

SURVIVAL RATES IN PULMONARY TUBERCULOSIS

BY

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In a previous communication (Thompson, 1942) was described an investigation of 406 adult patients with sputum-positive tuberculosis, being the entire population of a compact industrial area so diagnosed in the years 1928-38. Observation has now been carried forward two more years, and of the few cases previously lost sight of some have been traced, so that the incidence of survival is now as follows:

the year completed, the few survivors reached the 15th year without further loss.

An additional analysis was made to determine the prognostic effect of sex and age. It was found that the probability of

TABLE III

Age in Years:	10-19	20-29	30-39	40+
Number of patients	87	148	95	76
Probability of surviving 5 years	0.20	0.26	0.33	0.21

surviving 5 years for the 211 males was 0.26 and for the 195 females 0.25, figures not significantly different. An analysis by age is given in Table III.

The best outlook is thus for those in middle life; the young and the elderly fare notably worse. Speculations aroused by this

TABLE I.—Number of Patients known to be Alive on Each Anniversary

Year of Diagnosis	0	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th
1928	38	20	17	15	10	8	6	6	6	6	3	3	3	3	3	3
1929	40	22	17	15	10	7	5	5	5	4	3	3	2	2	2	2
1930	46	24	17	15	14	10	9	9	9	8	6	6	6	6	6	6
1931	35	26	16	15	12	12	12	12	9	9	5	5	5	5	5	5
1932	41	21	16	14	10	10	9	9	6	5	4	4	4	4	4	4
1933	36	22	18	15	11	9	5	5	5	4	4	4	4	4	4	4
1934	36	21	12	11	10	6	6	6	6	4	4	4	4	4	4	4
1935	44	30	21	19	16	13	9	5	5	5	5	5	5	5	5	5
1936	36	19	14	10	8	8	5	5	5	5	5	5	5	5	5	5
1937	37	25	20	15	14	12	9	9	9	9	9	9	9	9	9	9
1938	17	12	11	10	9	8	8	8	8	8	8	8	8	8	8	8
Total alive at end of each year (l)	406	242	172	146	121	103	75	60	51	40	25	21	16	11	5	3
Lost sight of in following year	—	3	1	1	2	5	—	—	2	5	—	1	—	—	—	—
Total under observation during each year (n)	—	406	239	171	145	119	90	66	55	44	31	21	16	11	5	3
Probability of surviving each year (l/n)	—	0.60	0.72	0.85	0.83	0.88	0.83	0.91	0.93	0.91	0.81	1.00	1.00	1.00	1.00	1.00

By taking from Table I the proportion of patients (p_x) who survive each individual year (x) from the date of diagnosis, it is convenient to set out in life-table form (Table II) the results of these calculations when applied to a standard of 1,000 patients.

TABLE II

1	2	3	4	5	6
Year following Diagnosis	Probability of Surviving Each Year	Probability of Dying Each Year	Number Alive on Each Anniversary out of 1,000 Patients	Number Dying Each Year	Probability of Surviving a Further 5 Years
(x)	(p_x)	(q_x)	(l_x)	(d_x)	($5p_x$)
0	0.60	0.40	1,000	400	0.27
1	0.72	0.28	600	168	0.37
2	0.85	0.15	432	65	0.46
3	0.83	0.17	367	62	0.51
4	0.88	0.12	305	37	0.56
5	0.83	0.17	268	45	0.52
6	0.91	0.09	223	20	0.62
7	0.93	0.07	189	14	0.68
8	0.91	0.09	189	17	0.73
9	0.81	0.19	172	33	0.81
10	1.00	0.00	139	0	1.00

In column 4 is shown the number of patients of the original hypothetical 1,000 who remain alive (l_x) on any stated anniversary of the date of diagnosis, and column 6 gives the expectation of living a further 5 years ($5p_x$) for any patient entering upon that particular year. This expectation on the day of diagnosis is approximately a 1 in 4 chance, improving to 50/50 if the first 3 years are survived.

These results were fully discussed in my earlier paper, in which attention was drawn to the poor outlook for cavitory pulmonary tuberculosis when considered collectively, without regard to treatability and other individual factors. One point seems to be further endorsed: though no patients died after surviving 10 years, nearly half of those who were alive after the first 5 years failed to survive the second 5 years. Thus the method often employed for estimating results of treatment, by comparing numbers of patients who are living at the end of 5 years, should allow for the possibility that disease in such survivors is not necessarily cured or even quiescent, since subsequently it may as likely as not prove fatal. On the present findings a 10-year survival should be fairly reliable. Though even in the 9th year almost one-fifth of those who were alive when it opened failed to see

phenomenon cannot be discussed in this brief communication, but tuberculosis workers will no doubt find that it confirms a fairly general clinical impression.

REFERENCE

Thompson, B. C. (1942). *Tubercle*, 23, 139.

ALTERATIONS IN THE "B.P."

The General Medical Council announces certain alterations in the *British Pharmacopoeia*, 1932. A new monograph gives specifications for liquid extract of colchicum corm, which now contains 0.3% w/v of colchicine (limits, 0.27 to 0.33). *Preparation*: Tinctura colchici. Doses—Metric 0.12 to 0.3 mil. Imperial 2 to 5 minims. Liquid extract of colchicum corm contains in 0.3 mil. 0.0009 gramme, and in 5 minims about 1/70 grain, of colchicine.

When liquid extract of colchicum is asked for, liquid extract of colchicum corm may be supplied, and the latter may be used in making tinctura colchici. Aromatic solution of ammonia may be used in place of aromatic spirit of ammonia, and a mixture of one part of concentrated compound tincture of cardamom and three volumes of water may be used in place of compound tincture of cardamom in making mistura sennae composita. A mixture of one volume of concentrated tincture of tolu and three volumes of water may be used in place of tincture of tolu in making lozenges. The tincture of orange may be omitted from confectio sulphuris.

The Industrial Welfare Society (14, Hobart Place, Westminster, S.W.1) held its annual general meeting on Nov. 19, when a message of loyal greetings to the King (its patron) was dispatched, and a reply from His Majesty said: "I am delighted to see the long years of steady work repaid by the increase in welfare work and personnel management in industry. I hope for continued extension in the post-war period and I wish the members every success in their efforts." The annual report, with balance sheet, was of the briefest character in order to comply with the Paper Controller's request for economy. It recorded that the membership had reached its highest peak, no fewer than 520 members having joined since July 1, 1942. A feature of the year's work was the close and friendly association established with practically every Government Department. A considerable number of meetings of every kind and in many districts were addressed by the director (the Rev. Robert R. Hyde) and members of the staff. Mr. T. E. A. Stowell, F.R.C.S., continues as chairman of the advisory medical committee.