

Tuberculosis Annual Report 2009
Series 10. Treatment Outcome and TB Deaths

Tuberculosis Surveillance Center, RIT, JATA

Abstract Evaluation of the treatment outcome by the cohort analysis method is an important part of tuberculosis (TB) control. In the Japanese TB surveillance system, the treatment outcome is automatically classified by computer according to a pre-set algorithm, so the treatment outcome is evaluated very rigidly.

In the case of new sputum smear positive pulmonary TB cases (n = 8,999) newly notified in 2008, the patients treatment outcomes based on the annual report 2009 database was as follows; “success” which combined “cured” and “completed” was 47.7%, “died” was 19.1%, “failed” was 1.1%, “defaulted” was 3.8%, “transferred out” was 2.8%, “on treatment after 12 months” was 11.8% and “not evaluated” was 13.6%.

In addition to evaluation of the treatment outcome by the cohort method, the proportion of deaths was observed among all forms of TB patients (n = 24,571) who were newly registered in 2008. In total, 17.3% of all forms of TB cases died within one year after beginning of treatment. The proportion corresponding to this was 23.7% for new sputum smear positive pulmonary TB and 23.5% for re-treatment sputum smear positive pulmonary TB.

Among the new sputum smear positive pulmonary TB patients (n = 2,136) who died within one year after the beginning of treatment, 37.0% of them died within one month after the beginning of treatment, 51.6% within two months, and 61.9% died within three months.

Key words: Tuberculosis, Sputum smear positive, Cohort, Treatment outcome, Success rate, Death

Research Institute of Tuberculosis, JATA

Correspondence to: Tuberculosis Surveillance Center, Research Institute of Tuberculosis, JATA, 3-1-24, Matsuyama, Kiyose-shi, Tokyo 204-8533, Japan (E-mail: tbsur@jata.or.jp)

Table 1 Treatment outcome of newly notified pulmonary TB patients in 2008 by patient classification based on the cohort method

	Pulmonary TB									
	Total	Sputum smear pos.				Other bacillary pos.	Bacillary neg.			
		New	Retreatment							
New cases in 2008	19,274 (100%)	8,999 (100%)	826 (100%)	6,172 (100%)	3,277 (100%)					
Success	9,730 50.5	4,295 47.7	352 42.6	3,316 53.7	1,767 53.9					
Cured	2,682 13.9	1,580 17.6	136 16.5	708 11.5	258 7.9					
Completed 1	5,882 30.5	2,413 26.8	195 23.6	1,765 28.6	1,509 46.0					
Completed 2	1,166 6.0	302 3.4	21 2.5	843 13.7	0 0.0					
Died	2,724 14.1	1,719 19.1	161 19.5	644 10.4	200 6.1					
Failed	151 0.8	101 1.1	10 1.2	37 0.6	3 0.1					
Defaulted	1,515 7.9	343 3.8	28 3.4	645 10.5	499 15.2					
Defaulted 1	164 0.9	55 0.6	8 1.0	57 0.9	44 1.3					
Defaulted 2	1,351 7.0	288 3.2	20 2.4	588 9.5	455 13.9					
Transferred out	498 2.6	253 2.8	22 2.7	123 2.0	100 3.1					
On treatment	1,967 10.2	1,066 11.8	126 15.3	544 8.8	231 7.0					
On Tx 1	251 1.3	124 1.4	21 2.5	80 1.3	26 0.8					
On Tx 2	1,716 8.9	942 10.5	105 12.7	464 7.5	205 6.3					
Not evaluated*	2,689 14.0	1,222 13.6	127 15.4	863 14.0	477 14.6					
Not eval. 1	441 2.3	194 2.2	14 1.7	186 3.0	47 1.4					
Not eval. 2	576 3.0	349 3.9	9 1.1	151 2.4	67 2.0					
Not eval. 3	551 2.9	239 2.7	54 6.5	158 2.6	100 3.1					
Not eval. 4	221 1.1	98 1.1	13 1.6	74 1.2	36 1.1					
Not eval. 5	900 4.7	342 3.8	37 4.5	294 4.8	227 6.9					

