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Use of the Life Table to Eliminate from the Active Record Hansen's Disease Patients Out of Control and of Unknown Whereabouts: A Six-year Experience Using this Method in the State of Rio Grande do Sul[1]

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The public health administrator responsible for recording any cases of chronic disease faces a serious problem concerning the frequency with which those cases who should be followed up become out of control. As far as this is concerned, Hansen's disease is, perhaps, the best example: it is a chronic disease and there is no treatment to cure low-resistance patients who have to be treated all their lives. It is natural, then, that as time goes by the public health institutions lose control of many of the Hansen's disease patients and receive no further news from them. These "out-of-control" patients, about whom there is no evidence as to whether they are dead or not, are registered as "disappeared," "lost to control" or "unknown wherebouts," as opposed to those who got out of control a short time previously. This procedure solves part of the problem because there is no expenditure of resources in the search for these patients who are considered definitely lost. Nevertheless, the following issue still remains: how long should these patients be kept in the active record and included in the prevalence calculations and control rates, and under what conditions should they be withdrawn.

Proposed solution

Any criteria which used only one parameter for the elimination of these patients would be faulty because there would be a high risk in withdrawing from the active record patients still alive and with the disease in progress. Thus, if the parameter used was only the age group, many elderly individuals would inevitably be eliminated by withdrawing patients out of control from a given age. If they were out of control for just a few years, there would be a good possibility that they were not deceased. If the parameter used was only the amount of time the patient is out of control, young individuals with a high chance of still being alive would be withdrawn from the active record after being lost for many years. Thus, for a criterion to be reliable, it should necessarily join these two parameters: patient age and number of years lost, and therefore the use of the life table is proposed.

Considerations about the life table

The life table is a statistical model which, among other uses, allows one to summarize the mortality rate of an area or country. Theoretically, it would be necessary to follow up a newborn group until all had died, recording the time of death of every one, in order to prepare such a life table. Since, in

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practice, this could take more than 100 years, a hypothetical group of 100,000 individuals born alive is taken and their survival is projected throughout the years, assuming that these individuals will be submitted, in each phase of their lives, to the same risks of dying of the present conditions in the several age groups. Thus, from knowledge of the population structure and of the mortality conditions of a given area in one or more calendar years, a whole generation or cohort is inferred.

Although it is a theoretical model, the life table (also called mortality table) contains a great deal of information that recommends its use whenever the basic data to prepare it are available. The expectation of life can be read easily on a mortality table ([4]). This characteristic can be used in dealing with the problem of Hansen's disease patients out of control. By the expectation of life read on the table, it is possible to calculate the mathematical probability of these individuals being alive, taking into consideration their age and the amount of time they have been lost. According to this calculation, those who are probably dead would be withdrawn from the active record.

METHODS

Life tables were prepared by the statistical staff of the Secretary of Health and Environment of the state of Rio Grande do Sul, Brazil. Tables 1 and 2 show, respectively, the male and female mortality tables for the state of Rio Grande do Sul, based on the death record and on the estimated populations from 1974–1976. These tables consist of nine columns:

Some columns of the life table refer to an exact age or a given age group, while others refer to events which have occurred between an age group and the following one. So, columns l_x, T_x, and e_x refer to the people who exist at age x (younger than five years) or for the quinquennial groups. Columns n^qx, n^px, and n^dx refer to the events occurring between ages x and (x + n). [The value of n is n = 1 for age groups younger than five years and n = 5 for the age groups from five years old on ([5]).]

