-	-	-	-	-	-	-
2	2	1	3	-	-	-	1	-	1	1	-	1	1	1	2
3	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-
4	2	1	3	-	-	-	-	-	-	-	-	-	-	-	-
5 - 9	5	3	8	-	-	-	-	-	-	1	1	2	2	2	4
10 - 14	11	34	45	2	-	2	-	-	-	1	-	1	4	6	10
15 - 19	100	95	195	1	1	2	1	-	1	1	1	2	11	23	34
20 - 24	195	168	363	1	-	1	-	2	2	1	2	3	17	47	64
25 - 29	191	213	404	1	3	4	-	2	2	3	1	4	35	66	101
30 - 34	194	196	390	-	-	-	4	1	5	2	4	6	35	63	98
35 - 39	237	150	387	2	2	4	3	2	5	-	2	2	29	59	88
40 - 44	286	137	423	2	1	3	1	-	1	3	3	6	28	47	75
45 - 49	279	118	397	5	-	5	2	2	4	4	3	7	28	54	82
50 - 54	319	88	407	2	1	3	1	2	3	4	2	6	25	28	53
55 - 59	283	78	361	2	2	4	3	-	3	-	4	4	26	33	59
60 - 64	362	61	423	1	2	3	1	-	1	5	2	7	20	15	35
65 - 69	445	105	550	-	-	-	1	2	3	6	6	12	31	17	48
70 - 74	459	125	584	2	-	2	-	2	2	-	5	5	21	30	51
75 - 79	401	136	537	2	1	3	1	-	1	3	6	9	26	13	39
80 - 84	245	98	343	3	1	4	1	2	3	-	5	5	17	17	34
85 & over	203	155	358	2	5	7	1	3	4	2	4	6	9	14	23
Total	4220	1964	6184	29	19	48 (a)	21	20	41 (b)	37	51	88 (c)	366	535	901 (d)

* Including:

TB Lymph Node	434
TB Kidney/Urinary System	49
TB Peritonitis	22
TB Pleural Effusion	99
TB Laryngitis	4
TB Skin	23
Others	41
Unspecified	229

(a) All Miliary TB cases has coexisting Pulmonary TB; also include 8 cases with coexisting TB of other extrapulmonary sites.

(b) Including 9 cases wih coexisting Pulmonary TB and 1 case with coexisting TB of other extrapulmonary site.

(c) Including 12 cases with coexisting Pulmonary TB and 7 cases with coexisting TB of other extrapulmonary sites.

(d) Including 137 cases with coexisting Pulmonary TB and 1 cases with coexisting TB of other extrapulmonary site.

Pulmonary TB only, without extrapulmonary site involvement

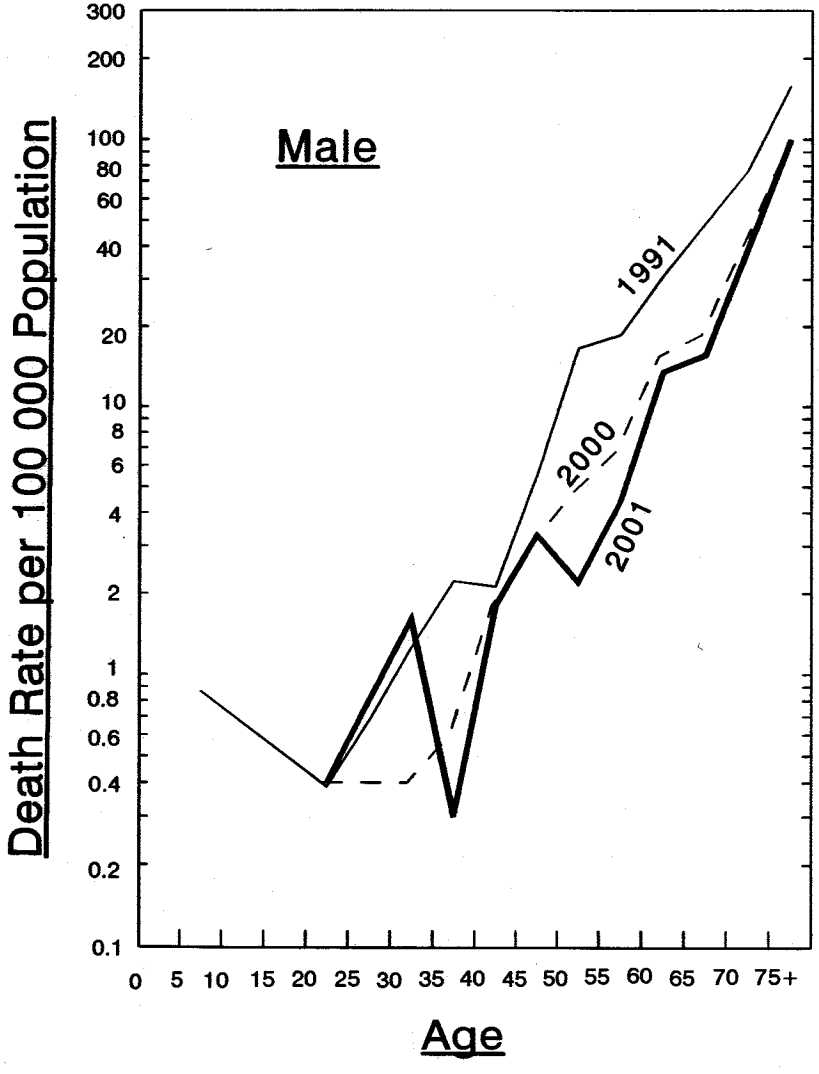
APPENDIX 7

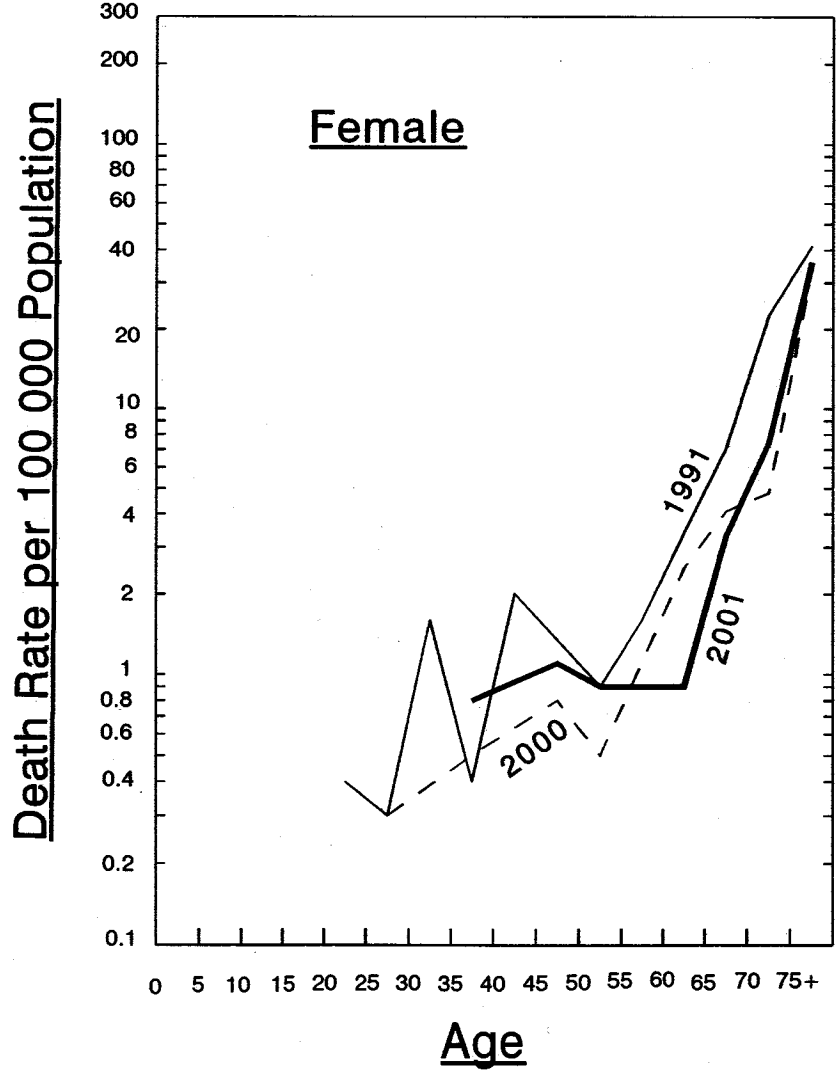
TB Death (All Forms) & Death Rate by Age & Sex 2001

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	-	-	-	-	-	-
20-24	1	-	1	0.4	-	0.2
25-29	-	-	-	-	-	-
30-34	4	-	4	1.6	-	0.7
35-39	1	3	4	0.3	0.8	0.6
40-44	6	-	6	1.8	-	0.9
45-49	9	3	12	3.3	1.1	2.2
50-54	5	2	7	2.2	0.9	1.6
55-59	6	-	6	4.4	-	2.4
60-64	18	1	19	13.5	0.9	7.6
65-69	20	4	24	15.6	3.3	9.6
70-74	40	8	48	39.0	7.4	22.8
75-79	36	15	51	99.6	35.9	61.5
80-84	39	16	55			
85 & over	42	32	74			
Total	227	84	311	6.9	2.4	4.6

APPENDIX 8

TB Mortality Rate by Age & Sex 1991 2000 & 2001





APPENDIX 9

TB Deaths by Type by Age & Sex 2001

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20 - 24	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
25 - 29	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
30 - 34	3	-	-	-	-	-	1	-	1	-	-	-	-	-	-
35 - 39	-	1	3	1	-	1	-	-	-	-	-	-	-	2	2
40 - 44	5	-	5	1	-	1	-	-	-	-	-	-	-	-	-
45 - 49	7	2	9	-	1	1	1	-	1	-	-	-	1	-	1
50 - 54	4	1	5	1	1	2	-	-	-	-	-	-	-	-	-
55 - 59	5	-	5	-	-	-	-	-	-	-	-	-	1	-	1
60 - 64	13	1	14	2	-	2	1	-	1	-	-	-	2	-	2
65 - 69	16	1	17	-	1	1	-	-	-	-	-	-	4	2	6
70 - 74	30	4	34	2	-	2	-	1	1	-	-	-	8	3	11
75 - 79	25	10	35	2	-	2	1	-	1	-	-	-	8	5	13
80 - 84	27	14	41	1	-	1	-	-	-	-	-	-	11	2	13
85 & over	31	21	52	2	2	4	-	3	3	-	-	-	9	6	15
Total	167	55	222	12	5	17	4	4	8	-	-	-	44	20	64 *

* Breakdown of Deaths from other forms of TB: -

	Number
Intestines, peritoneum & mesenteric glands	1
Genito-urinary system	1
Tuberculosis of other organ	2
Late effects of Tuberculosis	60
Total	64

Pulmonary TB only, without extrapulmonary site involvement

APPENDIX 10

Tuberculosis Mortality
1950 - 2001

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

APPENDIX 11

Top Ten Causes of Death 2001

Rank	Causes of Death	Detailed List No. ICD 10th Revision	2001		
			Male	Female	Total
	All Causes		19,007	14,294	33,305 (4)
1	Malignant neoplasms	C00-C97	7,100	4,306	11,406
2	Diseases of heart	I00-I09, I11 I13, I20-I51	2,438	2,265	4,703
3	Cerebrovascular diseases	I60-I69	1,504	1,626	3,130
4	Pneumonia	J12-J18	1,526	1,500	3,026
5	Chronic lower respiratory diseases *	J40-J47	1,495	619	2,114
6	External causes of morbidity and mortality #	V01-Y89	1204	640	1,844
7	Nephritis, nephrotic syndrome and nephrosis	N00-N07, N17-N19, N25-N27	527	526	1,053
8	Diabetes mellitus	E10-E14	303	373	676
9	Septicaemia	A40-A41	199	225	424
10	Chronic liver disease and cirrhosis	K70, K73-K74	268	110	378
	Tuberculosis (including late effects of tuberculosis)		227	84	311
	All other causes	Residues of all causes	2,216	2,020	4,240 (4)

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
1991 - 2001

Origin	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Origin
East Kowloon Chest Clinic	269	280	298	280	158	190	175	225	118	192	173	East Kowloon Chest Clinic
Kowloon Chest Clinic	1117	950	894	823	788	742	667	529	608	477	413	Kowloon Chest Clinic
Kwai Chung Chest Clinic	515	556	583	552	554	581	547	531	439	342	339	Kwai Chung Chest Clinic
Sai Ying Pun Chest Clinic (a)	245	262	288	271	261	254	180	216	198	196	194	Sai Ying Pun Chest Clinic (a)
Shaukiwan Chest Clinic	141	188	180	176	189	195	181	199	158	169	158	Shaukiwan Chest Clinic
						31	31	50	29	25	23	Shaukiwan Pneumoconiosis
Shek Kip Mei Chest Clinic	352	392	290	272	256	243	302	282	266	232	208	Shek Kip Mei Chest Clinic
Wanchai Chest Clinic	580	729	717	603	593	590	502	461	365	375	384	Wanchai Chest Clinic
Yaumati Chest Clinic	264	343	296	349	181	325	280	389	344	339	373	Yaumati Chest Clinic
Yan Oi Chest Clinic	330	291	313	303	363	170	428	419	440	425	396	Yan Oi Chest Clinic
Yung Fung Shee Chest Clinic	238	281	276	296	301	300	240	285	331	222	213	Yung Fung Shee Chest Clinic
NT Chest Clinic	402	422	511	706	650	630	561					NT Chest Clinic (e)
								6	13	26	24	Tung Chung Chest Clinic
								420	395	308	288	Yuen Chau Kok Chest Clinic
								102	97	103	81	Sheung Shui Chest Clinic
								98	92	88	84	Tai Po Chest Clinic
								94	94	111	96	Yuen Long Chest Clinic
								13	8	4	4	Sai Kung Chest Clinic
Sub-total	4453	4694	4646	4631	4294	4251	4094	4319	3995	3634	3451	Sub-total
				274	322	335	384	339	426	443	322	Kowloon Hospital
Tung Wah Group (b)	238	238	338	418	372	330	442	458	431	352	330	Wong Tai Sin Hospital
Ruttonjee Hospital	493	305	346	290	229	235	333	275	324	326	305	Ruttonjee Hospital
Grantham Hospital	423	273	269	208	338	285	360	316	296	358	259	Grantham Hospital
Haven of Hope Hospital	51	91	117	80	88	97	72	117	105	141	116	Haven of Hope Hospital
Other Govt Institutions (c)	463	593	612	18	16	3	5	7	42	43	113	Other Govt. Institutions (f)
				327	277	287	740	1244	1682	2081	2176	Other H.A. Hospitals
Maryknoll Hospital	50	55	48									
United Christian Hospital	24	32	36									
Caritas Medical Centre	8	11	29									
Others (d)	80	219	89	53	253	589	413	343	157	121	125	Private Practitioners
Private Hospitals	N.A.	23	7	20	23	89	229	255	54	79	65	Private Hospitals
Total	6283	6534	6537	6319	6212	6501	7072	7673	7512	7578	7262	Total
% of cases from Chest Clinics among the total	70.9	71.8	71.1	73.3	69.1	65.4	57.9	56.3	53.2	48.0	47.5	% of cases from Chest Clinics among the total
				20.1	21.7	19.7	22.5	19.6	21.1	21.4	18.3	% from Chest Hospitals (g)
				5.5	4.7	4.5	10.5	16.3	22.9	28.0	31.5	% from Other Public Hospitals
				1.2	4.4	10.4	9.1	7.8	2.8	2.6	2.6	% 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" 2001

Name of Hospital	No. of TB Notification
Alice Ho Miu Ling Nethersole Hospital	123
Caritas Medical Centre	139
Castle Peak Hospital	3
Hong Kong Buddhist Hospital	1
Kwong Wah Hospital	144
North District Hospital	166
Our Lady of Maryknoll Hospital	16
Pamela Youde Nethersole Eastern Hospital	163
Pok Oi Hospital	4
Prince of Wales Hospital	228
Princess Margaret Hospital	182
Queen Elizabeth Hospital	239
Queen Mary Hospital	127
Sha Tin Hospital	11
Tai Po Hospital	18
Tseung Kwan O Hospital	75
Tuen Mun Hospital	177
Tung Wah Hospital	22
United Christian Hospital	239
Yan Chai Hospital	99
Total	2176

APPENDIX 13

Tuberculosis Notifications & Notification Rates by Epidemiological Districts

Epidemiological Districts	2001	
	Notification	Notification Rate (per 100,000 pop.)
Hong Kong Island	1418	107.6
Central & Western	257	98.0
Wanchai	332	189.5
Eastern	490	81.1
Southern	339	122.7
Kowloon	2739	135.5
Yau Tsim Mong	535	188.0
Sham Shui Po	538	150.6
Kowloon City	416	105.2
Wong Tai Sin	692	162.3
Kwun Tong	558	100.1
New Territories (East)	1515	94.0
North	293	101.8
Tai Po	274	86.5
Shatin	592	97.2
Sai Kung	244	77.8
Islands	112	132.1
New Territories (West)	1552	93.7
Tsuen Wan	211	75.4
Kwai Chung & Tsing Yi	533	114.9
Tuen Mun	418	88.2
Yuen Long	390	89.0
Others	38	
Imported	4	
Vietnamese Refugees	0	
Unknown	34	
Total	7262	108.0

APPENDIX 14

Establishment & Strength of TB & Chest Service

As at 31.12.2001

Post	Establishment	Strength
Consultant Chest Physician i/c	1	1
Consultant Chest Physician	1	1
Senior Medical & Health Officer	8 (a)	3
Medical & Health Officer	22	24 (b)
Senior Nursing Officer	-	1
Nursing Officer	15	11
Registered Nurse	55	61
Enrolled Nurse	126	107
Senior Dispenser	4	4
Dispenser	8	10
Senior Inoculator	2	2
Inoculator	12	7
Executive Officer I	1	1
Statistical Officer II	2	2
Personal Secretary I	1	1
Clerical Officer	16	16
Assistant Clerical Officer	19	16
Clerical Assistant	50	52
Office Assistant	15	10
Workman II	60	57
Genaral Worker (NSC)	-	1
Watchman	2	2
Medical Social Worker	-	12 (c)
Senior Radiographer	1	1
Radiographer II	14	20
Senior Radiographic Technician	5	1
Radiographic Technician	6	6
Darkroom Technician	12	15

(a) Including 1 SMO (Radiologist) in Chest Service.
(b) Including 1 MO as Medical staff exchange programme with Ruttonjee Hospital.
(c) Seconded from Social Welfare Department and some of them are part-time only.

