

ORAL CANCER (I.C.D. 140-146) IN SOUTH AFRICA
WITH SPECIAL REFERENCE TO ITS OCCURRENCE
AMONG THE CAPE COLOURED AND INDIAN PEOPLE
OF THE CAPE PENINSULA

by

HERMANUS STEYN BREYTENBACH
B.Sc., T.H.O.D., B.Ch.D.(Pret), M.Ch.D. (M.F.O. Surg. Pret),
Ph.D. (Odont. Stell)

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SUPERVISOR: PROF. C.W. VAN WYK
Department of Oral Pathology
Faculty of Dentistry
University of Stellenbosch

1980

*Every man's work shall
be made manifest*



I Corinthians : 3

This book is dedicated to

my wife

WONNIE

and

children

LAURETTE AND JOHAN

in grateful thanks for their inspiration and for their
love and understanding while I was busy with the project.



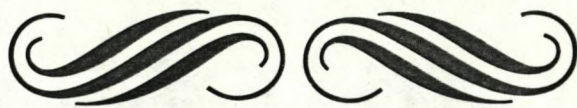
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H.S. Breytenbach

Bellville
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1980



*The Peninsula of the
Cape of Good Hope*

Photo : Mr. Terence Mc Nally, Cape Town



Coloured



Indian

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P R E F A C E

The purpose of this study is to determine the incidence of oral cancer in the Coloured and Indian population groups in the Cape Peninsula.

Only by doing active research on the epidemiology of oral malignancy will we be able to correlate the pattern with possible etiological factors. This type of research should be a continuing programme in order to establish whether the pattern remains stationary or whether it changes. This in turn will indicate where the emphasis should be placed in the educational and preventive programme.

A. CAPE COLOURED

ORIGIN

The Coloured population is the result of miscegenation between slaves from the Malay archipelago, Hottentots and Europeans. An admixture of Bushmen and South African Blacks is also a contributing factor in the forming of the Coloured population group. It can be stated that approximately 90 percent of Coloured people bear traces of White blood infusion.

Different writers give descriptions of what is understood by the term "Coloured" in South Africa. Some of these are:

A.L.J. Venter (1974) - "... With his liberal admixture of White blood, gained over a dozen or more generations, he is a product of a new culture which has become established at the southern tip of Africa. One British observer noted that the Cape Coloured was the price South Africa had to pay over the years of claiming a heritage across one of the busiest sea lanes. He also regarded them with what some might term Orwellian sagacity as the archetype of the future multiracial society of the world. What is not always accepted about the Coloured is that, apart from his White and Hottentot blood, his veins have received over the years liberal infusions of Malay, Indian, Bastard-Hottentot, Madagascan, East African and Mozambican, Indonesian, Phillipino-Spanish, ... Jewish and a host of every possible European influence. Each has added its own distinctive characteristic to the community. Always, however, the European element shines through: in most instances this is the dominant factor."

Dr. M.C. Botha found that taken as a whole the Cape Coloured community possesses a blood-group pattern constituting approximately 34 per cent western European, 36 per cent Hottentot and African and 30 per cent Asian genes (Venter, 1974).

Marais (1968) calculated that by the end of the 18th century the proportion of Coloured blood in the European population amounted to approximately 1 per cent. It is probably much higher at the moment.

As a result of the miscegenation between European and non-European in South Africa, a number of offspring of these mixed unions went to swell the numbers of the Coloured population, although some of them joined the ranks of the Europeans.

SOCIAL PATTERN

(a) Drinking pattern

The drinking pattern of the Coloured is closely associated with his socio-economic position. The tot-system by which a large percentage of agricultural labourers receive a daily measure of wine results in a regular drinking pattern, which "habit of drinking to excess, implanted from generation to generation, is still one of the besetting sins of the Coloured people" (Marais, 1968). Many youths are reared in an atmosphere where use and misuse of alcohol are general and they therefore adopt similar behaviour.

Convictions for drunkenness in South Africa 1959-1962

Year	Whites	Coloureds	Indians	Bantu
1959	11 185	41 922	1 126	32 167
1960	8 937	38 291	787	26 663
1961	7 814	39 097	772	25 158
1962	7 062	33 687	724	22 451

A recent survey (Louw 1979) reveals that the pattern in the Peninsula not only closely resembles this but is worse and is gradually deteriorating especially amongst the youth.

(b) Health state

The Theron Commission (1977) mentions that the health state of the Coloured population as well as the utilisation of health services is very closely related to the socio-economic standard of the community.

Factors which play a role are income, consumer goods, eating-habits, clothing, housing and alcohol abuse. The life expectancy of the Coloured has risen from 42,56 to 50,54 years for females and 43,19 to 57,22 years for males (equivalent for European females 72,96 years and 65,08 years for males) for the period 1970 to 1975. This results in an increasing adult population.

(c) Socio-economic pattern

According to the Theron Commission (1977) the majority of the

Coloured population group of the Cape Peninsula is still on a very low socio-economic level but indications are that there is a gradual movement towards improvement.

POPULATION PYRAMID

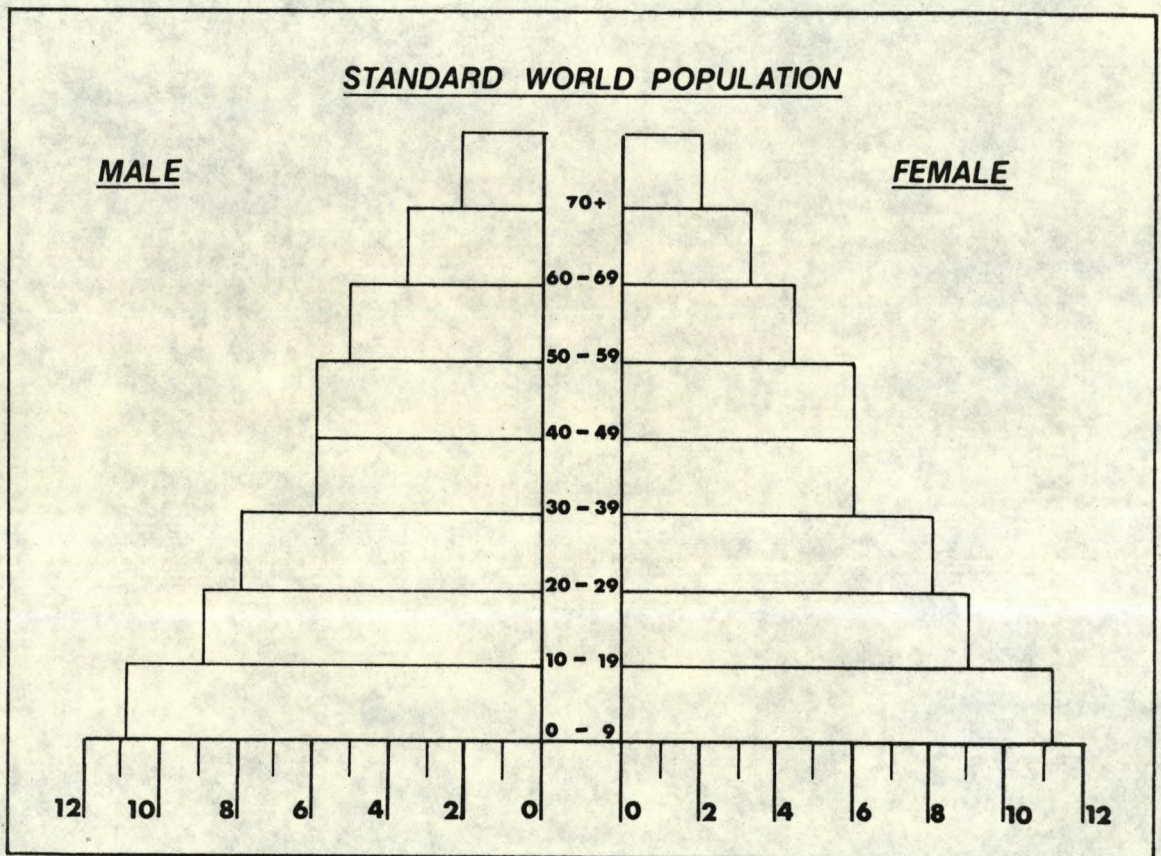


Fig.1 Standard world population pyramid (data obtained from Cancer in Five Continents, Vol.III, and World Health Organisation statistics Annual, Vol.I, 1978).

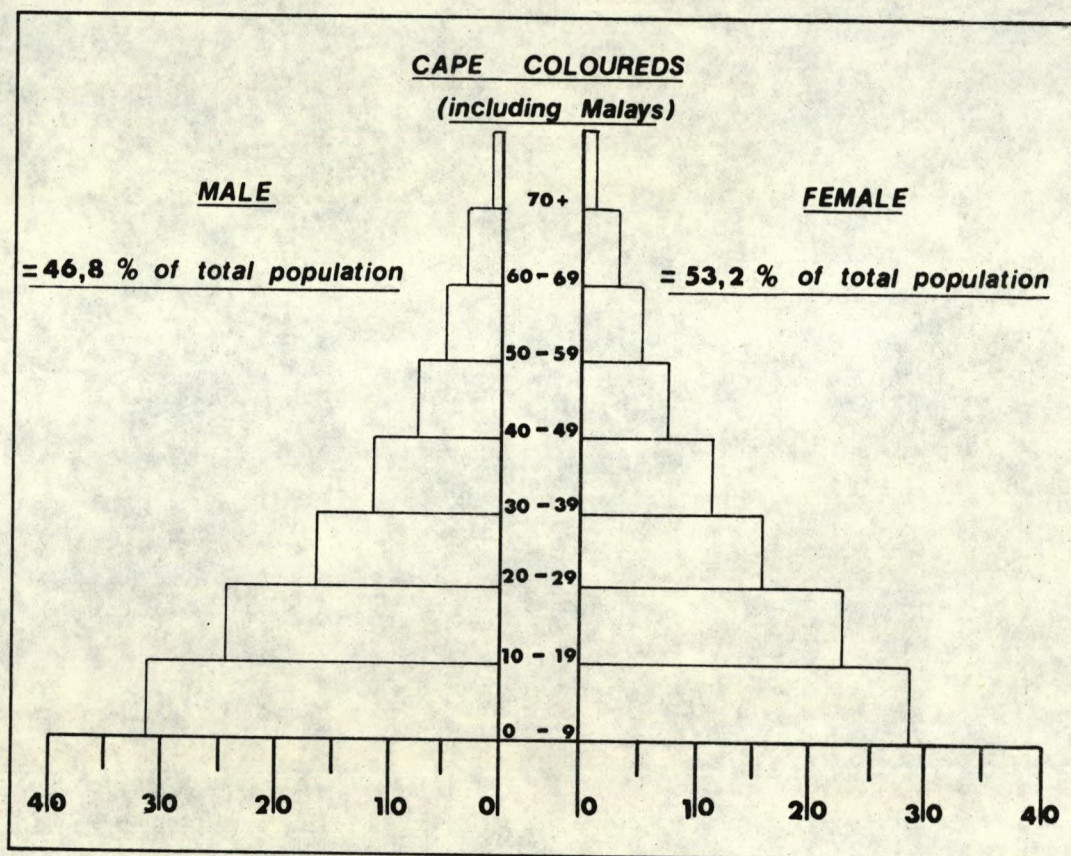


Fig.ii Population Pyramid of Cape Coloureds (including Malays) residing in the Cape Peninsula. (Annual report of Medical Officer of Health, City of Cape Town, 1978.)

B. THE MALAYS

ORIGIN

The first group of Malays arrived in the Cape in 1667 - either as slaves or exiles.

According to Du Plessis (1947) the Cape Malay group consists of many racial elements such as Javanese, Arabs, Indians, Ceylonese, Chinese and Europeans mixed with Negro and Coloured. It is a mixed community, linked by one bond - the Islamic religion.

SOCIAL PATTERN

Originally the Cape Malays were independent craftsmen and artisans, who were much sought after on account of their skill and reliability, but recently industrial development has forced many out of their traditional trades into factory work.

The Cape Malays speak mostly Afrikaans but they have maintained the customs such as dress, conduct and eating habits, faith and practices of their religion. Their faithfulness to Islam is clearly manifested in their awareness of their heritage and adherence to traditional feasts, ceremonies at weddings, funerals and a pilgrimage to Mecca. Home and family life are firmly established; illegitimacy and divorce are rare. They abstain from alcohol and certain foods.

In the early days the habit of chewing betel nuts was practised by the Malays but this habit does not exist today (Gerber, 1959).

They are exceptionally fond of coloured sweetened soft drinks which are freely available (Du Plessis, 1947).

The Malay population pyramid (Fig. iii) is very similar to that of the Cape Coloured group (including Malays).

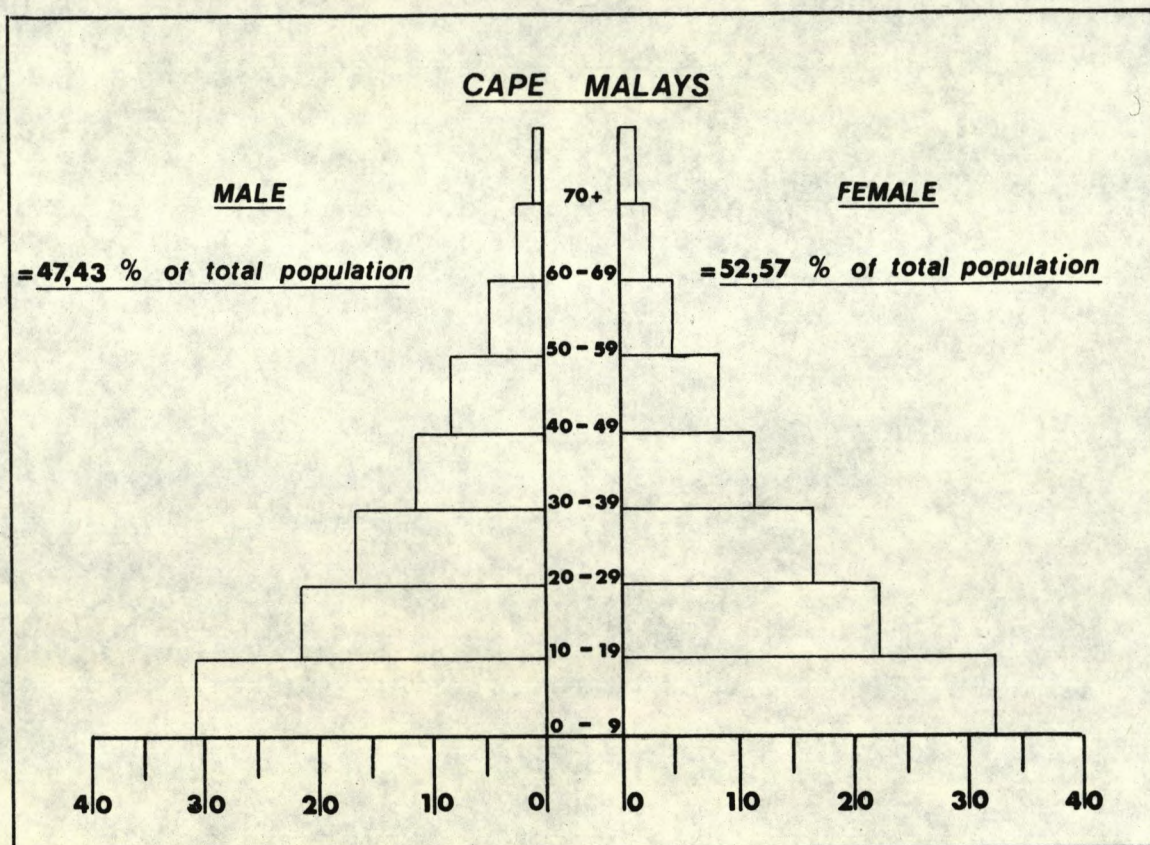


Fig.iii Population pyramid. Cape Malays residing in the Peninsula. (Annual report of Medical Officer of Health, City of Cape Town, 1978 and Greyling 1978.)

C. SOUTH AFRICANS OF INDIAN EXTRACTION

ORIGIN

With the exception of the Indians of Sri Lanka (Ceylon), the Indian population of South Africa is the largest group of people of Indian origin outside India and Pakistan. There are more Indians in South Africa than in the rest of the African continent.

The Indian community owes its presence in the country primarily to the demand by farmers in the former British Colony of Natal for the

recruitment of Indian labourers for the newly established sugar plantations. The first indentured labourers arrived in 1860. These immigrant labourers were followed by so-called "passenger" Indians and of the total Indian population in South Africa nearly 83 per cent are settled in the province of Natal. The majority of the population adhere to the Muslim faith.

SOCIAL PATTERN

Their social and family life differ in many respects from that of the other population groups. Status in the community is established by kinsfolk; relationships among kinsmen and behaviour in the family structure are of primary importance. They have great deference for the older generation and the foundation for their social values is laid within the family circle. Great emphasis is laid on arranged marriages, and the recorded divorce rate is exceptionally low. They are law-abiding, family men and hard workers.

Unlike the Natal population where many are labourers, the Indian population in the Cape mainly consists of shopkeepers, traders, factory workers, waiters and artisans.

The eating habits of Indians are quite distinctive and they make use of very highly spiced foods.

Religious rites and forms of worship are predetermined by the religious grouping and depend on whether they are Hindu or Muslim.

The economic situation of the Indian community living in the Peninsula is improving steadily (Van der Spuy, 1974) and unemployment is diminishing.

The population pyramid of the South African Indian (fig. iv) reveals a marginally larger adult population compared to the Coloured or Malay.

