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HUMAN SCIENCES RESEARCH COUNCIL

THE DEMAND FOR AND SUPPLY OF
MEDICAL PRACTITIONERS,
1967-1985

182522519F

by

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6.2 DIFFERENCES BETWEEN THE ESTIMATED DEMAND FOR MEDICAL PRACTITIONERS AND THE PROBABLE PRODUCTION OF THE TRAINING INSTITUTIONS

Proceeding from the assumption that a ratio of one medical practitioner to every 1,500 of the population by 1985 is a realistic target, Table 6.2 below was compiled from Tables 4.4 and 6.1.

TABLE 6.2

ESTIMATED SUPPLY OF AND DEMAND FOR MEDICAL PRACTITIONERS FOR ALL

POPULATION GROUPS

Period	1 Estimated require- ment	2 Supply from uni- versities	3 Difference (1-2)	4 Difference per year
1967-1975	6,813	4,176	2,637	330
1967-1980	10,496	5,905	4,591	353
1967-1985	14,298	9,976	4,322	240

In the above table the drop in the "difference per year" figure may be attributed chiefly to the expected higher production of the University of Stellenbosch for the period after 1974 (see Table 6.1). According to Table 6.2 the target of 1 medical practitioner for every 1,500 of the population can be reached only if additional training facilities (not reflected in Table 6.1) are provided.

A comparison of Table 4.3 with Table 6.1 shows that the expected production of new doctors will not be sufficient to maintain the present practitioner : population ratio of 1:2,100 during the period 1967-1980. The expected higher production of the University of Stellenbosch will mean, however, that the situation will improve slightly after 1980.

However, if one starts from the assumption that the non-White medical practitioners will meet the additional needs for medical services which will arise as a result of the growth of the non-White population, on the basis of a ratio of 1 practitioner to every 3,500 of the non-White population, the picture changes. Only the effect of this assumption on the long-term demand (1967-1985) will be discussed. As has been stated, the estimated annual production of non-White doctors is about 35 a year at present. This means that approximately 630 non-White doctors will be trained during this period, if the current rate of training is maintained. According to Table 5.2, 2,286 (409 + 71 + 1806) non-White medical practitioners (practitioner : population ratio of 1:3,500) will be required during the period 1967-1985.

This means a shortage of 1656 non-White medical practitioners, or approximately 80 a year, during the period 1967-1985. If these 80 are subtracted from the 240 a year in Table 6.2, this means that a further 160 White doctors will have to be trained during the period 1967-1985.

7. CONCLUSION

If the practitioner : population ratio is to be 1: 1,500 by 1985, and if it is assumed that non-White medical practitioners will meet the need for medical services resulting from the increase in the non-White population from 1967 to 1985 according to a ratio of 1:3,500, the following additional training facilities will have to be created:

(a) additional facilities for the training of 160 White doctors a year;

(b) additional facilities for the training of 80 non-White doctors a year, comprising 65 Bantu, 3 Asiatics and 12 Coloureds.

It must be remembered that these figures relate to the period 1967-1985. If production begins later than 1967, the figures will be proportionately higher.

It should also be borne in mind that the medium estimates of the population calculated by the Department of Planning were used (see par. 4.1). If the high or low estimates of the population as calculated by this Department are used the number of medical practitioners to be trained every year will be increased or reduced by 20 percent.
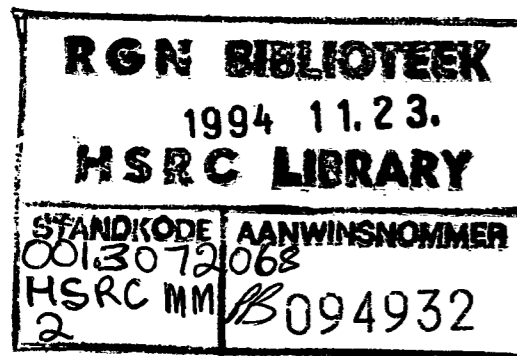
(b) Asiatics

| | Medical practitioner:population ratio | | |
	1:2,500	1:3,000	1:3,500
Number 1967-75 Number annually	38 5	31 4	27 3
Number 1967-80 Number annually	67 5	58 5	48 4
Number 1967-85 Number annually	100 5	84 5	71 4
(c) Bantu			
Number 1967-75 Number annually	1004 125	837 106	717 90
Number 1967-80 Number annually	1724 132	1437 111	1231 95
Number 1967-85 Number annually	2528 140	2107 117	1806 100
Totals of annual demand for non-Whites 1967-75 1967-80 1967-85	157 166 173	133 141 148	113 120 127

6.   IMPLICATIONS FOR TRAINING FACILITIES OF THE ESTIMATED DEMAND FOR MEDICAL PRACTITIONERS

6.1   PRODUCTION OF THE EXISTING TRAINING INSTITUTIONS

The Committee on Medical Training supplied the following prognosis of the annual production of the mainly White universities.