In this work, only column 5 (l_x) of the life table was used (theoretical cohort of 100,000 born alive). Since from the fifth year of life, life tables list the age groups every five years, a geometrical interpolation was done to calculate the survivors of both sexes in the intermediate ages. For example, to calculate the survivors at age 77, the following formula was used:

$$l_{77} = l_{75}\left(\sqrt[80-75]{\frac{l_{80}}{l_{75}}}\right)^{77-75}$$

or

$$l_{77} = l_{75}\left(\sqrt[5]{\frac{l_{80}}{l_{75}}}\right)^{2}$$

Table 3 shows the survivors of both sexes in the theoretical cohort, calculated by the geometrical interpolation method for ages 0–100, based on the data of columns l_x of Tables 1 and 2. It is important to notice that although a small number of people survive until 100 years, for practical purposes the number of survivors with this age was considered to be zero. Since it is not possible

Column 1	x—(x + n)	=	age group considered
Column 2	n^mx	=	mortality coefficient for the age group x–(x + n)
Column 3	n^qx	=	probability of dying between age x and (x + n)
Column 4	n^px	=	probability of surviving from age x until age (x + n)
Column 5	l_x	=	number of survivors in the age group x–(x + n). We begin with a hypothetical group of 100,000 born alive in group l_0.
Column 6	n^dx	=	number of deaths occurring between age x and (x + n)
Column 7	n^lx	=	number of years lived by group between age x and (x + n), during one year of follow up
Column 8	T_x	=	total number of years lived, until death, by group of present people, at age x
Column 9	e_x	=	average number of years each person of the age group can expect to live. So, e_0 means the number of years that a newborn can, on the average, expect to live.

TABLE 1. *Male mortality table, Rio Grande do Sul, Brazil, 1974–1976.*

Age (yrs)	$n^{m}x$	$n^{q}x$	$n^{p}x$	l_x	d_x	$n^{L}x$	$n^{T}x$	e_x
0–1	0.050674	0.049422	0.950578	100,000	4,942	96,540	6,330,593	63.31
1–2	0.003845	0.003838	0.996162	95,058	365	94,839	6,234,053	65.58
2–3	0.002403	0.002401	0.997599	94,693	227	94,579	6,139,214	64.83
3–4	0.001347	0.001346	0.998654	94,466	127	94,402	6,044,635	63.99
4–5	0.000937	0.000936	0.999064	94,338	88	94,294	5,950,233	63.07
5–10	0.000646	0.003225	0.996775	94,250	304	470,491	5,855,939	62.13
10–15	0.000639	0.003191	0.996809	93,946	300	468,981	5,385,448	57.32
15–20	0.001299	0.006473	0.993527	93,646	606	466,717	4,916,467	52.50
20–25	0.002042	0.010158	0.989842	93,040	945	462,838	4,449,750	47.83
25–30	0.002363	0.011748	0.988252	92,095	1,082	457,771	3,986,912	43.29
30–35	0.002767	0.013742	0.986258	91,013	1,251	451,939	3,529,141	38.78
35–40	0.003932	0.019469	0.980531	89,762	1,748	444,443	3,077,202	34.28
40–45	0.005678	0.027997	0.972003	88,015	2,464	433,914	2,632,759	29.91
45–50	0.009222	0.045078	0.954922	85,551	3,853	418,112	2,198,845	25.70
50–55	0.013153	0.063681	0.936319	81,694	5,202	395,465	1,780,733	21.80
55–60	0.019359	0.092321	0.907679	76,492	7,062	364,805	1,385,268	18.11
60–65	0.030431	0.141292	0.858708	69,430	9,810	322,626	1,020,463	14.70
65–70	0.045962	0.205632	0.794368	59,620	12,260	267,451	697,837	11.70
70–75	0.076928	0.320064	0.679936	47,360	15,158	198,906	430,386	9.09
75–80	0.116522	0.442975	0.557025	32,202	14,265	125,348	231,480	7.19
80–85	0.147308	0.523128	0.476872	17,937	9,384	66,228	106,132	5.92
85–90	0.222103	0.673163	0.326837	8,554	5,758	28,374	39,904	4.66
90–95	0.223308	0.675143	0.324857	2,796	1,888	9,260	11,530	4.12
95–100	0.252468	1.000000		908	908	2,270	2,270	2.50

to interpolate geometrically when one of the values is equal to zero, the survivors from 95–100 years old were calculated by arithmetic interpolation.

From the data in Table 3 it is possible to calculate the mathematical chance of an individual's surviving from age x to age (x + n) which is given by the ratio $\frac{l_{(x+n)}}{l_x}$. For example: What chance does a 71-year-old male patient have of surviving until 77 years old?