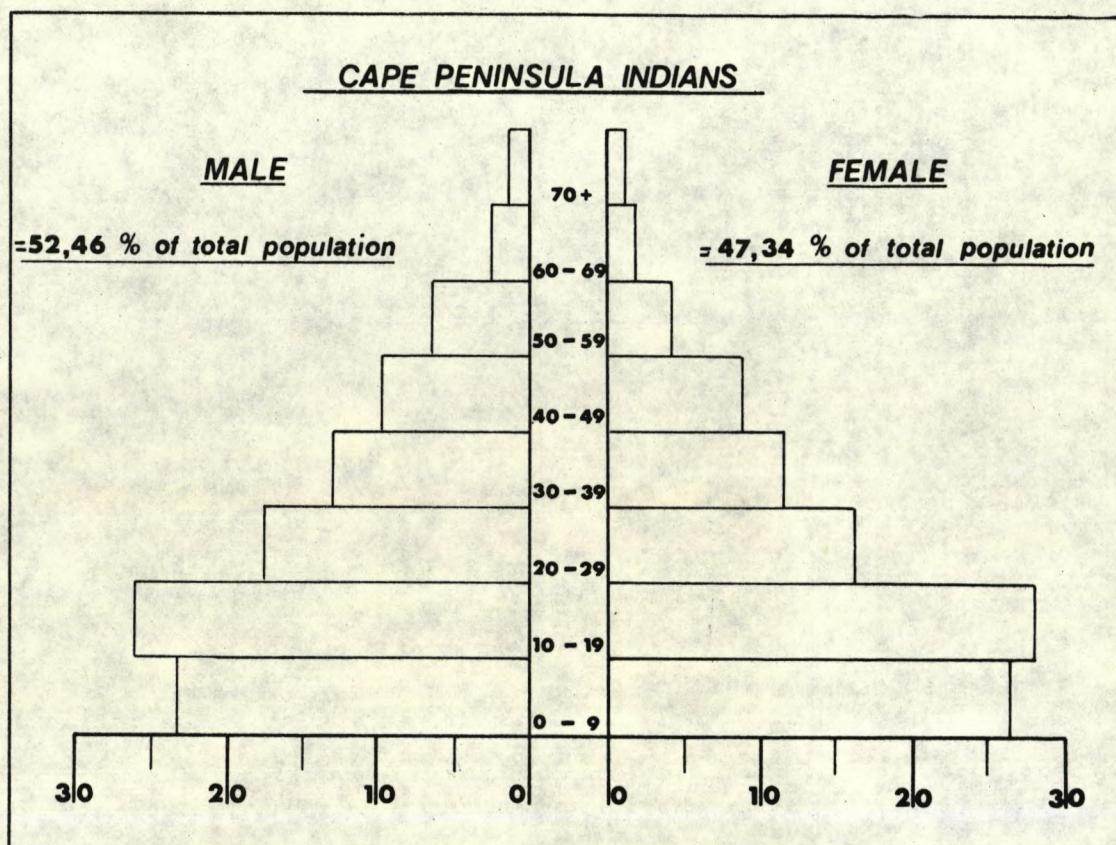


Fig.iv Population pyramid. Indians living in the Peninsula. (Annual report of Medical Officer of Health, City of Cape Town, 1976.)

CHAPTER 1

INTRODUCTION

Oral cancer forms a significant proportion of all the cancers which affect the human body. It is noteworthy that the epidemiological pattern of oral cancer may vary from country to country, for example from approximately 1 per cent in Japan to more than 40 per cent in Bombay (Pindborg, 1977).

The same variation may also occur in one country, for example South Africa, among different population groups. See Table 1.1.

	S.A. INDIANS		S.A. COLOUREDS		S.A. WHITES		S.A. BLACKS	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
(SCHONLAND & BRADSHAW, 1968a)								
LIP							0,2	0-03
TONGUE							1,1-1,2	0,4-0,8
REST OF MOUTH							1,5-2,6	0,1-0,3
(SCHONLAND & BRADSHAW, 1968b)	2,9	6,1					2,9-3,9	0,5-1,4
(SCHONLAND & BRADSHAW, 1969)								
TONGUE	1,5	3,0						
BUCCAL CAVITY	4,4	8,1						
OROPHARYNX	1,0	2,1						
(OETTLÉ & HIGGINSON, 1966)								
ORAL CANCER							4,1	1,5
(GRIEVE, 1967)								
LIP			2,9	0	17,4	1,4		
TONGUE			3,7	0,3	3,7	0,6		
REST OF MOUTH			2,2	0,6	5,4	1,1		

Table 1.1 Morbidity of oral cancer per 100 000 population in South Africa, according to various investigators.

Pindborg (1977) points out that oral epidemiology differs according to the geographic situation of a country and goes on to state that a classification according to site and geographic area is mandatory.

This is best done on the basis of national cancer registers which unfortunately, are not common.

PROBLEMS WITH EPIDEMIOLOGICAL STUDIES ON ORAL CANCER

South Africa is one of the countries without a cancer register and the study of the incidence of the disease is very complex.

The level of economic development of the white population provides the option of either full private treatment or membership of medical aid schemes, while others have access to provincial hospitals. The provincial records can be scrutinised but it is almost impossible to collect all the relevant data from the private sector.

The Black, on the other hand, because of economic circumstances, attend almost exclusively the provincial hospitals for treatment. These records are readily available but, the fact that migrant labour and influx control laws distort the composition to such an extent that the data are biased, causes a problem.

The cancer incidence of the Coloured population group was studied for the period 1970-1975. Owing to their economic level they almost exclusively attended at provincial hospitals for treatment. The situation is, however, changing rapidly as the socio-economic level is rising. More and more belong to medical aid schemes and it is foreseen that unless a national cancer register is instituted the same problems, as encountered in studies among Whites, will occur.

THE HEALTH PROBLEM

According to the Annual Report of the Medical Officer of Health of the City of Cape Town (1976), malignant neoplasms are amongst the ten principal causes of death amongst the Cape Coloureds living in the

Peninsula, in fact rating second highest (Fig.1.1).

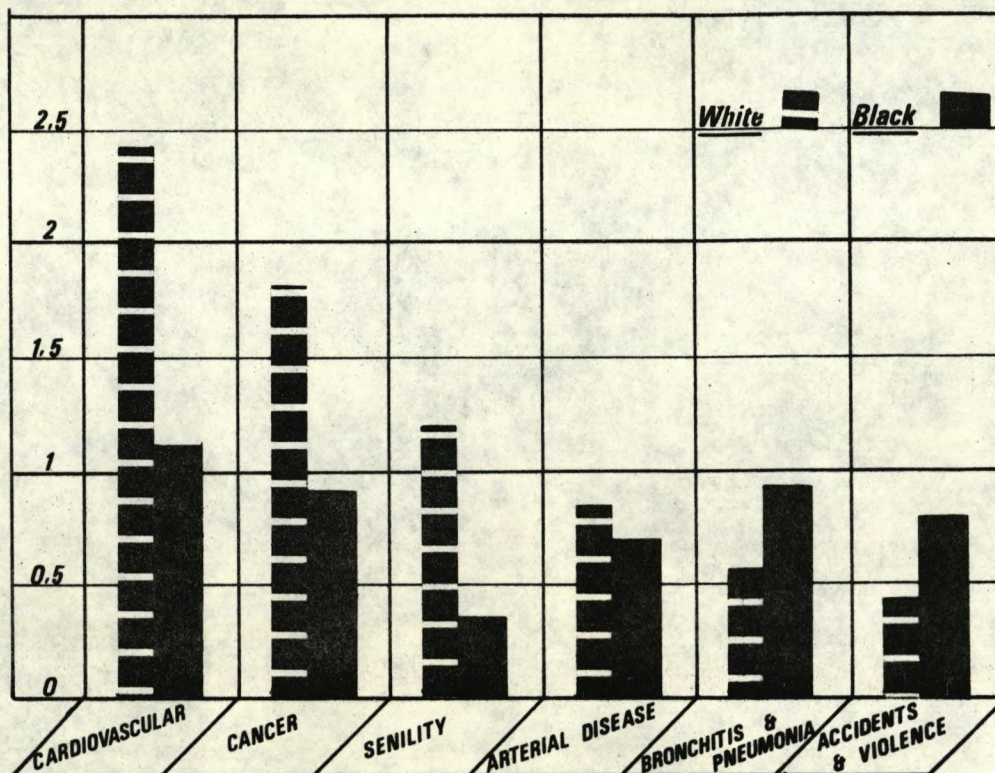


Fig. 1.1 A few causes of mortality in Cape Town per 100 000 population 1976. (Annual report of the Medical Officer of Health, City of Cape Town, 1976.)

The death rate of oral malignancy in the Cape Coloured population group is similar to that of the cervix uteri (Annual report of Medical Officer of Health, City of Cape Town, 1976) (Fig. 1.2). The National Cancer Association of South Africa spends a lot of money and devotes a great deal of its time in educational prophylaxis of cervix uteri cancer, whereas no preventive measures are taken, or any time devoted to, oral malignancy. The severity of the problem becomes obvious.

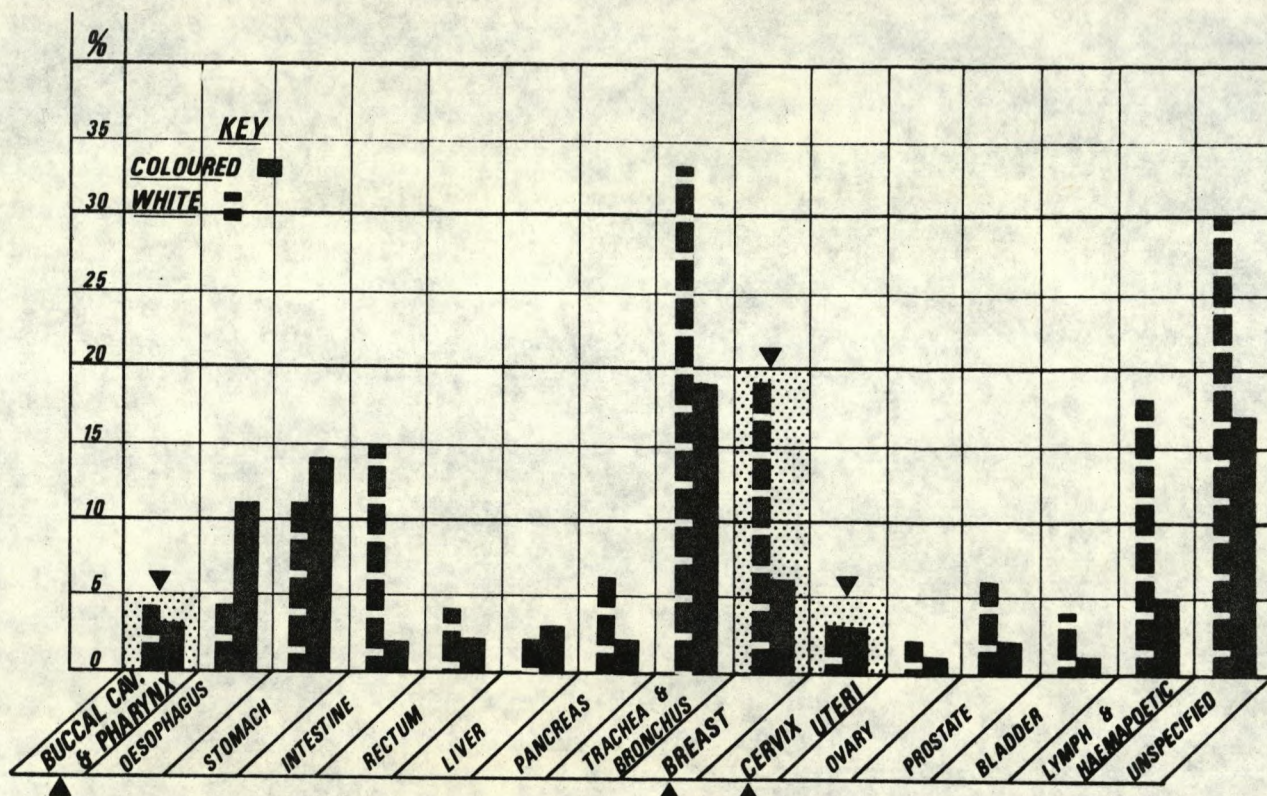


Fig.1.2 Death rates from cancer - Cape Peninsula per 100 000 population 1976. (Annual report of the Medical Officer of Health, City of Cape Town, 1976.)

COST OF TREATMENT

Another aspect is the high cost involved in the treatment of oral cancer. Breytenbach (1979) reported that the cost of treatment of oral malignancy in the Peninsula amounted to R4 000 per patient for surgery and slightly more than half of that for radiotherapy.

OUR LACK OF KNOWLEDGE

At the time this investigation was started there was very little information available on the distribution of oral cancer amongst the Cape Coloured population group. Schrire (1958) published a paper on cancer of the lip of over 500 patients referred to the Radiotherapy Department of Grootē Schuur Hospital from 1949 to 1956. The study included Cape Coloureds. Unfortunately the surgical cases were not included.

Higginson and Oettlé (1960) published a report on a cancer survey concluded in the Transvaal between 1953 and 1955. This publication deals with all the cancers and particular studies were directed towards the Blacks and the Cape Coloured. (Only a fraction of the total South African Coloured population.) Furthermore it covers a large spectrum of malignancies and is therefore a horizontal study rather than a vertical study.

In 1975 Helman, Sealy and Binnewald published a paper on oral carcinoma of patients treated at the Groote Schuur Hospital between 1958 and 1973, but only reported on cancer of the floor of the mouth.

Grieve (1967) studied the cancer incidence in the Cape Peninsula of Coloured, Black and White. His study included only patients treated at the Department of Radiotherapy, Groote Schuur Hospital. Statistical interpretation is not possible because statistics of surgical cases were omitted in this survey.

Thus while some studies have been done on the Cape Coloureds, the information is incomplete and it is therefore imperative that a far reaching study be conducted on the epidemiology of oral cancer among the Coloured population. As there is complete social intermingling with the people of Indian extraction living in Cape Town, they will be included in this study. Furthermore, as the Cape Coloured belonging to the Islamic faith form a socially identifiable group, special reference will be made to them.

The aims of this study are:

- (a) to review the related literature and
- (b) to determine the prevalence and incidence of oral cancer (squamous cell carcinoma) in the Coloured and Indian population groups residing in the Cape Peninsula.

CHAPTER 2

REVIEW OF RELATED LITERATURE

2.1 GENERAL

In reviewing the literature, attention is given only to the epidemiology of squamous cell carcinoma of the oral cavity.

2.2 ORAL CANCER AS A PERCENTAGE OF ALL CANCERS

Approximately 90 per cent of all oral malignancies are squamous cell carcinomas (Shafer, Hine and Levy, 1974).

It is generally accepted that oral cancer constitutes approximately 4 to 5 per cent of all the malignancies found in man (Pindborg, 1977). This figure obviously varies considerably when various countries are compared.

In some areas of India, for instance, the figure may go up to 30 or even 50 per cent, although the average in India is about 14 per cent (Pindborg, 1977).

In South African Blacks, on the other hand, the figure may drop to between 2 and 4 per cent (Shear, 1969).

Grieve (1967) gives the percentage of oral cancer as a percentage of all cancers as between 3 to 5 per cent for Whites and Coloureds in the Cape Peninsula.

Due to the fact that a national cancer register does not exist in South Africa, statistics on cancer of the whole body are rather scanty. Using Pindborg's accumulated statistics (1977) and incorporating some

of the available South African statistics, oral cancer as a percentage of all malignancies, in which all five continents are represented, is shown in figure 2.1 and 2.2.

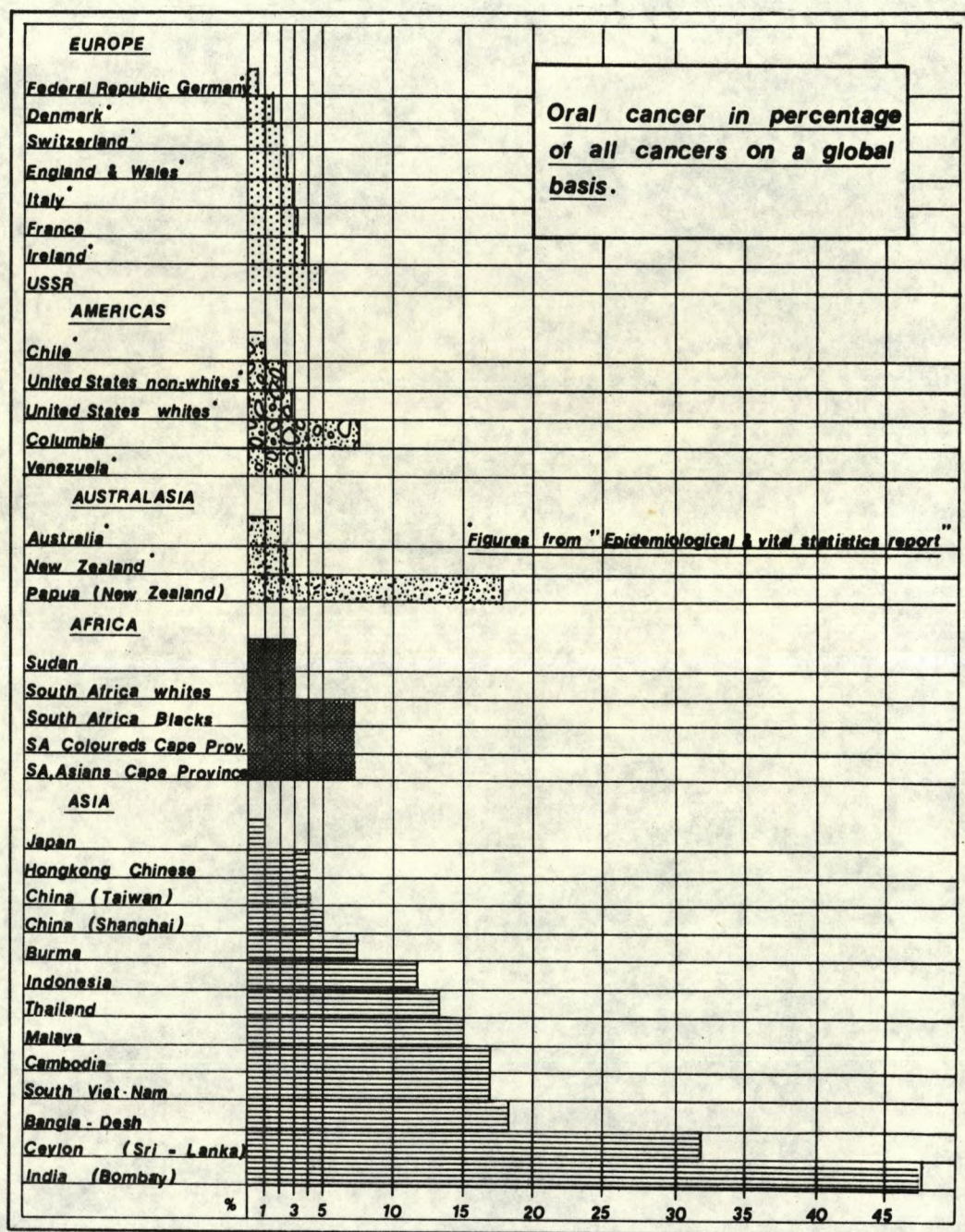


Fig.2.1 Oral cancer as a percentage of all cancers on a global basis. (After Pindborg, 1977.)

