

Tuberculosis Annual Report 2009
Series 6. Condition of TB (1)

Tuberculosis Surveillance Center, RIT, JATA

Abstract The condition of tuberculosis (TB) at the time at which an individual is diagnosed with TB influences the patient's prognosis. This paper focuses on the condition of TB at the time of the diagnosis based on bacteriological status and X-ray findings.

The proportion of bacteriologically confirmed cases among newly notified pulmonary TB patients increased greatly from 25.7% in 1979 to 82.7% in 2009. During this period, the proportion of far-advanced cavitary cases among pulmonary TB patients was around 2% and remained stable. This may mean that the diagnosis had come to be performed bacteriologically rather than radiologically.

The proportion of bacteriologically confirmed cases among newly notified pulmonary TB patients in 2009 was studied by sex and 5-year age group. The proportion of bacteriologically confirmed cases increased with age in both male and female TB patients. In male TB patients, the proportion of cavitary cases increased in patients aged up to the end of the 50s and then decreased with age. This tendency was not observed in females. Although the proportion of cavitary cases among elderly TB patients was lower than among youths, the proportion having extensive lesions was greater than that among youths.

The proportion of sputum-smear-positive cases with cavities among pulmonary TB patients aged 30-59 years was 32.9% in male TB patients and 17.1% in female TB patients. According to occupation, this proportion was highest in "temporary workers" (52.6%) for male TB cases and "jobless/others" (24.9%) for female TB cases, and lowest among "medical workers" in both sexes: 8.3% of male TB cases and 7.4% of female TB cases.

Key word: Tuberculosis, Bacillary, Sputum smear positive, X-ray, Cavity, Sex, Age, Occupation

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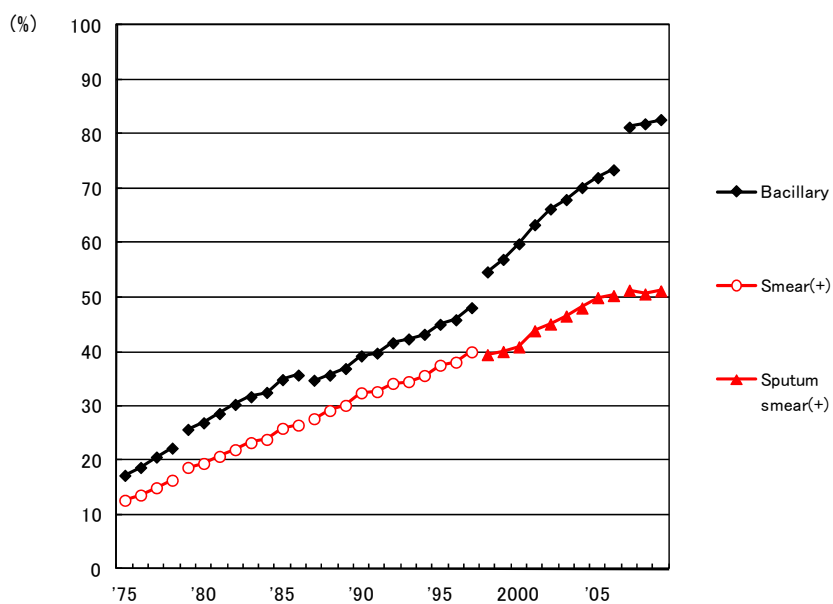


Fig.1 Proportion of bacteriologically confirmed cases among newly notified pulmonary TB patients, 1975–2009

Sources of information and subjects:

Annual TB reports from public health centers

1975–1978: All forms of TB

1979–1986: Pulmonary TB

Nationwide computerized TB surveillance system

1987–1997: Pulmonary TB

1998–2006: Pulmonary TB (New criteria for notification)

2007–2009: Pulmonary TB (Item of nucleic acid amplification was added)