APPENDIX 15

Total Attendances at Chest Clinics
1991 - 2001

Clinic/Hospital	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
East Kowloon Chest Clinic	58667	64659	64473	64845	54430	54921	58862	65220	56317	64102	64820
Kowloon Chest Clinic	88930	77817	80576	83223	95667	104572	120663	117678	112291	119624	106321
Sai Ying Pun Chest Clinic	51161	52478	51036	47995	48537	55967	50875	56233	58380	57916	53854
Shaukiwan Chest Clinic	47614	46348	45250	43128	48215	55737	54639	54732	52446	53011	57215
Shaukiwan Pneumoconiosis	-	-	-	-	9944	9664	9185	10821	12182	11023	10889
Shek Kip Mei Chest Clinic	60032	67636	59342	65676	56871	63462	72274	75610	68971	70941	71134
South Kwai Chung Chest Clinic	80144	84721	86912	91095	94000	101041	111683	113185	108654	99012	90448
Tung Chung	-	-	-	-	-	-	101	3730	4687	4601	6241
Wanchai Chest Clinic	89769	89945	88826	85106	79964	89391	92697	91331	85109	84960	79212
Yan Oi Chest Clinic	51660	52075	51077	59698	64091	70741	69581	70979	78840	79188	72982
Yaumati Chest Clinic	78008	74709	78565	83555	79224	80341	89759	103198	108226	111959	114499
Yuen Chau Kok Chest Clinic	-	-	10944	51089	54642	55615	61160	76626	71273	66192	65190
Yung Fung Shee Chest Clinic	53925	53042	53726	55740	56908	58139	58841	66567	74735	73255	73663
Castle Peak Hospital	2695	4850	3736	2442	1932	1773	1169	1283	1151	868	1010
Cheung Chau Chest Clinic	3114	1903	1927	1781	2414	2490	2808	2943	2706	2611	1640
Sai Kung Chest Clinic	1902	1529	1504	1446	1412	1451	1444	1682	1905	2141	1945
Sheung Shui Chest Clinic	6274	6770	7217	7644	7710	10151	15330	18756	21256	22383	24271
Tai Po Chest Clinic	8504	9385	10852	9620	8083	8773	15760	20350	20758	24688	25636
Yuen Long Chest Clinic	10967	11149	11618	8963	9822	11687	18742	21677	24075	27603	27208
Shatin Chest Clinic	14989	16567	12974	-	-	-	-	-	-	-	-
Hei Ling Chau ATC	877	1636	1335	1232	1550	3187	2600	2664	1855	3726	2474
Pik Uk Prison	110	112	46	1	87	-	-	-	-	-	-
Shek Pik Prison Hospital	179	584	882	594	1239	943	725	173	266	241	291
Stanley Prison Hospital	9430	9166	7745	9991	5925	7751	6053	7380	9062	10468	10532
Tai O	7	-	-	-	-	-	-	-	-	-	-
Total	718958	727081	730563	774864	782667	847797	914951	982818	975145	990513	961475

APPENDIX 16

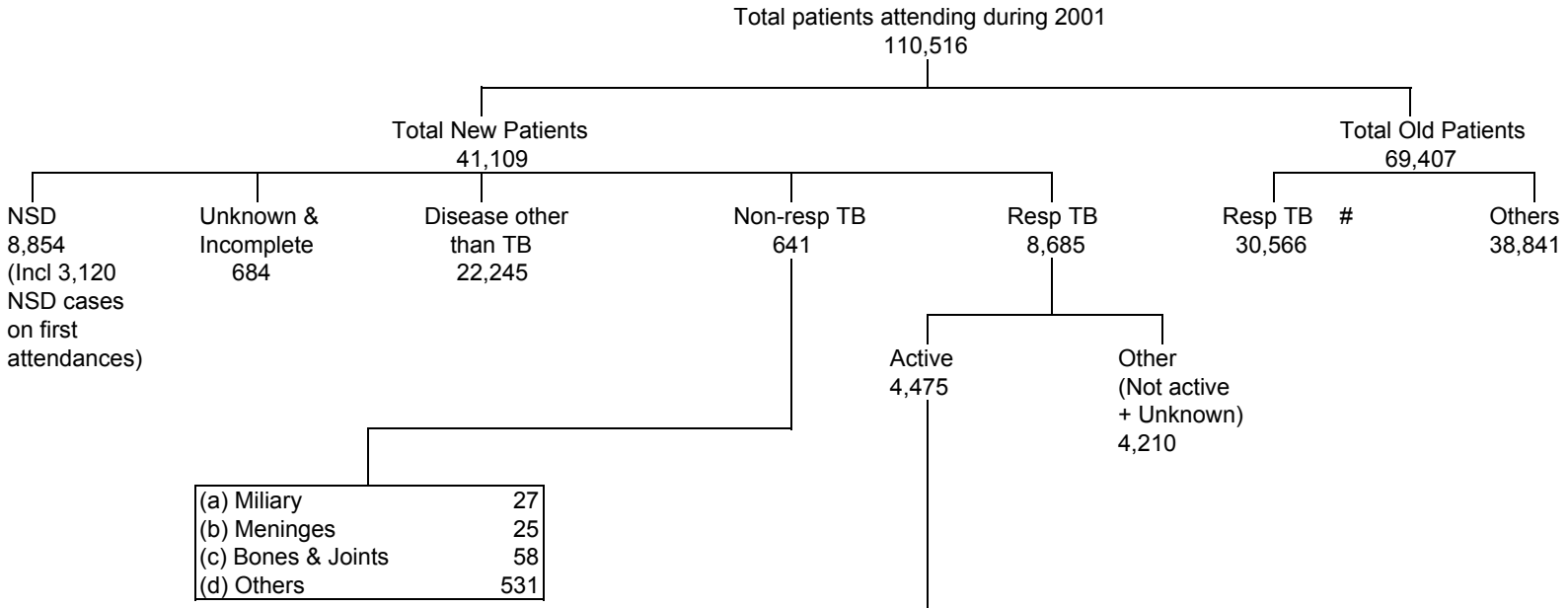
No. of Doctor Sessions, Cases Seen by Doctor and Patient/Doctor Session 2001

Clinic/Hospital	Doctor Sessions	Cases Seen by Doctor	Patient/ Doctor Session
East Kowloon Chest Clinic	590.5	19088	32
Kowloon Chest Clinic	1203	41579	35
South Kwai Chung Chest Clinic	1207	36666	30
Sai Ying Pun Chest Clinic	636	19741	31
Shaukiwan Chest Clinic	538	18856	35
Shaukiwan Pneumoconiosis	538	9171	17
Shek Kip Mei Chest Clinic	632.5	19668	31
Tung Chung Chest Clinic	538	2562	5
Wanchai Chest Clinic	1221	30352	25
Yan Oi Chest Clinic	879	26474	30
Yaumati Chest Clinic	1066	46559	44
Yuen Chau Kok Chest Clinic	874.5	23753	27
Yung Fung Shee Chest Clinic	538	19860	37
Castle Peak Hospital	25	490	20
Cheung Chau Chest Clinic	26	596	23
Sai Kung Chest Clinic	49	805	16
Sheung Shui Chest Clinic	265	7622	29
Tai Po Chest Clinic	295	7489	25
Yuen Long Chest Clinic	390	8061	21
Hei Ling Chau ATC	12	515	43
Shek Pik Prison Hospital	12	215	18
Stanley Prison Hospital	25	794	32
Total	11560.5	340916	29

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

APPENDIX 17

Flow Chart of Patients Attending Chest Clinics 2001



(a) Miliary	27
(b) Meninges	25
(c) Bones & Joints	58
(d) Others	531

Bacteriology	Extent	Number
Negative	1	1274
	2	198
	3	36
Positive	1	1459
	2	956
	3	402
Incomplete	1	126
	2	20
	3	4

Bacteriology	Cavity	Number
Negative	Yes	84
	No	1424
Positive	Yes	598
	No	2219
Incomplete	Yes	9
	No	141

Previous History of TB	Previous Treatment for TB	Number
No	No	4102
Yes	No	143
Yes	Yes	222
Unknown	Unknown	8

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 2001

Code	Classification	Total
010	Primary Tuberculosis Infection	3
011	Pulmonary Tuberculosis	4199
012	Other Respiratory Tuberculosis	273
013	Tuberculosis of Meninges	25
014	Tuberculosis of Intestines	22
015	Tuberculosis of Bones & Joints	58
016	Tuberculosis of Genito-urinary System	64
017	Tuberculosis of Other Organs	445
018	Miliary Tuberculosis	27
137	Late effects of Tuberculosis	4210
160-165	Malignant Neoplasm of Respiratory System	585
212	Benign Neoplasm of Respiratory System	1
460-466	Acute Respiratory Infection	4241
470-478	Other Diseases of Upper Resp Tract	177
480-486	Pneumonia	2320
487	Influenza	0
490-491	Bronchitis, (not specified as acute or chronic) & chronic brochitis	8722
492	Emphysema	87
493	Asthma	280
494	Bronchiectasis	536
495-496	Others	438
501	Asbestosis	1
502	Silicosis	8
505	Pneumoconiosis, unspecified	12
506-508	Others	1
510	Empyema	6
511	Pleurisy	75
512	Pneumothorax	49
513-519	Other Diseases of Respiratory System	517
786	Unknown	2922
V71	N.S.D.	3449
	Diseases Other than TB & Resp System	4189
Total		37942

APPENDIX 19 (a)

Extent of Active Respiratory TB in First Attenders at Chest Clinics
1999 - 2001

Extent	1999		2000		2001	
	No.	%	No.	%	No.	%
1. Minimal	2987	63.8	2993	64.1	2859	63.9
2. Moderate	1218	26.0	1190	25.5	1174	26.2
3. Extensive	477	10.2	484	10.4	442	9.9
Total	4682	100.0	4667	100.0	4475	100.0
No.of first attenders	41596		39257		41109	
% of active TB	11.3		11.9		10.9	

* 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 2001

	Number	%
Smear+	1540	34.4
Smear-Culture+	1248	27.9
Smear-Culture-	1448	32.4
Incomplete	239	5.3
Total	4475	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 1650 TB cases (105 never seen at chest clinics while the rest have been seen at chest clinics at least for some time of their disease) during the period January to June 2001:

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	0.94	0.51	4.71	7.39	5.80	2.10	0.51	0.43	8.41	1380
Previously treated cases	2.99	4.10	11.94	12.69	4.48	5.22	3.73	3.73	13.43	268
Overall	1.27	1.09	5.88	8.24	5.58	2.61	1.03	0.97	9.21	1650

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 2000

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	0.00	0.00	3.08	8.46	5.38	3.08	0.00	0.00	8.46	130
	Retreatment cases	0.00	0.00	33.33	16.67	0.00	16.67	0.00	0.00	16.67	6
	Overall	0.00	0.00	4.41	8.82	5.15	3.68	0.00	0.00	8.82	136
20-39	New cases	0.95	1.49	4.88	8.27	6.10	2.17	0.95	1.08	9.21	738
	Retreatment cases	5.36	14.29	19.64	16.07	5.36	8.93	8.93	14.29	23.21	56
	Overall	1.26	2.52	6.04	8.93	6.04	2.64	1.64	2.14	10.31	795
40-59	New cases	0.51	0.38	5.70	8.99	5.82	3.16	0.38	0.25	9.37	790
	Retreatment cases	4.73	10.14	19.59	15.54	5.41	7.43	6.76	8.11	19.59	148
	Overall	1.17	1.92	7.88	10.01	5.75	3.83	1.38	1.49	10.97	939
60up	New cases	0.38	0.31	5.31	6.70	4.23	2.46	0.38	0.31	7.08	1299
	Retreatment cases	1.09	2.18	11.64	12.36	4.73	5.45	2.55	2.18	12.73	275
	Overall	0.51	0.63	6.41	7.75	4.38	2.98	0.76	0.63	8.13	1575
All	New cases	0.54	0.61	5.21	7.78	5.17	2.60	0.51	0.47	8.29	2957
	Retreatment cases	2.68	5.98	15.26	13.81	4.95	6.60	4.54	5.36	16.08	485
	Overall	0.84	1.39	6.65	8.68	5.17	3.16	1.10	1.19	9.43	3445

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 and 2000. However, the data should be interpreted with caution as susceptibility testing to ofloxacin for Cat [B] and [C] is done only if requested by the attending doctor, and not all such strains are included. Thus, the resistance rates among Cat [B] and [C] are probably somewhat over-estimated. For Cat [D], 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]**	**MDR-TB strains [D]**
1999	Total number tested		349	146	203	50
	Resistant to ofloxacin	Number	17	2	15	11
		%	(4.9%)	(1.4%)	(7.4%)	(22%)
2000	Total number tested		343	153	190	55
	Resistant to Ofloxacin	Number	14	0	14	11
		%	(4.1%)	(0%)	(7.4%)	(20%)
TOTAL	**Total number tested**		**692**	**299**	**393**	**105**
	Resistant to Ofloxacin	**Number**	**31**	**2**	**29**	**22**
		%	**(4.5%)**	**(0.7%)**	**(7.4%)**	**(21%)**

APPENDIX 20 (a)

Treatment Return 2001

Name of clinic/hospital	Number of Rx b/f	Brought in					Treatment completed				Transfer out to		Interrup. Rx temp.	Died	Drop out				Complete defaulter				Number of Rx c/f	Unsup. Rx	Incomp. super. Rx	No.def. >2m, <3m
		1	2	3	4	5	<6M	at6m	>6m	%	hosp	other cc			Rx by GP	Leave HK	Def. >1x	AMA	<2M	>2M, <3M	>3M	%				
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
FULL TIME CLINICS																										
East Kowloon	225	152	6	14	146	191	6	120	177	86.8	85	80	0	10	1	6	1	5	5	14	4	6.7	220	17	50	14
Kowloon	235	368	17	20	264	205	99	153	275	85.1	166	185	0	26	3	14	1	8	12	7	5	4.8	155	2	176	0
South Kwai Chung	378	333	21	28	207	130	11	220	343	91.2	97	44	0	16	3	9	2	13	8	1	4	2.1	326	0	134	4
Sai Ying Pun	220	172	12	9	133	126	6	118	191	90.9	118	27	0	12	1	10	0	2	2	1	3	1.8	181	0	74	1
Shaukiwan	212	149	2	16	164	165	5	102	183	89.1	98	51	3	7	0	12	0	11	1	3	1	1.6	231	1	89	5
Shek Kip mei	219	211	9	6	147	119	6	129	189	86.9	108	46	0	10	2	9	0	14	2	1	10	3.6	185	0	85	2
Wanchai	333	303	7	21	233	185	15	219	232	87.7	176	50	0	3	5	31	1	9	5	4	6	2.9	326	3	174	19
Yan Oi	317	365	6	22	166	176	15	202	269	87.9	131	42	1	24	1	21	2	4	4	2	9	2.8	325	1	93	12
Yaumatei	330	325	20	28	170	206	24	205	264	85.4	102	79	3	10	5	30	4	11	5	8	11	4.4	318	0	89	16
Yuen Chau Kok	297	308	5	11	182	119	12	179	227	88.8	90	43	0	20	6	12	4	5	3	0	5	1.8	316	3	137	0
Yung Fung Shee	290	201	37	11	176	113	4	165	208	87.4	54	90	0	12	5	11	1	15	0	1	10	2.6	252	0	103	0
Tung Chung	22	18	1	1	16	36	1	19	15	89.5	14	6	0	0	1	0	0	3	0	0	0	0.0	35	0	17	0
sub-total	3078	2905	143	187	2004	1771	204	1831	2573	87.9	1239	743	7	150	33	165	16	100	47	42	68	3.1	2870	27	1221	73
HOSPITAL DISCHARGE CLINICS																										
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
PART TIME CLINICS																										
Castle Peak	13	11	0	0	2	4	0	0	17	81.0	0	1	2	0	0	0	0	0	0	0	4	19.0	6	0	0	0
Cheung Chau	6	4	0	0	4	2	0	0	4	80.0	1	1	0	1	0	0	0	0	0	0	0	0.0	9	0	0	0
Sai Kung	14	2	0	1	7	10	0	4	11	100.0	4	2	0	0	0	0	0	0	0	0	0	0.0	13	0	3	0
Sheung Shui	110	92	4	1	87	48	2	49	88	86.2	26	18	0	8	0	7	1	3	1	0	3	2.5	136	0	103	1
Tai Po	144	99	4	0	94	47	3	73	100	94.5	27	25	0	4	0	4	0	0	0	0	2	1.1	150	2	105	8
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	394	306	10	5	242	160	6	183	308	90.6	72	63	2	18	1	15	2	5	1	0	11	2.2	430	2	304	16
INSTITUTIONS CORRECTIONAL SERVICE DEPT.																										
Hei Ling Chau	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0
Stanley Prison	19	34	0	0	0	0	9	0	28	100.0	0	0	0	0	0	0	0	0	0	0	0	0.0	16	0	0	0
Shek Pik Prison	7	5	0	0	0	0	0	0	0	0.0	0	0	6	0	0	0	0	0	0	0	0	0.0	6	0	0	0
sub-total	26	39	0	0	0	0	9	0	28	100.0	0	0	6	0	0	0	0	0	0	0	0	0.0	22	0	0	0
TOTAL	3503	3250	153	192	2247	1933	219	2014	2916	88.3	1312	806	15	168	34	180	18	105	48	42	79	3.0	3322	29	1525	89

APPENDIX 20 (b)

Treatment Treturn 2001 (Cont'd)

Name of clinic/hospital	Number on Rx b/f	Brought in					Treatment completed				Transfer out to		Interrup. Rx temp.	Died	Drop out				Complete defaulter				Number on Rx c/f	Unsup. Rx	Incomp. super. Rx	No.def. >2m, <3m
		1	2	3	4	5	<6M	at6m	>6m	%	hosp	other cc			Rx by GP	Leave HK	Def. >1x	AMA	<2M	>2M, <3M	>3M	%				
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
FULL TIME CLINICS																										
East Kowloon	35	3	3	0	57	24	2	8	31	86.7	22	18	0	3	0	0	0	1	0	2	0	4.4	35	8	23	3
Kowloon	157	9	6	10	65	41	12	2	39	70.7	31	13	0	11	1	1	0	3	1	0	0	1.7	174	1	30	0
South Kwai Chung	52	6	11	7	39	11	3	11	24	87.5	18	2	1	2	0	0	0	2	0	0	1	2.5	62	0	18	0
Sai Ying Pun	19	2	1	3	18	3	0	0	16	94.1	5	2	0	0	0	1	0	0	0	0	0	0.0	22	0	7	0
Shaukiwan	23	2	0	2	13	12	0	2	17	100.0	15	2	1	0	0	0	0	0	0	0	0	0.0	15	0	5	0
Shek Kip mei	45	2	4	3	47	9	0	3	14	77.3	12	3	0	1	0	0	0	3	0	1	0	4.5	73	0	25	1
Wanchai	31	5	0	15	16	16	2	0	24	82.8	18	1	0	1	0	2	0	1	0	0	1	3.4	33	0	18	0
Yan Oi	30	0	1	3	12	15	3	1	8	90.0	10	3	2	0	0	0	1	0	0	0	1	10.0	32	0	1	0
Yaumatei	26	12	8	6	38	21	3	9	26	71.4	16	3	0	3	0	0	0	4	4	1	2	14.3	40	0	20	1
Yuen Chau Kok	33	10	2	9	23	18	1	1	40	97.6	17	2	1	1	0	0	0	0	0	0	0	0.0	32	0	38	0
Yung Fung Shee	22	7	7	2	32	7	1	1	19	83.3	9	11	0	0	0	0	0	3	0	0	1	4.2	32	0	12	0
Tung Chung	1	0	0	1	2	0	0	0	0	0.0	1	0	0	0	0	0	0	0	0	0	0	0.0	3	0	0	0
sub-total	474	58	43	61	362	177	27	38	258	83.4	174	60	5	22	1	4	1	17	5	4	6	4.2	553	9	197	5
HOSPITAL DISCHARGE CLINICS																										
East Kowloon	6	1	0	2	4	7	2	1	5	100.0	8	0	0	0	0	0	0	0	0	0	0	0.0	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	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	0.0	4	1	0	0
PART TIME CLINICS																										
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	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	0
Sai Kung	1	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	1	0	0	0
Sheung Shui	2	3	0	1	1	1	0	0	1	50.0	2	0	0	0	0	0	0	0	0	1	0	50.0	4	0	11	0
Tai Po	10	1	0	1	4	1	0	0	8	100.0	1	1	0	0	0	0	0	0	0	0	0	0.0	7	0	7	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	0.0	7	0	13	0
sub-total	20	6	0	2	9	3	0	0	15	93.8	4	1	0	0	0	0	0	0	0	1	0	6.3	19	0	31	0
INSTITUTIONS CORRECTIONAL SERVICE DEPT.																										
Hei Ling Chau	19	15	63	47	29	0	2	0	0	0.0	0	4	0	0	0	0	0	0	0	0	0	0.0	167	0	0	0
Stanley Prison	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0
Shek Pik Prison	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0
sub-total	19	15	63	47	29	0	2	0	0	0.0	0	4	0	0	0	0	0	0	0	0	0	0.0	167	0	0	0
TOTAL	519	80	106	112	404	187	31	39	278	84.1	186	65	5	22	1	4	1	17	5	5	6	4.2	743	10	228	5