*: including those who did not start TB treatment (mostly caused by early death), those whose initial treatment regimen is unknown, those whose treatment is other than standard treatment, those who stopped INH and/or RFP before treatment completion, and those whose information is insufficient for classifying treatment outcome

Table 2 Category codes of treatment outcome and treatment outcome of newly notified new sputum smear positive pulmonary TB patients in 2006–2009 year cohorts

Category	2006	2007	2008
	9,784	9,421	8,999
1 Cured	17.5	16.9	17.6
2 Completed 1	24.7	24.9	26.8
3 Completed 2	4.2	3.8	3.4
4 Died	18.9	18.4	19.1
5 Failed	1.3	1.0	1.1
6 Defaulted 1	0.8	0.7	0.6
7 Defaulted 2	4.4	4.3	3.2
8 Transferred out	3.0	3.2	2.8
9 On Tx 1	1.5	1.7	1.4
10 On Tx 2	10.5	10.3	10.5
11 Not eval. 1	1.5	1.9	2.2
12 Not eval. 2	4.2	4.3	3.9
13 Not eval. 3	2.1	2.5	2.7
14 Not eval. 4	1.1	1.1	1.1
15 Not eval. 5	4.3	5.1	3.8

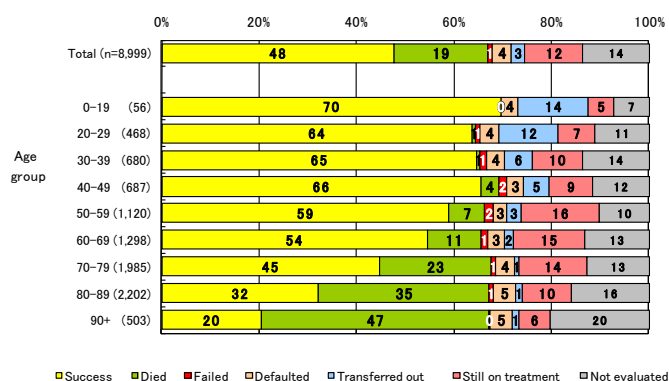


Fig.1 Treatment outcome of newly notified new sputum smear positive pulmonary TB patients in 2008 by patient classification based on the cohort method

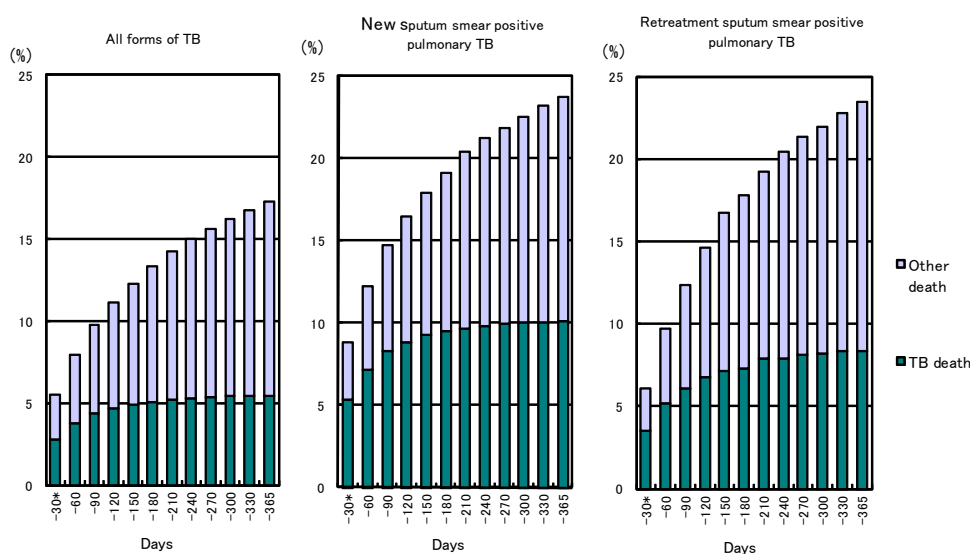


Fig.2 Cumulative proportion of deaths among newly notified TB patients in 2008 by period from the beginning of treatment -30*: including cases who died before the beginning of treatment