TABLE 6.1

EXPECTED NUMBER OF DOCTORS QUALIFYING AT VARIOUS UNIVERSITIES

Year	Pretoria	Stellenbosch	Witwatersrand	Cape Town	Total
1967	186	38	90	100	314
1968	110	41	90	100	341
1969	114	53	90	100	357
1970	128	50	90	100	368
1971	136	70	90	150	396
1972	140	70	100	150	460
1973	140	70	125	150	485
1974-82 (Annually)	140	120	135	150	545

From the above table it appears that the Committee assumes that the universities mentioned will have achieved maximum production by 1974. Therefore it is assumed that the numbers for the period 1983-1985 will also be 545 annually.

Data provided by the South African Medical Council show that the non-White medical school of the University of Natal has, since 1964, had an average of about 35 sixth-year students every year. If it is assumed that all the students will qualify, the production of non-White doctors may at present be put at 35 a year, and this assumption would not be an under-estimate.

Thus provision cannot be made in the foreseealbe future for the non–White section of the population to be self-sufficient as regards medical services. Asiatics may possibly be the exception.

In this chapter the effect of certain assumptions on the demand for non–White medical practitioners is investigated. Attention is paid only to the growth of the non–White population. The demand for medical practitioners is estimated only in terms of this growth, if the practitioner : population ratio is put at 1 to 2,500, 1 to 3,000 or 1 to 3,500, while the ratio of the total number of medical practitioners to the total population should still amount to 1 to 1,500 in 1985. It is assumed, for example, that, according to the first ratio, one Coloured medical practitioner will be required for every 2,500 coloureds in excess of the Coloured population of 1967.

5.1   ESTIMATED GROWTH OF THE NON–WHITE POPULATION, 1967–1985

The table below shows the estimated non–White population for the various projection periods (5), as well as the increase over the 1967 population. Once again the medium estimate is accepted as realistic.

TABLE 5.1

ESTIMATED GROWTH OF THE NON–WHITE POPULATION, 1967–1985 (000ˢ)

	1967	1975		1980		1985	
	Number	Number	Increase	Number	Increase	Number	Increase
Coloureds	1,859	2,407	548	2,814	955	3,291	1,432
Asiatics	561	657	96	730	169	812	251
Bantu	12,750	15,261	2,511	17,060	4,310	19,072	6,322

5.2   DEMAND FOR NON–WHITE MEDICAL PRACTITIONERS ACCORDING TO POPULATION GROUP

If the accepted ratios of 1 to 2,500, 1 to 3,000 and 1 to 3,500 are applied to Table 5.1 above, the data for the following table are obtained.

TABLE 5.2

DEMAND FOR NON–WHITE MEIDCAL PRACTITIONERS, 1967 TO 1975, 1980 AND

1985, ACCORDING TO THE VARIOUS PRACTITIONER : POPULATION RATIOS

(a) Coloureds

	Medical practitioner:population ratio		
	1:2,500	1:3,000	1:3,500
Number 1967–75	219	183	156
Number annually	27	23	20
Number 1967–80	382	318	273
Number annually	29	25	21
Number 1967–85	572	477	409
Number annually	31	26	23

4.3   DEMAND FOR MEDICAL PRACTITIONERS IF IT IS ASSUMED THAT THE RATIO OF MEDICAL PRACTITIO-
NERS TO POPULATION WILL BE 1 TO 1,500 BY 1985

The ratio of medical practitioners to population was 1 to 2,100 in 1967. If the ratio
should amount to 1 to 1,500 in 1985, and if the population in 1985 is put at 28,952,000,
this means that there will have to be 19,300 economically active medical practitioners
in 1985. If it is assumed further that this change in the medical practitioner: popu-
lation ratio will take place rectilinearly from 1967, 576 economically active medical
practitioners will be required every year in addition to the number existing in 1967.
With the inclusion of the estimated losses from 1967 on in the calculations, the table
below was compiled. Once again it was assumed that the percentage of female medical
practitioners would remain constant at 11.6 during the period covered.