Other regimens

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	%																
	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

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

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

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

* Explanatory Notes :

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

APPENDIX 20 (d)

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

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

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

Number put on treatment b/f:

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

Brought in:

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

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

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

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

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

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

Treatment completed:

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

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

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

(J) % = (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 2001

Particulars	Smear Positive Index Cases		Smear Negative Index Cases		Total	
No. of patients (new & old) listed	2154		5002		7156	
No. of contacts listed	6192		14279		20471	
Number of contacts x-rayed	5215	(100.00%)	11540	(100.00%)	16755	(100.00%)
Results						
(a) NSD & Unknown	4683	(89.80%)	10381	(89.96%)	15064	(89.91%)
(b) Disease other than TB	282	(5.40%)	683	(5.92%)	965	(5.76%)
(c) Inactive respiratory TB	123	(2.36%)	281	(2.44%)	404	(2.41%)
(d) Active respiratory TB						
A (radiologically)	41	(0.79%)	65	(0.56%)	106	(0.63%)
B (bacteriogically)	6	(0.11%) > 47 (0.90%)	5	(0.04%) > 76 (0.65%)	11	(0.07%) > 123 (0.73%)
C (incomplete)	0	(0.00%)	6	(0.05%)	6	(0.03%)
(e) Non-respiratory TB	4	(0.08%)	24	(0.21%)	28	(0.17%)
(f) Result not yet known	76	(1.46%)	95	(0.82%)	171	(1.02%)

APPENDIX 22 (a)

Scheme for Tuberculin Testing and BCG Administration in Hong Kong, 2001

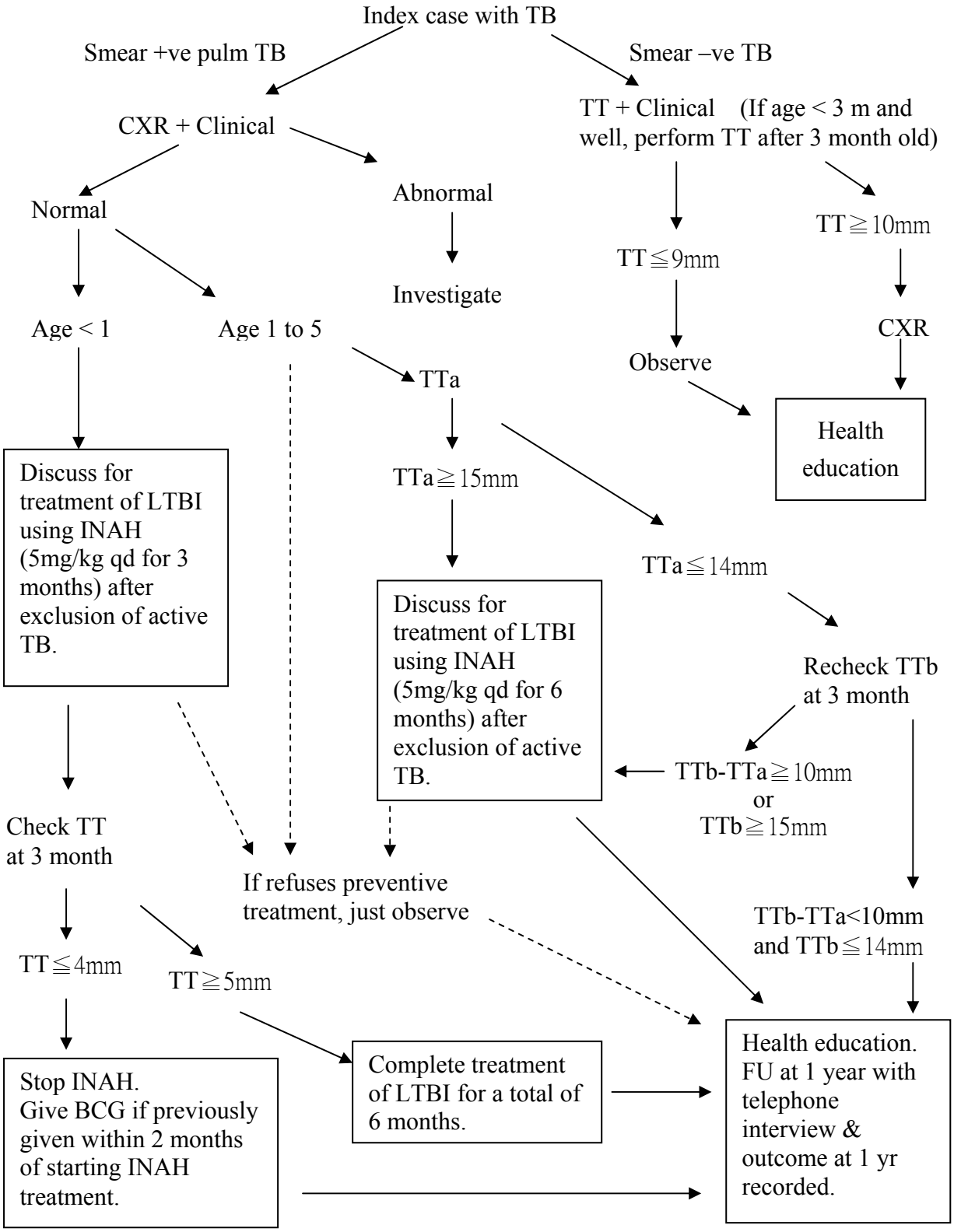
Population Group		Procedure
Newborns		Direct BCG • Government and most other inoculators using intradermal method • A small proportion of other inoculators using percutaneous method
Children under the age of 15 (excluding close contacts)	Negative BCG history and/or negative BCG scar	Direct BCG with intradermal 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 2001

Institution		No. of Live-births	BCG Vaccination	% Vaccinated
Hospital under HA management	P.Y. Nethersole	3730	3717	99.7
	Queen Mary	1163	1185	101.9 *
	Tsan Yuk	2901	2686	92.6
Private Hospital	Canossa	688	685	99.6
	H.K. Adventist	666	629	94.4
	HK Sanatorium	677	662	97.8
	Matilda	861	797	92.6
	St. Paul's	1308	1294	98.9
Total (HK Island)		11994	11655	97.2
Hospital under HA management	Kwong Wah	5626	5596	99.5
	Queen Elizabeth	4165	4186	100.5 *
	United Christian	3546	3561	100.4
Private Hospital	Baptist	3544	3492	98.5
	St. Teresa's	2575	2530	98.3
Total (Kowloon)		19456	19365	99.5
Hospital under HA management	Prince of Wales	5536	5534	100.0
	Princess Margaret	3916	3913	99.9
	Tuen Mun	5500	5489	99.8
Private Hospital	Adventist	658	651	98.9
	Union	1174	1160	98.8
Government Maternity Home		-	-	-
Total (NT Areas)		16784	16747	99.8
GRAND TOTAL		48234	47767	99.0

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

Vaccination Method 2000	Percentage
Intradermal	71.3
Percutaneous	28.7

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	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, 2001

Hospital		No. of TB Beds
Hospital Authority	Grantham Hospital	196
	Kowloon Hospital	122 *
	Ruttonjee Hospital	157
	Haven of Hope Hospital	133
	Wong Tai Sin Hospital	165
	Total (Hospital Authority)	773
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 (2001)	793
	Grand Total (2000)	795
	Grand Total (1999)	799

* Including two beds in the Intensive Care Unit

APPENDIX 26

Annual Admissions to Hospitals from Government Chest Clinics 1991 - 2001

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

Admissions by Clinic	Year 2001
East Kowloon	433
Kowloon	1004
Kwai Chung	506
Sai Ying Pun	382
Shau Kei Wan	260
Shau Kei Wan Pneumoconiosis	91
Shek Kip Mei	354
Wanchai	543
Yaumati	519
NT Unit	160
Yan Oi	332
Yuen Chau Kok	360
Yung Fung Shee	307
Tung Chung	50
Cheung Chau	16
Total	5317

APPENDIX 27

Unlinked Anonymous Screening (UAS) for HIV in TB & Chest Service (2001)

Age	Male	Female	Total
< 20	26	25	51
20-29	75	82	157
30-39	78 (3)	94	172 (3)
40-49	108	64	172
50-59	117	35	152
≥ 60	273 (1)	89	362 (1)
Unknown	4	1	5
Total	681 (4)	390	1071 (4)

UAS for HIV in TB & Chest Service (1990 to 2001)

Period	Category	Sample	Number Tested (No. +ve) (% +ve)
1.12.90 - 31.1.91	Outpatient	Blood	1548
5.6.91 - 5.8.91	Inpatient	Blood	485
1.4.92 – 30.6.92	Outpatient	Blood	1469 (2) (0.14%)
1.4.92 – 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%)

APPENDIX 28

Number of 'Confirmed' cases of TB in health care staff
Notified to Labour Department (1993 – 2001)

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

'Confirmed' Cases of TB in Health Care Staff Notified
to Labour Department (2001) 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	10			14
30 – 34		4		1	5
35 – 39		3	1	1	5
40 – 44		2	1	2	5
45 – 49		1			1
50 – 54				2	2
55 – 59	1 (c)				1
60 – 64				1	1
Total	5	26	2	8	41

Note:
(a) Nurse – include student nurses
(b) Other supporting staff – includes service assistants and health care assistants
(c) The 'doctor' was a herbalist

APPENDIX 29 (a)

Cohort of TB Patients Seen at Chest Clinics with DOS in 2000

'Programme Forms' have been completed for a total of 6259 TB patients who were seen at chest clinics with DOS (date of starting treatment) from 1.1.2000 to 31.12.2000. They are categorised as follows:

(I)	New pulmonary, smear positive	1517	24.24%
(II)	New pulmonary, smear negative	2908	46.46%
(III)	New pulmonary, smear not done/ unknown	207	3.31%
(IV)	New extra-pulmonary	772	12.33%
(V)	Relapse pulmonary, smear positive	188	3.00%
(VI)	Pulmonary smear-positive re-treatment after failure or default	23	0.37%
(VII)	All other re-treatment cases (not included in E and F) [i.e., including relapses (pulmonary, smear negative or unknown or not done; and extrapulmonary) and re-treatment after failure or default (pulmonary, smear negative or unknown or not done; and extrapulmonary)]	571	9.12%
(VIII)	Others	73	1.17%
(IX)	Total	6259	100%

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 Seen at Chest Clinics with DOS in 2000

Among the cohort of 6259 patients in 2000, 1517 (24.24%) were new smear positive pulmonary TB cases, and 188 (3.00%) were relapse smear positive pulmonary TB cases. Among these smear positive pulmonary TB cases, the outcomes at 12 month (from DOS) are shown in columns (A) and (B) in the table below respectively. In addition, there were 248 (3.96%) retreatment cases, including retreatment after failure, default, and retreatment after retreatment (smear positive, negative, or unknown). Among these, 218 were pulmonary cases. Their outcomes at 12 month are shown in columns (C) and (D) below respectively.

Category of outcomes		New cases (A)		Relapse cases (B)		Retreatment (All) (C)		Retreatment (Pulmonary) (D)	
(I)	Treatment completed with sputum converted	1066	70.27%	126	67.02%	58	23.39%	58	26.61%
(II)	Treatment completed (sputum conversion unknown)	81	5.34%	17	9.04%	76	30.65%	57	26.15%
(III)	Still on treatment, but sputum smear –ve since 5 m	96	6.33%	18	9.57%	38	15.32%	34	15.60%
(IV)	Still on treatment, sputum smear +ve between 5 m to 1 y	6	0.40%	2	1.06%	0	0.00%	0	0.00%
(V)	Still on treatment, sputum smear unknown between 5 m to 1 y	20	1.32%	1	0.53%	7	2.82%	4	1.83%
(VI)	Died from TB-related causes	3	0.20%	0	0.00%	4	1.61%	4	1.83%
(VII)	Died from non-TB related causes	37	2.44%	5	2.66%	2	0.81%	2	0.92%
(VIII)	Died from unknown causes	19	1.25%	2	1.06%	3	1.21%	2	0.92%
(IX)	Defaulted	65	4.28%	6	3.19%	41	16.53%	40	18.35%
(X)	Transferred	124	8.17%	11	5.85%	19	7.66%	17	7.80%
(XI)	Total	1517	100%	188	100%	248	100%	218	100%

From the above table, the treatment success rates for Categories (A), (B), (C) and (D) are 75.61%, 76.06%, 54.03% and 52.75% respectively. If cases who are still on treatment at 12 month are regarded as failure cases, then the treatment failure rates for Categories (A), (B), (C) and (D) will be 8.04%, 11.17%, 18.15% and 17.43% respectively.

Part 2

PNEUMOCONIOSIS

Contents

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1	New Cases of Suspected Pneumoconiosis attending the Pneumoconiosis Clinic in Hong Kong 1956-2001
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APPENDIX 1

New Cases of Suspected Pneumoconiosis attending the Pneumoconiosis Clinic in Hong Kong 1956 - 2001

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 (c) (9)	7154	1494 (d)	3751

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 132 of the 236 cases in 2001 had been assesed 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 132 cases.
(d) Under Revised Ordinance 1993 : 583 out of 1494 pneumoconiotics had joined the pneumoconiosis ex-gratia scheme up to the year 2001. 330 living pneumoconiotics were each receiving a monthly ex-gratia payment of $4710.00 in 2001.

APPENDIX 2

Age Distribution of Pneumoconiosis Cases 2001

Age	Number of Cases	%
25 - 29	-	-
30 - 34	-	-
35 - 39	-	-
40 - 44	9	7
45 - 49	20	15
50 - 54	16	12
55 - 59	23	17
60 - 64	13	10
65 - 69	10	8
70 - 74	18	14
75+	23	17
Total	132	100

APPENDIX 3

Occupation Distribution of Confirmed Pneumoconiosis 2001

Type of Occupation	Number of Cases	%
Construction	86	65
Construction/Quarry	28	21
Others	18	14
Total	132	100

APPENDIX 4

Pneumoconiosis Patients by Duration of Exposure to Dust 2001

Duration	Number of Cases	%
< 5 years	1	1
5 - 9	5	4
10 - 14	10	8
15 - 19	27	20
20 - 24	28	21
25 - 29	27	20
30+	31	24
Unknown	3 *	2
Total	132	100

* Fatal cases, no reliable information available.

APPENDIX 5

Pneumoconiosis Patients by Degree of Incapacity 2001

Degree of Incapacity (%)	No. of New Cases Compensated under Compensation Ordinance
5	27
10	58
15	16
20	9
25	4
30	1
35	1
40	-
45	2
50	1
55	-
60	3
65	1
70	2
75	-
80	2
85	1
100	1
N.A. *	3
Total	132

* Fatal cases.

APPENDIX 6

Confirmed Pneumoconiosis Patients
Classified by Radiological Appearance 2001

Type of Opacity	Profusion 1	2	3	Sub-Total
Small opacities				
Rounded				
p (up to 1.5 mm diameter)	6	-	-	6
q (1.5 to 3.0 mm diameter)	61	14	-	75
r (3.0 to 10.0 mm diameter)	1	4	1	6
Irregular				
s (fine irregular or linear)	6	-	-	6
t (medium irregular)	4	1	-	5
u (coarse irregular)	4	2	-	6
Sub-total	82	21	1	104
Combined opacities	16	7	2	25
N.A.	-	-	-	3
Total				132

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

Large opacities	
A (Single opacity 1 - 5 cm or multiple opacities > 1 cm each but sum of diameter < 5 cm)	23
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	33

APPENDIX 7

Pneumoconiosis Patients with Tuberculosis 2001

Type of T.B.	Number of Cases	%
Bacteriological Positive	28	21
Bacteriological Negative	25	19
No T.B.	76	58
N.A.	3	2
Total	132	100

APPENDIX 8

Confirmed Pneumoconiosis Patients by Other Particulars 2001

Characteristics		Number of Cases	%
Smoking	Smoker/Ex-smoker	119	90
	Non-smoker	10	8
	Unknown	3	2
	Total	132	100
Still exposed to dust when seen by the Pneumoconiosis Clinic	Yes	31	24
	No	98	74
	Unknown	3	2
	Total	132	100
General Condition	Good	116	88
	Fair	13	10
	Poor	-	-
	Died	3	2
	Total	132	100

Part 3

ANNEX

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Annex 1 (a)

Treatment Outcomes at 2 year of the 1998 Cohort of TB Patients

"Programme Forms" have been completed for a total of 6298 TB patients who were seen at chest clinics with DOS (date of starting treatment) from 1.1.1998 to 31.12.1998. They are categorised as follows:

Categories		N	%
(A)	New pulmonary, smear positive	1551	24.6
(B)	New pulmonary, smear negartive	2966	47.1
(C)	New pulmonary, smear not done/ unknown	300	4.8
(D)	New extra-pulmonary	646	10.3
(E)	Relapse pulmonary, smear positive	221	3.5
(F)	Pulmonary smear-positive retreatment after failure or default	16	0.3
(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)]	598	9.5
Total		6298	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 1998

Annex 1 (b1)