Calculation of the probability of surviving $[n^{p}x(x + n)]$:

TABLE 2. *Female mortality table, Rio Grande do Sul, Brazil, 1974–1976.*

Age (yrs)	$n^{m}x$	$n^{q}x$	$n^{p}x$	l_x	d_x	$n^{L}x$	$n^{T}x$	e_x
0–1	0.040625	0.039816	0.960184	100,000	3,982	97,213	6,934,105	69.34
1–2	0.003731	0.003724	0.996276	96,018	358	95,804	6,836,892	71.20
2–3	0.002349	0.002347	0.997653	95,661	224	95,549	6,741,088	70.47
3–4	0.001148	0.001148	0.998852	95,436	110	95,382	6,645,539	69.63
4–5	0.000861	0.000860	0.999140	95,327	82	95,286	6,550,157	68.71
5–10	0.000521	0.002602	0.997398	95,245	248	475,605	6,454,871	67.77
10–15	0.000439	0.002194	0.997806	94,997	208	474,464	5,979,266	62.94
15–20	0.000752	0.003754	0.996246	94,789	356	473,053	5,504,802	58.07
20–25	0.000977	0.004875	0.995125	94,433	460	471,013	5,031,749	53.28
25–30	0.001328	0.006620	0.993380	93,972	622	468,306	4,560,736	48.53
30–35	0.001640	0.008169	0.991831	93,350	763	464,845	4,092,430	43.84
35–40	0.002237	0.011125	0.988875	92,588	1,030	460,363	3,627,585	39.18
40–45	0.003388	0.016799	0.983201	91,558	1,538	453,943	3,167,222	34.59
45–50	0.004962	0.024511	0.975489	90,020	2,206	444,582	2,713,279	30.14
50–55	0.006978	0.034296	0.965704	87,813	3,012	431,536	2,268,697	25.84
55–60	0.010810	0.052638	0.947362	84,801	4,464	412,848	1,837,161	21.66
60–65	0.018960	0.090505	0.909495	80,338	7,271	383,511	1,424,313	17.73
65–70	0.028630	0.133508	0.866492	73,067	9,755	340,946	1,040,802	14.24
70–75	0.053274	0.234252	0.765748	63,312	14,831	279,481	699,856	11.05
75–80	0.082826	0.339938	0.660062	48,481	16,480	201,203	420,375	8.67
80–85	0.114850	0.438258	0.561742	32,000	14,024	124,941	219,172	6.85
85–90	0.174326	0.583972	0.416028	17,976	10,497	63,636	94,231	5.24
90–95	0.227426	0.681817	0.318183	7,478	5,099	24,645	30,595	4.09
95–100	0.282891	1.000000		2,380	2,380	5,950	5,950	2.50

$$n^{p\text{♂}}\ 71 \rightarrow 77 = \frac{l_{77}}{l_{71}} = \frac{25{,}482}{43{,}843}$$
$$= 0.581 \quad \text{or} \quad 58.1\%$$

This example shows that if the last time a Hansen's disease patient was seen he was 71 years old and there has been no news from him for more than six years, the mathematical probability that he is still alive is more than 58% and that he has died is less than 42%. Thus, this patient should remain in the active record. For this individual to be considered as probably dead, it would be necessary for the mathematical chance of being alive to be less than 50%, that is, when the number of survivors in the cohort was less than half the number of survivors at 71 years of age.

Going further with the calculations, from the data in Table 3 we have:

$$n^{p\text{♂}}\ 71 \rightarrow 78 = \frac{l\text{♂}78}{l\text{♂}71} = \frac{22{,}668}{43{,}843}$$
$$= 0.517 \quad \text{or} \quad 51.7\%$$
$$n^{p\text{♂}}\ 71 \rightarrow 79 = \frac{l\text{♂}79}{l\text{♂}71} = \frac{20{,}164}{43{,}843}$$
$$= 0.460 \quad \text{or} \quad 46.0\%$$

This means that the patient in question, who was alive at 71, could only be considered as probably dead after eight years from the date of his last control, since the mathematical chance of surviving from 71 to 79 years old is less than 50%, while the probability of surviving from 71 to 78 years old (that is, after seven years) is still more than 50%.