TABLE 4.4

NUMBER OF DOCTORS TO BE TRAINED TO MEET THE ESTIMATED NEED IF THE PRACTITIONER :

POPULATION RATIO IS PUT AT 1 : 1,500 FOR 1985

	1975			1980			1985		
	M	F	Total	M	F	Total	M	F	Total
Demand for medical prac-titioners	11,959	1,569	13,528	14,505	1,903	16,408	17,051	2,237	19,288
Survivors from 1967	5,856	859	6,715	5,146	766	5,912	4,330	660	4,990
Difference	6,103	710	6,813	9,359	1,137	10,496	12,721	1,577	14,298
Number required every year from 1967	763	88	851	720	87	807	707	87	794

It should be noted that the losses from among doctors qualifying from 1967 on were not
included in the calculations for the above table. In this respect the estimate is
therefore conservative. The differences indicated in the numbers required annually for
the various target years should be attributed chiefly to the estimated age structure of
the economically active medical practitioners and to the fact that the population in-
crease is not altogether rectilinear. The population projections assume, inter alia,
a lower net gain in immigrants from 1976 on. For the period up to 1975 provision is
made for an annual net gain of 30,000 immigrants, as against an annual net gain of
20,000 for the period after 1975.

5.   DEMAND FOR NON-WHITE MEDICAL PRACTITIONERS

It is surely desirable for every population group in the Republic to supply its own
needs in all fields. However, in regard to medical services for non-Whites, any es-
timate of the demand for medical practitioners based on complete self-sufficiency in
medical services for non-Whites and on a reasonable practitioner : population ratio
would be quite unrealistic. By reasonable here is meant a practitioner : population
ratio which is at all comparable with that among Whites. The data below support this
statement. According to Manpower Survey No. 6 of the Department of Labour, there was a
total of 6,678 economically active medical practitioners in 1965. Of these, 24 (0.4
per cent) were Coloureds, 115 (1.7 per cent) Asiatics and 55 (0.8 per cent) Bantu[1].
This means that, according to the mid-year estimate (4) of the population for 1965,
the medical practitioner : population ratio was as follows:

        Asiatics: 1 to 4760
        Coloureds: 1 to 75,200
        Bantu :   1 to 226,000

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[1] H.W. Snyman, in "Die lewering van gesondheidsdienste in die Bantoetuislande" (Geneeskunde, Janua-
ry 1966) puts the number of Bantu medical practitioners in 1965 at about 100. This figure does
not affect the conclusion to be drawn.

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is accepted as realistic. Accordingly the population of the Republic in the target years will be as indicated in Table 4.1.

TABLE 4.1

EXPECTED POPULATION OF THE REPUBLIC OF SOUTH AFRICA (000^S)

	1975	1980	1985
Whites	4,579	5,150	5,777
Coloureds	2,407	2,814	3,291
Asiatics	657	730	812
Bantu	15,261	17,060	19,072
TOTAL	22,904	25,754	28,952

4.2 DEMAND FOR MEDICAL PRACTITIONERS IF THE 1967 PRACTITIONER : POPULATION RATIO REMAINS CONSTANT

As indicated in paragraph 2, page 2, the ratio of economically active medical practitioners to population was 1 to 2,100 in 1967. If this ratio remains constant, the demand for medical practitioners will be as shown in Table 4.2.

TABLE 4.2

DEMAND FOR MEDICAL PRACTITIONERS ACCORDING TO 1967 PRACTITIONER :

POPULATION RATIO

	1967	1975	1980	1985
Population (000^S)	18,733	22,904	25,754	28,952
Number of economically active medical practitioners	8,860	10,906	12,263	13,786

By subtracting the expected number of male and female economically active medical practitioners for the target years 1975, 1980 and 1985 (see Tables 3.4 and 3.8) from the estimated number required in the same years (see Table 4.2) the number of doctors to be trained was determined. The results appear in Table 4.3. It was assumed that the ratio of male to female doctors, i.e. 88.4 to 11.6 (see p. 2) as it was in 1967, would remain constant throughout the whole period until 1985.

TABLE 4.3

NUMBER OF DOCTORS TO BE TRAINED IF THE RATIO OF MEDICAL PRACTITIONERS TO POPU-

LATION REMAINS CONSTANT AT THE 1967 LEVEL

	1975			1980			1985		
	M	F	Total	M	F	Total	M	F	Total
Demand for medical practitioners	9,641	1,265	10,906	10,840	1,423	12,263	12,187	1,599	13,786
Survivors from 1967	5,856	859	6,715	5,146	766	5,912	4,330	660	4,990
Difference	3,785	406	4,191	5,694	657	6,351	7,857	939	8,796
Per year from 1967	473	51	524	438	50	488	436	52	488

these 187 represent 92.1 per cent of the total number of women doctors in this age group. The total number of female medical practitioners for the age group 25-29 years is thus 203. The result of the calculation according to age groups is given in Table 3.7.