Age group	0 to 19		20 to 39		40 to 59		60+		All	
	N	%	N	%	N	%	N	%	N	%
Female	162	52.1	909	48.1	422	24.8	557	23.2	2050	32.6
Male	149	47.9	982	51.9	1277	75.2	1840	76.8	4248	67.4
Total	311	100.0	1891	100.0	1699	100.0	2397	100.0	6298	100.0
Residential status										
Permanent resident	279	89.7	1609	85.1	1628	95.8	2374	99.0	5890	93.5
Chinese immigrant	13	4.2	62	3.3	26	1.5	9	0.4	110	1.7
Illegal immigrant	4	1.3	16	0.8	4	0.2	1	0.0	25	0.4
Chinese (other types)	1	0.3	6	0.3	1	0.1	0	0.0	8	0.1
Vietnamese migrants	0	0.0	9	0.5	1	0.1	0	0.0	10	0.2
Others	12	3.9	180	9.5	32	1.9	9	0.4	233	3.7
Unknown	2	0.6	9	0.5	7	0.4	4	0.2	22	0.3
Total	311	100.0	1891	100.0	1699	100.0	2397	100.0	6298	100.0
Ethnicity										
Chinese	292	93.9	1652	87.4	1644	96.8	2378	99.2	5966	94.7
Non-Chinese	17	5.5	234	12.4	51	3.0	14	0.6	316	5.0
Unknown	2	0.6	5	0.3	4	0.2	5	0.2	16	0.3
Total	311	100.0	1891	100.0	1699	100.0	2397	100.0	6298	100.0
Occupation										
Medical	1	0.3	14	0.7	2	0.1	0	0.0	17	0.3
Paramedical	0	0.0	17	0.9	6	0.4	0	0.0	23	0.4
Domestic helper	2	0.6	102	5.4	23	1.4	14	0.6	141	2.2
Not employed	20	6.4	167	8.8	213	12.5	89	3.7	489	7.8
Retired	0	0.0	7	0.4	104	6.1	1396	58.2	1507	23.9
Others	277	89.1	1550	82.0	1318	77.6	827	34.5	3972	63.1
Unknown	11	3.5	34	1.8	33	1.9	71	3.0	149	2.4
Total	311	100.0	1891	100.0	1699	100.0	2397	100.0	6298	100.0
Presentation										
Symptoms	241	77.5	1504	79.5	1372	80.8	1898	79.2	5015	79.6
Post-Rx FU	7	2.3	35	1.9	49	2.9	57	2.4	148	2.3
Self check up	4	1.3	44	2.3	14	0.8	15	0.6	77	1.2
Other check up	18	5.8	126	6.7	107	6.3	152	6.3	403	6.4
Contact examination	19	6.1	38	2.0	24	1.4	25	1.0	106	1.7
High risk screening	0	0.0	5	0.3	5	0.3	1	0.0	11	0.2
Coincidental	2	0.6	23	1.2	41	2.4	95	4.0	161	2.6
Others	19	6.1	91	4.8	73	4.3	129	5.4	312	5.0
Unknown	1	0.3	25	1.3	14	0.8	25	1.0	65	1.0
Total	311	100.0	1891	100.0	1699	100.0	2397	100.0	6298	100.0
Disease Classification										
Pulmonary TB only	233	74.9	1361	72.0	1398	82.3	2090	87.2	5082	80.7
Extrapulmonary TB only	48	15.4	309	16.3	184	10.8	155	6.5	696	11.1
Both	30	9.6	221	11.7	117	6.9	152	6.3	520	8.3
Total	311	100.0	1891	100.0	1699	100.0	2397	100.0	6298	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	31	10.0	185	9.8	92	5.4	150	6.3	458	7.3
2. Lymph node	39	12.5	240	12.7	103	6.1	58	2.4	440	7.0
3. Meninges	0	0.0	13	0.7	11	0.6	1	0.0	25	0.4
4. Miliary	1	0.3	7	0.4	7	0.4	5	0.2	20	0.3
5. Bones & joint	2	0.6	24	1.3	19	1.1	28	1.2	73	1.2
6. Genitourinary	2	0.6	10	0.5	32	1.9	22	0.9	66	1.0
7. Abdomen	0	0.0	22	1.2	11	0.6	12	0.5	45	0.7
8. Skin	2	0.6	5	0.3	5	0.3	6	0.3	18	0.3
9. Others	5	1.6	33	1.7	18	1.1	26	1.1	82	1.3
Case category										
1. New case	293	94.2	1778	94.0	1453	85.5	1939	80.9	5463	86.7
2. Relapse < 5 years	12	3.9	50	2.6	71	4.2	81	3.4	214	3.4
3. Relapse > 5 years	1	0.3	49	2.6	157	9.2	353	14.7	560	8.9
4. Rx defaulter < 5 month	4	1.3	11	0.6	12	0.7	19	0.8	46	0.7
5. Rx defaulter > 5 month	1	0.3	3	0.2	6	0.4	5	0.2	15	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	311	100.0	1891	100.0	1699	100.0	2397	100.0	6298	100.0
Disease characteristics (pulmonary cases)										
Pretreatment smear +ve	71	27.0	450	28.4	502	33.1	765	34.1	1788	31.9
Pretreatment culture +ve	143	54.4	798	50.4	886	58.5	1375	61.3	3202	57.2
Extent = 1	169	64.3	995	62.9	819	54.1	1053	47.0	3036	54.2
Extent=1 & cavity=N	158	60.1	927	58.6	745	49.2	978	43.6	2808	50.1
Extent=1 & cavity=Y	11	4.2	68	4.3	74	4.9	75	3.3	228	4.1
Extent = 2	74	28.1	429	27.1	506	33.4	879	39.2	1888	33.7
Extent=2 & cavity=N	58	22.1	339	21.4	417	27.5	781	34.8	1595	28.5
Extent=2 & cavity=Y	16	6.1	90	5.7	89	5.9	98	4.4	293	5.2
Extent=3	19	7.2	116	7.3	160	10.6	274	12.2	569	10.2
Extent=3 & cavity=N	13	4.9	93	5.9	105	6.9	207	9.2	418	7.5
Extent=3 & cavity=Y	6	2.3	23	1.5	55	3.6	67	3.0	151	2.7
Extent=not specified	1	0.4	42	2.7	30	2.0	36	1.6	109	1.9
Extent=ns & cavity=N	1	0.4	41	2.6	27	1.8	35	1.6	104	1.9
Extent=ns & cavity=Y	0	0.0	1	0.1	3	0.2	1	0.0	5	0.1
Cavity=N	230	87.5	1400	88.5	1294	85.4	2001	89.3	4925	87.9
Cavity=Y	33	12.5	182	11.5	221	14.6	241	10.7	677	12.1
Condition at 6 month										
1. Rx completed	173	55.6	896	47.4	578	34.0	657	27.4	2304	36.6
2. Still on Rx	116	37.3	786	41.6	972	57.2	1385	57.8	3259	51.7
3. Changed Rx to others	5	1.6	97	5.1	44	2.6	58	2.4	204	3.2
4. Defaulted	15	4.8	106	5.6	86	5.1	126	5.3	333	5.3
5. Died from TB	0	0.0	0	0.0	0	0.0	18	0.8	18	0.3
6. Died from non-TB	0	0.0	1	0.1	6	0.4	63	2.6	70	1.1
7. Died from unknown	0	0.0	1	0.1	5	0.3	64	2.7	70	1.1
8. Others	1	0.3	0	0.0	0	0.0	3	0.1	4	0.1
9. Admitted & not yet back	1	0.3	4	0.2	8	0.5	23	1.0	36	0.6
Total	311	100.0	1891	100.0	1699	100.0	2397	100.0	6298	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	275	88.4	1582	83.7	1421	83.6	1783	74.4	5061	80.4
1. Rx completed / Bacter con	*133*		*732*		*780*		*1103*		*2748*	
1. Rx completed / Rad impro	*222*		*1247*		*1056*		*1351*		*3876*	
1. Rx completed / Other evid	*62*		*383*		*288*		*292*		*1025*	
1. Rx completed / No evid	*4*	1.3	*47*		*75*		*87*		*213*	
2. Still on Rx / Total	9	2.9	84	4.4	97	5.7	175	7.3	365	5.8
2. Still on Rx / smear +ve 5m	*0*		*1*		*4*		*4*		*9*	
2. Still on Rx / smear -ve 5m	*4*		*46*		*65*		*134*		*249*	
2. Still on Rx / smear ukn 5m	*5*		*37*		*28*		*37*		*107*	
3. Changed Rx to others	8	2.6	101	5.3	55	3.2	88	3.7	252	4.0
4. Defaulted	19	6.1	120	6.3	107	6.3	141	5.9	387	6.1
5. Failure	0	0.0	1	0.1	0	0.0	0	0.0	1	0.0
6. Died from TB	0	0.0	0	0.0	1	0.1	17	0.7	18	0.3
7. Died from non-TB	0	0.0	2	0.1	10	0.6	104	4.3	116	1.8
8. Died from unknown	0	0.0	1	0.1	8	0.5	89	3.7	98	1.6
9. Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	311	100.0	1891	100.0	1699	100.0	2397	100.0	6298	100.0
Outcome at 2 year										
1. Rx completed / Total	284	91.3	1653	87.4	1505	88.6	1936	80.8	5378	85.4
1. Rx completed / Bacter con	*136*		*754*		*853*		*1220*		*2963*	
1. Rx completed / Rad impro	*236*		*1265*		*1115*		*1487*		*4103*	
1. Rx completed / Other evid	*62*		*409*		*295*		*317*		*1083*	
1. Rx completed / No evid	*3*		*63*		*85*		*90*		*241*	
2. Still on Rx	1	0.3	7	0.4	7	0.4	7	0.3	22	0.3
3. Changed Rx to others	7	2.3	108	5.7	62	3.6	90	3.8	267	4.2
4. Defaulted	19	6.1	120	6.3	101	5.9	139	5.8	379	6.0
5. Failure	0	0.0	0	0.0	1	0.1	2	0.1	3	0.0
6. Died from TB	0	0.0	0	0.0	2	0.1	14	0.6	16	0.3
7. Died from non-TB	0	0.0	2	0.1	12	0.7	112	4.7	126	2.0
8. Died from unknown	0	0.0	1	0.1	9	0.5	97	4.0	107	1.7
9. Others	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	311	100.0	1891	100.0	1699	100.0	2397	100.0	6298	100.0
Relapse at 2 year after Rx completion										
Number with Rx completed	284	100.0	1653	100.0	1505	100.0	1936	100.0	5378	100.0
1. No relapse	272	95.8	1568	94.9	1446	96.1	1856	95.9	5142	95.6
2. Relapse / Total	5	1.8	19	1.1	14	0.9	22	1.1	60	1.1
2. Relapse / Bacteriological	*2*		*7*		*2*		*11*		*22*	
2. Relapse / Radiological	*4*		*6*		*4*		*11*		*25*	
2. Relapse / Other evidence	*0*		*6*		*3*		*4*		*13*	
3. Unknown	7	2.5	66	4.0	45	3.0	58	3.0	176	3.3

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	71	4.0	143	4.5	0	0.0
Female	37		73		0	
Male	34		70		0	
20 to 39	450	25.2	798	24.9	11	22.9
Female	199		348		7	
Male	251		450		4	
40 to 59	502	28.1	886	27.7	14	29.2
Female	91		153		2	
Male	411		733		12	
60+	765	42.8	1375	42.9	23	47.9
Female	175		285		4	
Male	590		1090		19	
Total	1788	100.0	3202	100.0	48	100.0
Female	502	28.1	859	26.8	13	27.1
Male	1286	71.9	2343	73.2	35	72.9
Residential status						
Permanent resident	1697	94.9	3056	95.4	43	89.6
Chinese immigrant	18	1.0	35	1.1	0	0.0
Illegal immigrant	4	0.2	9	0.3	0	0.0
Chinese (other types)	2	0.1	3	0.1	0	0.0
Vietnamese migrants	2	0.1	4	0.1	1	2.1
Others	56	3.1	82	2.6	4	8.3
Unknown	9	0.5	13	0.4	0	0.0
Total	1788	100.0	3202	100.0	48	100.0
Ethnicity						
Chinese	1706	95.4	3075	96.0	43	89.6
Non-Chinese	74	4.1	115	3.6	5	10.4
Unknown	8	0.4	12	0.4	0	0.0
Total	1788	100.0	3202	100.0	48	100.0
Occupation						
Medical	2	0.1	6	0.2	0	0.0
Paramedical	1	0.1	8	0.2	0	0.0
Domestic helper	26	1.5	41	1.3	1	2.1
Not employed	162	9.1	223	7.0	10	20.8
Retired	495	27.7	876	27.4	16	33.3
Others	1065	59.6	1965	61.4	19	39.6
Unknown	37	2.1	83	2.6	2	4.2
Total	1788	100.0	3202	100.0	48	100.0
Presentation						
Symptoms	1522	85.1	2634	82.3	38	79.2
Post-Rx FU	28	1.6	65	2.0	3	6.3
Self check up	1	0.1	16	0.5	0	0.0
Other check up	78	4.4	188	5.9	4	8.3
Contact examination	6	0.3	26	0.8	0	0.0
High risk screening	1	0.1	2	0.1	0	0.0
Coincidental	43	2.4	74	2.3	1	2.1
Others	87	4.9	161	5.0	1	2.1
Unknown	22	1.2	36	1.1	1	2.1
Total	1788	100.0	3202	100.0	48	100.0

Annex 1 (c2)

Group	PreRx smear +ve		PreRx culture +ve		MDR-TB	
	N	%	N	%	N	%
Disease classification						
Pulmonary TB only	1705	95.4	3019	94.3	46	95.8
Both pulm & extrapulm	83	4.6	183	5.7	2	4.2
Total	1788	100.0	3202	100.0	48	100.0
Case Category						
1. New case	1551	86.7	2743	85.7	29	60.4
2. Relapse < 5 years	54	3.0	94	2.9	10	20.8
3. Relapse > 5 years	167	9.3	334	10.4	8	16.7
4. Rx defaulter < 5 month	14	0.8	25	0.8	1	2.1
5. Rx defaulter > 5 month	2	0.1	6	0.2	0	0.0
6. Previous failure	0	0.0	0	0.0	0	0.0
7. Others	0	0.0	0	0.0	0	0.0
Total	1788	100.0	3202	100.0	48	100.0
Disease characteristics (pulmonary cases)						
Extent = 1	638	35.7	1464	45.7	23	47.9
Extent=1 & cavity=N	508	28.4	1281	40.0	18	37.5
Extent=1 & cavity=Y	130	7.3	183	5.7	5	10.4
Extent = 2	771	43.1	1263	39.4	17	35.4
Extent=2 & cavity=N	564	31.5	1018	31.8	12	25.0
Extent=2 & cavity=Y	207	11.6	245	7.7	5	10.4
Extent=3	354	19.8	437	13.6	8	16.7
Extent=3 & cavity=N	241	13.5	310	9.7	6	12.5
Extent=3 & cavity=Y	113	6.3	127	4.0	2	4.2
Extent=not specified	25	1.4	38	1.2	0	0.0
Extent=ns & cavity=N	24	1.3	36	1.1	0	0.0
Extent=ns & cavity=Y	1	0.1	2	0.1	0	0.0
Cavity=N	1337	74.8	2645	82.6	36	75.0
Cavity=Y	451	25.2	557	17.4	12	25.0
Condition at 6 months						
1. Rx completed	514	28.7	1084	33.9	3	6.3
2. Still on Rx	1106	61.9	1819	56.8	34	70.8
3. Changed Rx to others	38	2.1	68	2.1	2	4.2
4. Defaulted	68	3.8	148	4.6	7	14.6
5. Died from TB	7	0.4	9	0.3	0	0.0
6. Died from non-TB	26	1.5	32	1.0	1	2.1
7. Died from unknown	20	1.1	24	0.7	0	0.0
8. Others	0	0.0	0	0.0	0	0.0
9. Admitted & not yet back	9	0.5	18	0.6	1	2.1
Total	1788	100.0	3202	100.0	48	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	1445	80.8	2610	81.5	10	20.8
1. Rx completed / Bacter con	*1309*		*2408*		*9*	
1. Rx completed / Rad impro	*1276*		*2244*		*10*	
1. Rx completed / Other evid	*197*		*321*		*2*	
1. Rx completed / No evid	*11*		*9*		*0*	
2. Still on Rx / Total	128	7.2	210	6.6	19	39.6
2. Still on Rx / smear +ve 5m	*8*		*7*		*3*	
2. Still on Rx / smear -ve 5m	*101*		*168*		*16*	
2. Still on Rx / smear ukn 5m	*19*		*35*		*0*	
3. Changed Rx to others	51	2.9	91	2.8	5	10.4
4. Defaulted	89	5.0	183	5.7	11	22.9
5. Failure	0	0.0	0	0.0	0	0.0
6. Died from TB	5	0.3	10	0.3	0	0.0
7. Died from non-TB	38	2.1	55	1.7	3	6.3
8. Died from unknown	32	1.8	43	1.3	0	0.0
9. Others	0	0.0	0	0.0	0	0.0
Total	1788	100.0	3202	100.0	48	100.0
Outcome at 2 year						
1. Rx completed / Total	1550	86.7	2791	87.2	27	56.3
1. Rx completed / Bacter con	*1432*		*2635*		*22*	
1. Rx completed / Rad impro	*1339*		*2357*		*24*	
1. Rx completed / Other evid	*201*		*335*		*2*	
1. Rx completed / No evid	*22*		*18*		*1*	
2. Still on Rx	13	0.7	17	0.5	3	6.3
3. Changed Rx to others	47	2.6	94	2.9	6	12.5
4. Defaulted	89	5.0	179	5.6	9	18.8
5. Failure	0	0.0	1	0.0	0	0.0
6. Died from TB	6	0.3	8	0.2	0	0.0
7. Died from non-TB	45	2.5	61	1.9	3	6.3
8. Died from unknown	38	2.1	51	1.6	0	0.0
9. Others	0	0.0	0	0.0	0	0.0
Total	1788	100.0	3202	100.0	48	100.0
Relapse at 2 year after Rx completion						
Number with Rx completed	1550	100.0	2791	100.0	27	100.0
1. No relapse	1472	95.0	2666	95.5	22	81.5
2. Relapse / Total	21	1.4	38	1.4	2	7.4
2. Relapse / Bacteriological	*9*		*16*		*2*	
2. Relapse / Radiological	*8*		*18*		*2*	
2. Relapse / Other evidence	*5*		*7*		*0*	
3. Unknown	57	3.7	87	3.1	3	11.1

Annex 1 (c4)

Group	PreRx smear +ve		PreRx culture +ve		MDR-TB	
	N	%	N	%	N	%
Sensitivity pattern						
Streptomycin - R	124	8.2	239	7.9	35	72.9
Streptomycin - S	1386	91.8	2776	92.1	13	27.1
Isoniazid - R	99	6.6	208	6.9	48	100.0
Isoniazid - S	1411	93.4	2805	93.1	0	0.0
Rifampicin - R	31	2.1	46	1.5	48	100.0
Rifampicin - S	1479	97.9	2969	98.5	0	0.0
Ethambutol - R	25	1.7	40	1.3	31	64.6
Ethambutol - S	1485	98.3	2976	98.7	17	35.4
Pyrazinamide - R	14	12.7	20	9.5	13	44.8
Pyrazinamide - S	96	87.3	191	90.5	16	55.2
Ofloxacin - R	9	10.2	12	6.2	9	23.7
Ofloxacin - S	79	89.8	181	93.8	29	76.3
Smear conversion rates						
1. Smear at 2 month = N (a)	1172				13	
2. Smear at 2 month = P (b)	105				4	
2. Sm 2m (P); Sm 3m (N) (c)	63				0	
2. Sm 2m (P); Sm 3m (P) (d)	24				4	
2. Sm 2m (P); Sm 3m (U) (e)	18				0	
3. Smear at 2 month = U (f)	511				11	
3. Sm 2m (U); Sm 3m (N) (g)	194				3	
3. Sm 2m (U); Sm 3m (P) (h)	9				1	
3. Sm 2m (U); Sm 3m (U) (i)	308				7	
Overall percentage of smear conversion at 2m = (a)/ [(a)+(b)]						
	91.8		-		76.5	
Overall percentage of smear conversion at 3m = [(a)+(c)+(g)]/ [(a)+(c)+(d)+(g)+(h)]						
	97.7		-		76.2	
Culture conversion rates						
1. Culture at 2 month = N (a)			1830		8	
2. Culture at 2 month = P (b)			288		13	
2. Cu 2m (P); Cu 3m (N) (c)			158		2	
2. Cu 2m (P); Cu 3m (P) (d)			38		7	
2. Cu 2m (P); Cu 3m (U) (e)			92		4	
3. Culture at 2 month = U (f)			1084		20	
3. Cu 2m (U); Cu 3m (N) (g)			374		4	
3. Cu 2m (U); Cu 3m (P) (h)			25		2	
3. Cu 2m (U); Cu 3m (U) (i)			685		14	
Overall percentage of culture conversion at 2m = (a)/ [(a)+(b)]						
	-		86.4		38.1	
Overall percentage of culture conversion at 3m = [(a)+(c)+(g)]/ [(a)+(c)+(d)+(g)+(h)]						
	-		97.4		60.9	

Annex 1 (d1)

	New pulmonary smear +ve		ReRx pulmonary smear +ve	
	N	**%**	**N**	**%**
Age group				
0 to 19	68	4.4	3	1.3
Female	35		2	
Male	33		1	
20 to 39	424	27.3	26	11.0
Female	192		7	
Male	232		19	
40 to 59	425	27.4	77	32.5
Female	81		10	
Male	344		67	
60+	634	40.9	131	55.3
Female	156		19	
Male	478		112	
Total	1551	100.0	237	100.0
Female	464	29.9	38	2.5
Male	1087	70.1	199	12.8
Residential status				
Permanent resident	1470	94.8	227	95.8
Chinese immigrant	15	1.0	3	1.3
Illegal immigrant	4	0.3	0	0.0
Chinese (other types)	2	0.1	0	0.0
Vietnamese migrants	1	0.1	1	0.4
Others	51	3.3	5	2.1
Unknown	8	0.5	1	0.4
Total	1551	100.0	237	100.0
Ethnicity				
Chinese	1477	95.2	229	96.6
Non-Chinese	67	4.3	7	3.0
Unknown	7	0.5	1	0.4
Total	1551	100.0	237	100.0
Occupation				
Medical	2	0.1	0	0.0
Paramedical	1	0.1	0	0.0
Domestic helper	25	1.6	1	0.4
Not employed	130	8.4	32	13.5
Retired	413	26.6	82	34.6
Others	947	61.1	118	49.8
Unknown	33	2.1	4	1.7
Total	1551	100.0	237	100.0
Presentation				
Symptoms	1326	85.5	196	82.7
Post-Rx FU	15	1.0	13	5.5
Self check up	1	0.1	0	0.0
Other check up	68	4.4	10	4.2
Contact examination	6	0.4	0	0.0
High risk screening	1	0.1	0	0.0
Coincidental	39	2.5	4	1.7
Others	75	4.8	12	5.1
Unknown	20	1.3	2	0.8
Total	1551	100.0	237	100.0