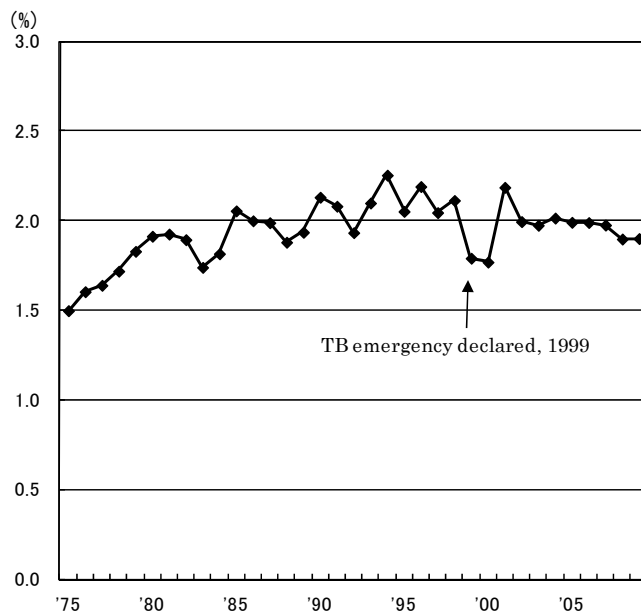


Fig.2 Proportion of far-advanced cavitary cases among newly notified pulmonary TB patients, 1975–2009

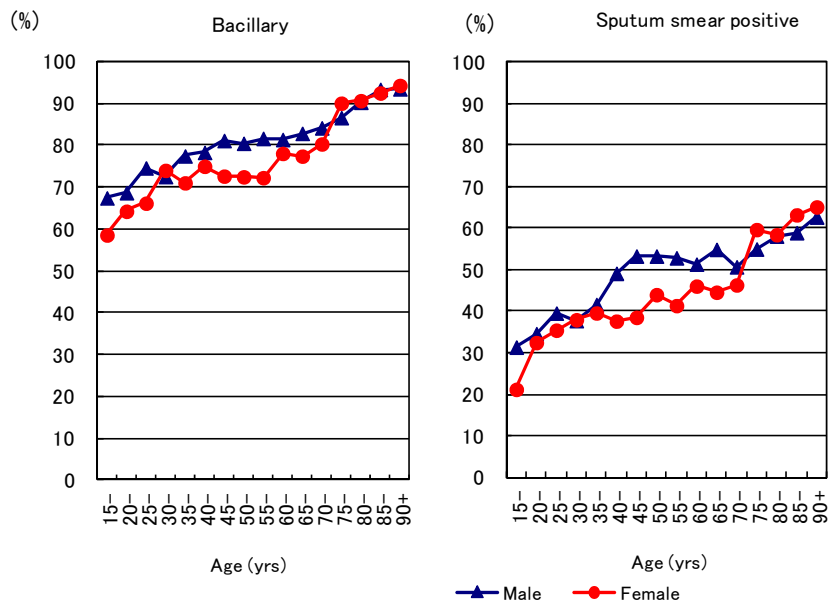


Fig.3 Proportion of bacteriologically confirmed cases among newly notified pulmonary TB patients by sex and 5-year age group, 2009