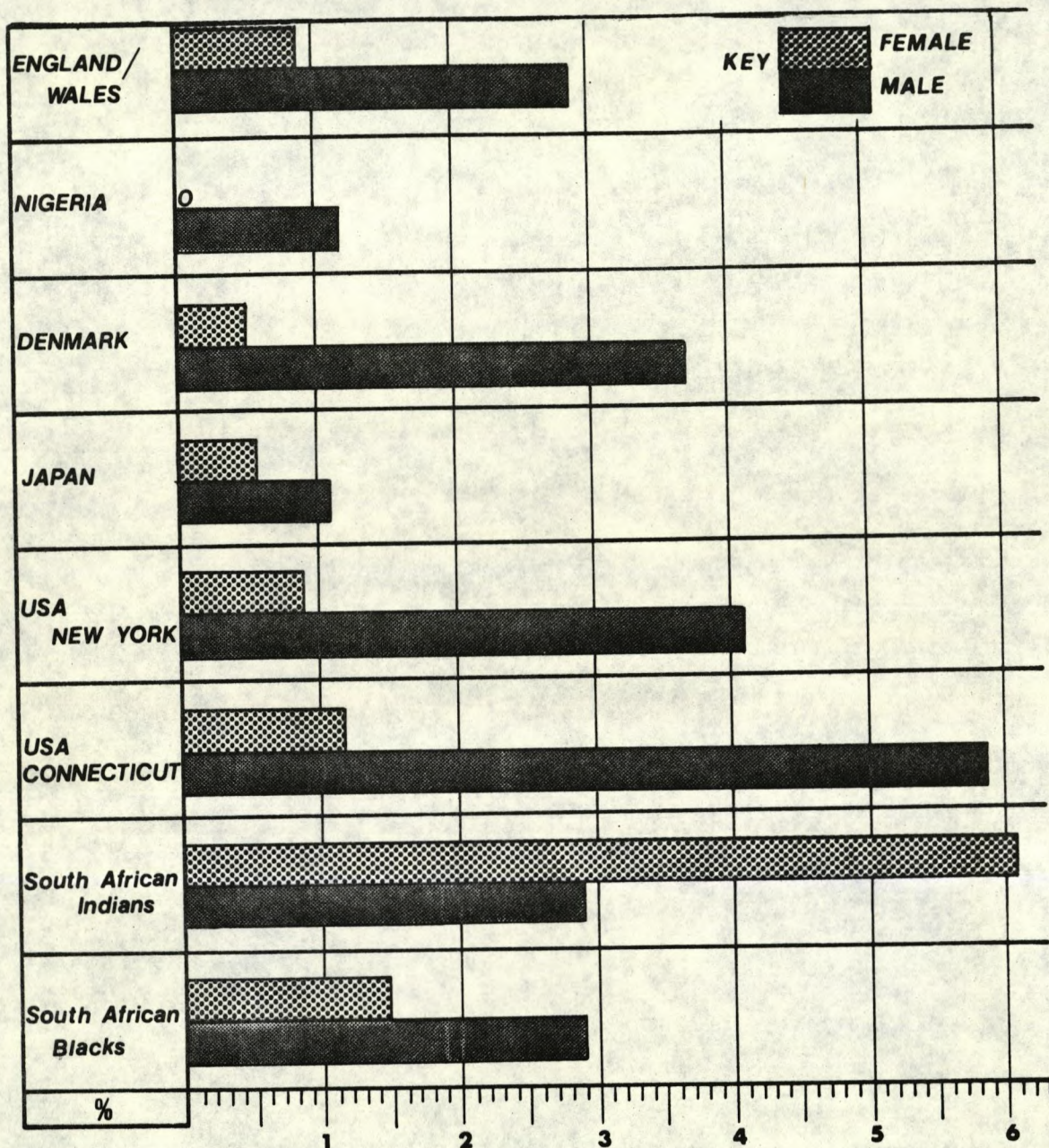


Fig. 2.2 Comparison of the incidence of oral cancer in a few South African population groups with that of other countries. (Data after Schonland and Bradshaw 1969, Shear, 1970 and Doll, Payne and Waterhouse, 1966.)

2.3 SEX RATIO OF ORAL CANCER

Generally males suffer more from oral cancer than do females. The

ratio, on an average, is approximately 4 males to each female (Shafer, Hine and Levy, 1974). There are a few exceptions to this, one of them is that oral cancer is higher in Indian females than males. This is due to betel nut chewing (Pindborg, 1971).

Indian males, English males and English females have about the same incidence of cancer in all the areas of the alimentary tract (Schonland and Bradshaw, 1968).

When the Indian and English females are compared, it is found that Indian females develop tongue cancer five times as frequently and buccal cancer fifteen times as frequently as English females (Schonland and Brandshaw, 1968).

Studies conducted among Indians in the Pretoria-Witwatersrand area, yielded different results, in all probability because of their betel nut chewing habit which differs from that found in the Durban area (Dockrat and Shear, 1969).

Tables 2.1 and 2.2 represent sex ratios of oral cancer in various countries.

Country	Males	Females	Male:Female Ratio (Approx.)
France	13,9	1,7	8,2:1
Switzerland	7,0	1,1	6,4:1
Ireland	6,0	2,6	2,3:1
U.S.A.	5,5	1,9	2,9:1
England and Wales	4,3	2,5	1,7:1
Sweden	3,3	2,6	1,3:1
Yugoslavia	2,3	0,7	3,3:1

Table 2.1 Sex distribution of malignant neoplasms of the buccal cavity and pharynx (I.C.D. Nos.140-148). (After Doll, Payne and Waterhouse, 1966)

Country or region	Period	Males	Females	Male:female Ratio (Approx.)
Bombay, India	1964-66	20,5	9,6	2,1:1
Puerto Rico	1964-66	14,5	4,6	3,2:1
Connecticut, U.S.A.	1963-65	7,2	2,2	3,3:1
Slovenia, Yugoslavia	1961-65	3,9	1,0	3,9:1
Liverpool Region, England	1963-66	3,1	1,4	2,2:1
Birmingham Region, England	1963-66	2,7	1,2	2,2:1
Sweden	1962-65	1,6	1,0	1,6:1

Table 2.2 Average rates of malignant tumours of the mouth and tongue (I.C.D. Nos. 141, 143 & 144). Age standardised to world population. (After Doll, Payne and Waterhouse, 1966.)

The male to female ratio of oral cancer in South Africa varies to some extent from one population group to the next.

In Whites, Shear (1969) found a ratio of 3,7:1 (M:F) in a group of 351 squamous cell carcinomas studied in the Witwatersrand area. In Blacks he found the exceptionally high figure of 6,4:1 (M:F) (Fig. 2.3), but he hastens to explain that this is not an accurate account of affairs. This erroneous ratio is brought about by influx control which prohibits Black male migrant labourers from bringing their wives and families with them to the cities. If a statistical correction is brought about, the ratio drops to approximately that of Whites.

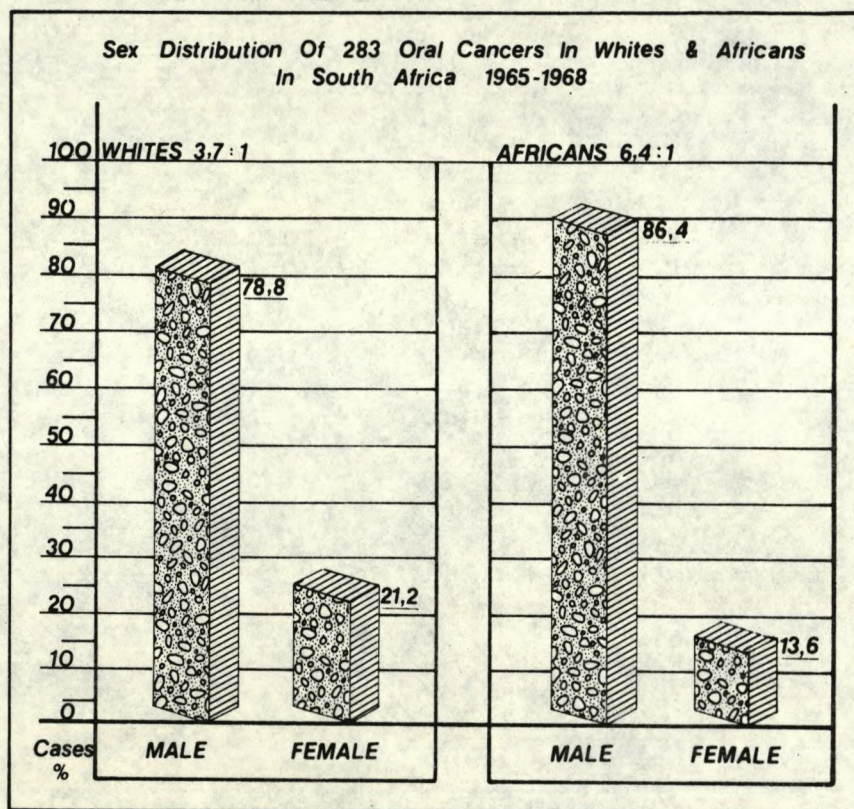


Fig. 2.3 Sex distribution of 283 oral cancers in Whites and Blacks in South Africa - 1965-1968. (After Shear, 1969) (Africans = Blacks)

Oettlé (1964), finds a reverse ratio of male to female with oral cancer in the Indians living in Durban (0,7:1). More Indian women than men indulge in betel nut chewing (54,2 per cent of females compared with 8,3 per cent males) (Schonland and Bradshaw, 1969). (Schonland and Bradshaw, 1969).

Schonland and Bradshaw (1969) found in their investigations that English and Indian males were approximately evenly affected as far as upper alimentary tract carcinoma was concerned. However, the incidence of tongue cancer in Indians was five times higher and in the buccal cavity the incidence was 13 times higher than that found in the English.

The male to female ratio also varies depending on the site affected by oral cancer, as will be pointed out in 2.4.

Grieve (1967) surveyed oral cancer in the Cape Peninsula of patients referred to the Radiotherapy Department of Groote Schuur Hospital and his results are seen in table 2.3.

Population Group	Sex	Registered primaries	R a t e s		Percentage ratio
			Observed	Age-adjusted	
White	M	112	20	17	5,5
	F	13	2	1	0,7
Coloured	M	7	1	(3)	1,0
	F	-	-	-	-

Table 2.3 Cancer of the lip. Registered primaries, observed and age-adjusted rates and ratios, by population group and sex. (After Grieve, 1967.)

Helman, Sealy and Binnewald (1975) studied cancer of the floor of the mouth of patients referred to the Surgery Department at Groote Schuur Hospital. In a total sample of 291 patients (Blacks, Coloureds and Whites) a ratio of 6,2:1 (M:F) was found.

2.4 SITE DISTRIBUTION OF ORAL CANCER

The distribution of oral cancer according to anatomical site is usually given as: tongue 30 per cent, lip 24 per cent, floor of the mouth 15 per cent, with an equal percentage of the buccal mucosa, gingiva and palate. These figures may, however, vary depending on certain factors.

In South African Whites the excessive exposure to actinic radiation causes an incidence of lip cancer which is the highest, followed by that of tongue cancer (Shear, 1970).

It is interesting to note that the incidence of lip cancer in Newfoundland (Canada) has a very high rate. Fishermen of this area grip tar-coated ropes and fishing nets with their mouths, covering their lips with black tar. This artificial "pigment" does not seem to protect the lips against actinic radiation but on the contrary, the carcinogenic effect of the tar seems to be responsible for this increase in lip cancer (Pindborg, 1977).

From the cancer register in Norway (1973) oral cancers in the rural and urban inhabitants are compared (Table 2.4).

Site	Urban			Rural		
	Male	Female	M:F	Male	Female	M:F
Lip	4,4	0,3	14,6:1	8,3	0,3	27,6:1
Tongue	1,9	1,0	1,9:1	0,8	0,8	1:1
Floor of the mouth	1,4	1,0	1,4:1	0,2	0,4	0,5:1
Mouth (other sites)	1,2	0,7	1,7:1	0,6	0,4	1,5:1

Table 2.4 Age-adjusted incidence rates of oral cancer in Norway, illustrating the male to female ratio in urban and rural areas. (After: The Cancer Registry of Norway, 1973.)

An interesting study was conducted by Marinez, Torrez and Frias (1975) who compared the incidence of oropharyngeal cancer in the United States of America and Puerto Rico between 1969 and 1971.

These two countries were chosen because a number of differences exist between them. However, since Puerto Rico has been associated with the United States of America for the past 77 years politically,

economically and socially its pattern of living has changed. The interesting question which they pose is whether this association has changed the cancer pattern.

In fact they found that the main difference between the males in the two groups is the predominance of cancer of the mouth and pharynx and digestive system in the Puerto Ricans who show a significantly higher age-adjusted incidence rate of carcinoma of the mouth and pharynx. The ratio was found to be 3,5:1 (M:F) in the United States of America and 1,2:1 in Puerto Rico. This study is mentioned here because a comparable situation exists between the Coloureds and Whites in South Africa and it would be interesting to test the hypothesis.

Lip cancer shows a wide variation in its occurrence in males and females of the various populations of the world (Table 2.5).

Country	Males	Females	M:F Ratio
Iceland	6,9	0,3	23
Northern Ireland	14,5	0,7	21
Norway	6,1	0,3	20
Canada (Newfoundland)	28,6	1,4	20
Denmark	10,3	0,6	17
Finland	5,8	0,4	15
England and Wales	1,8	0,2	9

Table 2.5 Incidence of lip cancer per 100 000 population and the resultant sex ratio. (After Doll, Payne and Waterhouse, 1966.)

The results of Shear's (1970) investigation into oral cancer among Blacks and Whites in Johannesburg over the years 1965 to 1968 can be represented by table 2.6.

Site	Black		White	
	Male	Female	Male	Female
Lip	5	1	25	1
Tongue	30	3	17	9
Floor of mouth	17	2	18	3
Cheek	3	2	5	1
Palate	8	2	3	1
Gingiva	15	1	3	4
Unspecified	5	2	2	0
Oro-nasopharynx	3	0	5	1

Table 2.6 Anatomical distribution in approximate percentage of 280 cases of oral cancer in Johannesburg 1965-1968. (After Shear, 1970.)

If the incidence of oral cancer in these anatomical sites is arranged in declining order table 2.7 can be compiled.

Population Group	Sex	S i t e							
		White	M	Lip	Floor mouth	Tongue	Cheek *	Oro-naso pharynx *	Palate **
	F	Tongue	Gingiva	Floor mouth	Lip *	Palate *	Oro-naso pharynx *	Cheek *	Unspec.
Black	M	Tongue	Floor mouth	Gingiva	Palate	Lip *	Unspec. *	Cheek **	Oro-naso pharynx **
	F	Tongue	Floor mouth *	Cheek *	Palate *	Unspec. *	Gingiva **	Lip **	Oro-naso pharynx **

Table 2.7 Anatomical site of oral cancer by sex, in declining order. Johannesburg survey 1965-1968. (After Shear, 1970.)

* and ** denote equal rates of occurrence.

In the South African White, the lower lip is involved most frequently in oral cancer, whereas the tongue is the most commonly involved in the Black. Shear (1970) states that the high incidence of tongue cancer in White females is possibly due to atrophic glossitis and iron deficiency anaemia. The high incidence of gingival carcinoma makes speculation difficult due to the relatively small sample.

In an analysis of the occurrence of bucco-pharyngeal neoplasms in Bantu-speaking hospital patients (Blacks) admitted to the Baragwanath Hospital, Johannesburg, during the period 1948 to 1964, Van Wyk (1972) revealed that between 3,4 and 4 per cent of neoplasms in the Blacks of South Africa were situated in the bucco-pharyngeal region. A total of 202 patients were treated at the above hospital: 164 had carcinomas, 52 salivary gland malignancies and 2 had sarcomas.

An analysis of the sex-ratio of this sample reveals a ratio of 7,8:1 (M:F). This obviously high ratio is due to influx control, as explained before by Shear (1970). Van Wyk also mentions that male predominance in cancer is seen in neoplasms of all anatomical regions of the body except those which are hormone dependent.

The non-hormone dependent cancers are 2,7 times more common in males than in females, whereas when hormone dependent cancers are included, "male" cancers account for 52,4 per cent and "female" cancers for 47,6 per cent of all malignancies, bring the ratio down to 1:1.

The cancers studied by Van Wyk are listed in table 2.8.

Site	Number	Male	Female
Lip	32 (10,12%)	24 (9,16%)	8 (14,81%)
Tongue	91 (28,80%)	83 (31,68%)	8 (14,81%)
Salivary glands	52 (16,45%)	30 (11,45%)	22 (40,74%)
Floor of mouth	47 (14,87%)	46 (17,56%)	1 (11,85%)
Mouth unspecified	32 (10,12%)	26 (9,92%)	6 (11,11%)
Oropharynx	22 (6,96%)	20 (7,63%)	2 (3,76%)
Nasopharynx	18 (5,70%)	13 (4,96%)	5 (9,26%)
Hypopharynx	16 (5,06%)	15 (5,73%)	1 (1,85%)
Pharynx unspecified	6 (1,90%)	5 (1,91%)	1 (11,85%)
Total	316	262	54

Table 2.8 Anatomical site by sex of bucco-pharyngeal cancers in Black patients in the Baragwanath Hospital 1948-1964. (After Van Wyk, 1972.)

In an extensive survey conducted by Grieve (1967) on cancer in the Cape Peninsula, 339 primary cancers in 297 patients were analysed. These patients reported for treatment at the Department of Radiotherapy, Groote Schuur Hospital. In his publication Grieve draws attention to the fact that there were alterations in the sequences of the involved viscera as the site of the initial lesions passed from the lip and mouth through the pharynx to either the alimentary tract or respiratory tract. He also found a close association of skin and lip, as well as more obvious multifocal propensities, of intra-oral and pharyngeal cancers. In the mouth, the tongue was the most common intra-oral cancer among males. Several differences in the location of tumours in the mouth were found in males of

three population groups (Table 2.9).

Race	Rates	Tongue	Floor of mouth	Other parts of mouth
White	Observed	3	3	3
	Age-adjusted	4	3	3
Coloured	Observed	2	1	0
	Age-adjusted	(4)	(1)	(1)
Black	Observed	(4)	(3)	(1)
	Age-adjusted	(10)	(5)	(1)

Table 2.9 Anatomical site predelection in males of three population groups in the Peninsula. Age-adjusted rates. (After Grieve, 1967.)