Annex 1 (d2)

	New pulmonary smear +ve		ReRx pulmonary smear +ve	
	N	**%**	**N**	**%**
Disease classification				
Pulmonary TB only	1477	95.2	228	96.2
Both pulm & extrapulm	74	4.8	9	3.8
Total	1551	100.0	237	100.0
Disease characteristics (pulmonary cases)				
Extent = 1	554	35.7	84	35.4
Extent=1 & cavity=N	440	28.4	68	28.7
Extent=1 & cavity=Y	114	7.4	16	6.8
Extent = 2	670	43.2	101	42.6
Extent=2 & cavity=N	490	31.6	74	31.2
Extent=2 & cavity=Y	180	11.6	27	11.4
Extent=3	304	19.6	50	21.1
Extent=3 & cavity=N	207	13.3	34	14.3
Extent=3 & cavity=Y	97	6.3	16	6.8
Extent=not specified	23	1.5	2	0.8
Extent=ns & cavity=N	22	1.4	2	0.8
Extent=ns & cavity=Y	1	0.1	0	0.0
Cavity=N	1159	74.7	178	75.1
Cavity=Y	392	25.3	59	24.9
Condition at 6 months				
1. Rx completed	497	32.0	17	7.2
2. Still on Rx	913	58.9	193	81.4
3. Changed Rx to others	34	2.2	4	1.7
4. Defaulted	53	3.4	15	6.3
5. Died from TB	6	0.4	1	0.4
6. Died from non-TB	22	1.4	4	1.7
7. Died from unknown	17	1.1	3	1.3
8. Others	0	0.0	0	0.0
9. Admitted & not yet back	9	0.6	0	0.0
Total	1551	100.0	237	100.0
Outcome at 1 year				
1. Rx completed / Total	1273	82.1	172	72.6
1. Rx completed / Bacter con	*1170*		*139*	
1. Rx completed / Rad impro	*1138*		*138*	
1. Rx completed / Other evid	*2*		*1*	
1. Rx completed / No evid	*7*		*4*	
2. Still on Rx / Total	104	6.7	24	10.1
2. Still on Rx / smear +ve 5m	*7*		*1*	
2. Still on Rx / smear -ve 5m	*79*		*22*	
2. Still on Rx / smear ukn 5m	*18*		*1*	
3. Changed Rx to others	47	3.0	4	1.7
4. Defaulted	67	4.3	22	9.3
5. Failure	0	0.0	0	0.0
6. Died from TB	5	0.3	0	0.0
7. Died from non-TB	32	2.1	6	2.5
8. Died from unknown	23	1.5	9	3.8
9. Others	0	0.0	0	0.0
Total	1551	100.0	237	100.0

Annex 1 (d3)

	New pulmonary smear +ve		ReRx pulmonary smear +ve	
	N	**%**	**N**	**%**
Outcome at 2 year				
1. Rx completed / Total	1360	87.7	190	80.2
1. Rx completed / Bacter con	*1268*		*164*	
1. Rx completed / Rad impro	*1182*		*157*	
1. Rx completed / Other evid	*170*		*31*	
1. Rx completed / No evid	*16*		*6*	
2. Still on Rx	9	0.6	4	1.7
3. Changed Rx to others	44	2.8	3	1.3
4. Defaulted	65	4.2	24	10.1
5. Failure	0	0.0	0	0.0
6. Died from TB	6	0.4	0	0.0
7. Died from non-TB	38	2.5	7	3.0
8. Died from unknown	29	1.9	9	3.8
9. Others	0	0.0	0	0.0
Total	1551	100.0	237	100.0
Relapse at 2 year after Rx completion				
Number with Rx completed	1360	100	190	100
1. No relapse	1304	95.9	184	96.8
2. Relapse / Total	22	1.6	2	1.1
2. Relapse / Bacteriological	*8*		*1*	
2. Relapse / Radiological	*8*		*0*	
2. Relapse / Other evidence	*4*		*1*	
3. Unknown	34	2.5	4	2.1
Smear conversion rates				
1. Smear at 2 month = N (a)	1022		150	
2. Smear at 2 month = P (b)	89		16	
2. Sm 2m (P); Sm 3m (N) (c)	55		8	
2. Sm 2m (P); Sm 3m (P) (d)	21		3	
2. Sm 2m (P); Sm 3m (U) (e)	13		5	
3. Smear at 2 month = U (f)	351		58	
3. Sm 2m (U); Sm 3m (N) (g)	142		23	
3. Sm 2m (U); Sm 3m (P) (h)	7		0	
3. Sm 2m (U); Sm 3m (U) (i)	202		35	
Overall percentage of smear conversion at 2m = (a)/ [(a)+(b)]				
	92.0		90.4	
Overall percentage of smear conversion at 3m = [(a)+(c)+(g)]/ [(a)+(c)+(d)+(g)+(h)]				
	97.8		98.4	

Annex 1 (e1)

Analysis for defaulters

	Female		Male		Total	
Age group	N	%	N	%	N	%
0 to 19	11	11.5	8	2.8	19	5.0
20 to 39	47	49.0	73	25.8	120	31.7
40 to 59	13	13.5	88	31.1	101	26.6
60+	25	26.0	114	40.3	139	36.7
Total	96	100.0	283	100.0	379	100.0

Residential status	N	%
Permanent resident	321	84.7
Chinese immigrant	13	3.4
Illegal immigrant	4	1.1
Chinese (other types)	1	0.3
Vietnamese migrants	4	1.1
Others	35	9.2
Unknown	1	0.3
Total	379	100.0

Ethnicity	N	%
Chinese	333	87.9
Non-Chinese	46	12.1

Occupation	N	%
Medical	0	0.0
Paramedical	0	0.0
Domestic helper	16	4.2
Not employed	37	9.8
Retired	93	24.5
Others	222	58.6
Unknown	11	2.9
Total	379	100.0

Presentation	N	%
Symptoms	296	78.1
Post-Rx FU	5	1.3
Self check up	10	2.6
Other check up	19	5.0
Contact examination	8	2.1
High risk screening	3	0.8
Coincidental	16	4.2
Others	18	4.7
Unknown	4	1.1
Total	379	100.0

Disease Classification	N	%
Pulmonary TB only	318	83.9
Extrapulmonary TB only	34	9.0
Both	27	7.1
Total	379	100.0

Defaulting at month

Month	N	%
0	8	2.1
1	99	26.1
2	61	16.1
3	46	12.1
4	30	7.9
5	22	5.8
6	15	4.0
7	18	4.7
8	15	4.0
9	13	3.4
10	11	2.9
11	1	0.3
12	5	1.3
13	2	0.5
14	2	0.5
15	2	0.5
16	0	0.0
17	1	0.3
18	0	0.0
19	1	0.3
20	1	0.3
Unknown	26	6.9
Total	379	100.0

New course of treatment started

Rx restarted	N	%
Yes	49	12.9
No	300	79.2
Unknown	30	7.9
Total	379	100.0

Annex 1 (e2)

Analysis for defaulters

Case category	N	%
1. New case	300	79.2
2. Relapse < 5 years	30	7.9
3. Relapse > 5 years	26	6.9
4. Rx defaulter < 5 month	18	4.7
5. Rx defaulter > 5 month	5	1.3
6. Previous failure	0	0.0
7. Others	0	0.0
Total	379	100.0

Disease characteristics (pulmonary cases)	N	%
Pretreatment smear +ve	89	25.8
Pretreatment culture +ve	179	51.9
Extent = 1	187	54.2
Extent=1 & cavity=N	175	50.7
Extent=1 & cavity=Y	12	3.5
Extent = 2	117	33.9
Extent=2 & cavity=N	95	27.5
Extent=2 & cavity=Y	22	6.4
Extent=3	33	9.6
Extent=3 & cavity=N	25	7.2
Extent=3 & cavity=Y	8	2.3
Extent=not specified	8	2.3
Extent=ns & cavity=N	7	2.0
Extent=ns & cavity=Y	1	0.3
Cavity=N	302	87.5
Cavity=Y	43	12.5

PRF FORM 1/2 (To be completed at 6 mo from DOS) PRF1/2-1-1-97(Rev)

Name: _____ **Sex:** *M / F* * **Age:** __ __ **DOS:** __ __ / __ __ / 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	❍ (1)	**Post-Rx FU**	❍ (2)	**Self check-up**	❍ (3)
Other check-up	❍ (4)	**Contact exam.**	❍ (5)	**H-risk screening**	❍ (6)
Coincidental finding during investigation of other diseases		❍ (7)		**Others**	❍ (8)

_____

Part B: Disease classification (choose ≥ 1 item)

- **Pulmonary Tuberculosis** ❍ (P)
- **Extra-pulmonary Tuberculosis** ❍ (E)

pleura	❍ (1)	**miliary**	❍ (4)	**skin**	❍ (8)
lymph node	❍ (2)	**bone & joint**	❍ (5)	**others**	❍ (9)
meninges	❍ (3)	**genito-urinary**	❍ (6)		
		abdomen	❍ (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)	❍ (1)
Moderate Disease (>RUL)	❍ (2)
Extensive Disease (> a lung)	❍ (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	❍ P ❍ N ❍ U	❍ P ❍ N ❍ U	❍ P ❍ N ❍ U
culture (MTB)	❍ P ❍ N ❍ U	❍ P ❍ N ❍ U	❍ P ❍ N ❍ U
culture (NTM)	❍ P	❍ P	❍ P

Part G: Pre-Rx sensitivity test results

S	❍S ❍R	**Z**	❍S ❍R	**Cyclo**	❍S ❍R		**(YFS**	❍ (1)
H	❍S ❍R	**Ofl**	❍S ❍R	**Others:**		**Source of ST (**	**(TGH**	❍ (2)
R	❍S ❍R	**Ethi**	❍S ❍R		❍S ❍R		**(RH**	❍ (3)
E	❍S ❍R	**Kana**	❍S ❍R	_____	❍S ❍R		**(HOH**	❍ (4)
							(Others	❍ (5)

Completed by Dr _____ **on** __ __ / __ __ / 19 __ __ _____ **Chest Clinic**

PRF FORM 3 (To be completed at 1 year from DOS) **PRF3-1-1-97(Rev)**

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	❍ **P**	❍ **N**	❍ **U**	**)**
culture (MTB)	❍ **P**	❍ **N**	❍ **U**	**) (report as positive if any one month is positive)**
culture (NTM)	❍ **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 defaluted, 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 __ __ **_____ Chest Clinic**

PRF FORM 4 (To be completed at 2 year from DOS) **PRF4-1-1-97(Rev)**

Clinic No.: __ __ - __ - __ __ __ __ __ - __ **DOS: __ __ / __ __ / 19 __ __**

HKID No.: __ - __ __ __ __ __ __ - (__) **or *Passport / Birth Certificate* * 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 defaluted, 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)**

(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	1997	1998	1999	2000	2001
Notified TB cases who are Chinese New Immigrants (with years of arrival in Hong Kong)	≤1 year	54	59	47	36	42
	≤2 year	20	28	32	20	36
	≤3 year	16	23	26	18	26
	≤4 year	17	11	13	26	25
	≤5 year	16	20	18	15	28
	≤6 year	17	12	12	17	12
	≤7 year	16	16	18	20	23
	Total	156	169	166	152	192
Overall notified TB cases		7072	7673	7512	7578	7262

The above table shows the number of all notified TB cases in Hong Kong from 1997 to 2001 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 1997 to 2001 are 109.0, 117.3, 113.7, 113.7 and 108.0 respectively.

From Annex 2 (b), the overall estimated rates (per 100,000) among the new immigrants from 1997 to 2001 are 55.0, 54.0, 48.9, 41.8, and 50.6 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 (1997-2001)

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

	1997	1997	1997	1998	1998	1998	1999	1999	1999	2000	2000	2000	2001	2001	2001
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-19	11	7	18	12	9	21	10	8	18	7	8	15	10	20	30
20-39	16	70	86	23	54	77	16	76	92	14	69	83	26	77	103
40-59	14	23	37	14	33	47	5	34	39	6	31	37	14	32	46
60+	6	9	15	14	10	24	11	6	17	10	7	17	7	6	13
Total	47	109	156	63	106	169	42	124	166	37	115	152	57	135	192

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

	1997	1997	1997	1998	1998	1998	1999	1999	1999	2000	2000	2000	2001	2001	2001
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-19	18.4	13.7	16.2	16.8	14.3	15.6	12.7	11.1	11.9	8.3	10.2	9.2	11.6	24.4	17.9
20-39	58.3	81.5	75.8	90.4	61.5	68.0	66.0	78.2	75.8	59.8	64.6	63.7	102.5	67.0	73.4
40-59	163.4	54.5	72.9	168.3	70.5	85.2	62.6	70.2	69.1	76.5	62.1	64.1	172.6	65.6	80.9
60+	241.2	152.2	178.5	555.1	130.3	235.3	445.9	73.4	159.7	375.2	64.5	125.8	256.9	52.0	91.2
Total	47.8	58.8	55.0	58.5	51.6	54.0	37.0	54.9	48.9	31.4	46.7	41.8	46.7	52.5	50.6

Annex 2 (c)

TB Notification and Rates (All Cases) By Age & Sex (1997-2001)

All notified TB cases, by age and sex

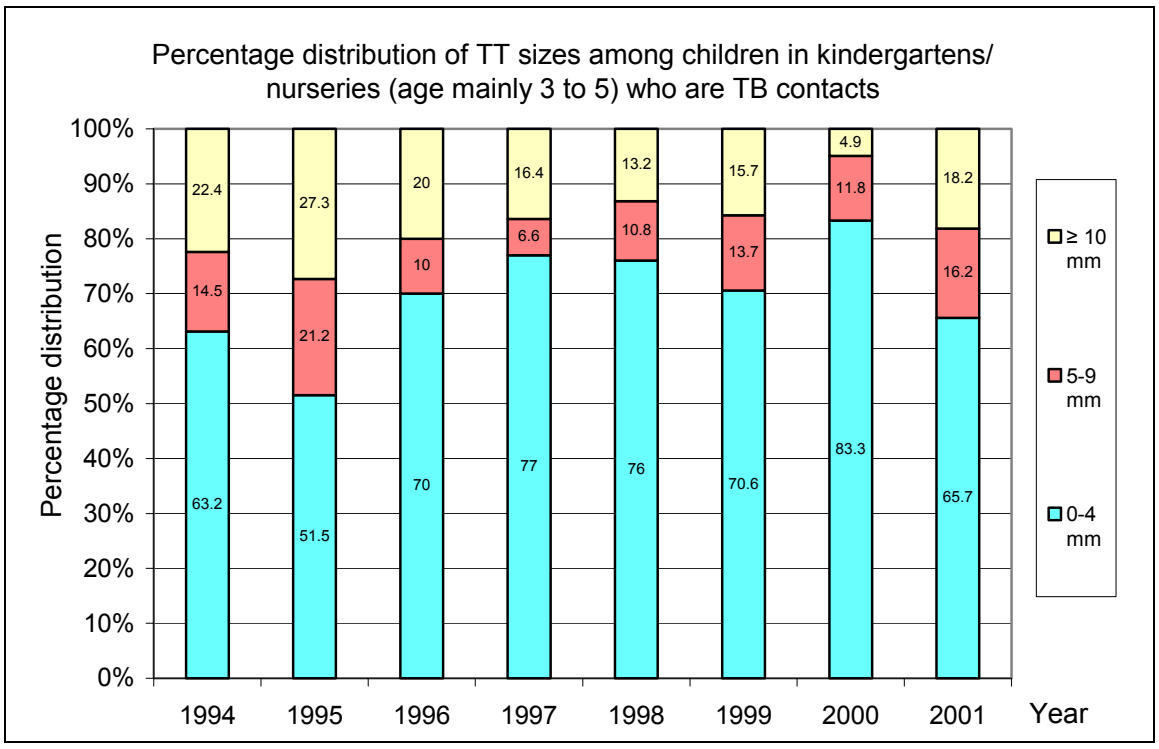
	1997	1997	1997	1998	1998	1998	1999	1999	1999	2000	2000	2000	2001	2001	2001
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-19	165	157	322	182	188	370	145	184	329	160	176	336	150	171	321
20-39	1086	986	2072	1081	1041	2122	1000	954	1954	948	967	1915	951	983	1934
40-59	1358	449	1807	1406	503	1909	1359	557	1916	1390	552	1942	1303	604	1907
60+	2122	749	2871	2444	828	3272	2383	930	3313	2475	910	3385	2268	832	3100
Total	4731	2341	7072	5113	2560	7673	4887	2625	7512	4973	2605	7578	4672	2590	7262

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

	1997	1997	1997	1998	1998	1998	1999	1999	1999	2000	2000	2000	2001	2001	2001
Age group	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-19	19.6	19.8	19.7	21.7	23.9	22.8	17.4	23.5	20.3	19.5	23.0	21.2	18.7	22.8	20.7
20-39	97.1	81.5	89.0	98.7	85.9	92.0	93.2	78.5	85.4	90.0	79.2	84.2	91.9	80.2	85.6
40-59	164.1	59.3	114.0	163.3	63.2	115.2	152.0	66.4	110.6	149.4	62.3	106.9	134.5	64.2	99.8
60+	475.7	151.4	305.2	537.5	165.6	342.7	514.9	183.6	341.8	524.4	176.8	343.1	470.4	159.3	308.6
Total	146.2	71.9	109.0	157.3	77.7	117.3	149.7	78.6	113.7	151.8	76.9	113.7	142.1	75.3	108.0