TABLE 3.7

ESTIMATED NUMBER OF FEMALE MEDICAL PRACTITIONERS ACCORDING TO

AGE, 1967

Age	Number
20 – 24	32
25 – 29	203
30 – 34	96
35 – 39	158
40 – 44	217
45 – 49	176
50 – 54	149
55 – 59	90
60 – 64	81
65 – 69	67
TOTAL	1269

The effect of deaths was now calculated by applying the indices in Table 3.2, age group by age group. In this way it was calculated how many of the female medical practitioners should still be available in the target years. By then applying the activity rates in Table 3.6 age group by age group to the calculated number of available women doctors, an estimate could be made of the number of economically active women medical practitioners in the target years. The results of these calculations are given in Table 3.8 below.

TABLE 3.8

ESTIMATED NUMBER OF ECONOMICALLY ACTIVE FEMALE MEDICAL PRACTITIONERS IN 1975, 1980 AND 1985 AS A REMAINDER OF THOSE OF 1967, ACCORDING TO AGE GROUP

Age group in 1967	1967	1975	1980	1985
20 – 24	32	27	25	23
25 – 29	187	158	146	133
30 – 34	80	69	63	69
35 – 39	123	105	115	118
40 – 44	155	160	164	148
45 – 49	119	136	123	100
50 – 54	123	107	86	69
55 – 59	71	55	44	
60 – 64	62	42		
65 – 69	45			
TOTAL	997	859	766	660

According to the above table, of the female medical practitioners economically active in 1967, 859 will still be economically active in 1975, 766 in 1980, and 660 in 1985. These figures are based on the assumption that there will be no economically active female medical practitioners older than 72 years.

4. DEMAND FOR MEDICAL PRACTITIONERS IN 1975, 1980 AND 1985

4.1 POPULATION GROWTH IN THE REPUBLIC OF SOUTH AFRICA

The population estimates of the Department of Planning (5) give a high, a medium and a low estimate of the population. For the purposes of this study the medium estimate

THE DEMAND FOR AND SUPPLY OF MEDICAL PRACTITIONERS, 1967-1985

1. INTRODUCTION

This study of the demand for and the supply of medical practitioners is one of a series of studies on the future manpower supply and demand in particular occupations.

1.1 PROBLEM AND POINTS OF DEPARTURE

Behind the term "demand" lies a quite complicated problem. The common use of the term suggests the existence of a quantity or quantities which can be determined objectively and expressed mathematically. It is implied that it is only our incomplete knowledge of the structure and aims of society that prevents the making of such a quantitative statement. However, society has no common aim in regard to the "demand" for people in certain groups of occupations, and the solution to the "demand" problem usually amounts to a compromise. In this connection the Commissie voor Statistich Onderzoek of the Academische Raad of the Netherlands remarks:

".... meer Artzen – maar ook meer predikanten, philosophen, philologen, historici en kunstenaars – kan beteken minder technici, minder natuur- en scheikundigen, minder leidinggevenden aan het materiële voortbrengings-proces. Voor de opleiding en de instandhouding van de eerste categorie brengt de gehele samenleving materiële offers. De vraag hoe groot die offers moeten sijn, is niet voor wetenschappelijke beantwoording vatbaar". (1, 3)

In this study the term "demand" is used to indicate a certain situation; it does not mean that, if the demand is met, a certain optimum or ideal state in regard to medical services will have been achieved.

Although the "demand" for medical practitioners cannot really be stated in quantitative terms, it is possible to show that the demand is increasing almost the whole world over. This increase is the result of a combination of such factors as the increasing number of older people in the population, increasing industrialisation, increasing traffic density, the need for research, increasingly complicated diagnosis and therapy and the rise in the per capita income. (1)

Since these factors are present in the Republic of South Africa as well, it may be accepted that the demand for medical practitioners will increase in the Republic too. As the non-White section of the population develops socially and economically, they too will make increasing use of medical services and thus also increase the demand for medical practitioners. The increase in the provision of medical services for non-Whites already reflects this trend.