It is interesting to note that a male individual lost at 72 years of age can also be withdrawn from the active record at 79, that is, seven years afterward, as the calculations based on Table 3 prove:

$$n^{p\text{♂}}\ 72 \rightarrow 79 = \frac{l\text{♂}79}{l\text{♂}72} = \frac{20{,}164}{40{,}588}$$
$$= 0.497 \quad \text{or} \quad 49.7\%$$

If the individual in question, lost at age 71, were female, more than eight years would be necessary for her to be considered probably dead, since women have a higher life expectancy than men in all age groups. According to Table 3 data:

TABLE 3. *Survivors in theoretical cohort of 100,000 born alive based on life table, Rio Grande do Sul, Brazil, by age and sex.*

Age	Male	Female	Age	Male	Female
			50	81,694	87,813
00	100,000	100,000	51	80,826	87,202
01	95,058	96,018	52	79,572	86,596
02	94,693	95,661	53	78,532	85,993
03	94,466	95,436	54	77,505	85,395
04	94,338	95,327	55	76,492	84,801
05	94,250	95,245	56	75,024	83,889
06	94,189	95,195	57	73,585	82,987
07	94,128	95,145	58	72,173	82,094
08	94,067	95,096	59	70,788	81,211
09	94,007	95,047	60	69,430	80,338
10	93,946	94,997	61	67,347	78,828
11	93,886	94,955	62	65,326	77,347
12	93,826	94,913	63	63,366	75,893
13	93,765	94,872	64	61,464	74,467
14	93,706	94,831	65	59,620	73,067
15	93,646	94,789	66	56,937	71,002
16	93,524	94,718	67	54,375	68,996
17	93,403	94,603	68	51,928	67,047
18	93,282	94,575	69	49,592	65,153
19	93,161	94,504	70	47,360	63,312
20	93,040	94,433	71	43,843	60,021
21	92,850	94,340	72	40,588	56,901
22	92,661	94,248	73	37,574	53,943
23	92,472	94,156	74	34,785	51,139
24	92,283	94,064	75	32,202	48,481
25	92,095	93,972	76	28,646	44,616
26	91,878	93,847	77	25,482	41,059
27	91,661	93,723	78	22,668	37,785
28	91,444	93,598	79	20,164	34,772
29	91,228	93,474	80	17,937	32,000
30	91,013	93,350	81	15,468	28,514
31	90,761	93,197	82	13,339	25,408
32	90,511	93,044	83	11,502	22,640
33	90,260	92,892	84	9,919	20,174
34	90,011	92,740	85	8,554	17,976
35	89,762	92,588	86	6,840	15,084
36	89,410	92,381	87	5,469	12,657
37	89,059	92,175	88	4,373	10,621
38	88,710	91,969	89	3,497	8,912
39	88,362	91,763	90	2,796	7,478
40	88,015	91,558	91	2,232	5,948
41	87,517	91,248	92	1,783	4,730
42	87,021	90,939	93	1,424	3,762
43	86,528	90,632	94	1,137	2,992
44	86,038	90,326	95	908	2,380
45	85,551	90,020	96	726	1,904
46	84,765	89,574	97	745	1,428
47	83,987	89,131	98	363	952
48	83,215	88,689	99	182	476
49	82,451	88,250	100		

$$n^{p\text{♀}}\ 71 \rightarrow 79 = \frac{l\text{♀}79}{l\text{♀}71} = \frac{34{,}772}{60{,}021}$$
$$= 0.579 \quad \text{or} \quad 57.9\%$$
$$n^{p\text{♀}}\ 71 \rightarrow 80 = \frac{l\text{♀}80}{l\text{♀}71} = \frac{32{,}000}{60{,}021}$$
$$= 0.533 \quad \text{or} \quad 53.3\%$$

$$n^{p\female}\ 71 \rightarrow 81 = \frac{l\female 81}{l\female 71} = \frac{28{,}514}{60{,}021} = 0.475 \quad \text{or} \quad 47.5\%$$

Thus, a woman lost at age 71 can be considered to be probably dead only after ten years have elapsed.