Grieve (1967) found that in Whites, there was a fairly even distribution of intra-oral carcinomas. Among Coloured males, the mouth was twice as commonly involved as the other sites. In Black males, the tongue is at least as commonly involved as the rest of the mouth added together. He points out, however, that it is conceivable that some of the primary cancers registered in the floor of the mouth could in fact have been cancers of the lateral wall of the tongue spreading to the floor of the mouth in which case the significance of the tongue as a primary site of cancer in Black males would be increased. He also found significant variation within the sites themselves. All the cancers of the lower alveolus and the cheek registered in males occurred in White males. Cancer occurred more commonly in the anterior two-thirds of the tongue among Coloured than among Black or White males.

In comparing the squamous cell carcinoma found on the skin with the mouth, it was found that in the White male cancer of the lip occurred twice as frequently as solitary carcinomas and approximately as frequently as all squamous cell carcinomatous lesions (solitary, multi-focal and baso-squamous) of the whole of the skin of the head and neck. In the female the lip:skin ratio was reversed and cancer of the lip occurred only about half as commonly as solitary squamous carcinomas and about one third as commonly as all squamous carcinomatous lesions of the skin of the head and neck (Grieve, 1967).

Cancer of the lip is twice as common in White males and half as common in females as intra-oral cancer. Factors other than actinic radiation and the protective effects of lip salves in the female must have participated in the production of these sex-linked differential manifestations of cancer of the lip and mouth.

Cancer of the floor of the mouth occurred more frequently among male than female (as is the case with lip and buccal cavity cancer) in each population group. Twenty per cent of the lesions arose anteriorly on and around the frenulum. The lower alveolus and cheek constituted 32 per cent and the upper alveolus 16 per cent of the cases, and these were recorded in White females. These cases were apparently relatively well-differentiated and were rare among the Blacks and Coloureds (Grieve, 1967).

As far as tongue cancer is concerned, it was found that these lesions were more malignant than those in other sites and it was also the most common intra-oral cancer. Anaplastic changes were often reported

and secondaries (at the time of diagnosis, as well as at death) were reported more frequently. Tongue cancer constituted approximately 59 per cent of all oral cancers.

Helman, Sealy and Binnewald (1975) studied 388 patients treated for cancer of the floor of the mouth at the Groote Schuur Hospital between 1958 and 1973. A modified pie chart compiled from their data is represented in figure 2.4.

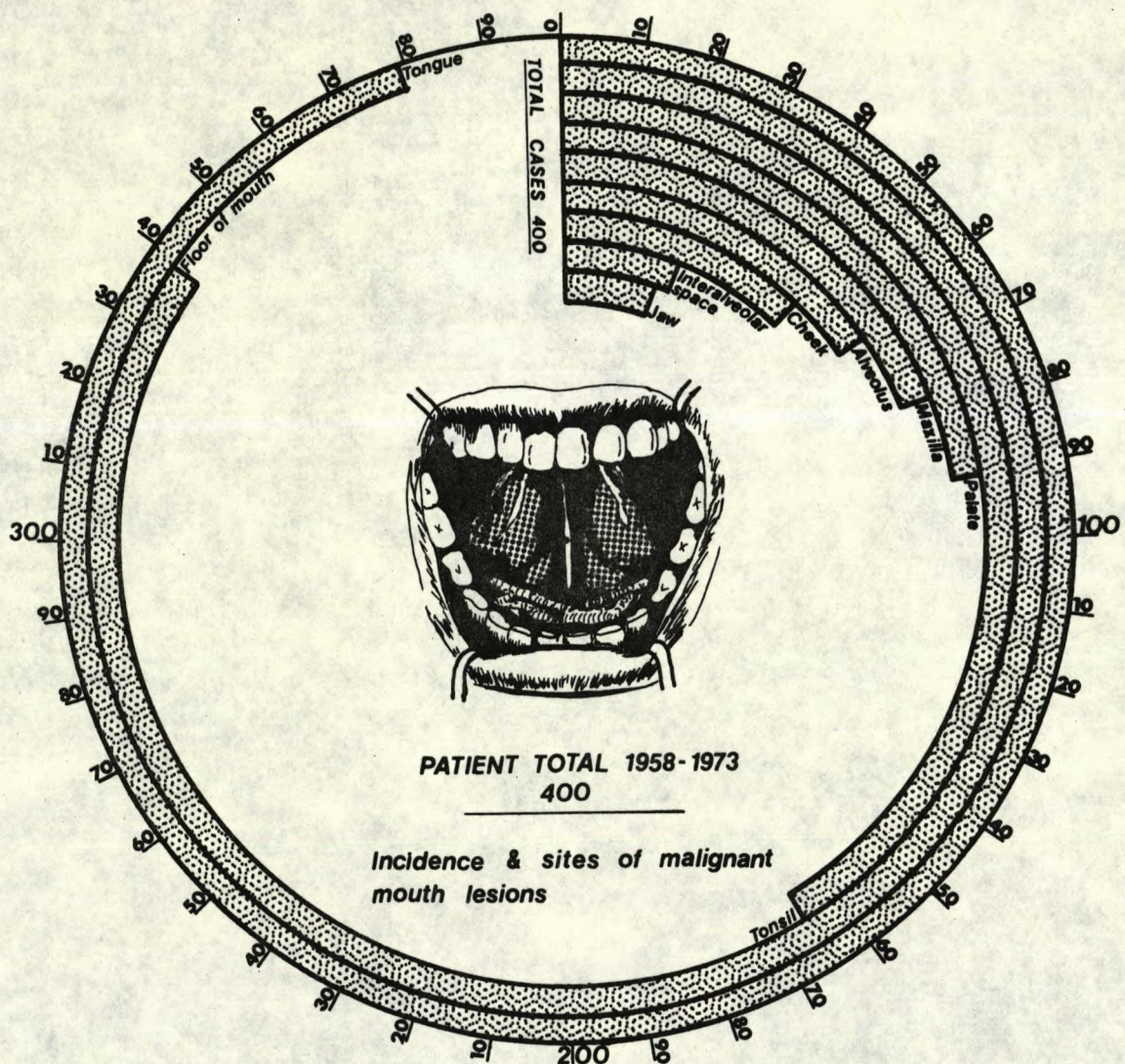


Fig.2.4 Anatomical site of oral cancer in Blacks, Coloureds and Whites treated at Groote Schuur Hospital 1958-1973. (After Helman, Sealy and Binnewald, 1975.)

Higginson and Oettlé (1960) found that carcinoma of the buccal cavity and pharynx comprised 8,5 per cent of all carcinomas in Black males and 3,8 per cent of all carcinomas in Black females and they conclude that this is similar to that found in the Negro of the United States of America. They also found that carcinoma of the lip was much lower in the South African Black as well as the United States Negro, compared with the Danish Whites, and they postulate that this is due to the pigment protection.

Carcinoma of the tongue and buccal cavity in the South African Black is comparable to that in the United States Negro but less than that found in the White American (Higginson and Oettlé, 1960).

In the Blacks, Schonland and Bradshaw (1968) found that tongue cancer has the highest incidence with less involvement of the lips, due to the protection afforded this area by pigmentation. Figure 2.5 illustrates the distribution by site. This figure illustrates a summary of most of the incidences found by the various authors on oral cancer in South Africa.

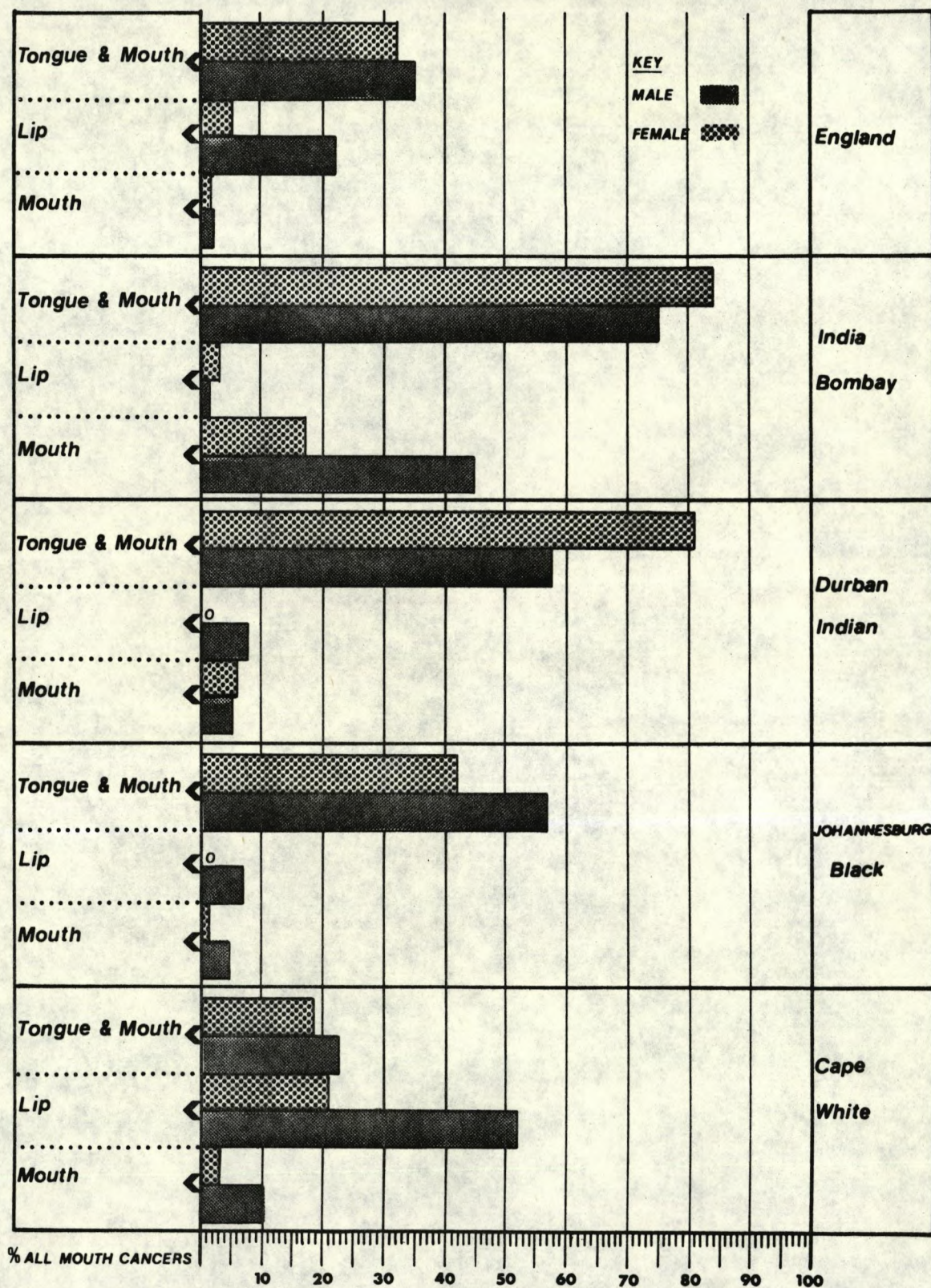


Fig.2.5 Oral cancer by site. A comparison as found in a few South African population groups, England and India. (Data after Pindborg, 1977; Shear, 1970; Schonland and Bradshaw, 1969 and Grieve, 1967.)

2.5 AGE DISTRIBUTION OF ORAL CANCER

Oral cancer is a disease of the elderly and South Africa is no exception. It is a disease of the sixth and seventh decades of life (Shear, 1970, Schönland and Bradshaw, 1969 and Grieve, 1967). In countries where the life expectancy is higher it is found that there is also an increase in the incidence of oral cancer. Oral cancer is influenced by the age at which individuals are exposed to the various etiological factors (Shear, 1970), a fact which will become evident later.

Shear (1970) investigating oral cancer among Black and White Johannesburg residents, stated that oral cancer is found earlier in Black than in Whites and he speculates that this was due to the fact that they might have been subjected to etiological agents at an earlier age (Fig. 2.6).

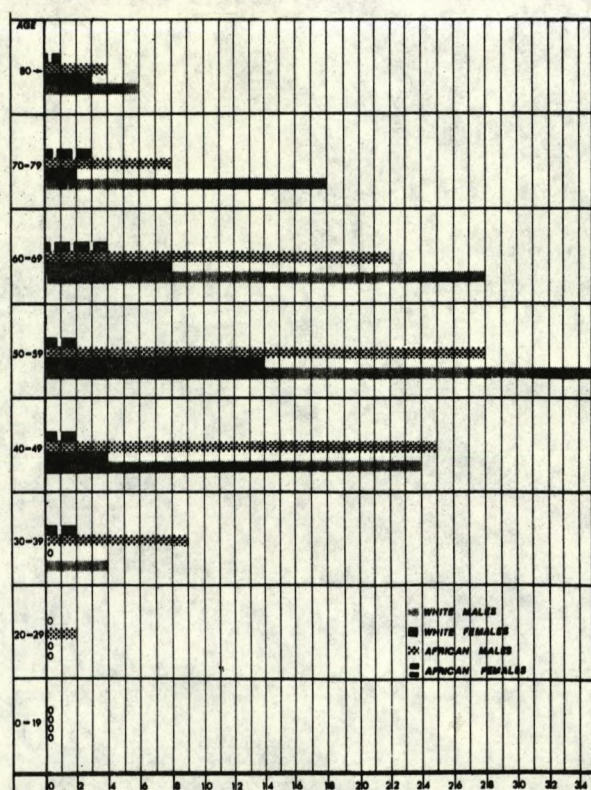


Fig.2.6 Age distribution of oral cancer by sex in 257 Blacks and Whites investigated in Johannesburg 1965-1968. (After Shear, 1970.) (African = Black)

Grieve (1967) found that lip and skin cancer appeared initially at the same age groups (19 - 25 years) in White males, but the lesions were distributed differently throughout the lifespan and that these cancers arose 20 years later in White females and furthermore that the age-specific rates progressed steeply to reach a peak at approximately 25 per cent of its male equivalent.

Schrire (1958) investigated cancer of the lip at the Groote Schuur Hospital. He scrutinised the records of over 500 patients who were referred to the Radiotherapy Department. The largest proportion of these patients was White. His results are contained in table 2.10.

	-30	30-39	40-49	50-59	60-69	70-79	80+
Number	4	54	65	85	88	47	23
Percentage	1	14,7	17,6	23,2	24	13	6,3

Table 2.10 Age distribution of a sample of 366 cases seen at Groote Schuur Hospital. (After Schrire, 1958.)

Table 2.10 Age distribution of a sample of 366 cases seen at Groote Schuur Hospital. (After Schrire, 1958)

These patients normally sought treatment when the ulcer on the lip was approximately 1 cm. Quite a large percentage of these patients visited "cancer curers" who applied escharotics of various kinds.

Carcinoma of the floor of the mouth develops at an earlier age according to Helman, Sealy and Binnewald (1975) (Fig. 2.7)

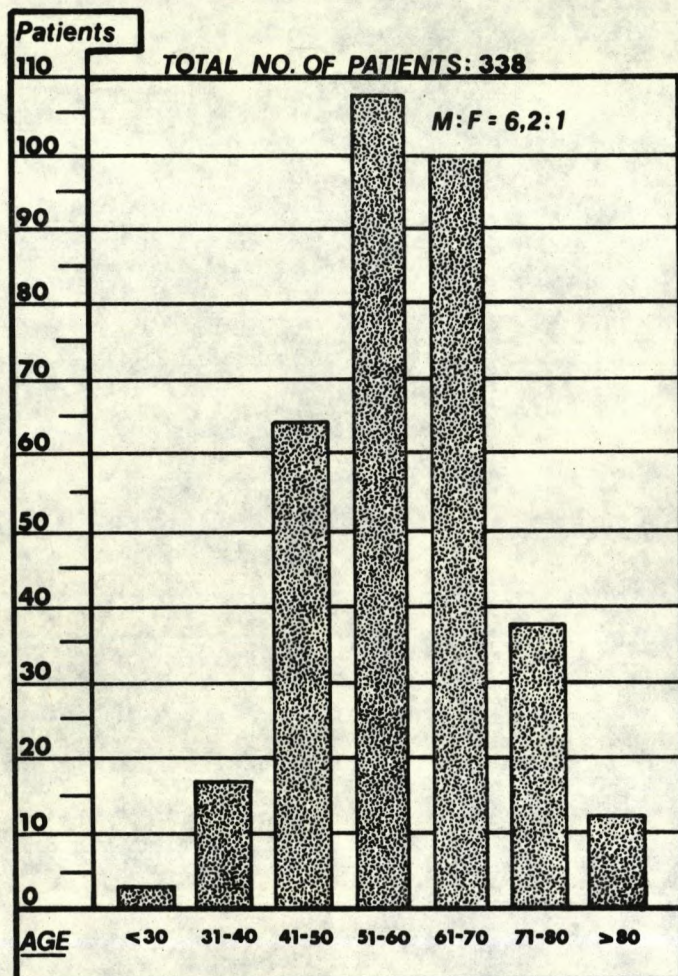


Fig. 27 Age distribution of carcinoma of the floor of the mouth in Blacks, Coloured and Whites treated at the Groote Schuur Hospital 1958-1973. (After Helman, Sealy and Binnewald, 1975.)

Oettlé and Higginson (1966) discuss the age specific cancer incidence rates in the South African Black in Johannesburg from 1953 to 1955. They surveyed groups representing stages in the intermittent and irregular process of transition from the primitive tribal culture to that characteristic of western society. (Tables 2.11 and 1.12.)

The cases investigated by the authors included the following:

- i. Residents of the Johannesburg Metropolitan area.

- ii. Non-resident Blacks treated in Johannesburg.
- iii. A group of rural Black patients from the North-eastern Transvaal.

It was felt by the authors that the cancer pattern in these groups could reflect the difference in relative exposure to environmental carcinogens.