1.2 AIM

The purpose of this study is to investigate the implications for training if various demand situations are assumed for specific projection periods.

The projection periods used are 1967-1975, 1967-1980 and 1967-1985, while the demand situations are the following:

(a) the ratio of economically active medical practitioners to population remains constant at the 1967 level during the projection periods;

(b) the ratio of economically active medical practitioners to population is 1 to 1,500 in 1985; and

(c) the demand situation of (b) is reached in 1985, but if we assume in addition that non-White medical practitioners will fully meet the medical needs of the increase in the non-White population on the basis of a ratio of 1 : 2,500, 1 : 3,000 or 1 : 3,500, i.e. that one non-White medical practitioner will be required for every additional 2,500, 3,000 or 3,500 non-Whites after 1967.

The demand situations in (b) and (c) above were determined somewhat arbitrarily, but are based on the following considerations:

(i) The demand for medical practitioners will, in all probability, increase. No useful purpose is served, however, by taking as a point of departure a demand situation that will have quite unrealistic implications for training.

(ii) It will be desirable for the non-White population groups of the Republic to make a greater contribution in future to the provision of medical services.

METHOD

The method followed in this study may be summarised as follows:

(a) The number of persons economically active as medical practitioners was estimated, and by dividing this figure into the estimated population for 1967 the ratio of economically active medical practitioners[1] to the population for 1967 was determined.

(b) An estimate was made of the losses of economically active medical practitioners as a result of retirement and death for the projection periods.

(c) Then an estimate was made of the demand for the various projection periods, taking into account the losses referred to in (b), with the postulated demand situations as starting points.

2.   ESTIMATE OF THE NUMBER OF ECONOMICALLY ACTIVE MEDICAL PRACTITIONERS AND RATIO OF MEDICAL PRACTITIONERS TO POPULATION, 1967

In 1967, 9,639 doctors were registered with the South African Medical Council. The Council makes no distinctions on the basis of race, sex or age, and in addition has no information to indicate how many of these doctors are actually economically active as medical practitioners. Of the 9,639 doctors, details of 3,066, or almost one-third, have to date been recorded in the National Register of Natural and Social Scientists. Of these 3,066 persons, 247 or 8.1 per cent no longer work as medical practitioners. Table 2.1 shows the occupations of these persons.

From Table 2.1 it is clear that the great majority of these persons have already retired or are housewives (142 persons). Farming (17 persons), teaching (lecturers and professors) (37 persons) and managerial and executive occupations (24 persons) have also taken their toll.

If it can be accepted that the medical practitioners whose names appear in the National Register are a representative sample of the registered medical practitioners, an estimate can be made of the number of economically active medical practitioners for 1967.

From the data supplied by the Medical Council only the percentage of specialists in the medical profession can be compared with the percentage of specialists in the National Register. According to the Medical Council the specialists constitute 22.9 per cent of the doctors. Of the doctors in the National Register, 24.0 per cent are specialists. The difference between these two percentages is only 1.1 per cent. According to this norm the medical practitioners whose data appear in the National Register can be considered representative of the medical practitioners in the country as a whole.

Table 2.2 shows the age distribution of doctors in practice (according to the National Register). According to this table 15.8 per cent of the men and 18.2 per cent of the women are in the age group 25 to 29 years. These percentages seem unrealistically high if read together with the other data. This age group is very probably over-represented, the reason being that all persons completing their studies since 1965 have been asked to supply information for the Register. Otherwise the figures in Tables 2.1 and 2.2 show a reasonable degree of face validity, and therefore it is assumed that the doctors in the National Register are a representative sample of the doctors in the country.

As 8.1 per cent of the doctors whose data appear in the National Register are not economically active as medical practitioners, the number of economically active medical practitioners for 1967 is estimated at 8,860, of whom 1,030 (11.6 per cent) are women and 7,030 (88.4 per cent) men.

The Bureau of Statistics (2) in its mid-year estimate for 1967, put the population at 18,733,000. This means, therefore, that there was 1 economically active medical practitioner for every 2,100 members of the population in 1967.

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[1] "Economically active medical practitioners" means in this study persons who are economically active as medical practitioners.

Figure 3.1 gives a graphic representation of the data in Table 3.5.