The criteria adopted in Rio Grande do Sul is to withdraw from the active record all patients whose whereabouts were unknown and whose mathematical probability of being alive, calculated according to the examples presented, is less than 50%. For these patients, a special class of discharge named "statistical discharge" was created because although discharge is due to probable death, it cannot be absolutely assured that these people have actually died.

In accordance with the adopted criteria, Table 4 shows the number of years a patient should be out of control to be eliminated from the active record, according to present age if alive. It demonstrates that a person who is more than 98 years old could, theoretically, have "statistical discharge" if out of control for less than three years. However, this period of time is too short and, therefore, a patient cannot be considered of "unknown whereabouts" because of our lack of information. The information system is not perfect and, for this reason, the adopted criterion was to withdraw only the people who have been out of control for more than three years, despite the table data. Table 4 also shows that no female patient aged 74 or less, nor male patient aged 68 or less, can be withdrawn for probable death. This is due to the fact that, theoretically, in Rio Grande do Sul there is more than a 50% mathematical probability that people will achieve the above-mentioned ages, according to their sex.

The withdrawal of patients who have been out of control for more than 20 years, despite their ages, was adopted as a second criterion. This was based on observations made before the introduction of sulfone therapy which suggested that Mitsuda-negative patients, that means patients with contagious forms (Virchowian or borderline) or potentially contagious forms of the disease (indeterminate Mitsuda negative) are unlikely to live more than 20 years without treatment ([1, 2, 3]). The adoption of this criterion was also due to the fact that living conditions are changing constantly and, in the last decade, the mortality rate decreased considerably for all age groups. Thus, since living conditions of 20 years ago were quite different from today's, current life table rates could not be applied to people who were lost 20 years ago.

A third criterion of "statistical discharge" was adopted: patients with the indeterminate form of the disease with a positive Mitsuda and tuberculoid patients were with-

TABLE 4. *Number of years Hansen's disease patients in Rio Grande do Sul, Brazil, should be out of control to have statistical discharge, according to sex and age.*[a]

Age[b]	No. years out of control	
	Men	Women
100 and more	01[c]	01[c]
99	02[c]	02[c]
98	03	03
97	03	03
96	04	04
95	04	04
94	04	04
93	04	04
92	04	04
91	04	04
90	04	04
89	04	04
88	04	05
87	04	05
86	05	06
85	05	07
84	05	07
83	06	08
82	06	08
81	06	10
80	07	11
79	07	13
78	08	15
77	09	20
76	11	30[d]
75	13	75[d]
74	15	—[d,e]
73	18	—[d,e]
72	22[d]	—[d,e]
71	29[d]	—[d,e]
70	69[d]	—[d,e]
69	69[d]	—[d,e]
68 and less	—[d,e]	—[d,e]

[a] 1974 to 1975 data obtained from life table of the state of Rio Grande do Sul.

[b] Present age of patient, if still alive.

[c] According to adopted criteria, these patients are not withdrawn before being out of control for three years.

[d] According to adopted criteria, these patients are withdrawn after being out of control for 20 years.

[e] — = Nonexisting datum due to its nature ([3]). People from Rio Grande do Sul, when they are born, have more than a 50% probability of reaching the corresponding age.

TABLE 5. *Number of Hansen's disease patients statistically discharged according to the discharge criterion from 1 December 1974 to 31 December 1980 in Rio Grande do Sul, Brazil, and status of those patients discovered by 30 April 1982.*