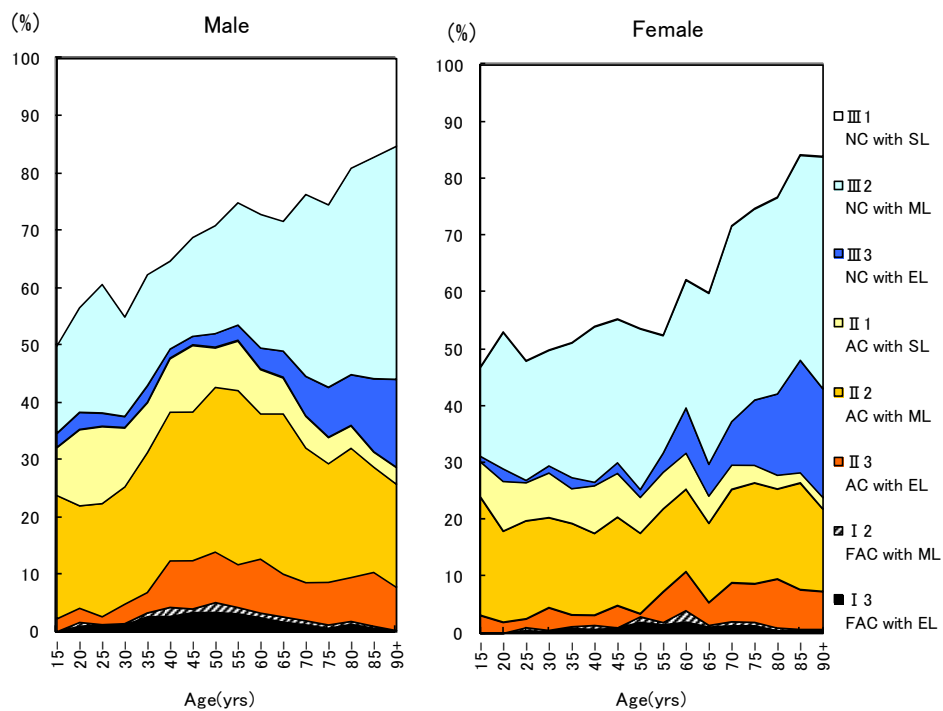


Fig.4 Proportion of cases classified by X-ray Gakkai classification by sex and 5-year age group, 2009

NC : Non-cavitary SL : Slight lesion
 AC : Advanced cavitary ML : Moderate lesion
 FAC : Far-advance cavitary EL : Extensive lesion

Table Proportion of cavitory or/and sputum smear positive cases among newly notified pulmonary TB patients aged 30–59 years, 2009

	Male							Female						
	Pulmonary TB	Cavitory or sputum smear(+)			Cavitory and sputum smear(+)			Pulmonary TB	Cavitory or sputum smear(+)			Cavitory and sputum smear(+)		
		n	%	Ratio	n	%	Ratio		n	%	Ratio	n	%	Ratio
Service workers	191	131	68.6	2.0	66	34.6	4.1	129	63	48.8	1.5	27	20.9	2.8
Medical workers	72	25	34.7	1.0	6	8.3	1.0	270	89	33.0	1.0	20	7.4	1.0
Teachers/ Nursery nurses	23	10	43.5	1.3	6	26.1	3.1	29	10	34.5	1.0	6	20.7	2.8
Other regular workers	1,675	872	52.1	1.5	437	26.1	3.1	447	181	40.5	1.2	56	12.5	1.7
Other temporary/ daily workers	253	192	75.9	2.2	133	52.6	6.3	155	81	52.3	1.6	32	20.6	2.8
Other self-employed	303	210	69.3	2.0	124	40.9	4.9	50	26	52.0	1.6	8	16.0	2.2
Jobless/ Others	843	563	66.8	1.9	350	41.5	5.0	377	213	56.5	1.7	94	24.9	3.4
Others	136	72	52.9	1.5	29	21.3	2.6	351	192	54.7	1.7	67	19.1	2.6
Total	3,496	2,075	59.4		1,151	32.9		1,808	855	47.3		310	17.1	

Others:Houskeepers/ Students/ Unknown

Ratio: The ratio of each proportion to that of medical workers

Tuberculosis Annual Report 2009
Series 7. Condition of TB(2)

Tuberculosis Surveillance Center, RIT, JATA

Abstract We report on the TB surveillance data of 2009 in Japan regarding HIV infection, diabetes and drug susceptibility test results, which were added to the central TB surveillance database from 2007.