FIGURE 3.1

PERCENTAGE OF ECONOMICALLY ACTIVE FEMALE MEDICAL PRACTITIONERS ACCORDING TO AGE, 1967
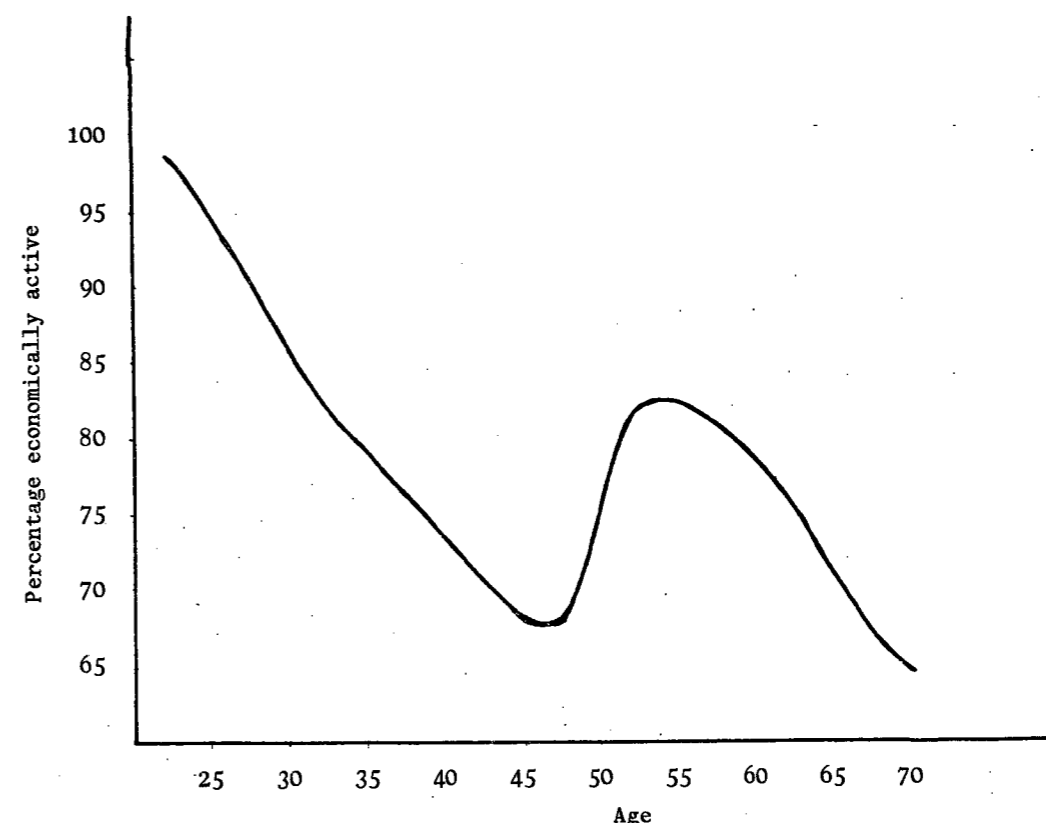
From the above figure the activity rates for female medical practitioners in the target years were read off according to age. The result is given in Table 3.6 below.

TABLE 3.6

ESTIMATED ACTIVITY RATES FOR FEMALE MEDICAL PRACTITIONERS IN 1967 AND IN THE TARGET YEARS

1967		1975		1980		1985	
Age group	Activity	Age group	Activity	Age group	Activity	Age group	Activity
(20–24)	100.0	(28–32)	86.5	(33–37)	79.5	(38–42)	74.0
(25–29)	92.1	(33–37)	79.5	(38–42)	74.0	(43–47)	68.5
(30–34)	83.3	(38–42)	74.0	(43–47)	68.5	(48–52)	77.0
(35–39)	77.6	(43–47)	68.5	(48–52)	77.0	(53–57)	82.0
(40–44)	71.6	(48–52)	77.0	(53–57)	82.0	(58–62)	78.5
(45–49)	67.3	(53–57)	82.0	(58–62)	78.5	(63–67)	70.0
(50–54)	82.6	(58–62)	78.5	(63–67)	70.0	(68–72)	63.5
(55–59)	78.6	(63–67)	70.0	(68–72)	63.5		
(60–64)	76.0	(68–72)	63.5				

From Tables 3.5 and 3.1 the total number of female medical practitioners in each age group can now be calculated. For example, in the age group 25-29 years there are, according to Table 3.1, 187 economically active women doctors. According to Table 3.5,

Because the starting point for this study was 1967 and the target years are 1975, 1980 and 1985, the ages in those years no longer correspond to the age intervals used.

For example, the group 20-24 years old in 1967 will be 28-32 years old in 1975, 33-37 years old in 1980 and 38-42 years old in 1985.