Statistical discharge criterion	No. statistical discharges 12/1/74–12/31/80	Patients discovered by 4/30/82				
		Dead	Alive, living outside Rio Grande do Sul	Alive, living in Rio Grande do Sul without active Hansen's disease	Alive, living in Rio Grande do Sul with active Hansen's disease	Total
First criterion (life table)	257 (100%)	19 (7.4%)	0 (0%)	0 (0%)	0 (0%)	19 (7.4%)
Second criterion (patients out of control more than 20 years)	119 (100%)	5 (4.2%)	0 (0%)	0 (0%)	2 (1.7%)	7 (5.9%)
Third criterion (Mitsuda-positive patients out of control more than ten years)	130 (100%)	5 (3.8%)	6 (4.6%)	10 (7.7%)	2 (1.5%)	23 (17.7%)
Total	506 (100%)	29 (5.7%)	6 (1.2%)	10 (2.0%)	4 (0.8%)	49 (9.7%)

drawn from the active record after being out of control for ten years, assuming that if they were alive they would no longer have active Hansen's disease.

In summary, the following patients had "statistical discharge":

1) patients whose probability of being alive according to the life table was less than 50%, despite their clinical type;

2) Mitsuda-negative patients who were not included in the first criterion and whose whereabouts have been unknown for more than 20 years, despite their ages; and

3) Mitsuda-positive patients who were not included in the first criterion and whose whereabouts have been unknown for more than ten years, despite their ages.

RESULTS

The state of Rio Grande do Sul, with a population of 7.8 million, has a prevalence of Hansen's disease ranging from 0.4–0.45 cases per 1000 inhabitants ([6]). On 30 November 1974, there were 3461 reported cases, 539 of which were of unknown whereabouts (out of control for more than three years at that time). From 1 December 1974 (the date this method was put in use) to 31 December 1980, 506 Hansen's disease patients were "statistically discharged"; 342 of these discharges occurred in the first year in which the method was used when all cases of unknown whereabouts included in one of the three "statistical discharge" criteria were eliminated. These cases had been accumulated since 1933, when Hansen's disease started to be reported in Rio Grande do Sul.

In the following five years, 164 Hansen's disease patients were withdrawn from the active record, an average of 32.8 cases per year, representing approximately 1% of the absolute prevalence in the state which has remained about 3200 cases. Out of the 506 patients who were withdrawn, 49 (9.7%) had their whereabouts discovered by 30 April 1982; 29 of these had died and 6 were living in other Brazilian states or in other countries and, therefore, could not be included in the active record of Rio Grande do Sul. The remaining 14, alive and living in Rio Grande do Sul, were re-examined and only four of them had active Hansen's disease (Table 5). Out of these 506 patients who received "statistical discharge," 257 were included in the first criterion (life table), 119 in the second (Mitsuda-negative patients who had been lost for more than 20 years), and 130 in the third one (Mitsuda-positive patients who had been lost for more than ten years). Up to 30 April 1982, not one of the 257 patients withdrawn according to the life table was found to be alive, suggesting that this criterion is 100% accurate. Two patients out of 119 (1.7%) withdrawn in the second criterion were found to be alive and with the disease in progress, suggesting an accuracy rate higher than 98%. Finally, 12 patients out of 130 (9.2%) included in the third criterion were found living in Rio Grande do Sul but just two of them (1.5%) had Hansen's disease in progress. These data indicate an average accuracy rate of 99.2% for the three criteria. The continuous usage of these criteria and, consequently, a longer period of investigation will confirm the accuracy of the figures we have found, as well as provide more accurate data about the effectiveness of the method.

It should be pointed out that the two Mitsuda-negative patients included in the second criterion and found to be alive had been treated by private physicians who had not supplied information to our central record. This is in keeping with the assumption that Mitsuda-negative patients hardly live for more than 20 years without any treatment. One of the two patients included in the third criterion, with active disease, was found to be borderline by clinical and laboratory criteria.

The fact that no patient withdrawn by using the life table was found alive could, at first sight, seem to be a better result than would be expected. Indeed, patients who had "statistical discharge," in this criterion, generally had almost a 50% mathematical probability of being alive at the time they were withdrawn from the active record. However, there are several factors which considerably lessen their chance of actually being alive:

1) Mitsuda-negative patients, without treatment, are subject to several intercurrent illnesses (amyloidosis, hansenic reactions, tuberculosis) that reduce their life expectancy greatly ([7]).