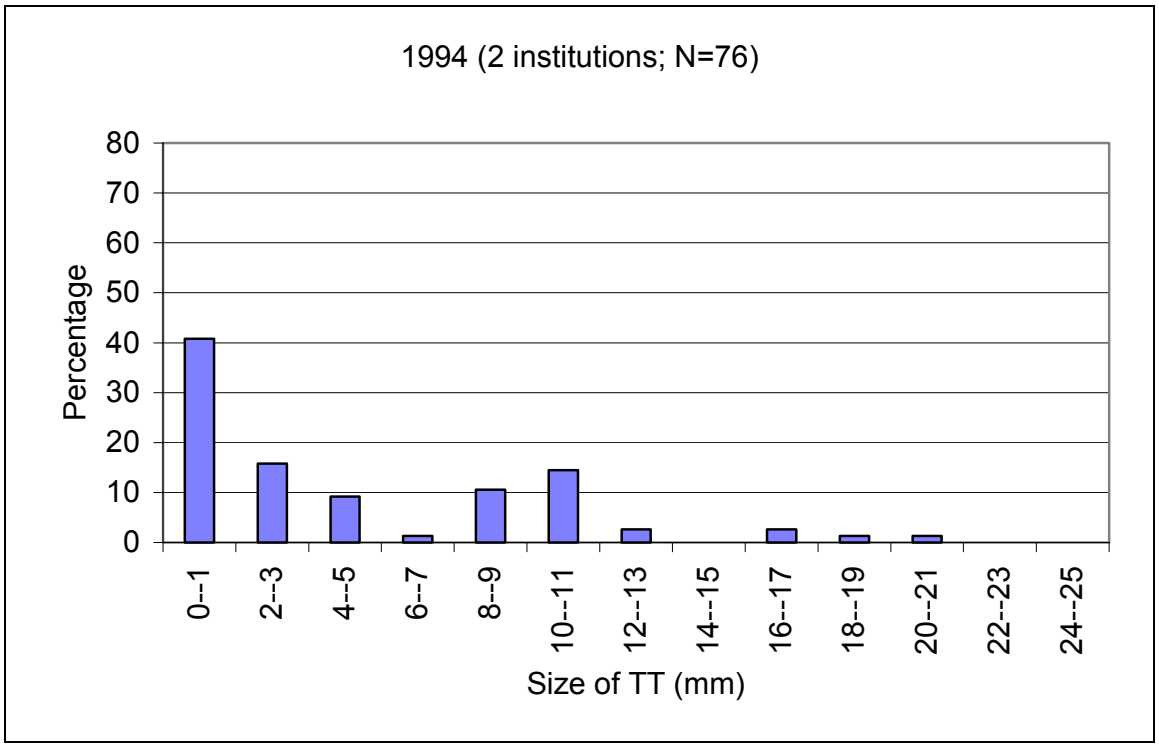
Annex 3

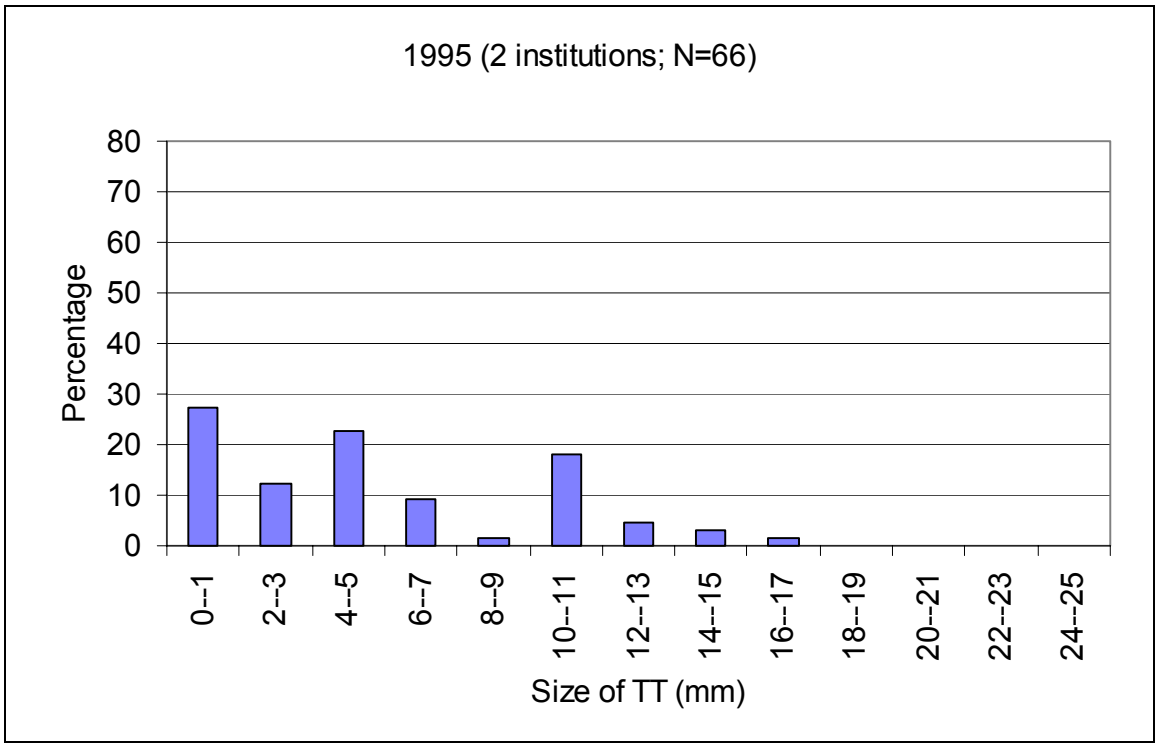
Tuberculin Testing Among Institutional TB Contacts Aged Under 5

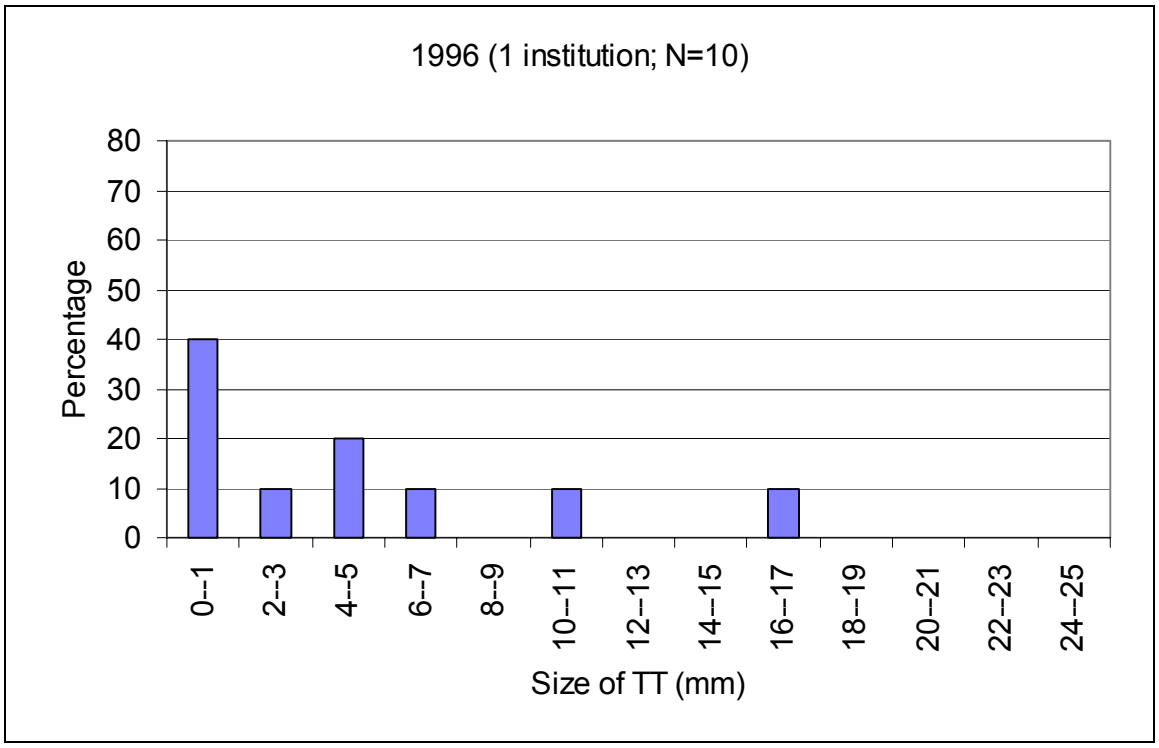


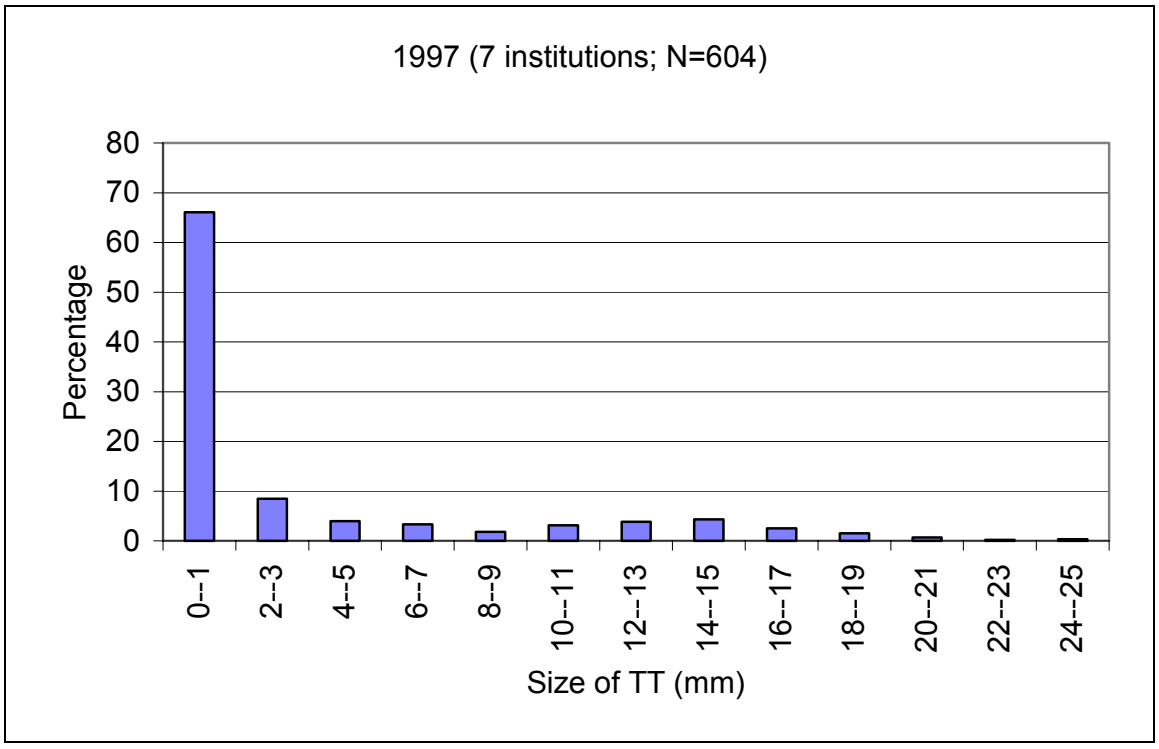
Year	1994	1995	1996	1997	1998	1999	2000	2001
Number of students tuberculin tested	76	66	10	604	167	51	102	99
Number of institutions	2	2	1	7	3	2	2	2

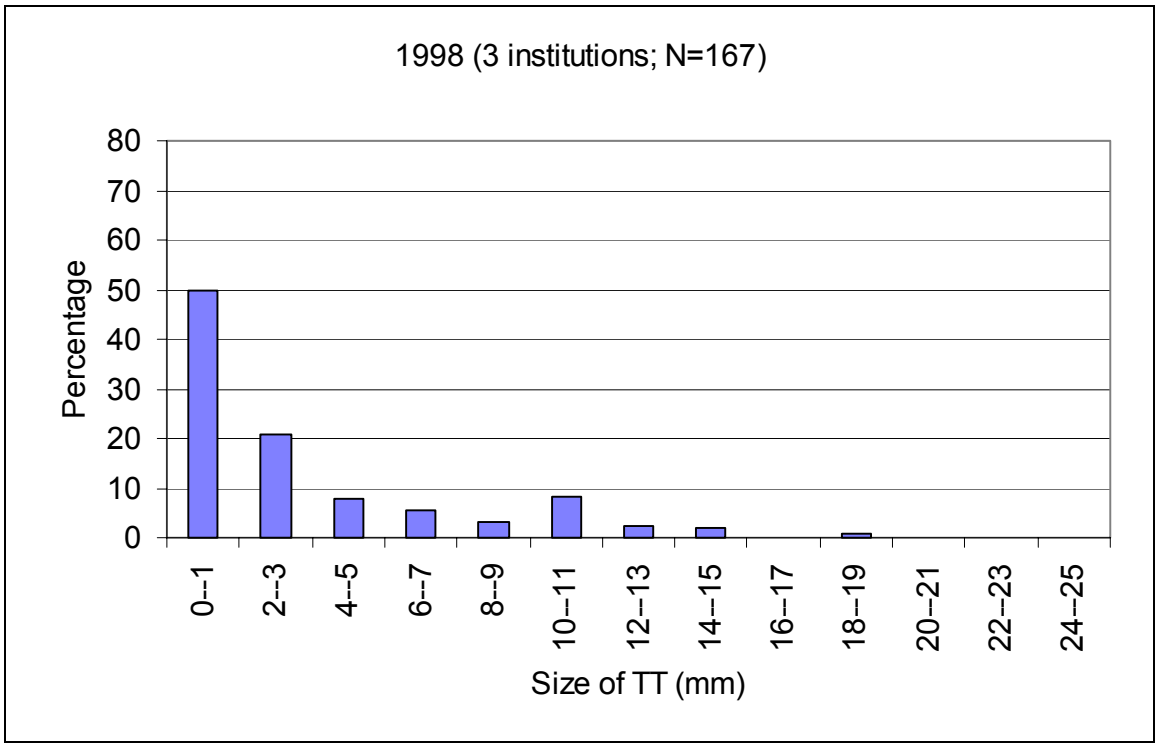
Over the years, for institutional contacts aged under 5 with exposure to infectious TB, they are examined with tuberculin test (TT) (using 1 TU PPD-RT23 before the year 2000 and 2 TU PPD-RT23 since 2001). The percentage and frequency distribution of the sizes of TT from 1994 to 2001 are presented in the above graph and the graphs in the next few pages. The number of students tested in 1997 was significantly higher because of an incident of clustering of TB cases in a kindergarten.

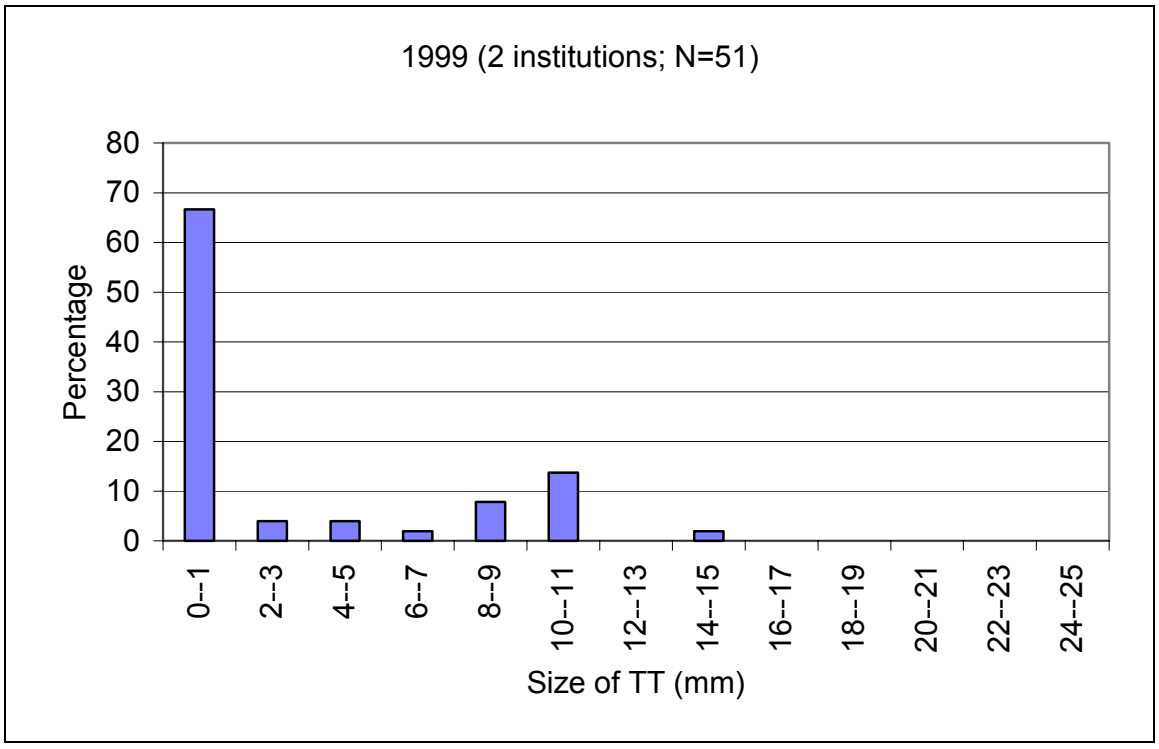

1994 (2 institutions; N=76)
Percentage
80
70
60
50
40
30
20
10
0
0--1
2--3
4--5
6--7
8--9
10--11
12--13
14--15
16--17
18--19
20--21
22--23
24--25
Size of TT (mm)

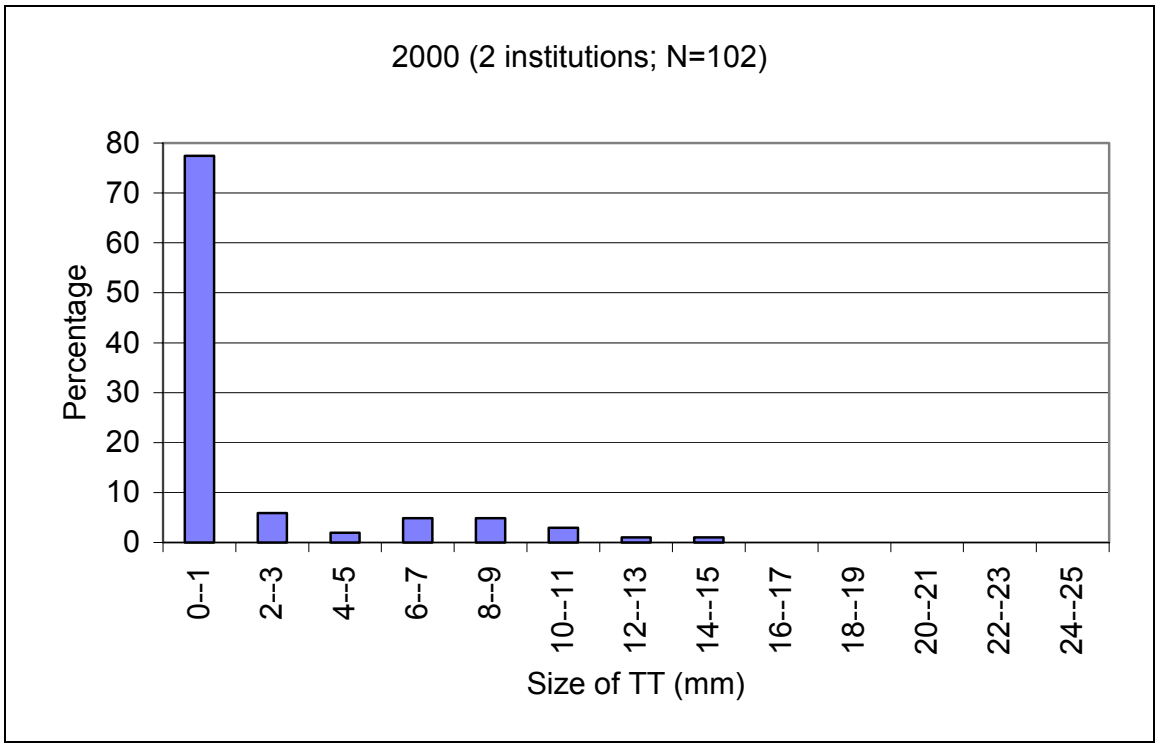

1995 (2 institutions; N=66)
Percentage
80
70
60
50
40
30
20
10
0
0--1
2--3
4--5
6--7
8--9
10--11
12--13
14--15
16--17
18--19
20--21
22--23
24--25
Size of TT (mm)