In the present TB surveillance system, we cannot obtain reliable data about whether or not HIV tests were done in each case. Thus, we report only the number of TB patients diagnosed as having HIV infection. The number of newly notified TB cases reported as having HIV from 2007-2009 is 176. Of those, 155 (88.1%) were male and 21 (11.9%) were female, and 39 (22.2%) were foreigners.

The frequency of TB-associated diabetes in newly notified TB cases in 2009 was 12.6% (3,043/24,170) in total, 14.5% in male, and 9.5% in female. Drug susceptibility test results were obtained in 6,920 culture-positive pulmonary TB cases through the surveillance system in 2009. This figure accounted to 63.5% of all culture-positive pulmonary cases. In primary cases, frequency of MDR, any INH resistance, and any RFP resistance were 0.5%, 4.4%, 0.8%, respectively, and in re-treatment cases, they were 3.6%, 11.6%, and 5.0%. In primary pulmonary cases these drug resistance rate has been stable over this 3-year period (2007-2009), but in pulmonary cases undergoing re-treatment the frequency has decreased (for example, the MDR rate in re-treatment pulmonary cases was 7.2% in 2007, 5.1% in 2008, and 3.6% in 2009). Of all MDR pulmonary cases, 17.9% (10/56) were foreigners in 2009.

Key word: Tuberculosis, Sex, Age, Foreigner, HIV, Diabetes, Drug resistance test, MDR

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Table 1 Number of cases reported having HIV infection among newly notified TB patients, 2009 and 2007–2009

Age	Sputum smear positive		Other bacillary positive		Bacillary negative		Extra-pulmonary		Total	
	M	F	M	F	M	F	M	F	M	F
2009 Calendar year										
Total	14(2)	1(1)	9(3)	2(2)	1	-	21(2)	4(4)	45(7)	7(7)
0-19	1(1)	-	-	-	-	-	-	-	1(1)	-
20-24	-	-	-	-	-	-	-	-	-	-
25-29	2(1)	-	1(1)	1(1)	-	-	1	-	4(2)	1(1)
30-34	1	1(1)	-	1(1)	-	-	3(1)	1(1)	4(1)	3(3)
35-39	1	-	4(1)	-	1	-	4(1)	-	10(2)	-
40-44	4	-	1(1)	-	-	-	5	2(2)	10(1)	2(2)
45-49	2	-	-	-	-	-	3	-	5	-
50-54	1	-	1	-	-	-	1	-	3	-
55-59	-	-	1	-	-	-	-	1(1)	1	1(1)
60-64	1	-	-	-	-	-	3	-	4	-
65-69	1	-	-	-	-	-	-	-	1	-
70-74	-	-	1	-	-	-	1	-	2	-
75-79	-	-	-	-	-	-	-	-	-	-
80+	-	-	-	-	-	-	-	-	-	-
2007–2009 Calendar year										
Total	48(4)	8(7)	24(5)	3(3)	15	2(1)	68(13)	8(6)	155(22)	21(17)
0-19	1(1)	0	0	0	0	0	0	0	1(1)	0
20-24	2(1)	0	0	0	0	0	1	1	3(1)	1
25-29	2(1)	1(1)	1(1)	1(1)	0	0	5	0	8(2)	2(2)
30-34	6(1)	4(4)	2	1(1)	1	1(1)	8(2)	1(1)	17(3)	7(7)
35-39	9	1(1)	10(3)	1(1)	4	0	11(3)	2(2)	34(6)	4(4)
40-44	12	1(1)	5(1)	0	3	1	17(7)	3(2)	37(8)	5(3)
45-49	5	0	0	0	2	0	11(1)	0	18(1)	0
50-54	2	0	3	0	2	0	5	0	12	0
55-59	2	0	1	0	3	0	4	1(1)	10	1(1)
60-64	3	1	1	0	0	0	3	0	7	1
65-69	3	0	0	0	0	0	0	0	3	0
70-74	0	0	1	0	0	0	1	0	2	0
75-79	1	0	0	0	0	0	2	0	3	0
80+	0	0	0	0	0	0	0	0	0	0