Table 3 Number (proportion) of cases cancelled from TB registration at the end of years (2008/2009) among those newly notified TB patients and LTBI cases in previous years (2007/2008) by patient classification

	Newly notified TB patients							(Not included in the total) LTBI
	Total	Pulmonary TB				Extra-pulmonary		
		Sputum smear pos.		Other bacillary pos.	Bacillary neg.			
		New	Retreatment					
New cases in 2007*	25,184(100%)	9,421(100%)	783(100%)	6,010(100%)	3,606(100%)	5,364(100%)	2,942(100%)	
Total of cancellation	7,402 (29.4)	3,086 (32.8)	233 (29.8)	1,433 (23.8)	931 (25.8)	1,719 (32.0)	1,231 (41.8)	
No need for follow-up	1,205 (4.8)	73 (0.8)	11 (1.4)	182 (3.0)	339 (9.4)	600 (11.2)	1,066 (36.2)	
Died	4,889 (19.4)	2,423 (25.7)	177 (22.6)	953 (15.9)	400 (11.1)	936 (17.4)	5 (0.2)	
TB death	1,477 (5.9)	996 (10.6)	73 (9.3)	156 (2.6)	67 (1.9)	185 (3.4)	0 (0.0)	
Other death	3,412 (13.5)	1,427 (15.1)	104 (13.3)	797 (13.3)	333 (9.2)	751 (14.0)	5 (0.2)	
Transferred out	943 (3.7)	455 (4.8)	21 (2.7)	208 (3.5)	129 (3.6)	130 (2.4)	97 (3.3)	
Retreatment during registration	170 (0.7)	68 (0.7)	18 (2.3)	45 (0.7)	21 (0.6)	18 (0.3)	5 (0.2)	
Other reason	195 (0.8)	67 (0.7)	6 (0.8)	45 (0.7)	42 (1.2)	35 (0.7)	58 (2.0)	
New cases in 2008**	2,4571(100%)	8,999(100%)	826(100%)	6,172(100%)	3,277(100%)	5,297(100%)	4,834(100%)	
Total of cancellation	7,371 (30.0)	2,977 (33.1)	274 (33.2)	1,553 (25.2)	831 (25.4)	1,736 (32.8)	2,043 (42.8)	
No need for follow-up	1,132 (4.6)	61 (0.7)	14 (1.7)	196 (3.2)	292 (8.9)	569 (10.7)	1,718 (35.5)	
Died	4,918 (20.0)	2,380 (26.4)	216 (26.2)	1,055 (17.1)	307 (9.4)	960 (18.1)	26 (0.5)	
TB death	1,428 (5.8)	943 (10.5)	70 (8.5)	180 (2.9)	45 (1.4)	190 (3.6)	0 (0.0)	
Other death	3,490 (14.2)	1,437 (16.0)	146 (17.7)	875 (14.2)	262 (8.0)	770 (14.5)	26 (0.5)	
Transferred out	942 (3.8)	393 (4.4)	31 (3.8)	218 (3.5)	163 (5.0)	137 (2.6)	162 (3.4)	
Retreatment during registration	174 (0.7)	80 (0.9)	10 (1.2)	39 (0.6)	21 (0.6)	24 (0.5)	28 (0.6)	
Other reason	205 (0.8)	63 (0.7)	3 (0.4)	45 (0.7)	48 (1.5)	46 (0.9)	109 (2.3)	

*: Based on the annual report database in 2008

** : Based on the annual report database in 2009