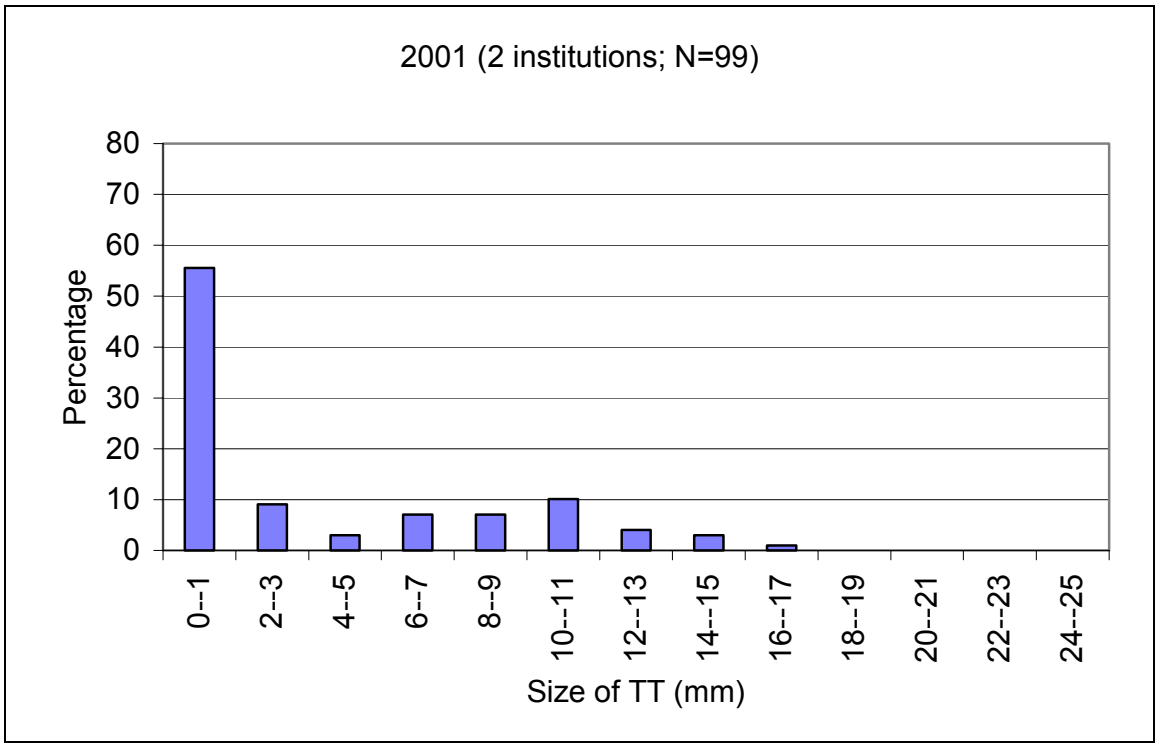

1996 (1 institution; N=10)
Percentage
80
70
60
50
40
30
20
10
0
0--1
2--3
4--5
6--7
8--9
10--11
12--13
14--15
16--17
18--19
20--21
22--23
24--25
Size of TT (mm)


1997 (7 institutions; N=604)
Percentage
80
70
60
50
40
30
20
10
0
0--1
2--3
4--5
6--7
8--9
10--11
12--13
14--15
16--17
18--19
20--21
22--23
24--25
Size of TT (mm)


1998 (3 institutions; N=167)
Percentage
80
70
60
50
40
30
20
10
0
0--1
2--3
4--5
6--7
8--9
10--11
12--13
14--15
16--17
18--19
20--21
22--23
24--25
Size of TT (mm)


1999 (2 institutions; N=51)
Percentage
80
70
60
50
40
30
20
10
0
0--1
2--3
4--5
6--7
8--9
10--11
12--13
14--15
16--17
18--19
20--21
22--23
24--25
Size of TT (mm)


2000 (2 institutions; N=102)
Percentage
80
70
60
50
40
30
20
10
0
0--1
2--3
4--5
6--7
8--9
10--11
12--13
14--15
16--17
18--19
20--21
22--23
24--25
Size of TT (mm)


2001 (2 institutions; N=99)
Percentage
80
70
60
50
40
30
20
10
0
0--1
2--3
4--5
6--7
8--9
10--11
12--13
14--15
16--17
18--19
20--21
22--23
24--25
Size of TT (mm)

Annex 4

Tuberculin Testing Among University New Entrants

University A (1990-2001) (record of age not available except for 2001)

Year	Tuberculin Test (mm)					TT≥10mm	Not read
	0-9	10-14	15-19	≥20	Total		
1990	134	99	105	26	364	230 (63.19%)	1
1991	94	164	85	24	367	273 (74.39%)	4
1992	105	116	94	5	320	215 (67.19%)	0
1993	63	174	81	16	334	271 (81.14%)	4
1994	112	177	39	4	332	220 (66.27%)	4
1995	65	137	100	17	319	254 (79.62%)	3
1996	86	198	79	11	374	288 (77.01%)	4
1997	178	128	50	7	363	185 (50.96%)	12
1998	373	130	47	1	551	178 (32.30%)	7
1999 *	152	140	51	8	351	199 (56.70%)	23
2000 *	101	140	37	6	284	183 (64.44%)	18
2001 *#	68	61	18	0	147	79 (53.74%)	4

For the year 2001, the figures were for those aged 18-20.

University B (1990-2000) (for those aged ≤20, with great majority aged 18-20)

Year	Tuberculin Test (mm)					TT≥10mm	Not read
	0-9	10-14	15-19	≥20	Total		
1990	70	92	58	10	230	160 (69.57%)	17
1991	88	80	34	16	218	130 (59.63%)	20
1992	87	79	57	5	228	141 (61.84%)	2
1993	80	145	41	10	276	196 (71.01%)	3
1994	83	126	57	12	278	195 (70.14%)	7
1995	111	152	58	14	335	224 (66.87%)	2
1996	131	167	33	23	354	223 (62.99%)	3
1997	188	167	33	7	395	207 (52.41%)	1
1998	221	101	46	5	373	152 (40.75%)	3
1999 *	12	10	2	0	24	12 (50%)	0
2000 *	6	4	2	0	12	6 (50%)	0
2001 *	2	0	0	0	2	0	0

* NB: The university new entrants were going to study in medical/paramedical schools. They were tuberculin tested (TT) and if negative (≤ 9mm), were given BCG vaccination irrespective of whether they had BCG or BCG revaccination in the past. However, since 1999, those who had known history of BCG in the past were advised not to have TT/BCG. Hence, this would probably decrease the TT positive rate since then.

Part 4

SUPPLEMENT

Contents

Supplement

1 Chemotherapy of Tuberculosis in Hong Kong – Update in 2001
2 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)

CHEMOTHERAPY OF TUBERCULOSIS IN HONG KONG

UPDATE IN 2001

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

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ABSTRACT

This is an update of the previous consensus statement on chemotherapy of tuberculosis published in 1998. More detailed recommendations have been provided to facilitate management of patients in a number of special settings like HIV infection, liver and renal dysfunction. A new section on geriatric tuberculosis has also been added to take into account of the increasing number of elderly tuberculosis patients within the local community. The usual dosages of second-line anti-tuberculosis drugs are incorporated, as are the common adverse reactions of both first and second-line drugs. It is hoped that this enriched statement may serve as a concise reference for chemotherapy of tuberculosis in Hong Kong.

Overall, directly observed treatment remains the mainstay of anti-tuberculosis chemotherapy. A 6-month standard combination regimen with four drugs in the initial phase is recommended for uncomplicated new cases of pulmonary tuberculosis, while a 9-month standard regimen starting with 5 drugs is recommended for retreatment cases. Multidrug-resistant tuberculosis requires individually tailored treatment regimens as guided by drug susceptibility testing. Recommendations for extrapulmonary tuberculosis are based on relatively limited data. Shorter regimens may be acceptable in some situations when better evidences accrue. A longer duration of treatment is generally required for patients with diabetes mellitus, silicosis and immunocompromization. During pregnancy, streptomycin should be avoided and the safety of most second-line agents has not yet been ascertained. Potentially hepatotoxic agents should be used with caution in patients with liver dysfunction. The renal route of elimination of streptomycin, ethambutol and some second-line agents necessitates caution and dosage reduction in case of renal impairment.

Key words: Antituberculosis agents; Pulmonary tuberculosis; *Extra-pulmonary tuberculosis; Hong Kong*

INTRODUCTION

Tuberculosis (TB) remains a very important infectious disease in Hong Kong. In 2000, there were 7,578 notifications of TB and 299 deaths, which corresponded to crude notification and death rates of 111.7 per 100,000 and 4.4 per 100,000, respectively. As TB can affect organ systems other than the lungs, doctors practising in various specialties may sometimes need to manage patients with this disease. This is an update of the previous consensus statement on chemotherapy of TB published in 1998[1]. This updated statement has been prepared on behalf 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 Hong Kong Hospital Authority. The multitude of possible situations involving TB precludes an in-depth discussion of each in this concise statement[2-8]. Though not exhaustive, it may still serve as a primary reference in antituberculosis chemotherapy. The clinical situations are broadly classified into several categories. In each category, recommendations on the treatment regimens are made. As accrual of new scientific data is always ongoing, periodic updating of such information will inevitably be required.

It is desirable for TB patients to be managed by or in consultation with doctors

experienced in this field. Proper pretreatment assessment and careful monitoring during treatment are necessary. While a treatment protocol is mandatory for programme purpose, flexibility as tailored to individual patient's clinical status is often needed. Drug adherence is crucial for treatment success and prevention of drug resistance. As far as possible, all antituberculosis drugs should be administered using "directly observed treatment" to meet the purpose[6-8]. Apart from giving antituberculosis drugs, adjunctive measures such as short courses of corticosteroids can be useful in managing TB pericarditis, advanced stages of TB meningitis, certain cases of TB lymphadenitis, TB pleural effusion, TB pyrexia, genitourinary TB, and some other extrapulmonary forms of TB[9,10]. These can also be used to suppress severe hypersensitivity reactions to antituberculosis drugs. Public health measures should also be taken. All cases of TB must be notified to the Department of Health using notification form DH1A(s)(Rev.99). Proper completion of all items in the form is essential to provide comprehensive data on the surveillance of the disease.

Section I: pulmonary tuberculosis
Category A: uncomplicated tuberculosis
Category A1: new cases
Recommendation* 2HRZ+(E or S) / 4 HR

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* *Notations used for TB treatment regimens in this consensus statement:*

Drugs: *E, ethambutol; H, isoniazid; R, rifampicin; S, streptomycin; Z, pyrazinamide*

Duration: *this is shown by the figures (in months) in front of the drug combinations; the slash "/" is used to separate different phases of treatment*

Frequency: *this is shown by the subscripts attached to the individual drugs (i.e. subscript "3" indicates thrice weekly administration) and absence of subscript indicates daily administration*

Four drugs — isoniazid, rifampicin, pyrazinamide, and either ethambutol or streptomycin — are recommended for the initial 2-month phase of treatment[6-8], as the rate of initial resistance to isoniazid is more than 4% in Hong Kong. Two drugs — isoniazid and rifampicin — are recommended for the 4-month continuation phase[6-8], which makes a total treatment duration of 6 months.

The drugs may be given on a daily or thrice-weekly basis in both the initial and the continuation phase[7]. Studies have shown that daily administration for 2 months followed by thrice-weekly treatment for 4 months can be equally efficacious[3,6,7]. The recommended dosages are listed in Table 1. The existing service programme in the chest clinics is intermittently administered chemotherapy throughout the 6 months[5,11] and is suitable for patients who are receiving ambulatory treatment right from the start of therapy. This regimen can also be considered for those in-patients who have uncomplicated TB and are soon ready for discharge to chest clinics for continuation of ambulatory chemotherapy.

For patients with extensive disease, the 2-month initial phase may be extended to 3 or 4 months, depending on clinical, bacteriological, and radiological responses, while the total duration of treatment may still remain at 6 months. An occasional patient may need prolongation of therapy to beyond 6 months. If there is a suspicion of drug-resistant TB (e.g. in contacts of patients with drug-resistant TB), the initial phase of treatment may be similarly

extended, pending the conventional drug susceptibility test (ST) results, if rapid susceptibility studies are not available.

Category A2: retreatment cases
Recommendation 3(4)HRZES / 6(5)HR±E

Five drugs — isoniazid, rifampicin, pyrazinamide, ethambutol, and streptomycin — are recommended for the initial 3 to 4 months[7], depending on the timing of the availability of ST results, the rate of smear conversion, extent of disease, and probability of drug resistance. Isoniazid and rifampicin (also with ethambutol if the disease is extensive or the ST pattern is unknown) are recommended for the continuation phase; the total treatment duration is 9 months. If the ST results that are available subsequently are unfavourable, the above regimen may need to be modified (see Category B).

Category B: drug-resistant tuberculosis

Comparative less supporting data are available for categorical recommendation of regimens for the treatment of drug-resistant TB[12]. It is important to avoid the "addition phenomenon"[13] — namely, adding a single drug to a failing regimen. Otherwise, acquired resistance to the newly added drug may develop. Instead, add at least 2, 3, or more drugs to which the organisms are known to be susceptible, or which have not already been taken by the patient. To assist in the management of drug-resistant TB, the following regimens are suggested for reference.

Category B1: resistance to isoniazid alone
Recommendations[2-4,14,15]

(1) If the ST pattern is known before starting treatment:
   (a) **2 SRZE / 7 RZE** *or*
   (b) **12 RZE**

(2) If ST results are reported during treatment of new cases (as in category A1):
   During treatment, the ST results may become available during the continuation phase when using the drug combination of isoniazid with rifampicin. If resistance to isoniazid is noted, the treatment regimen should be changed to the daily administration of rifampicin, pyrazinamide, and ethambutol as follows:
   2HRZ + (E or S) / (1-2) HR ± E / (9-8) RZE
   Apart from these regimens, clinical trials have also shown that other regimens, such as **6HRZ + (E or S)** are useful in isoniazid-resistant disease. Regimens such as **2HRZS / $4H_3R_3$** and **$2H_3R_3Z_3S_3$ / $2H_3R_3S_3$ / $2H_3R_3$** are also acceptable regimens and have a relapse rate of ≤10%.

(3) If ST results are reported during retreatment, the following regimen is recommended:
   (3-4) HRZES / (9-8) RZE

Category B2: resistance to rifampicin alone
Recommendations[16]

(1) If the ST pattern is known before starting treatment, the following regimen can be given for a total duration of 18 months, or 12 months after sputum culture conversion to negative:
   (a) **(3-4) HZES / (15-14) HZE** *or*
   (b) **18 HZE**

(2) If ST results are reported during treatment for new cases, the following can be given for a total duration of 18 months, or 12 months after negative culture:
   2HRZ + (E or S) / (1-2) HR ± E / (15-14) HZE
   However, if before changing to a combination of isoniazid, pyrazinamide, and ethambutol, additional acquired resistance to isoniazid is also suspected or the treatment response is unsatisfactory (e.g. if the sputum remains positive for acid-fast bacilli), isoniazid, pyrazinamide, and ethambutol with streptomycin (or other drugs) can be given in the third phase, until the new ST results are available.

(3) If the ST results are reported during retreatment, the following can be given for a total duration of 18 months, or 12 months after negative culture:
   (3-4) HRZES / (15-14) HZE

Category C: multidrug-resistant tuberculosis

For the treatment of multidrug-resistant TB (MDR-TB) — that is, TB caused by bacilli that are resistant to at least isoniazid and rifampicin in vitro, a combination of drugs to which the organism is, or is likely to be, susceptible should be used. This usually comprises 5 or 6 drugs for the initial 6 months and then 3 or 4 drugs subsequently[13]. Apart from the first-line anti-TB drugs (ethambutol and pyrazinamide), other drugs available include the fluoroquinolones (e.g. ofloxacin, levofloxacin, ciprofloxacin), aminoglycosides (kanamycin or amikacin), capreomycin, prothionamide / ethionamide, cycloserine, para-aminosalicylic acid, and clofazimine. The dosages of such drugs are shown in Table 2.

The optimum duration of therapy for MDR-TB has not yet been clearly identified. Some authorities recommend a total duration of at least 18 months after culture negativity[13]. However, local experience suggests that, with adequate multidrug-treatment regimens, and the inclusion of fluoroquinolones to which the bacilli are still susceptible, the total duration may be shortened to 12 to 15 months[17]. A longer duration may be required for patients with diabetes mellitus, silicosis, slow sputum culture conversion, or extensive disease.

Treatment should be conducted in specialized centres[13]. It is essential to monitor the clinical, radiological, and most importantly bacteriological progress[17]. Caution is to be exercised in the use of second-line drugs, as they are often associated with significant side effects[13,17].

Section II: extrapulmonary tuberculosis

As there have been few large-scale studies on the treatment of extrapulmonary TB, consensus is often lacking, especially in relation to the duration of treatment. The following

regimens are recommended as reference to assist in the management of extrapulmonary TB. These recommendations are based on limited current evidence and local experience, and may have to be further modified as better evidence for shorter regimens emerge, or as experience accumulates. Generally speaking, the initial phase should be advisably given on a daily basis. Adjunctive corticosteroid therapy can be useful as previously alluded.

Category A: tuberculous meningitis (including central nervous system tuberculoma)
Recommendation[6,8,18,19] **3 HRZE ± S / 9 HR ± E**

Depending on computed tomography findings and treatment response, some authorities may further prolong the total duration of treatment for central nervous system tuberculoma. Extended treatment may also be considered for those presenting at an advanced stage (e.g. stage III) of TB meningitis. On pharmacokinetic consideration in relation to cerebrospinal fluid penetration, there may be a role of giving pyrazinamide for more than 3 months, especially in those cases where the earlier response is not entirely satisfactory.

Category B: miliary tuberculosis [6,8]
Recommendation 3 HRZ + (E or S) / 9 HR ± E

Category C: tuberculosis of bone and joint [6,8]
Recommendation 2 HRZ + (E or S) / 10 HR

The total duration of treatment may be reduced to 6 or 9 months in the case of TB of the spine or in other settings with mild disease.

Category D: tuberculous lymphadenitis [6,8,20]
Recommendations

(1) For peripheral disease which commonly involves the cervical region and where there are only solitary / few affected lymph nodes together with normal chest X-ray, the same treatment as stipulated in Section I, Category A1 should be given for a total duration of 6 months.

(2) Other situations are treated using the same regimen as in Section I, Category A1, but with the continuation phase extended such that the total duration of treatment is 9 months. One such situation is peripheral cervical lymphadenopathy with the same setting as (1) above but involving many, enlarged lymph nodes, or supraclavicular lymph nodes (with or without the chest X-ray showing active TB). Another such situation is mediastinal lymphadenopathy as detected by computed tomography or plain chest X-ray, and confirmed histologically.

It has to be noted that the clinical response of TB lymph nodes during treatment may be quite unpredictable, sometimes with paradoxical increases in size probably due to immunological reactions. Residual nodes may still be palpable after completing the full course of treatment

Category E: tuberculous pericarditis, tuberculous peritonitis, and genitourinary

tuberculosis

The recommendation is the same as in Section I, Category A1[6,8,21,22], but the continuation phase is extended such that the total duration of treatment becomes 9 months. For some cases that involve limited gut and genitourinary disease, 6 months of treatment may be adequate. One study on tuberculous pericarditis has shown that 3 SHRZ / 3 HR is highly effective[21].

Section III: pulmonary tuberculosis associated with medical diseases or special settings

Category A: diabetes mellitus

The recommendation is the same as in Section I, Category A1, but the continuation phase is extended such that the total duration of treatment becomes 9 months.

Category B: immunocompromised patients

The recommendation is the same as in Section I, Category A1, but the continuation phase is extended such that the total duration of treatment becomes 9 months. For patients infected with the **human immunodeficiency virus**, the total duration of treatment should be 9 months[23,24], or at least 4 months after culture conversion to negative. Rifampicin should generally not be used when patient is receiving a HIV-protease inhibitor and/or a non-nucleoside reverse transcriptase inhibitor. Rifabutin can be substituted for use together with some HIV-protease inhibitors. Efavirenz can be used with rifampicin or rifabutin, though the latter requires some increase in dosage. Alternatively, non-rifampicin regimens (such as isoniazid + pyrazinamide + streptomycin ± ethambutol), albeit less potent, can be used for extended durations to avoid clinically significant drug interactions. For retreatment and drug-resistant cases in immunocompromised subjects, the regimens are essentially similar to those immunocompetent patients except that a longer duration of treatment is required. Universal precaution and infection control measures should be strictly observed if drugs are to be given by injection.

Category C: pregnancy

Basically, rifampicin, isoniazid, ethambutol, and pyrazinamide can still be used, although the manufacturers of rifampicin advise caution during pregnancy. Pyridoxine is sometimes recommended for pregnant women receiving isoniazid. Streptomycin should be avoided because of ototoxicity to the foetus. The safety profiles of the second-line drugs and ofloxacin have not been ascertained and thus these drugs should also be avoided. The taking of antituberculous drugs is by itself not an absolute contra-indication to breast feeding[6-8,25].The infectiousness of the mother, however, must be considered. The interested reader can refer to the new detailed guidelines from World Health Organization[26].