(): Re-count of foreigners

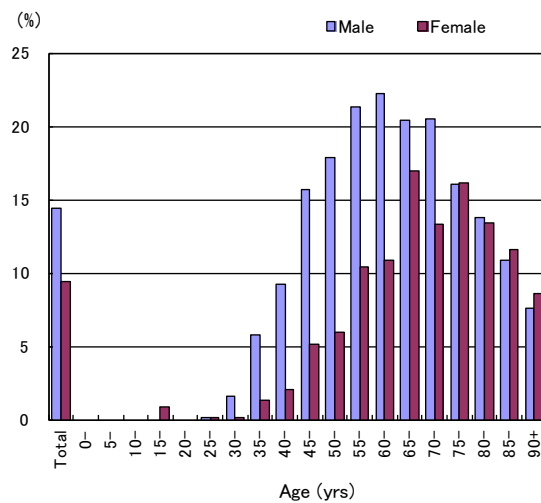


Fig.1 Proportion of cases reported having diabetes among newly notified TB patients by sex and age group, 2009

Table 2 Drug susceptibility test results and proportion with drug resistance by treatment history, 2007–2009

Treatment history, Bacteriological test, Drug resistance	2007				2008				2009			
	n	%	%	%	n	%	%	%	n	%	%	%
Total												
Pulmonary TB	19,893	100%			19,393	100%			18,912	100%		
Culture result obtained	12,690	63.8			12,087	62.3			14,146	74.8		
Culture positive	9,983	50.2	100%		9,480	48.9	100%		10,902	57.6	100%	
DST result obtained	4,173		41.8	100%	4,332		45.7	100%	6,920		63.5	100%
MDR	50			1.2	48			1.1	56			0.8
Resistant to any INH	258			6.2	211			4.9	346			5.0
Resistant to any RFP	72			1.7	64			1.5	80			1.2
Resistant to one or more	628			15.0	550			12.7	903			13.0
New treatment												
Pulmonary TB	18,220	100%			17,515	100%			17,125	100%		
Culture result obtained	11,602	63.7			10,845	61.9			12,801	74.8		
Culture positive	9,148	50.2	100%		8,540	48.8	100%		9,899	57.8	100%	
DST result obtained	3,752		41.0	100%	3,885		45.5	100%	6,276		63.4	100%
MDR	23			0.6	28			0.7	34			0.5
Resistant to any INH	194			5.2	163			4.2	276			4.4
Resistant to any RFP	36			1.0	39			1.0	50			0.8
Resistant to one or more	516			13.8	470			12.1	780			12.4
Re-treatment												
Pulmonary TB	1,409	100%			1,542	100%			1,468	100%		
Culture result obtained	946	67.1			1,059	68.7			1,134	77.2		
Culture positive	713	50.6	100%		779	50.5	100%		830	56.5	100%	
DST result obtained	376		52.7	100%	391		50.2	100%	559		67.3	100%
MDR	27			7.2	20			5.1	20			3.6
Resistant to any INH	63			16.8	48			12.3	65			11.6
Resistant to any RFP	36			9.6	24			6.1	28			5.0
Resistant to one or more	107			28.5	75			19.2	112			20.0
No information about treatment history												
Pulmonary TB	264	100%			336	100%			319	100%		
Culture result obtained	142	53.8			183	54.5			211	66.1		
Culture positive	122	46.2	100%		161	47.9	100%		173	54.2	100%	
DST result obtained	45		36.9	100%	56		34.8	100%	85		49.1	100%
MDR	0			0.0	0			0.0	2			2.4
Resistant to any INH	1			2.2	0			0.0	5			5.9
Resistant to any RFP	0			0.0	1			1.8	2			2.4
Resistant to one or more	5			11.1	5			8.9	11			12.9

DST: Drug susceptibility test MDR: Multi-drug resistant INH: isoniazid RFP: rifampicin

Cases having drug resistance are counted independently by drug.