Site No.		All ages	20-29	30-39	40-49	50-59	60-69	70+
All malignant Neoplasms	M	486	39	86	112	122	59	39
	F	443	35	85	111	88	67	39
140 Buccal cavity and pharynx	M	28	2	7	3	5	7	2
	F	7	1	-	2	-	3	1
140 Lip	M	2	-	1	-	1	-	-
	F	-	-	-	-	-	-	-
141 Tongue	M	8	-	2	1	2	2	1
	F	2	-	-	1	-	1	-
143 Floor of mouth	M	5	-	-	-	1	3	1
	F	-	-	-	-	-	-	-
144 Mouth, other and unspecified	M	3	-	-	1	1	1	-
	F	1	-	-	1	-	-	-

Table 2.11 New cases of cancer by age and site (Blacks) resident in Johannesburg Metropolitan area, 1953-1955. (After Oettlé and Higginson, 1966)

Site No.		All ages Crude rate	All ages Std rate	20-29	30-39	40-49	50-59	60-69	70+
All Malign. Neoplasms	M	60,7	64,8	28,3	39,6	89,6	199,8	554,1	910,4
	F	69,8	86,7	42,9	136,7	371,0	796,8	1222,4	1032,7
140 Buc. cavity and pharynx	M	3,5	4,1	2,2	7,2	5,0	19,6	101,7	59,0
	F	1,1	1,5	1,2	-	6,9	-	59,7	28,3
140 Lip	M	0,2	0,2	-	1,1	-	3,0	-	-
	F	-	-	-	-	-	-	-	-
141 Tongue	M	1,0	1,2	-	2,2	1,5	6,1	30,1	29,8
	F	0,3	0,4	-	-	4,0	-	22,1	-
143 Floor of mouth	M	0,6	1,0	-	-	-	3,0	49,1	29,2
	F	-	-	-	-	-	-	-	-
144 Mouth, other & unspec.	M	0,4	0,5	-	-	2,0	7,5	11,2	-
	F	0,2	0,1	-	-	2,9	-	-	-

Table 2.12 Crude, standardised and age-specific incidence rates for cancer in residential Blacks, Johannesburg Metropolitan area 1953-1955, Primary site. (After Oettlé and Higginson, 1966.)

2.6 MORBIDITY

The morbidity as found in South African Coloureds and Whites is represented by figures 2.8 and 2.9.

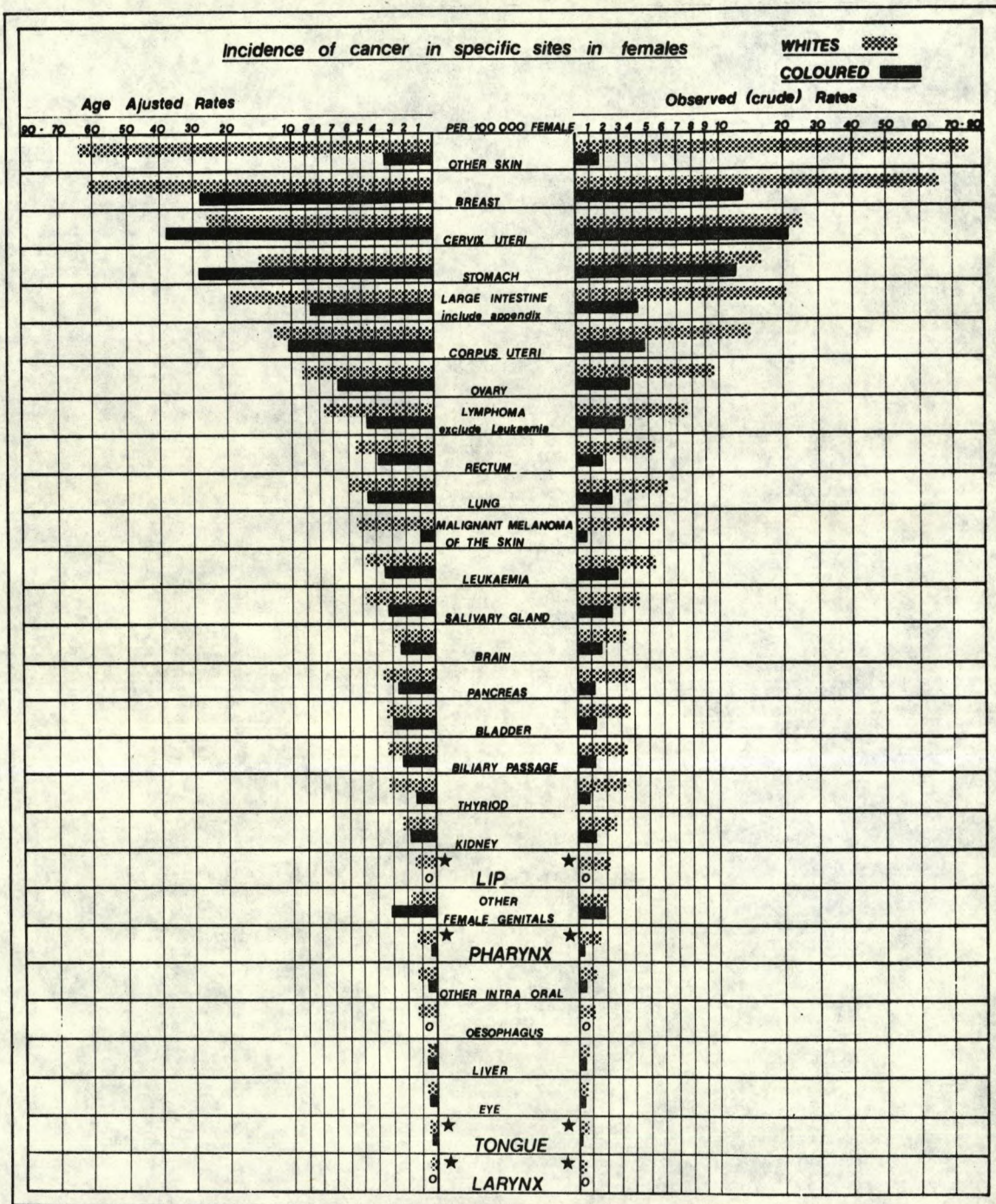


Fig. 2.9 Incidence of malignancy in Coloured and White females in the Peninsula. (After Grieve, 1967.)

* Oral cancers printed in bold.

Schonland and Bradshaw (1969) compared the morbidity of oral cancer that they found among Durban Indians with the available English data and compiled table 2.13.

INDIANS:

	FEMALES		MALES	
	Asians	English	Asians	English
A. Upper alimentary tract	56,1	17,1	34,5	34,6
B. Lower alimentary tract	28,2	29,6	20,6	37,6
C. Rest of mouth	0,4	1,7	1,5	3,6
A. Tongue	3,0	0,6	1,5	1,5
Buccal cavity	8,1	0,6	4,4	1,7
Oral pharynx	2,1	1,1	1,0	2,1
Desophagus	12,9	2,4	5,5	4,5
Stomach	30,0	12,4	22,1	24,8
	56,1	17,1	34,5	34,6
B. Small and large bowel	7,6	14,9	3,6	14,5
Rectum	10,4	7,8	3,5	13,1
Liver, biliary tract	6,9	2,0	11,4	2,2
Pancreas and other	3,3	4,9	2,1	7,8
	28,2	29,6	20,6	37,6
C. Lip	0,0	0,3	0,8	2,0
Salivary glands	0,4	1,2	0,7	1,1
Nasopharynx	0,0	0,2	0,0	0,5
	0,4	1,7	1,5	3,6

Table 2.13. Age adjusted and standardised to standard world population of sites of the mouth, pharynx and alimentary tract in Indians and English. (After Schonland and Bradshaw, 1969)

In a study conducted by the same authors in 1968 they tabulated their results in comparison with those of the United States of America. (Table 2.14)

INDIANS:

I.C.D.	Neoplastic disease	South Africa			United States of America	
		Coloured	Asian	White	White	Non-White
	<u>MALES</u>					
140-148	Buccal cavity and pharynx	6,06	2,26	5,74	5,5	4,6
140	Lip	0,54		0,80	0,4	0,1
141	Tongue	2,94	1,51	2,13	1,4	1,3
143	Floor of mouth	0,27		0,28		
144	Mouth (unspecified)	0,72	0,40	0,81		
145	Oral mesopharynx	0,17		0,33		
146	Nasopharynx	0,19	0,22	0,30		
147	Hypopharynx			0,50		
148	Pharynx (unspecified)	0,84	0,11	0,72		
	<u>FEMALES</u>					
140-148	Buccal cavity and pharynx	1,54	6,81	1,20	1,3	1,6
140	Lip	0,17	0,35	0,06	0,1	0,0
141	Tongue	0,38	2,24	0,48	0,3	0,3
143	Floor of mouth	0,30	0,29	0,07		
144	Mouth (unspecified)	0,20	0,92	0,17		
145	Oral mesopharynx	0,02	0,29	0,10		
146	Nasopharynx	0,07	0,70	0,06		
147	Hypopharynx					
148	Pharynx (unspecified)	0,22	1,73	0,14		

Table 2.14 Cancer morbidity per 100 000 for Coloureds 1949-1958, Indians 1950-1958 and Whites of South Africa 1949-1958, compared with United States of America Whites and Non-Whites 1955 (Standardised to United States of America population 1950). (After Schonland and Bradshaw, 1968.)

Finally, as a summary, a table is compiled, showing the figures obtained by various authors who investigated the morbidity of oral cancer in South Africa. (Table 2.15).

AUTHOR	S.A. INDIANS		S.A. COLOUREDS		S.A. WHITES		S.A. BLACKS	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
(SCHONLAND & BRADSHAW, 1968a)								
LIP							0,2	0-0,3
TONGUE							1,1-1,2	0,4-0,8
REST OF MOUTH							1,5-2,6	0,1-0,3
(SCHONLAND & BRADSHAW, 1968b)	2,9	6,1					2,9-3,9	0,5-1,4
(SCHONLAND & BRADSHAW, 1969)								
TONGUE	1,5	3,0						
BUCCAL CAVITY	4,4	8,1						
OROPHARYNX	1,0	2,1						
(DETTLÉ & HIGGINSON, 1966)								
ORAL CANCER							4,1	1,5
(GRIEVE, 1967)								
LIP			2,9	0	17,4	1,4		
TONGUE			3,7	0,3	3,7	0,6		
REST OF MOUTH			2,2	0,6	5,4	1,1		

Table 2.15 Morbidity of oral cancer per 100 000 population of various South African population groups, as determined by various investigators.

2.7 CONCLUSION

From the tables and figures in this chapter it would appear that with our present state of knowledge the oral cancer as a percentage of all cancers as found in South Africa is similar to that found in the rest of the world, with the exception of some countries in the East.

The sex ratio, according to the quoted literature could also be assumed to fit in with world statistics. As far as the site is concerned, there appears to be a wide variation. In the South

African Blacks and Coloureds the tongue seems to be mostly affected, with the rest of the site pattern more or less fitting in to the world pattern. In the White South African lower lip cancer incidence outstrips the tongue. Generally the age incidence in the South African population as a whole seems to be lower than that found in the rest of the world.

It is clear that the knowledge of oral cancer in the South African Cape Coloured and Cape Indian is very scanty. The investigations which cover these population groups were directed among patients either suffering from a specific type of oral cancer e.g. cancer of the lip (Schrire, 1958) or cancer of the floor of the mouth (Helman, Sealy and Binnewald, 1975), or patients attending certain clinics e.g. the Department of Radiotherapy (Grieve, 1967).

More studies are therefore necessary.

CHAPTER 3

METHODS AND MATERIALS

There are only two leading hospital complexes in the Cape Peninsula, namely Grootte Schuur/Somerset in Cape Town and Tygerberg/Karl Bremer in the northern suburbs. Patients to these hospitals come from both rural and urban areas. Whereas it is possible that rural patients with cancer may be channelled to hospitals in other major cities, all such patients from Cape Town and surrounding towns are referred to one of the above institutions.

It is a provincial regulation that all suspected neoplasms must be histologically confirmed. Therefore records of all malignancies seen in either of these teaching hospitals are available in the departments of Pathology. Reports of all cases with squamous carcinoma of the mouth (I.C.D. Nos. 140, 141, 142, 144, 145 and 146) were scrutinised. The following information was recorded: name, sex, hospital number, age, home address, religion, population group and detail about the neoplasm, such as histological diagnosis, history and clinical description. All cases belonging to the Cape Coloured and Indian population groups were selected. As habits and cultural differences are often implicated in the different patterns of this disease (see references in discussion of etiology, Chapter 2) the subjects were further divided into Cape Coloureds, Malays and South Africans of Indian extraction.

To obtain meaningful figures with regard to prevalence of morbidity of oral cancer in the subjects under study, the areas from which patients had derived, were divided into "Cape Peninsula" and "Rural" areas.

The Cape Peninsula is defined in this study as the areas bordered by a line drawn from Milnerton to Durbanville - Kraaifontein - Kuilsrivier - Strandfontein and the ocean. This area is slightly larger than that normally defined by the Cape Metropolitan Planning Committee (Fig. 3.1). This was decided on because a large number of patients living in the Kraaifontein - Kuilsriver area reported for treatment.

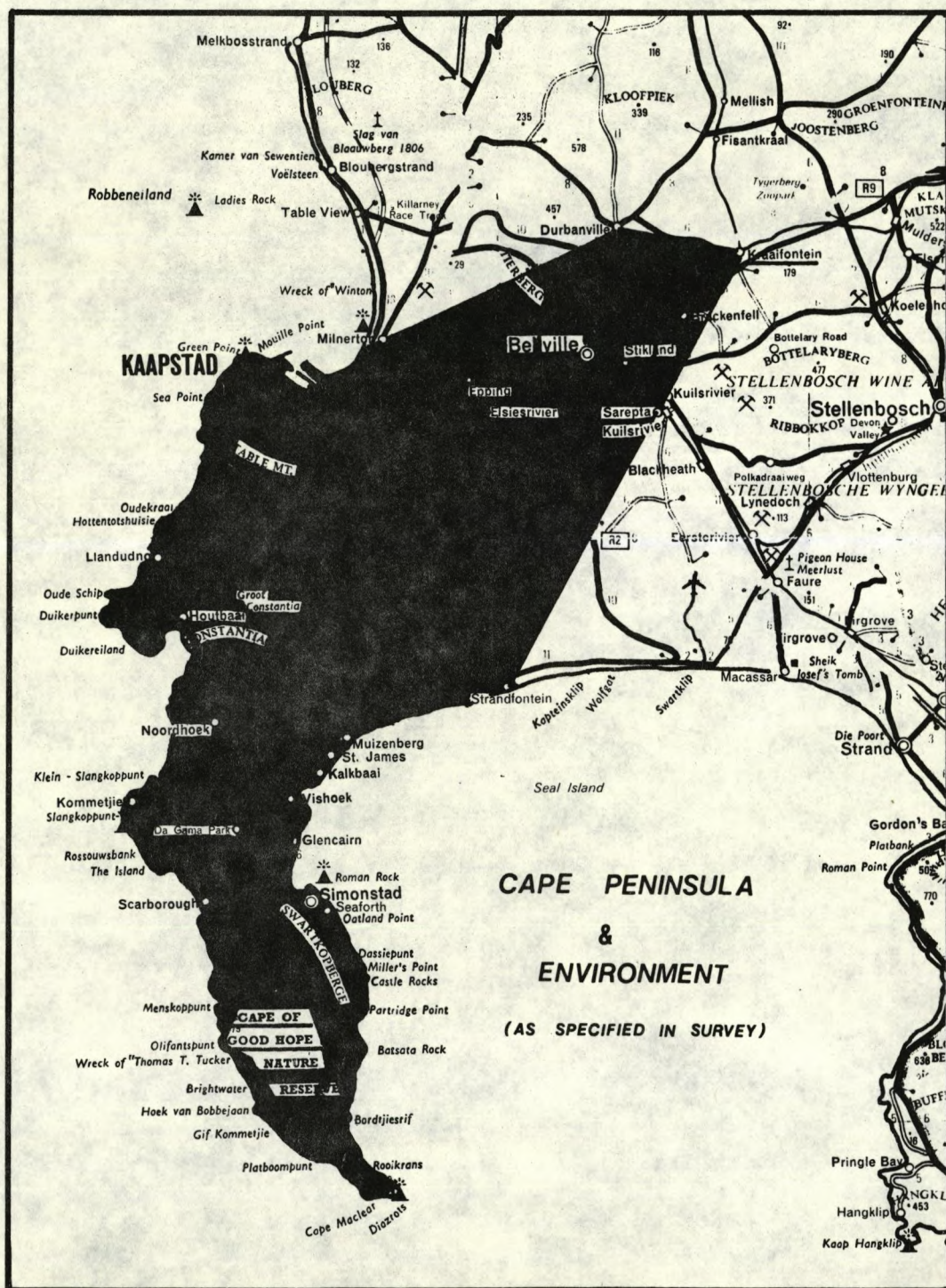


Fig.3.1 Cape Peninsula as defined in this survey.

In order to calculate incidence and mortality rates, the population census figures for 1970 were used, with projections on population increase up to 1975 (Sadie, 1978). As the figures for the Cape Peninsula did not include Kuilsrivier, the necessary information was obtained from the Municipality of Kuilsrivier, and similar projections of population increases calculated for Kuilsrivier.

In the final analysis of the results, however, the standard world population was used (as contained in Cancer of the Five Continents. Vol. III, 1976).

CHAPTER 4

RESULTS

4.1 The total number of cases of oral cancer (I.C.D. 140-146) treated during 1970-1975 in the two teaching hospitals in the Cape Peninsula was 265; 112 residing in the Peninsula and 153 residing in urban areas. The latter stretches from the Peninsula to places as far as 1 500 km from the Peninsula.

4.1.1 Sex ratio of oral cancer

In the total sample of 265 patients, 218 were male and 47 female, giving a ratio of 4,6:1 (M:F).

4.1.2 Distribution of oral cancer by site and sex.

(Table 4.1 illustrates the findings)

Site	I.C.D. No.	Total	M	F
Lip	140	22	20	2
Tongue	141	107	90	17
Gingiva	143	19	15	4
Floor of mouth	144	37	30	7
Cheek	145	20	12	8
Palate	145.1	14	12	2
Oropharynx	146	46	39	7

Table 4.1 Distribution of oral cancer by site and sex.
Total sample treated in Peninsula, 1970-1975.