Category D: children

The treatment regimens are essentially similar to those for adults[6,8,25], except that

ethambutol should be avoided in children until they are at least 6 years old[8,25] and capable of reporting symptomatic visual changes accurately. The drug dosages need to be calculated according to the body weight and may have to be adjusted, especially during the period of adolescent growth spurt.

Category E: silico-tuberculosis

A longer duration of treatment is required for patients with silico-tuberculosis. The recommendations[27,28] are as follows:

(1) new cases
   (a) **8 $H_3R_3Z_3$ + (E_3 or S_3)** *or*
   (b) **2 HRZ + (E or S) / 7 HR**

(2) retreatment cases
   (a) **3 $H_3R_3Z_3E_3S_3$ / 5 $H_3R_3Z_3$ + (E_3 or S_3)** *or*
   (b) **3 HRZES / 6 HR±E**

The former regimen, (a) is likely associated with a higher success rate but the tolerance is questionable (≥20% intolerance especially to streptomycin and / or pyrazinamide).

Category F: geriatric tuberculosis

Basically, the treatment of tuberculosis in the elderly should not markedly differ from that in the younger population. However, due regard must be paid to the physiological, psychological and social changes as well as the increased prevalence of co-morbidity that may be associated with aging. As the risk of hepatotoxicity is much higher[29] especially in those with malnourishment, some individual tailoring of dosage, say by using isoniazid 200 mg instead of 300 mg once daily and pyrazinamide 1 gm instead of 1.5 gm once daily may appear warranted. Pyridoxine supplement should also be considered for those with poor nutritional intake or at increased risk of neuropathy. When the drug susceptibility pattern of the cultured bacilli is known to be favourable, use of rifampicin and isoniazid together may prove sufficient[30] for diseases with limited bacillary load. A total duration of 9 months is required for co-administration of these 2 drugs. Use of ethambutol can be problematic in many old patients with poor baseline visual function and / or difficulty in assessing visual acuity.

Category G: liver dysfunction

Transient changes in bilirubin and alanine transaminase levels are relatively common during antituberculosis chemotherapy and do not signify true hepatotoxicity. Drug-induced hepatitis which occurs more commonly in patients with compromised liver reserve such as in chronic hepatitis B and C infection and alcoholic liver disease[6,31,32] necessitates cessation of therapy. Although it is somewhat controversial whether routine monitoring of liver function tests is required in patients receiving antituberculosis drugs, those at risk should be managed with vigilance both clinically and biochemically.

When the tuberculous disease is mild or has improved markedly, one can wait until the liver chemistry has normalized before retrial of the conventional antituberculosis drugs, by gradual re-institution. Whenever possible, isoniazid and rifampicin should be included in the regimen, so that treatment duration will not be unduly prolonged.

In the face of extensive disease when delay in therapy might be detrimental to the patient's health, ofloxacin can be used together with streptomycin and ethambutol as an interim regimen for treatment[33]. This has been found to be safe and efficacious for the majority of such patients. Incorporation of ofloxacin as a component of a definitive regimen should only be considered when the patient cannot tolerate the co-administration of rifampicin and isoniazid. The optimum dosage of ofloxacin is unknown. Current experience shows that 400 - 600 mg once daily can be tolerated by most patients in this setting. For levofloxacin, the dosage of 400 mg once daily may be employed, pending accumulation of more experience. The fluoroquinolones' dosages should be tailored to age, body weight, renal function, extent of disease, and the number of accompanying drugs. The optimum duration of ofloxacin plus either rifampicin or isoniazid together with ethambutol as a definitive therapeutic regimen is unknown, and appears to be at least 1 year.

Category H: renal impairment

The development of antituberculosis drug-related renal impairment necessitates the withdrawal of the drug(s). Examples include streptomycin and rifampicin. In general, isoniazid, rifampicin and pyrazinamide can be used in normal dosages in the face of renal impairment.[7,8,25] In severe renal impairment, the dosage of isoniazid should be reduced to 200 mg once daily and pyridoxine supplementation is needed to prevent the development of peripheral neuropathy. Streptomycin and aminoglycosides should be avoided[7,8,25] or must have dosages adjusted in the presence of renal impairment. Ethambutol is also predominantly removed by the kidney. Dosage reduction is also mandatory[7,8,25]. In patients with creatinine clearances of 50 - 100 ml/min, ethambutol at 25 mg/kg thrice-weekly can be given; for patients with creatinine clearances of 30 - 50 ml/min, the same dose should be given twice a week. With lower creatinine clearance (10 - 30 ml/min), a dosage of 15 mg/kg at 48 - 36 hour intervals has been suggested. Therapeutic drug monitoring of streptomycin and ethambutol concentrations in serum may help to optimize therapy and minimize toxicity. Ofloxacin and ciprofloxacin are also dependent on renal clearance and dosage reduction in the presence of renal impairment must be made accordingly.

Isoniazid has previously been shown to be significantly removed by haemodialysis[34], but a recent study showed that the median isoniazid recovery in the dialysate was only 9.2%, suggesting that hepatic metabolism remains the primary mechanism of clearing isoniazid[35]. Rifampicin is not significantly removed by haemodialysis[34-36]. Both of them may be given in their usual daily dosage[35,37]. Haemodialysis removal of pyrazinamide is significant[35]. Its primary metabolite, pyrazinoic acid, has been shown to accumulate in patients with renal failure. It is still not clear whether dosage reduction or spacing is required for patients on haemodialysis and receiving pyrazinamide[35,36]. A dosage of 25-30 mg/kg thrice per week has been recommended by some authorities[35], whereas 40 mg/kg thrice per week has been recommended by others[37]. Ethambutol can still be given at a dosage of 15-25 mg/kg

thrice per week[25,35,37]. Regarding the timing of administration of drugs, some authorities have recommended dosing 6 to 24 hours prior to haemodialysis[37], while others have recommended post-dialysis treatment[35].

Section IV: use of fixed-dose combination tablets

Use of fixed-dose combination tablets (FDC) can provide a number of advantages. These include reduced chance of development of acquired drug resistance, simplification in prescribing effective regimens by physicians, improvement in patient adherence and lessened risk of inappropriate use of rifampicin[6-8,25]. However, there are also possible disadvantages such as compromised efficacy due to preparations with suboptimum bioavailability, higher cost and lack of flexibility in dosing[7]. More experience is required to recommend widespread use of FDC under programme setting[25]. Current and future preparations include combinations of rifampicin, isoniazid, pyrazinamide and ethambutol in various ways. However, the presently available combinations in Hong Kong include only rifater (R + H + Z) and rifinah (R + H).

Appendix I Adverse reactions to antituberculosis drugs

Drug	Reactions		
	Common	**Uncommon**	**Rare**
Isoniazid		Hepatitis Cutaneous hypersensitivity Peripheral neuropathy	Giddiness Convulsion Optic neuritis Mental symptoms Haemolytic anaemia Aplastic anaemia Lupoid reactions Arthralgia Gynaecomastia
Rifampicin		Hepatitis Cutaneous hypersensitivity Gastrointestinal reactions Thrombocytopenic purpura Febrile reactions "Flu syndrome"	Shortness of breath Shock Haemolytic anaemia Acute renal failure
Pyrazinamide	Anorexia Nausea Flushing	Hepatitis Vomiting Arthralgia Cutaneous reaction	Sideroblastic anaemia
Ethambutol		Retrobulbar neuritis Arthralgia	Hepatitis Cutaneous reaction Peripheral neuropathy
Streptomycin	Cutaneous hypersensitivity Giddiness Numbness Tinnitus	Vertigo Ataxia Deafness	Renal damage Aplastic anaemia
Thiacetazone	Gastrointestinal reactions Cutaneous hypersensitivity Vertigo Conjunctivitis	Hepatitis Erythema multiforme Exfoliative dermatitis Haemolytic anaemia	Agranulocytosis

Amikacin Kanamycin Capreomycin	Ototoxicity: hearing damage, vestibular disturbance Nephrotoxicity: deranged renal function test	Clinical renal failure	
Ofloxacin Ciprofloxacin	Gastrointestinal reactions Insomnia	Anxiety Dizziness Headache Tremor	Convulsion
Ethionamide Prothionamide	Gastrointestinal reactions	Hepatitis Cutaneous reactions Peripheral neuropathy	Convulsion Mental symptoms Impotence Gynaecomastia
Cycloserine	Dizziness Headache Depression Memory loss	Psychosis Convulsion	Sideroblastic anaemia
Para-aminosalicylic acid	Gastrointestinal reactions	Hepatitis Drug fever	Hypothyroidism Haematological reactions

Table 1 Usual dosages of conventional antituberculosis drugs

Drug	Daily dosage			Intermittent dosage		
	Adults and children (mg/kg)	Adults		Adults and children (mg/kg)	Adults	
		Weight (kg)	Dose		Weight (kg)	Dose
Isoniazid [*] [@]	5	–	300 mg [#]	10-15 three times/week	–	–
Rifampicin [*]	10	<50	450 mg	10-12 three times/week	–	600 mg
		≥50	600 mg			
Streptomycin [*]	12-15	<50	500-750 mg	12-15	<50	500-750 mg
		≥50	750 mg		≥50	750-1000mg
Pyrazinamide	25-30	<50	1.0-1.5 g	30-40 three times/week	<50	2.0 g
		≥50	1.5-2.0 g		≥50	2.5 g
Ethambutol	15	–		30 three times/week	–	–
Thiacetazone [*]	2.5	–	150 mg	–	–	–
Rifater		per 10 kg	1 tablet			
		>50 kg	5 tablets			

[*] *Some authorities recommend higher dosages of isoniazid, rifampicin, streptomycin, and thiacetazone for children.*

[#] *Some elderly and/or malnourished patients can only tolerate isoniazid 200 mg daily.*

[@] *Pyridoxine supplement should be considered for those with malnutrition or at risk of neuropathy, e.g. pregnancy, diabetes mellitus, alcoholism, chronic renal failure, and HIV infection.*

Table 2 Usual dosages of second-line antituberculosis drugs in the treatment of MDR-TB

Drug	Daily dosage			
	Adults and children (mg/kg)	Adults		
		Weight (kg)	Dosage	
Amikacin	15		750 mg	three to five times/week
Kanamycin	15		750 mg	
Capreomycin	15		750 mg	
Ofloxacin			600-800 mg	
Levofloxacin			500-600 mg	
Ciprofloxacin			750-1500 mg	
Ethionamide	15	<50	500-750 mg	
Prothionamide	(adults)	≥50	750-1000 mg	
Cycloserine	15	<50	500-750 mg	
	(adults)	≥50	750-1000 mg	
Para-aminosalicylic acid	2 g/10 kg		10-12 g	

REFERENCES

1. 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. Chemotherapy of tuberculosis in Hong Kong: a consensus statement. Hong Kong Med J 1998;4:315-20.
2. Hong Kong Chest Service / British Medical Research Council. Five-year follow-up of a controlled trial of five 6-month regimens of chemotherapy for pulmonary tuberculosis. Am Rev Respir Dis 1987;136:1339-42.
3. Singapore Tuberculosis Service / British Medical Research Council. Five-year follow-up of a clinical trial of three 6-month regimens of chemotherapy given intermittently in the continuation phase in the treatment of pulmonary tuberculosis. Am Rev Respir Dis 1988;137:1147-50.
4. Hong Kong Chest Service / British Medical Research Council. Controlled trial of 2, 4, and 6 months of pyrazinamide in 6-month, three-times-weekly regimens for smear-positive pulmonary tuberculosis, including an assessment of a combined preparation of isoniazid, rifampin, and pyrazinamide - results at 30 months. Am Rev Respir Dis 1991;143:700-6.
5. Chan SL, Wong PC, Tam CM. 4-, 5- and 6-month regimens containing isoniazid, rifampicin, pyrazinamide and streptomycin for treatment of pulmonary tuberculosis under programme conditions in Hong Kong. Tuber Lung Dis 1994;75:245-50.
6. Bass JB Jr, Farer LS, Hopewell PC, et al. Treatment of tuberculosis and tuberculosis infection in adults and children. American Thoracic Society and The Centers for Disease Control and Prevention. Am J Respir Crit Care Med 1994;149:1359-74.
7. World Health Organization. Treatment of tuberculosis - guidelines for national programmes 1997. WHO, Geneva, 1997.
8. Joint Tuberculosis Committee of the British Thoracic Society. Chemotherapy and management of tuberculosis in the United Kingdom: recommendations 1998. Thorax 1998;53:536-48.
9. Alzeer AH, FitzGerald JM. Corticosteroids and tuberculosis: risks and use as adjunct therapy. Tuber Lung Dis 1993;74:6-11.
10. Dooley DP, Carpenter JL, Rademacher S. Adjunctive corticosteroid therapy for tuberculosis: A critical reappraisal of the literature. Clin Infect Dis 1997;25:872-87.
11. Tam CM, Chan SL, Lam CW et al. Rifapentine and isoniazid in the continuation phase of treating pulmonary tuberculosis. Initial report. Am J Respir Crit Care Med 1998;157:1726-33.
12. Mitchison DA, Nunn AJ. Influence of initial drug resistance on the response to short-course chemotherapy of pulmonary tuberculosis. Am Rev Respir Dis 1986;133:423-30.
13. Crofton J, Chaulet P, Maher D. Guidelines for the management of drug-resistant tuberculosis WHO/TB/96.210 (Rev 1) World Health Organization, Geneva 1997.
14. Davidson PT. Drug resistance and the selection of therapy for tuberculosis. Am Rev Respir Dis 1987;136:255-7.
15. Babu Swai O, Aluoch JA, Githui WA et al. Controlled clinical trial of a regimen of two durations for the treatment of isoniazid resistant pulmonary tuberculosis. Tubercle 1988;69:5-14.
16. Barnes PF, Bloch AB, Davidson PT, Snider DE Jr. Tuberculosis in patients with human immunodeficiency virus infection. N Engl J Med 1991;324:1644-50.
17. Yew WW, Chan CK, Chau CH et al. Outcomes of patients with multidrug-resistant pulmonary tuberculosis treated with ofloxacin / levofloxacin-containing regimens. Chest 2000;117:744-51.
18. Humphries M. The management of tuberculous meningitis [editorial]. Thorax 1992;47:577-81.
19. Ellard GA, Humphries MJ, Allen BW. Cerebrospinal fluid drug concentration and the treatment of tuberculous meningitis. Am Rev Respir Dis 1993;148:650-5.
20. Yuen AP, Wong SH, Tam CM, Chan SL, Wei WI, Lau SK. Prospective randomized study of thrice weekly six-month and nine-month chemotherapy for cervical tuberculous lymphadenopathy. Otolaryngol Head Neck Surg 1997;116:189-92.
21. Strang JI, Kakaza HH, Gibson DG, Girling DJ, Nunn AJ, Fox W. Controlled trial of prednisolone as an adjuvant in treatment of tuberculous constrictive pericarditis in Tvanskei.

Lancet 1987, ii:1418-22.
22. Balasubramanian R, Nagarajan M, Balambal R et al. Randomized controlled clinical trial of short course chemotherapy in abdominal tuberculosis: a five-year report. Int J Tuberc Lung Dis 1997;1:44-51.
23. Scientific Committee of the Advisory Council on AIDS, Hong Kong. Prevention and management of tuberculosis in HIV infected patients in Hong Kong - an information paper. April 1995. Hong Kong: Scientific Committee of the Advisory Council on AIDS, 1995.
24. Havlir DV, Barnes PF. Tuberculosis in patients with human immunodeficiency virus infection. N Engl J Med 1999;340:367-73.
25. ERS, WHO, IUATLD (Europe Region) Task Force. Tuberculosis management in Europe: Recommendations of a task force of the European Respiratory Society, the World Health Organization and the International Union against Tuberculosis and Lung Disease (Europe Region). Eur Respir J 1999;14:978-92.
26. WHO (Division of Child Health Development). Breastfeeding and maternal tuberculosis. 1998;23:1-4.
27. Lin TP, Suo J, Lee CN, Lee JJ, Yang SP. Short-course chemotherapy of pulmonary tuberculosis in pneumoconiotic patients. Am Rev Respir Dis 1987;136:808-10.
28. Hong Kong Chest Service / Tuberculosis Research Centre, Madras / British Medical Research Council. A controlled clinical comparison of 6 and 8 months of antituberculosis chemotherapy in the treatment of patients with silicotuberculosis in Hong Kong. Am Rev Respir Dis 1991;143:262-7.
29. Gronhagen-Riska C, Hellstrom PE, Froseth B. Predisposing factors in hepatitis induced by isoniazid-rifampin treatment of tuberculosis. Am Rev Respir Dis 1978;118:461-6.
30. Stead WW. Tuberculosis among elderly persons, as observed among nursing home residents. Int J Tuberc Lung Dis 1998;2:S64-S70.
31. Ungo JR, Jones D, Ashkin D et al. Antituberculosis drug-induced hepatotoxicity: The role of Hepatitis C and the human immunodeficiency virus. Am J Respir Crit Care Med 1998;157:1871-6.
32. Wong WM, Wu PC, Yuen MF et al. Antituberculosis drug-related liver dysfunction in chronic hepatitis B infection. Hepatology 2000;31:201-6.
33. Yew WW, Lee J, Wong PC, Kwan SYL. Tolerance of ofloxacin in treatment of pulmonary tuberculosis in presence of hepatic dysfunction. Int J Clin Pharm Res 1992;XII:173-8.
34. Andrew OT, Schoenfeld PY, Hopewell PC, Humphreys MH. Tuberculosis in patients with end-stage renal disease. Am J Med 1980;68:59-65.
35. Malone RS, Fish DN, Spiegel DM, Childs JM, Peloquin CA. The effect of hemodialysis on isoniazid, rifampin, pyrazinamide and ethambutol. Am J Respir Crit Care Med 1999;159: 1580-4.
36. Swan SK, Bennett WM. Use of drugs in patients with renal failure in Schrier RW, Gottschalk CW (eds). Diseases of the kidney 6th Edition, Volume 3, 1997, New York Little Brown pp2968-3011.
37. Ellard GA. Chemotherapy of tuberculosis for patients with renal impairment. Nephron 1993;64:169-181

FORM 1

QUARANTINE AND PREVENTION OF DISEASE ORDINANCE

(Cap. 141)

TUBERCULOSIS NOTIFICATION

Particulars of Infected Person

<table>
<tr><td colspan="3">Name in English</td><td colspan="2">Name in Chinese</td><td colspan="2">Age/Sex:</td><td>I.D. Card/Passport No.</td></tr>
<tr><td colspan="7">Address:</td><td>Telephone Number:</td></tr>
<tr><td colspan="7">Place of Work/
School Attended:</td><td>Telephone Number:</td></tr>
<tr><td colspan="2">Site of TB</td><td colspan="3">Sputum</td><td colspan="2">Disposal</td><td rowspan="5">Hospital/Clinic sent to (if any):</td></tr>
<tr><td>Resp. System</td><td></td><td></td><td>Smear</td><td>Culture</td><td>On Treatment</td><td></td></tr>
<tr><td>Meninges</td><td></td><td>Positive</td><td></td><td></td><td>On Observation</td><td></td></tr>
<tr><td>Bone & Joint</td><td></td><td>Negative</td><td></td><td></td><td>Referred</td><td></td><td rowspan="3">Hospital No.:</td></tr>
<tr><td>Other(s)</td><td></td><td>Unknown</td><td></td><td></td><td>Died</td><td></td></tr>
<tr><td colspan="8">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: _____</td></tr>
</table>

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:

DH 1A(s)(Rev.99)

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, Habour Building
38, Pier Road
Central
Hong Kong