Table 3 Drug susceptibility test results and proportion with drug resistance by sex and age group, 2009 and 2007–2009

Age group	Total										New treatment (Re-count)									
	Male					Female					Male					Female				
	DST result obtained	MDR	Resist. to any INH	Resist. To any RFP	Resist. to one or more	DST result obtained	MDR	Resist. to any INH	Resist. To any RFP	Resist. to one or more	DST result obtained	MDR	Resist. to any INH	Resist. To any RFP	Resist. to one or more	DST result obtained	MDR	Resist. to any INH	Resist. To any RFP	Resist. to one or more
2009 Calendar year																				
Total	4,582	31	230	43	594	2,338	25	116	37	309	4,126	21	188	29	520	2,150	13	88	21	260
0–19	30	0	4	0	10	28	1	3	1	8	30	0	4	0	10	24	1	2	1	6
20–29	256	4	13	7	47	214	3	10	7	39	246	3	12	5	45	201	0	7	3	33
30–39	356	5	25	5	59	252	5	21	9	47	331	3	21	3	54	242	4	18	6	42
40–49	373	2	18	2	52	194	3	11	5	32	349	1	16	1	47	186	2	10	4	31
50–59	601	3	29	6	88	164	2	10	3	25	559	3	28	5	81	154	0	6	1	21
60–69	858	7	60	9	126	230	1	13	1	33	779	5	50	6	108	210	1	9	1	27
70–79	982	3	44	6	126	440	5	18	5	50	859	2	31	4	103	394	2	12	2	38
80+	1,126	7	37	8	86	816	5	30	6	75	973	4	26	5	72	739	3	24	3	62
2007–2009 Calendar year																				
Total	10,482	95	547	141	1,428	4,943	59	268	75	653	9,352	53	424	81	1,206	4,561	32	209	44	560
0–19	65	0	4	0	16	64	1	7	1	14	64	0	4	0	16	59	1	6	1	12
20–29	582	11	35	16	98	488	13	38	18	92	556	9	32	13	93	463	9	33	13	84
30–39	778	7	51	13	130	557	7	39	12	93	730	4	45	10	119	530	5	34	8	84
40–49	896	6	54	8	143	421	8	29	10	72	837	3	48	4	125	402	6	27	8	68
50–59	1,554	19	79	29	247	353	6	21	7	54	1,432	12	68	19	221	323	1	13	2	46
60–69	1,989	20	126	30	302	487	7	32	7	77	1,782	12	100	15	251	446	2	19	2	59
70–79	2,291	21	116	29	301	956	9	42	10	108	1,960	7	72	10	231	854	3	28	4	84
80+	2,327	11	82	16	191	1,617	8	60	10	143	1,991	6	55	10	150	1,484	5	49	6	123
2007–2009 Calendar year																				
Total	100%	0.9	5.2	1.3	13.6	100%	1.2	5.4	1.5	13.2	100%	0.6	4.5	0.9	12.9	100%	0.7	4.6	1.0	12.3
0–19	100	0.0	6.2	0.0	24.6	100	1.6	10.9	1.6	21.9	100	0.0	6.3	0.0	25.0	100	1.7	10.2	1.7	20.3
20–29	100	1.9	6.0	2.7	16.8	100	2.7	7.8	3.7	18.9	100	1.6	5.8	2.3	16.7	100	1.9	7.1	2.8	18.1
30–39	100	0.9	6.6	1.7	16.7	100	1.3	7.0	2.2	16.7	100	0.5	6.2	1.4	16.3	100	0.9	6.4	1.5	15.8
40–49	100	0.7	6.0	0.9	16.0	100	1.9	6.9	2.4	17.1	100	0.4	5.7	0.5	14.9	100	1.5	6.7	2.0	16.9
50–59	100	1.2	5.1	1.9	15.9	100	1.7	5.9	2.0	15.3	100	0.8	4.7	1.3	15.4	100	0.3	4.0	0.6	14.2
60–69	100	1.0	6.3	1.5	15.2	100	1.4	6.6	1.4	15.8	100	0.7	5.6	0.8	14.1	100	0.4	4.3	0.4	13.2
70–79	100	0.9	5.1	1.3	13.1	100	0.9	4.4	1.0	11.3	100	0.4	3.7	0.5	11.8	100	0.4	3.3	0.5	9.8
80+	100	0.5	3.5	0.7	8.2	100	0.5	3.7	0.6	8.8	100	0.3	2.8	0.5	7.5	100	0.3	3.3	0.4	8.3