2) Except for death, there is no other reason for someone to have been lost, especially if it is an old person. The Sanitary Service of the Secretary of Health and Environment covers both the rural and urban areas of the whole state and easily finds patients who are out of control (the percentage of control in Rio Grande do Sul has ranged from 80%–85% since 1976) ([6]).

3) The mortality tables that have been used are quite optimistic concerning life expectancy, since they did not take into account unreported deaths, which are estimated in Rio Grande do Sul to be about 25%. (Most of the patients who have been lost are thought to correspond to nonreported deaths.)

Considering the three factors mentioned above, it can be concluded that the criteria used will be more or less accurate when the method is applied to regions with different patient control rates, higher or lower unreported deaths, or when the method is applied to chronic diseases other than Hansen's disease.

SUMMARY

Three criteria for the withdrawal of Hansen's disease patients of unknown whereabouts from the active record are presented, based on patients' age, number of years they have been out of control, and probability of their being alive, calculated according to a regional mortality table. In the first criterion, patients who have been lost and who according to their life table have a lower than 50% mathematical probability of being alive were given "statistical discharge." In the second and third criteria, Mitsuda-negative patients who had been lost for more than 20 years and Mitsuda-positive patients who had been lost for more than ten years and who had not been included in the first criterion were given "statistical discharge."

During the six years in which the method was used in the state of Rio Grande do Sul, Brazil, 506 patients of unknown whereabouts were withdrawn from the active record, four of whom were found to be alive with the disease in progress. The results that have been achieved suggest an accuracy rate of about 100% for the first criterion of "statistical discharge" and about 98% for the other two criteria.

RESUMEN

Se presentan tres criterios para dar de baja de los registros activos, a los pacientes con Hansen, basados en la edad de los pacientes, número de años que han estado sin control, y probabilidad de que aún estén vivos según la tabla de mortalidad regional. En el primer criterio, los pacientes que han estado perdidos y que de acuerdo a su tabla de vida tienen una probabilidad menor del 50% de seguir vivos, recibieron su "baja estadística." En el segundo y tercer criterios, los pacientes Mitsuda negativos que habían estado perdidos por más de 10 años y que no fueron incluídos en el primer criterio recibieron también su "baja estadística."

Durante los seis años en los cuales se usó el método en el estado de Río Grande do Sul, Brasil, de los 506 pacientes que fueron dados de baja de los registros activos, se encontró que 4 de ellos estaban aún vivos y con su enfermedad en progreso. Los resultados obtenidos sugieren un grado de exactitud cercano al 100% por el primer criterio de "baja estadística," y de cerca del 98% por los otros dos criterios.

RÉSUMÉ

On présente ici trois critères qui peuvent être utilisés pour soustraire des dossiers médicaux des cas actifs les malades hanséniens dont on ignore ce qu'ils sont devenus. Ces critères sont basés sur l'âge du malade, le nombre d'années au cours desquelles ils ont été absents, et la probabilité de leur survie, calculée selon une table de mortalité régionale. Selon le premier critère, les malades ont été perdus du vue, et qui, d'après la table de survie, ont une probabilité mathématique inférieure à 50% d'être encore en vie, sont considérés comme mis "statistiquement hors traitement." Selon les deuxième et troisième critères, les malades négatifs au test de Mitsuda, qui ont été perdus de vue pour plus de 20 ans, de même que les malades avec réaction de Mitsuda positive, qui ont été perdus de vue pour plus de 10 ans, et n'ont pas été repris selon le premier critère, sont mis "statistiquement hors traitement." Pendant les 6 années au cours desquelles cette méthode a été utilisée dans l'état du Rio Grande do Sul, au Brésil, 506 malades dont on ignorait ce qu'ils étaient devenus, ont été ainsi retirés des dossiers de malades actifs; quatre de ces malades ont été ensuite retrouvés en vie, souffrant d'une maladie en progression. Les résultats ainsi obtenus suggèrent que le taux de précision est d'environ 100% pour le premier critère de mise hors traitement statistique (est d'environ 98% pour les deux autres critères).

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