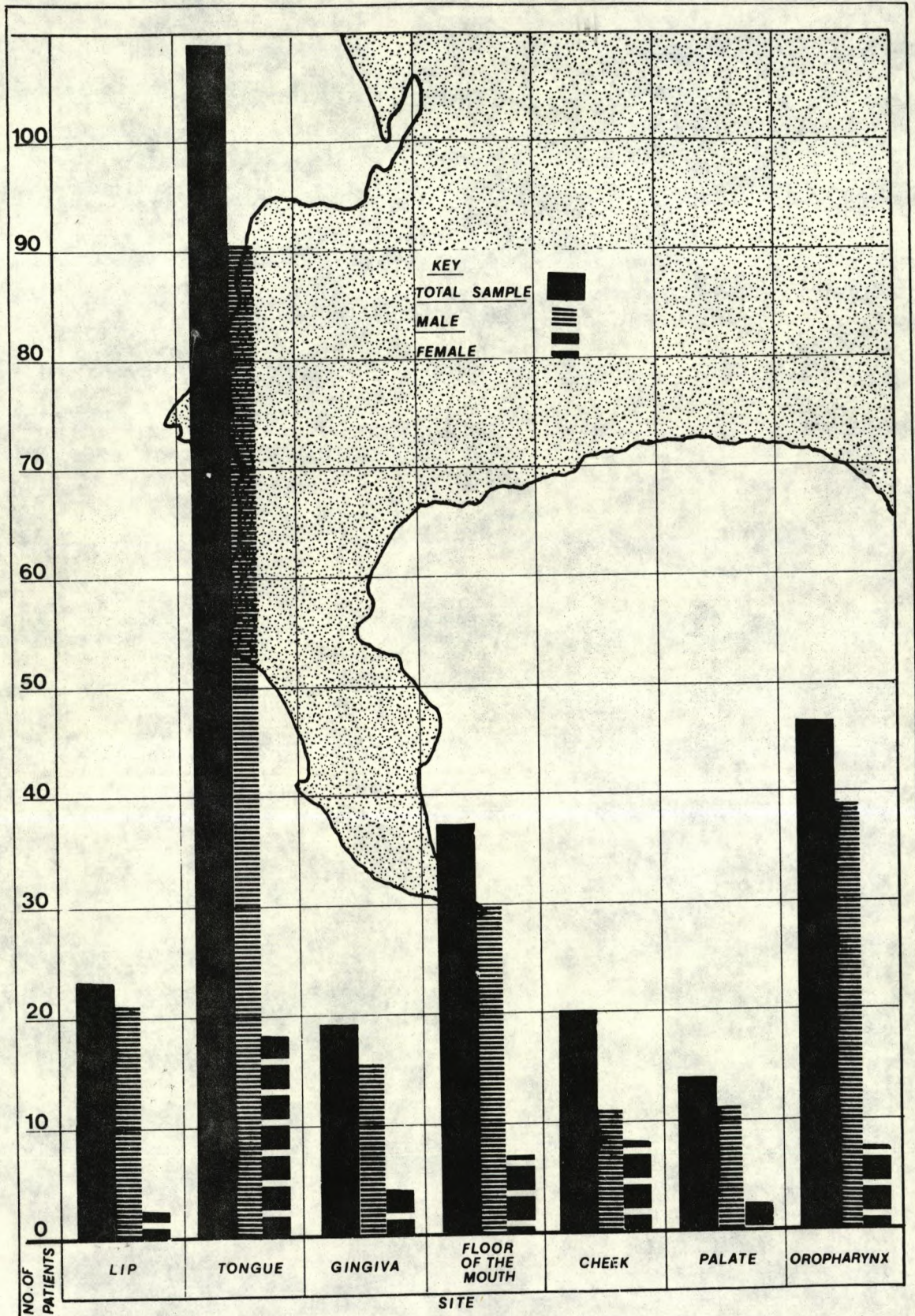


Fig. 4.1 Multiple bar chart indicating the sites of oral cancer of the total sample treated in the Peninsula, male and female. 1970-1975.

The tongue was the most common site for oral cancer in both sexes, followed by the oropharynx in males and the cheek in females. Further differences also exist with regard to the lips and other intra-oral regions, none being of the same order for both sexes.

The distribution is illustrated graphically by Fig.4.1.

4.1.3 Distribution of oral cancer by age and sex.

The ages of the patients treated ranged from 25 to 87 years, the majority being between 50 and 69 years (see table 4.2).

Age	Total	Male	Female
20 - 29	1	1	0
30 - 39	14	11	3
40 - 49	45	40	5
50 - 59	74	60	14
60 - 69	87	75	12
70 - 79	32	23	9
80+	12	8	4

Table 4.2 Distribution of oral cancer by age and sex.
Total sample treated in Peninsula, 1970-1975.

The age distribution can be illustrated graphically by Fig. 4.2.

4.1.4 Morbidity

Due to the fact that the total population can be calculated covering the areas where rural patients come from, and as pointed out, rural patients are not always referred to the

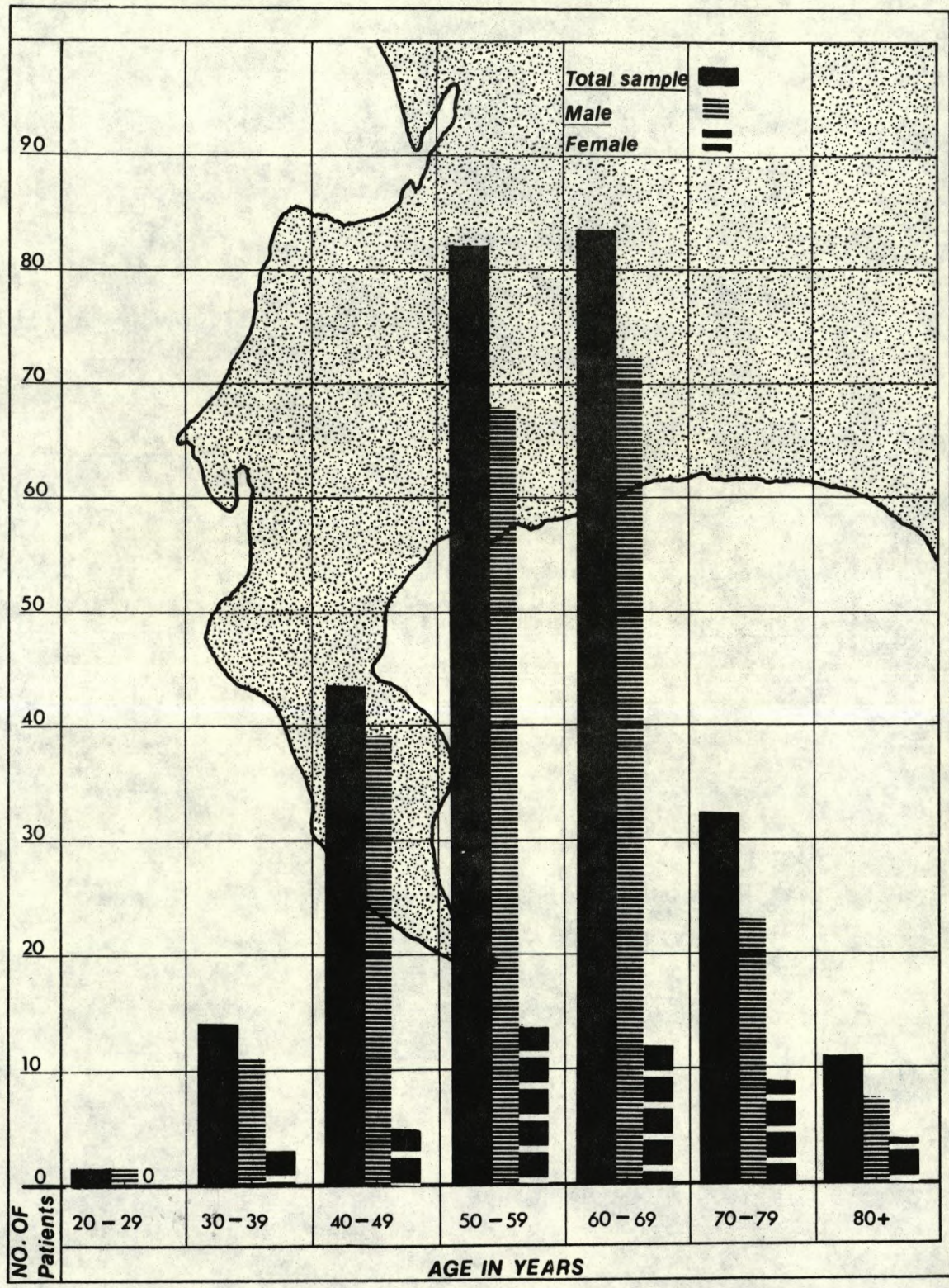


Fig. 4.2 Multiple bar chart of the crude age distribution of oral cancer of the total sample treated in the Peninsula, male and female. 1970-1975.

Peninsula for treatment, the morbidity cannot be calculated.

4.2 THE CAPE PENINSULA

4.2.1 Subjects residing in the Cape Peninsula.

The total number of patients treated for oral cancer and residing in the Peninsula was 122. Of these 108 were Cape Coloureds not belonging to the Islamic faith, 10 Cape Coloureds belonging to the Islamic faith (Cape Malays) and 4 of Indian extraction (see table 4.3).

	Cape Coloureds	Malays	Indians	Total
Male	85	5	1	91
Female	23	5	3	31
Total	108	10	4	122

Table 4.3 Total number of patients with oral cancer residing and treated in Peninsula, 1970-1975.

4.2.2 The Cape Coloureds, excluding Cape Malays

4.2.2.1 Sex ratio of oral cancer

The ratio of oral cancer occurring in the sexes was 3,7 males for every female.

4.2.2.2 Distribution of oral cancer by site and sex.

Site	I.C.D. No.	Total	Male	Female
Lip	140	11	10	1
Tongue	141	38	33	5
Gingiva	143	9	7	2
Floor of mouth	144	16	13	3
Cheek	145	10	4	6
Palate	145.1	5	4	1
Oropharynx	146	19	14	5

Table 4.4 Distribution of oral cancer by site and sex. Cape Coloureds, Peninsula, 1970-1975.

The majority of oral cancers in males occurred on the tongue whereas the cheek was the most common site in females. The palate was the least affected site for both sexes, vying with the lip in females (see table 4.4 and the graphic illustration, Fig. 4.3).

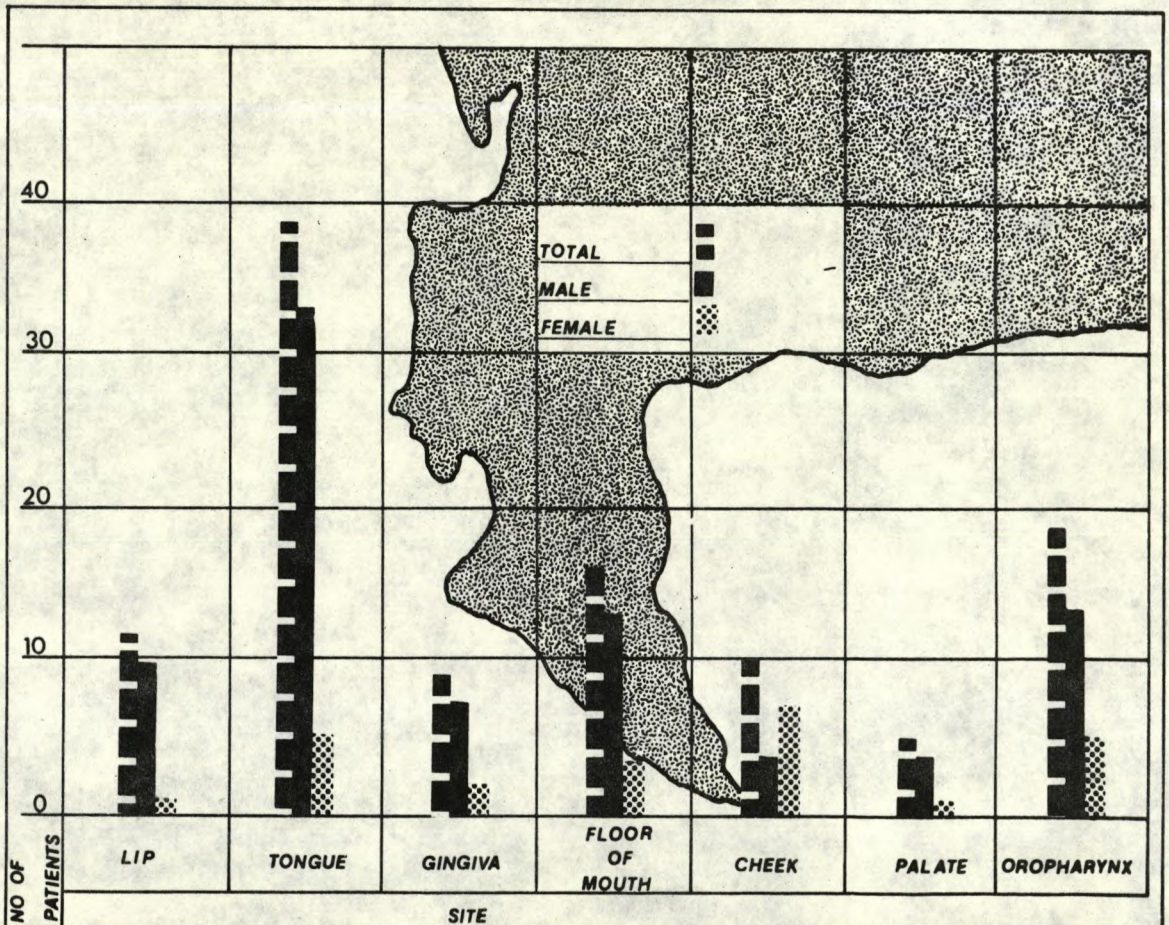


Fig.4.3 Multiple bar chart of distribution of oral cancer by site and sex. Cape Coloureds, Peninsula, 1970-1975.

4.2.2.3 Distribution of oral cancer by age and site.

The distribution by age and site of oral cancer is given in table 4.5. In males the tongue is the commonest site to be affected for all age-groups. In the female no definite pattern is recognisable.

Site	I.C.D. No.	M A L E							F E M A L E						
		20-	30-	40-	50-	60-	70-	80+	20-	30-	40-	50-	60-	70-	80+
Lip	140	0	2	1	0	3	3	1	0	0	0	0	0	0	1
Tongue	141	1	4	6	9	10	3	0	0	0	2	1	1	1	0
Gingiva	143	0	0	2	1	3	1	0	0	0	0	1	0	1	0
Floor of mouth	144	0	1	1	4	6	1	0	0	0	0	2	0	1	0
Cheek	145	0	0	3	1	0	0	0	0	0	0	3	3	0	0
Palate	145.1	0	0	1	0	3	0	0	0	0	0	0	0	1	0
Oropharynx	146	0	0	5	6	3	0	0	0	0	0	2	2	1	0

Table 4.5 Distribution of oral cancer by age and site.
Cape Coloureds, Peninsula, 1970-1975.

4.2.2.4 Age specific incidence rate.

When the age specific incidence rate per 100 000 of oral cancer is calculated it shows a continuous rise in the incidence of both sexes with age (see table 4.6).

Site	I.C.D No.	20 - 29		30 - 39		40 - 49		50 - 59		60 - 69		70 - 79		80+	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F
Lip	140	0,0	0,0	5,4	0,0	4,0	0,0	0,0	0,0	36,6	0,0	119,0	0,0	142,7	59,5
Tongue	141	2,0	0,0	10,8	0,0	24,2	7,3	61,8	5,8	122,1	9,1	119,0	25,0	0,0	0,0
Gingiva	143	0,0	0,0	0,0	0,0	8,1	0,0	6,9	5,8	36,6	0,0	39,7	25,0	0,0	0,0
Floor of mouth	144	0,0	0,0	2,4	0,0	3,6	0,0	27,5	11,6	73,3	0,0	39,7	25,0	0,0	0,0
Cheek	145	0,0	0,0	0,0	0,0	12,1	0,0	6,9	17,4	0,0	27,4	0,0	0,0	0,0	0,0
Palate	145.1	0,0	0,0	0,0	0,0	4,0	0,0	0,0	0,0	36,6	0,0	0,0	25,0	0,0	0,0
Oropharynx	146	0,0	0,0	0,0	0,0	20,1	0,0	42,2	11,6	36,6	18,3	0,0	25,0	0,0	0,0
Total Oral Cancer	140- 146	2,0	0,0	10,8	0,0	84,6	7,3	267,8	29,1	561,9	36,6	595,2	100,0	998,6	178,4

Table 4.6 Distribution of oral carcinoma by site and sex.
Age specific incidence rate. Cape Coloureds,
Peninsula, 1970-1975.

Site	I.C.D. No	1970		1971		1972		1973		1974		1975	
		M	F	M	F	M	F	M	F	M	F	M	F
Lip	140	1	0	0	0	1	0	2	0	4	0	2	1
Tongue	141	2	1	5	1	4	0	6	0	8	0	8	3
Gingiva	143	0	1	0	1	1	0	1	0	4	0	1	0
Floor of mouth	144	2	1	2	0	1	0	4	0	2	1	2	1
Cheek	145	1	1	0	0	1	2	0	1	1	1	1	1
Palate	145.1	1	0	0	1	0	0	2	0	1	0	0	0
Oropharynx	146	1	0	3	0	2	1	3	0	4	2	1	2
Total	140 - 146	8	4	10	3	10	3	18	1	24	4	15	8

Table 4.7 Prevalence of oral cancer by site and sex.
Cape Coloureds, Peninsula, 1970-1975.

4.2.2.5. Crude morbidity rate

The crude morbidity rate per 100 000 of oral cancer in the Cape Coloured population group was found to be 2,7 for both sexes, 4,6 for males and 1,1 for females.

4.2.2.6. Prevalence in represented by table 4.7.

There seems to be a steady increase over the years 1970-1975, with a slight drop in 1976 which is difficult to account for.

4.2.3 Cape Malays residing in the Peninsula.

4.2.3.1 Sex ratio of oral cancer.

Total number of Cape Malays residing in the Peninsula with oral cancer was 19 patients of which 5 were male and 5 female giving a ratio of 1:1 (M:F).

4.2.3.2 Distribution of oral cancer by site and sex.

Site	I.C.D. No.	Total	M	F
Lip	140	0	0	0
Tongue	141	2	1	1
Gingiva	143	1	0	1
Floor of mouth	144	3	2	1
Cheek	145	3	1	2
Palate	145.1	0	0	0
Oropharynx	146	1	1	0

Table 4.8 Distribution of oral cancer by site and sex. Cape Malays, Peninsula, 1970-1975.

Among this group, the majority of oral cancers occurred in the floor of the mouth and cheeks (see table 4.8).