Table 4 Drug susceptibility test results and proportion with drug resistance by sex and age group, 2007–2009 (Re-count of foreigners)

Age group	Total										New treatment (Re-count)									
	Male					Female					Male					Female				
	DST result obtained	MDR	Resist. to any INH	Resist. To any RFP	Resist. to one or more	DST result obtained	MDR	Resist. to any INH	Resist. To any RFP	Resist. to one or more	DST result obtained	MDR	Resist. to any INH	Resist. To any RFP	Resist. to one or more	DST result obtained	MDR	Resist. to any INH	Resist. To any RFP	Resist. to one or more
2007–2009 Calendar year																				
Total	219	10	18	13	41	273	13	36	17	71	208	7	12	10	37	257	10	31	13	64
0–19	7	0	1	0	3	12	1	2	1	2	7	0	1	0	3	11	1	1	1	1
20–29	100	8	12	11	20	129	11	23	15	45	97	6	7	9	18	125	9	21	12	42
30–39	43	2	3	2	7	65	1	7	1	13	41	1	2	1	6	61	0	6	0	12
40–49	25	0	2	0	6	35	0	3	0	9	24	0	2	0	5	30	0	3	0	8
50–59	16	0	0	0	1	12	0	1	0	1	14	0	0	0	1	11	0	0	0	0
60–69	11	0	0	0	3	6	0	0	0	0	9	0	0	0	3	6	0	0	0	0
70–79	9	0	0	0	1	4	0	0	0	0	8	0	0	0	1	4	0	0	0	0
80+	8	0	0	0	0	10	0	0	0	1	8	0	0	0	0	9	0	0	0	1
2007–2009 Calendar year																				
Total	100%	4.6	8.2	5.9	18.7	100%	4.8	13.2	6.2	26.0	100%	3.4	5.8	4.8	17.8	100%	3.9	12.1	5.1	24.9
0–19	100	0.0	14.3	0.0	42.9	100	8.3	16.7	8.3	16.7	100	0.0	14.3	0.0	42.9	100	9.1	9.1	9.1	9.1
20–29	100	8.0	12.0	11.0	20.0	100	8.5	17.8	11.6	34.9	100	6.2	7.2	9.3	18.6	100	7.2	16.8	9.6	33.6
30–39	100	4.7	7.0	4.7	16.3	100	1.5	10.8	1.5	20.0	100	2.4	4.9	2.4	14.6	100	0.0	9.8	0.0	19.7
40–49	100	0.0	8.0	0.0	24.0	100	0.0	8.6	0.0	25.7	100	0.0	8.3	0.0	20.8	100	0.0	10.0	0.0	26.7
50–59	100	0.0	0.0	0.0	6.3	100	0.0	8.3	0.0	8.3	100	0.0	0.0	0.0	7.1	100	0.0	0.0	0.0	0.0
60–69	100	0.0	0.0	0.0	27.3	100	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	33.3	100	0.0	0.0	0.0	0.0
70–79	100	0.0	0.0	0.0	11.1	100	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	12.5	100	0.0	0.0	0.0	0.0
80+	100	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	10.0	100	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	11.1