Thus, in 1975, two new age groups will arise, i.e. 63-67 and 68-72, from the groups 55-59 and 60-64 years old in 1967. Because the activity rates of 88.6 per cent for the age group 65-69 years and 72.4 per cent for the age group 70-74 years are considered too high, they are regarded as realistic for the groups 63-67 and 68-72 years.

An estimate of the number of males who will be economically active as medical practitioners in the three target years as a remainder of those economically active in 1967 was obtained by taking the data in Table 3.3 and using the above assumptions about activity rates, and appears in Table 3.4.

TABLE 3.4

ESTIMATED NUMBER OF ECONOMICALLY ACTIVE MALE MEDICAL PRACTITIONERS IN 1975, 1980 AND 1985 AS A REMAINDER OF THOSE OF 1967, ACCORDING TO AGE GROUP

Age group	1975	1980	1985
28-32	124		
33-37	1088	123	
38-42	630	1069	121
43-47	731	614	1041
48-52	1126	701	588
53-57	940	1053	653
58-62	674	848	951
63-67	346	507	637
68-72	197	231	339
TOTAL	5856	5146	4330

3.3 EFFECT IN 1975, 1980 AND 1985 OF DEATHS, LEAVING OF AND RE-ENTRY INTO THE PROFESSION ON THE NUMBER OF FEMALE MEDICAL PRACTITIONERS OF 1967

Because the part played by women in the labour force is so different from that of men, the method used for men doctors is not suitable for calculating the effect of deaths and of leaving and re-entry into the profession in the case of women.

Table 3.5 shows the estimated activity rates, as obtained from Tables 2.1 and 2.2, for female medical practitioners according to age group.

TABLE 3.5

ESTIMATED ACTIVITY RATES FOR FEMALE MEDICAL PRACTITIONERS ACCORDING TO AGE GROUP, 1967

Age group	Activity rate
20-24	100.0
25-29	92.1
30-34	83.3
35-39	77.6
40-44	71.6
45-49	67.3
50-54	82.6
55-59	78.6
60-64	76.0
65-69	66.7
70-74	62.5

TABLE 2.1

OCCUPATIONAL DISTRIBUTION OF QUALIFIED DOCTORS NOT WORKING AS MEDICAL PRACTITIONERS

Age group in years	Engineering, architecture, survey-ing M	F	Chemistry, physics, etc. M	F	Veterinary science, biology, agronomy M	F	Medical Services M	F	Teaching M	F	Religion M	F	Writing, art M	F	Human sciences and other occupations M	F	Managerial, executive, administrative occupations M	F	Clerical occupations M	F	Selling and related occupations M	F	Farming, fishing, hunting, No profitable occupation etc. M	F	Total Male No.	%	Total Female No.	%
20-24																							1		1	0.6		
25-29									1								1	1					3	4	5	3.2	5	5.6
30-34									5								1						1	5	8	5.1	5	5.6
35-39	1				1		1		7								6							11	16	10.1	11	12.4
40-44						1	2	1	4	2					1								4	16	11	6.9	19	21.3
45-49			1		1		1		6	1					1	1	3						3	14	16	10.1	18	20.2
50-54			1		1		1		4	1							5			1			4	7	17	10.8	8	9.0
55-59									2							1					1		1	5	4	2.5	6	6.7
60-64					1		1		2		1		1			1	6					1	4	5	16	10.1	6	6.7
65-69			1						1		1											1	14	6	20	12.7	7	8.0
70-74																	1						21	3	23	14.6	3	3.4
75-79									1														7		8	5.1		
80+																							12	1	13	8.2	1	1.1
Total	1		3		4	1	7	1	33	4	2		1		2	3	23	1	1	1	1	1	65	77	158	100.0	89	100.0
M %	0.63		1.90		2.53		4.43		20.89		1.27		0.63		1.27		14.56		0.63		0.63		41.14		100.0			
V %		1.12				1.12		1.12		4.50						3.38		1.12		1.12		1.12		86.52			100.0	