This is graphically illustrated by Fig. 4.6.

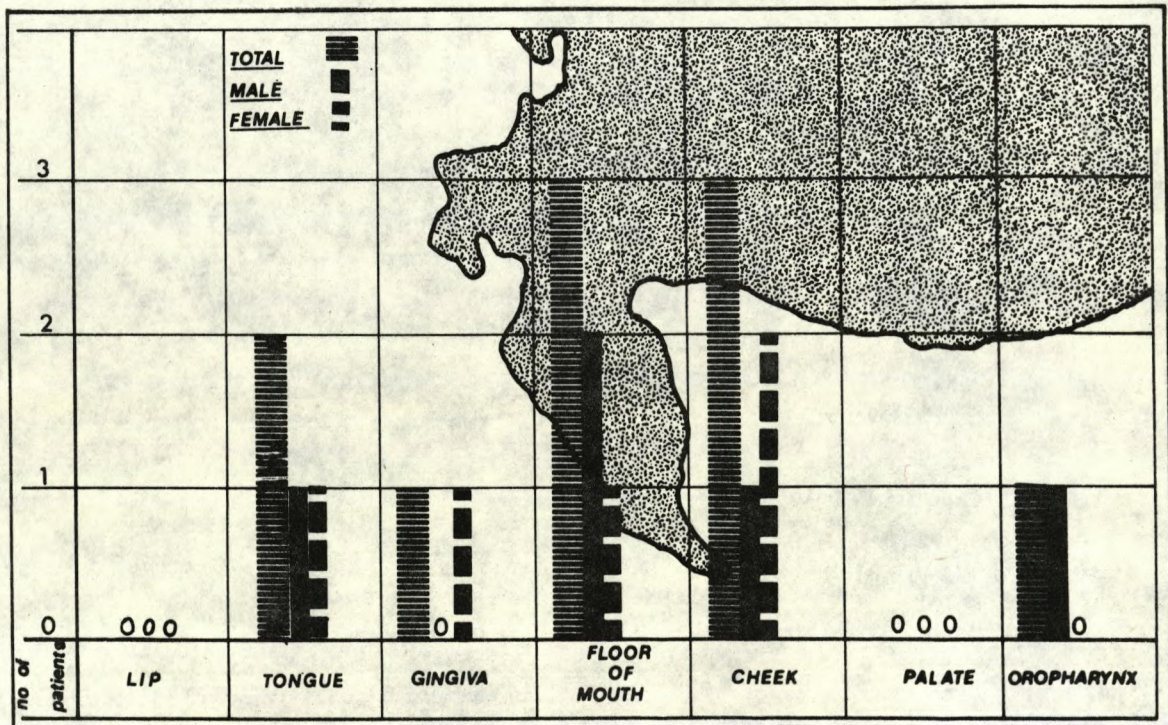


Fig.4.6 Multiple bar chart of distribution of oral cancer by site and sex. Cape Malays, Peninsula, 1970-1975.

4.2.3.3 Distribution of oral cancer by age and site.

In males the distribution of oral cancer seems to be over a wider range than in females - the latter showing a definite tendency towards the older age groups.

The distribution by age and site is given in table 4.9.

Site	I.C.D. No.	M A L E							F E M A L E						
		20-	30-	40-	50-	60-	70-	80+	20-	30-	40-	50-	60-	70-	80+
Lip	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tongue	141	0	0	0	1	0	0	0	0	0	0	0	0	1	0
Gingiva	143	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Floor of mouth	144	0	1	0	0	1	0	0	0	0	0	0	0	1	0
Cheek	145	0	0	1	0	0	0	0	0	0	0	1	1	0	0
Palate	145.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oropharynx	146	0	0	0	1	0	0	0	0	0	0	0	0	0	0

Table 4.9 Distribution of oral cancer by age and site.
Cape Malays, Peninsula, 1970-1975.

Age specific incidence rate.

The age specific incidence rate per 100 000 is represented by
table 4.9. (Population age-group appears in the appendix.)

Site	I.C.D. No	20 - 29		30 - 39		40 - 49		50 - 59		60 - 69		70 - 79		80 +	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F
Lip	140	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Tongue	141	0,0	0,0	0,0	0,0	0,0	0,0	49,58	0,0	0,0	0,0	233,64	0,0	0,0	0,0
Gingiva	143	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	233,64	0,0	0,0	0,0
Floor of mouth	144	0,0	0,0	19,10	0,0	0,0	0,0	0,0	0,0	109,17	0,0	233,64	0,0	0,0	0,0
Cheek	145	0,0	0,0	0,0	0,0	27,75	0,0	0,0	44,74	0,0	101,62	0,0	0,0	0,0	0,0
Palate	145.1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Oropharynx	146	0,0	0,0	0,0	0,0	0,0	0,0	49,58	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Total oral cancers	140-146	0,0	0,0	19,10	0,0	27,75	0,0	99,16	44,74	109,17	101,62	700,93	0,0	0,0	0,0

Table 4.10 Distribution of oral cancer by site and sex. Age specific incidence rate Cape Malays, Peninsula, 1970-1975.

Site	I.C.D. No	1970		1971		1972		1973		1974		1975	
		M	F	M	F	M	F	M	F	M	F	M	F
Lip	140	0	0	0	0	0	0	0	0	0	0	0	0
Tongue	141	0	0	0	0	0	0	0	1	0	0	0	0
Gingiva	143	0	0	0	0	0	1	0	0	0	0	0	0
Floor of mouth	144	0	0	0	0	0	0	0	0	2	1	0	0
Cheek	145	0	0	0	0	0	0	0	0	1	2	0	0
Palate	145.1	0	0	0	0	0	0	0	0	0	0	0	0
Oropharynx	146	0	0	0	0	0	0	1	0	0	0	0	0
Total	140 - 146	0	0	0	0	0	1	1	1	4	3	0	0

Table 4.11 Prevalence of oral cancer by site and sex. Cape Malays, Peninsula 1970-1975.

4.2.3.4 Crude morbidity rate

The crude morbidity rate per 100 000 of oral cancer in the Cape Malays was found to be 1,9 for males, 1,8 for females and 1,8 for both sexes.

4.2.3.5 Prevalence is represented by Table 4.11.

The pattern in this group is difficult to assess due to the small numbers.

4.2.4 Indians residing in the Peninsula.

4.2.4.1 Sex ratio of oral cancer.

Total sample of Indians residing in the Peninsula with oral cancer was 4 of which 1 was a male and 3 female giving a ratio of 0,33:1 (M:F).

4.2.4.2 Distribution of oral cancer by site and sex.

The distribution of oral cancer by site and sex is given in table 4.12. Fig. 4.5 graphically illustrates the findings. Small numbers make speculation difficult.

Site	I.C.D. No.	Total	M	F
Lip	140	0	0	0
Tongue	141	2	0	2
Gingiva	143	0	0	0
Floor of mouth	144	0	0	0
Cheek	145	1	0	1
Palate	145.1	1	1	0
Oropharynx	146	0	0	0

Table 4.12 Distribution of oral cancer by site and sex. Indians, Peninsula, 1970-1975.

Table 4.12 is illustrated graphically by Fig. 4.5.

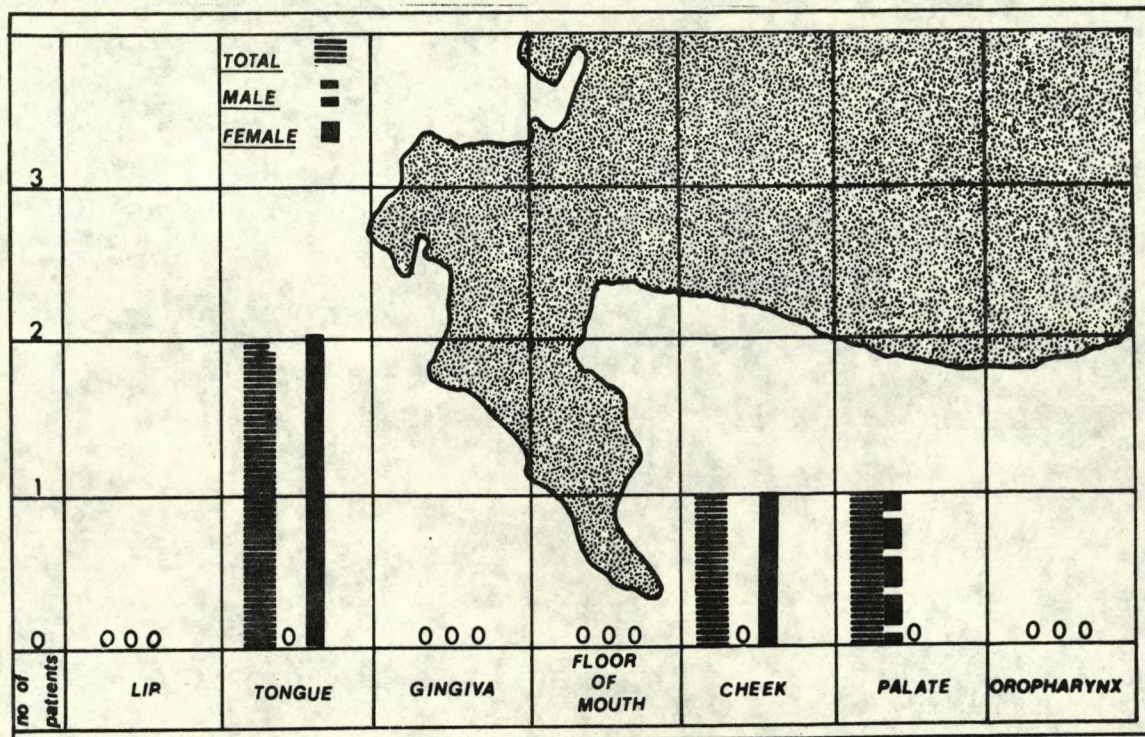


Fig. 4.5 Multiple bar chart of distribution of oral cancer by site and sex. Indians, Peninsula, 1970-1975.

4.2.4.3 Distribution of oral cancer by age and site.

The distribution of oral cancer by age and site is represented in table 4.13.

Site and age distribution.

Site	I.C.D. No.	M A L E						F E M A L E							
		20-	30-	40-	50-	60-	70-	80+	20-	30-	40-	50-	60-	70-	80+
Lip	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tongue	141	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Gingiva	143	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Floor of mouth	144	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cheek	145	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Palate	145.1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Oropharynx	146	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4.13 Distribution of oral cancer by age and site. Indians, Peninsula, 1970-1975.

The age specific incidence rate.

The age specific incidence rate is represented in table 4.14 (Population age-group appears in the appendix).

The age specific incidence rate per 100 000 is given

Site	I.C.D. No.	20-29		30-39		40-49		50-59		60-69		70-79		80+	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F
Lip	140	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Tongue	141	0,0	0,0	0,0	0,0	0,0	198,8	0,0	0,0	0,0	1000,0	0,0	0,0	0,0	0,0
Gingiva	143	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Floor of mouth	144	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Cheek	145	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1000,0	0,0	0,0	0,0	0,0
Palate	145.1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	800,0	0,0	0,0	0,0	0,0	0,0
Oropharynx	146	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Total Oral Cancer	140-146	0,0	0,0	0,0	0,0	0,0	198,8	0,0	0,0	800,0	2000,0	0,0	0,0	0,0	0,0

Table 4.14 Distribution of oral cancer by site and sex. Age specific incidence rate, Indians, Peninsula, 1970-1975.

4.2.4.4 Crude morbidity rate

The crude morbidity rate of oral cancer in the Indians residing in the Peninsula was found to be 2,7 for males, 8,9 for females and 5,7 for both sexes.

4.2.4.5 Prevalence is represented by table 4.15.

The small number of patients made it difficult to speculate on the tendency.

Site	I.C.D. No	1970		1971		1972		1973		1974		1975	
		M	F	M	F	M	F	M	F	M	F	M	F
Lip	140	0	0	0	0	0	0	0	0	0	0	0	0
Tongue	141	0	0	0	0	0	1	0	0	0	1	0	0
Gingiva	143	0	0	0	0	0	0	0	0	0	0	0	0
Floor of mouth	144	0	0	0	0	0	0	0	0	0	0	0	0
Cheek	145	0	1	0	0	0	0	0	0	0	0	0	0
Palate	145.1	0	0	0	0	1	0	0	0	0	0	0	0
Oropharynx	146	0	0	0	0	0	0	0	0	0	0	0	0
Total	140 - 146	0	1	0	0	1	1	0	0	0	0	1	0

Table 4.15 Prevalence of oral cancer by site and sex. Indians, Peninsula, 1970-1975.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

5.1 INTRODUCTION

Generally speaking the pattern of oral cancer in the Coloured population group compares with that found in Columbia and Burma, whereas the South African Whites have an incidence rate comparable to that found in the Sudan, New Zealand, Great Britain, Italy and France (Fig. 5.1)

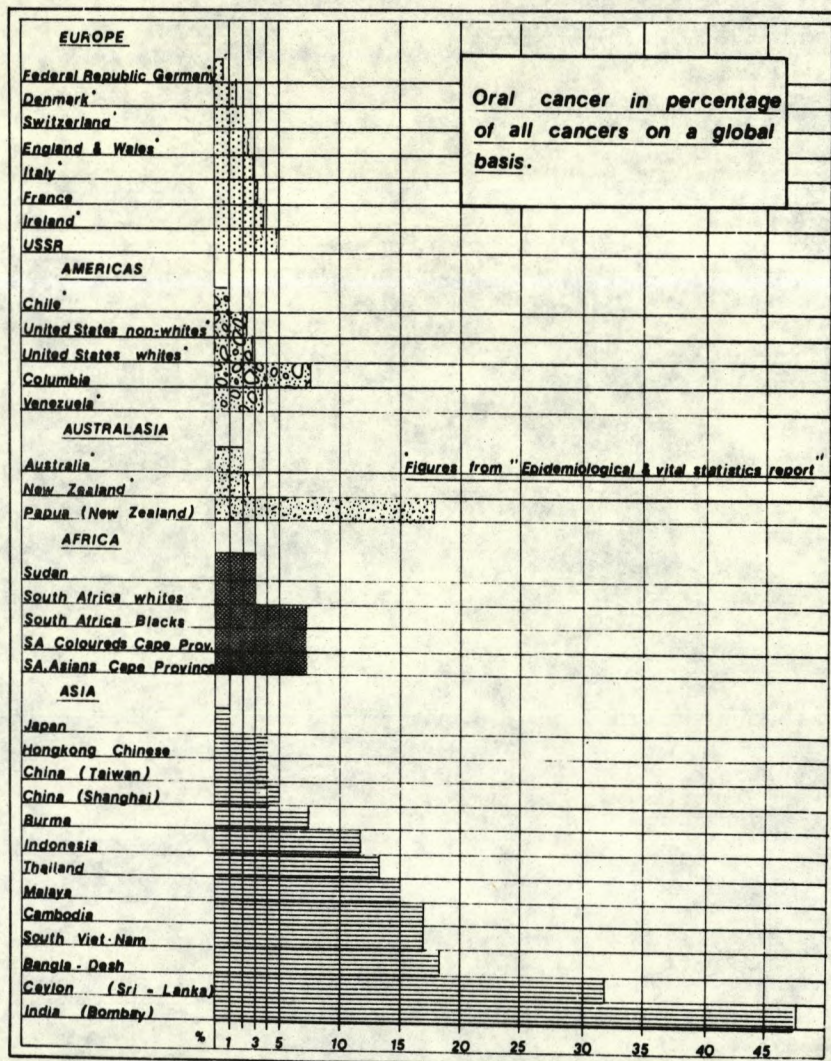


Fig. 5.1 Oral cancer as a percentage of all cancers, on a global basis, illustrating the position occupied by the Cape Coloureds compared to other population groups in the five continents (after Pindsborg, 1977).

5.2 MORBIDITY RATES OF ORAL CANCER IN CAPE COLOUREDS
(INCLUDING CAPE MALAYS)

When the results of these studies are compared to those published of various population groups in South Africa, it can be seen that the morbidity of oral cancer in Cape Coloureds more or less resembles those of the other population groups in South Africa (Table 5.1).

AUTHOR	S.A. INDIANS		S.A. COLOUREDS		S.A. WHITES		S.A. BLACKS	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
(SCHONLAND & BRADSHAW, 1968a)								
LIP							0,2	0-0,3
TONGUE							1,1-1,2	0,4-0,8
REST OF MOUTH							1,5-2,6	0,1-0,3
(SCHONLAND & BRADSHAW, 1968b)	2,9	6,1					2,9-3,9	0,5-1,4
(SCHONLAND & BRADSHAW, 1969)								
TONGUE	1,5	3,0						
BUCCAL CAVITY	4,4	8,1						
OROPHARYNX	1,0	2,1						
(OETTLÉ & HIGGINSON, 1966)								
ORAL CANCER							4,1	1,5
(GRIEVE, 1967)								
LIP			2,9	0	17,4	1,4		
TONGUE			3,7	0,3	3,7	0,6		
REST OF MOUTH			2,2	0,6	5,4	1,1		
(BREYTENBACH & VAN WYK)								
LIP			0,5	0,1				
TONGUE			1,7	0,2				
REST OF MOUTH			2,2	0,8				

Table 5.1 Morbidity in various population groups in South Africa.

This is not unexpected as the etiological factors of oral cancer in the Cape Coloured would conceivably be similar to those for the Blacks and Whites. The Coloured female, compared to the male, seems to have a very low morbidity rate of oral cancer and this can be ascribed generally to the fact that they are not subjected to some of the etiological factors viz. tobacco and alcohol to the same marked degree. This becomes more apparent when the rural and urban females are compared, as will be pointed out later.

5.3 MORBIDITY RATES OF ORAL CANCERS IN INDIANS RESIDING IN THE CAPE PENINSULA

The morbidity rates found by this investigation correspond relatively closely to those found by Schonland and Bradshaw (1968) for males (2.7), but the morbidity for females was found to be much higher (8.9). This increase of approximately 30 per cent in females in the Cape Peninsula must in all probability be sought in:

- (a) the small numbers of Cape Town Indians investigated where even a difference of one or two cases will affect the morbidity rate and
- (b) other points which may also have some relevancy are the difference in the ingredients of the betel-cud and the way the habit is practised (Schonland and Bradshaw, 1968).

5.4 MORBIDITY RATES OF ORAL CANCERS IN THE CAPE MALAY

It was pointed out in the introduction that a group of Cape

Coloureds have one bond in common, the Islamic faith. As a result their ways of life differ in certain respects from the other Coloureds.