TABLE 2.2

AGE DISTRIBUTION OF DOCTORS IN PRACTICE ACCORDING TO THE NATIONAL REGISTER

Age group[1]	General practitioners		Specialists		Total			
	M	F	M	F	M		F	
					N	%	N	%
20-24	48	10	1		49	1.8	10	3.1
25-29	413	56	21	2	434	15.8	58	18.2
30-34	233	23	20	2	253	9.2	25	7.8
35-39	210	33	86	5	296	10.8	38	11.9
40-44	334	44	133	4	467	17.0	48	15.0
45-49	283	33	122	4	405	14.7	37	11.6
50-54	206	32	99	6	305	11.1	38	11.9
55-59	142	17	50	5	192	7.0	22	6.9
60-64	101	17	44	2	145	5.3	19	6.0
65-69	93	13	16	1	109	4.0	14	4.4
70-74	47	5	8		55	2.0	5	1.6
75-79	17	2	3		20	0.7	2	0.6
80+	13	3	4		17	0.6	3	1.0
TOTAL	2140	288	607	31	2747	100.0	319	100.0

3. ESTIMATE OF THE EFFECT OF LOSSES TO THE PROFESSION FOR THE PERIODS 1967-1975, 1967-1980 AND 1967-1985

3.1 EFFECT OF THE LOSS OF MEN DUE TO DEATH

For an estimate of losses due to death it is essential to obtain a picture of the age structure of the medical profession. If it is assumed that the age and sex structure of the medical profession as represented in the National Register is valid for the profession in the country as a whole, the age and sex distribution of economically active medical practitioners in 1967 was as shown in Table 3.1 below.

TABLE 3.1

ESTIMATED AGE AND SEX DISTRIBUTION OF ECONOMICALLY ACTIVE MEDICAL PRACTITIONERS, 1967

Age group	M		F	
	N	%	N	%
20-24	127	1.8	32	3.1
25-29	1111	15.8	187	18.2
30-34	647	9.2	80	7.8
35-39	759	10.8	123	11.9
40-44	1195	17.0	155	15.0
45-49	1033	14.7	119	11.6
50-54	780	11.1	123	11.9
55-59	492	7.0	71	6.9
60-64	373	5.3	62	6.0
65-69	281	4.0	45	4.4
70-74	141	2.0	17	1.6
75-79	49	0.7	6	0.6
80+	42	0.6	10	1.0
TOTAL	7030	100.0	1030	100.0

_____
1) Age groups are given in years throughout.

From the 1(x)- column of the Life Tables (3) indices were calculated which were used to estimate losses due to death for certain periods. The table below shows the indices for the estimate.

TABLE 3.2

INDICES FOR THE CALCULATION OF LOSSES DUE TO DEATH

Age group in 1967	1967-1975		1967-1980		1967-1985	
	M	F	M	F	M	F
20-24	.98287	.98994	.96951	.98105	.95257	.96893
25-29	.97963	.98685	.96251	.97466	.93754	.95764
30-34	.97413	.98196	.94885	.96482	.90946	.93885
35-39	.96319	.97478	.92320	.94853	.86036	.91097
40-44	.94209	.96203	.88162	.92394	.79550	.87205
45-49	.91011	.94343	.82117	.89043	.70512	.81599
50-54	.86396	.91960	.74179	.82469	.59975	.73518
55-59	.80277	.88276	.64820	.77007		
60-64	.73260	.82394				

Applying the indices for men in Table 3.2, age group by age group, to the men in Table 3.1, we get Table 3.3. Table 3.2 omits any group which would be 75 years old and older at the end of the projection period.

TABLE 3.3

SURVIVORS IN 1975, 1980 AND 1985 OF THE MALE ECONOMICALLY ACTIVE PRACTITIONERS OF 1967

Age group in 1967	Number of survivors		
	1975	1980	1985
20-24	124	123	121
25-29	1088	1069	1041
30-34	630	614	588
35-39	731	701	653
40-44	1126	1053	951
45-49	940	848	728
50-54	674	578	468
55-59	395	319	
60-64	273		
TOTAL	5981	5305	4550

As has already been remarked, the age group 25-29 is probably over-represented. This results in a conservative estimate of losses, because losses due to death in this group are lower than in the later age groups.

3.2 EFFECT OF LOSS OF MEN DUE TO RETIREMENT

From the column "No profitable occupation" in Table 2.1 it is clear that most men doctors remain in practice until they are at least about 64 years old and then retire. Losses through retirement of men younger than 65 are insignificant and are left out of account.

From Tables 2.1 and 2.2 the percentages of doctors in the age groups 65-69 years and 70-74 years who are still economically active as medical practitioners can be determined. These percentages are 88.6 (109 out of 123) and 72.4 (55 out of 76), respectively. It is assumed that there are no doctors older than 74 years who are still economically active as medical practitioners, because the above percentages appear very high when compared with the percentage of economically active men in the total population. This compensates to some extent for the activity rates that are possibly too high for those age groups.