Results show that the overall morbidity figure of oral cancer in the Cape Malay is lower than both the non-Malay Cape Coloured and the Cape Town Indian (Table 5.2). On the other hand the morbidity rate between the sexes is rather similar.

Population Group	Morbidity per 100 000	
	Male	Female
Cape Coloured	4,6	1,1
Cape Malay	1,9	1,8
Cape Indian	2,7	8,9

Table 5.2 Morbidity of oral cancer by sex for some of the Cape population groups treated in the Peninsula 1970-1975.

Again there may be several reasons for these discrepancies. The first being the relatively small number of cases of cancer encountered which make morbidity studies difficult. On the other hand the recording of the cases may, to a certain extent, be erroneous. In the hospital forms provision is made for religion, but these were not completed in a number of cases. Therefore one had to rely on surnames and addresses. Although the clerks copying the above forms for this study know sufficient about the history and names of the Malay, it is possible that errors did occur.

Allowing for the above mistakes, one can speculate that the abstinence from alcohol by the Cape Malays may have some bearing on the incidence of oral cancer. However, both sexes smoke and should there be an iron deficiency problem among the females (Plummer Vinson Syndrome) this will increase the occurrence of oral cancer among the female Malays.

5.5 THE INCIDENCE OF ORAL CANCER BETWEEN RURAL AND URBAN CAPE COLOUREDS

Of the 265 cases of oral cancer, 101 were residents of the Cape Peninsula and 153 came from rural areas. The ratio of male to female in the Peninsula patients was 3,3 to 1 and of the rural 6,3 to 1. This difference is significant at a $p < 0,05$ level (Table 5.3). This difference was primarily due to the number of cheek cancers recorded in females of the Peninsula (Table 5.3) and a similar discrepancy in the male:female ratio of cancers of the oropharynx. It is not possible to give an answer and further epidemiological studies should be undertaken.

Site	I.C.D. No	Peninsula				Rural			
		Total	M	F	Ratio M:F	Total	M	F	Ratio M:F
Lip	140	11	10	1	10:1	11	10	1	10:1
Tongue	141	40	33	7	4,8:1	67	57	10	5,7:1
Gingiva	143	9	7	2	3,5:1	10	8	2	4:1
Floor of mouth	144	16	13	3	4,3:1	21	17	4	4,3:1
Cheek	145	11	4	7	0,6:1	9	8	1	8:1
Palate	145.1	6	5	1	5:1	8	7	1	7:1
Oropharynx	146	19	14	5	2,8:1	27	25	2	12,5:1

Table 5.3 Oral cancer by site and sex of total sample (urban and rural) receiving treatment in the Peninsula 1970-1975.

5.6 ANATOMICAL SITE AND SEX OF ORAL CANCER

5.6.1 Comparison with other South African population groups.

If the occurrence of cancers of the various oral sites is compared, then the pattern of oral cancer in the Cape Coloured, with the exception of oropharyngeal cancer and lip cancer, is similar to that found in Blacks and Whites (Table 5.4 and 5.5). Lip cancer in the Cape Coloured follows the pattern seen in Blacks. In other words pigmentation affords a similar protection against lip cancer as is the case in Blacks.

Why oropharyngeal cancer should be higher in Cape Coloureds is difficult to explain. Can it be that the supposedly high intake of noxious stimuli such as methylated spirits in this group may have some influence? One should also not lose sight of the fact that erroneous documentation of tongue cancer as an oropharyngeal cancer by the clinicians may also have a bearing on the figures. It is possible that a cancer that started as a cancer of the tongue spread to the oropharynx and was detected at a late stage and erroneously classified.

Population Group and Author	Lip		Tongue		Floor of Mouth		Cheek		Palate		Gingiva		Oropharynx	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
South African Black Shear (1970)	5,4	0,8	30,2	3,1	17,1	1,6	3,1	1,6	8,5	2,3	14,7	0,8	3,1	0
South African White Shear (1970)	28,2	1,3	17,2	9,3	17,9	3,3	5,3	1,3	3,3	0,7	2,6	4,0	5,3	1,3
Cape Coloureds Breytenbach & Van Wyk (1978)	7,5	0,8	34,0	6,4	11,3	2,6	4,5	3,0	4,5	0,8	5,7	1,5	14,7	2,6

Table 5.4 Percentages of oral cancer by site and sex as found by various authors in South African population groups.

A comparison by site and sex of oral cancer is seen in Fig. 5.5.

Population Group Author	Sex	S I T E							
		Tongue	Oropharynx	Floor of Mouth	Lip	Gingiva	Cheek	* Palate	** Palate
Cape Coloured Breytenbach & van Wyk (1978)	M	Tongue	Oropharynx	Floor of Mouth	Lip	Gingiva	* Cheek	* Palate	
	F	Tongue	Cheek	* Floor of Mouth	* Oropharynx	Gingiva	** Lip	** Palate	
Cape Indian Breytenbach & van Wyk (1978)	M	Palate							
	F	Tongue	Cheek						
South African Whites Shear (1970)	M	Lip	Floor of Mouth	Tongue	* Cheek	* Oropharynx	Palate	Gingiva	
	F	Tongue	Gingiva	Floor of Mouth	* Lip	* Cheek	* Oropharynx	Palate	
South African Blacks Shear (1970)	M	Tongue	Floor of Mouth	Gingiva	Palate	Lip	* Cheek	* Oropharynx	
	F	Tongue	Palate	* Floor of Mouth	* Cheek	** Lip	** Gingiva	Oropharynx	

Table 5.5 Comparison by site and sex of oral cancer in declining order of occurrence in the main South African population groups.

(* and ** denote same percentages)

5.7 COMPARISON OF ORAL CANCER IN THE POPULATION GROUPS
OF THE CAPE PENINSULA WITH THOSE OF OTHER CONTINENTS

5.7.1 Introduction.

Accurate comparisons of national incidences of malignant tumours, because of varying means by which these incidences are recorded, remain difficult (Sellars, 1979).

5.7.2 Age specific incidence rate and site.

Using the third volume of Cancer Incidence in Five Continents the age specific incidence for oral cancer by site (I.C.D. No. 140, 141, 143-145, 146) was calculated and tables 5.6 to 5.10 compiled.

COUNTRY	I.C.D. NO.	SITE	20-29	30-39	40-49	50-59	60-69	70-79	80+	ALL AGES	NO. ALL AGES	AGE UN= KNOWN	NO. YEARS
NIGERIA Ibadan 1960-1969	140	Lip	0,2	0,0	2,3	0,0	6,6	0,0	0,0	0,1	5	0	10
	141	Tongue	0,0	0,0	0,0	7,7	6,6	0,0	0,0	0,1	4	0	
	143-5	Mouth	0,0	0,8	3,6	3,3	17,5	9,3	0,0	0,4	13	0	
	146	Oropharynx	0,0	0,0	0,0	0,0	3,3	0,0	0,0	0,0	1	0	
RHODESIA Bulawayo (African) 1968-1972	140	Lip	0,0	1,6	0,0	0,0	0,0	0,0	0,0	70+	1	0	5
	141	Tongue	0,0	0,0	0,0	6,0	0,0	0,0	0,0	0,0	1	0	
	143-5	Mouth	0,0	5,6	0,0	0,0	33,9	69,0	0,0	0,0	5	0	
	146	Oropharynx	0,0	2,0	0,0	0,0	0,0	0,0	0,0	0,0	1	0	
CANADA Quebec 1969-1972	140	Lip	0,0	2,2	7,1	20,3	43,7	89,8	144,2	4,5	538	10	4
	141	Tongue	0,2	0,5	3,7	9,1	25,0	34,1	58,2	2,1	251	6	
	143-5	Mouth	0,4	0,5	5,5	16,3	30,7	56,3	102,4	3,1	372	5	
	146	Oropharynx	0,3	0,4	6,0	13,3	22,1	31,4	43,9	2,3	273	2	
U.S.A. CALIFORNIA Alameda City (White) 1969-1973	140	Lip	2,1	4,7	7,9	25,1	28,0	59,9	49,8	4,5	94	0	5
	141	Tongue	1,1	0,8	5,6	24,8	23,7	20,2	44,8	3,3	69	0	
	143-5	Mouth	0,6	1,5	5,4	28,2	39,5	47,9	5,3	4,0	84	0	
	146	Oropharynx	0,0	0,0	3,1	13,1	33,4	20,0	0,0	2,3	49	0	
U.S.A. CALIFORNIA Alameda City (Black) 1969-1973	140	Lip	0,0	0,0	4,4	0,0	11,1	0,0	0,0	0,5	2	0	5
	141	Tongue	0,0	0,0	4,7	25,7	19,2	0,0	0,0	2,0	8	0	
	143-5	Mouth	0,0	5,1	13,4	24,6	27,3	37,2	88,5	3,6	14	0	
	146	Oropharynx	0,0	0,0	18,2	16,9	11,1	0,0	0,0	2,0	2	0	

Table 5.6 Age specific incidence of oral cancer in 5 continents.

COUNTRY	I.C.D. NO.	SITE	20-29	30-39	40-49	50-59	60-69	70-79	80+	ALL AGES	NO. ALL AGES	AGE UN- KNOWN	NO. YEARS
U.S.A. MICHIGAN	140	Lip	0,0	0,4	1,2	6,2	12,6	22,2	39,4	1,5	73	0	3
Detroit (White) 1969-1971	141	Tongue	0,6	1,9	4,6	19,0	23,9	26,3	44,7	3,0	149	0	
	143-5	Mouth	0,0	0,7	5,7	25,0	34,1	21,5	26,2	3,6	180	0	
	146	Oropharynx	0,0	0,8	4,2	9,9	20,6	28,4	15,7	2,2	108	0	
U.S.A. MICHIGAN	140	Lip	0,0	0,0	0,0	2,2	0,0	0,0	0,0	0,1	1	0	3
Detroit (Black) 1969-1971	141	Tongue	0,0	0,0	7,8	29,8	28,4	28,4	0,0	3,0	33	0	
	143-5	Mouth	2,0	0,0	11,0	17,8	18,1	45,2	46,6	2,9	32	0	
	146	Oropharynx	0,0	1,8	8,1	9,8	16,0	17,4	23,3	1,8	20	0	
U.S.A. NEW MEXICO	140	Lip	0,0	0,0	0,0	28,7	0,0	0,0	0,0	0,7	1	0	4
American Indian 1969-1972	141	Tongue	0,0	0,0	0,0	0,0	0,0	64,8	0,0	0,7	1	0	
	143-5	Mouth	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0	0	
	146	Oropharynx	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0	0	
U.S.A. N.Y. STATE	140	Lip	0,3	1,4	3,1	6,5	17,4	28,9	44,1	2,1	319	5	3
(Excl. N.Y. City) 1969-1971	141	Tongue	0,2	0,6	3,4	12,3	24,2	29,4	34,1	2,6	391	4	
	143-5	Mouth	0,3	0,8	6,7	19,6	31,4	31,9	54,2	3,7	553	9	
	146	Oropharynx	0,0	0,1	2,3	6,7	15,4	13,3	13,9	1,4	218	4	
INDIA	140	Lip	0,2	0,2	1,5	1,2	1,4	2,4	6,5	0,2	30	0	5
Bombay 1968-1972	141	Tongue	0,5	7,0	30,4	70,5	114,2	117,6	154,8	6,3	1 026	0	
	143-5	Mouth	1,2	5,8	19,2	40,4	52,7	66,9	38,7	3,9	632	0	
	146	Oropharynx	0,4	3,2	12,4	35,3	53,3	58,6	25,8	3,0	477	0	

Table 5.7 Age specific incidence of oral cancer in 5 continents.

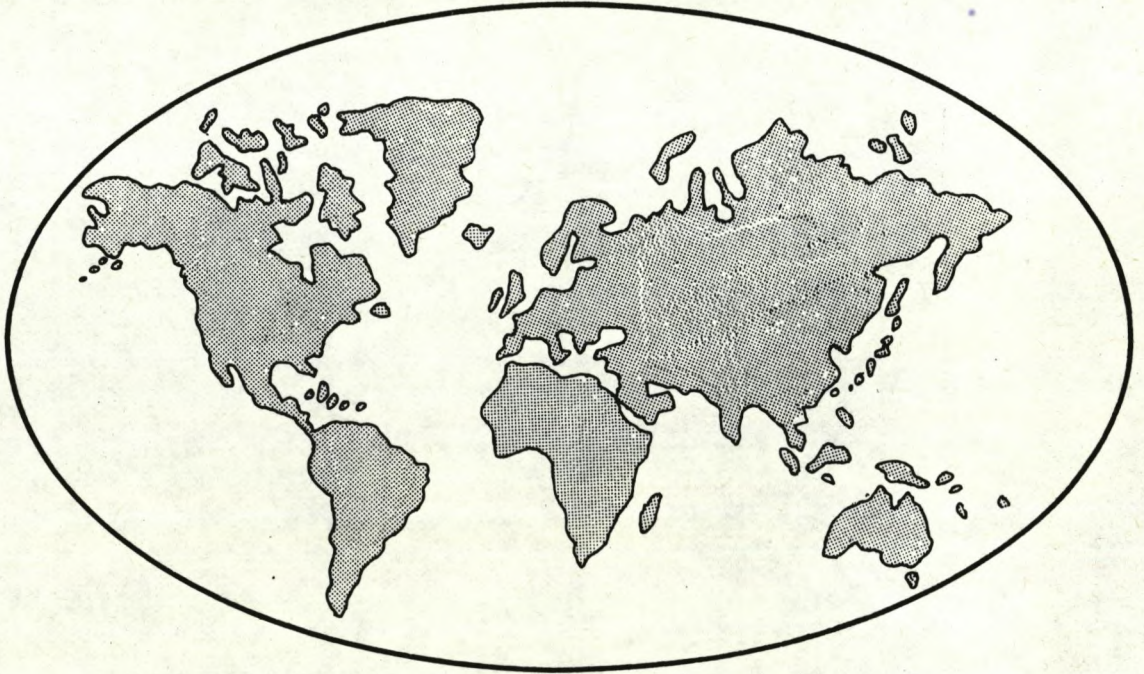
COUNTRY	I.C.D. NO.	SITE	20-29	30-39	40-49	50-59	60-69	70-79	80+	ALL AGES	NO. ALL AGES	AGE UN= KNOWN	NO. YEARS
SINGAPORE Malay 1968-1972	140	Lip	0,0	0,0	0,0	4,2	0,0	0,0	0,0	0,1	1	0	5
	141	Tongue	0,0	0,0	5,2	4,2	13,1	53,1	0,0	0,8	6	0	
	143-5	Mouth	0,0	0,0	7,6	4,2	35,1	0,0	250,0	1,1	8	0	
	146	Oropharynx	0,0	0,0	2,3	5,9	0,0	0,0	0,0	0,3	2	0	
SINGAPORE Indian 1968-1972	140	Lip	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0	0	5
	141	Tongue	0,0	7,5	0,0	25,4	48,2	44,1	0,0	3,1	13	0	
	143-5	Mouth	0,0	7,5	7,4	34,2	49,0	220,3	0,0	5,2	22	0	
	146	Oropharynx	0,0	0,0	5,1	10,3	29,1	113,6	0,0	1,6	7	0	
DENMARK 1963-1967	140	Lip	0,6	4,5	10,3	25,0	43,0	59,0	41,2	6,4	750	0	5
	141	Tongue	0,0	0,0	0,3	1,8	2,9	7,4	3,7	0,5	58	0	
	143-4	Mouth	0,0	0,0	1,1	3,0	7,8	10,6	9,1	1,0	115	0	
GERMANY Democratic Republic 1968-1972	140	Lip	0,5	2,4	7,3	16,2	34,6	50,4	54,6	5,1	1 987	0	5
	141	Tongue	0,1	0,3	1,3	2,6	4,4	7,9	7,8	0,7	291	0	
	143-5	Mouth	0,4	0,3	1,2	2,5	5,1	7,6	7,4	0,8	302	0	
	146	Oropharynx	0,0	0,3	1,0	3,9	5,2	6,8	8,5	0,8	319	0	
NORWAY 1968-1972	140	Lip	0,3	2,8	7,6	18,1	34,6	70,4	108,9	6,0	584	0	5
	141	Tongue	0,0	0,4	1,5	2,5	8,2	10,0	20,9	1,1	110	0	
	143-5	Mouth	0,1	0,2	1,3	8,2	11,6	19,3	30,8	1,9	185	0	
	146	Oropharynx	0,4	0,2	1,2	2,2	4,6	1,6	0,9	0,5	50	0	
NORWAY Urban 1968-1972	140	Lip	0,7	0,5	4,7	13,7	25,2	39,4	70,1	4,0	157	0	5
	141	Tongue	0,0	0,0	1,2	3,9	14,2	14,4	36,4	1,7	67	0	
	143-5	Mouth	0,3	0,5	1,5	11,5	17,3	24,6	34,2	2,6	104	0	
	146	Oropharynx	0,0	0,0	0,8	1,6	5,9	8,0	2,5	0,7	27	0	

Table 5.8 Age specific incidence of oral cancer in 5 continents.

COUNTRY	I.C.D. NO.	SITE	20-29	30-39	40-49	50-59	60-69	70-79	80+	ALL AGES	NO. ALL AGES	AGE UN-KNOWN	NO. YEARS
NORWAY Rural 1968-1972	140	Lip	0,0	4,4	9,8	21,4	41,4	90,9	130,0	7,5	427	0	5
	141	Tongue	0,0	0,7	2,2	1,5	3,8	7,0	12,2	0,8	43	0	
	143-5	Mouth	0,0	0,0	1,1	5,7	7,5	15,7	28,5	1,4	81	0	
	146	Oropharynx	0,2	0,0	0,0	1,2	1,6	0,0	9,7	0,3	15	0	
SWEDEN 1966-1970	140	Lip	0,5	1,4	5,5	11,7	26,0	42,2	50,0	4,2	825	0	5
	141	Tongue	0,1	0,4	0,6	2,3	7,2	6,9	12,7	0,9	178	0	
	143-5	Mouth	0,1	0,4	1,8	5,6	8,3	18,7	29,0	1,7	340	0	
	146	Oropharynx	0,1	0,2	0,5	2,4	4,5	3,2	6,7	0,6	113	0	
U.K. ENGLAND Birmingham Region 1968-1972	140	Lip	0,0	0,5	2,7	3,7	8,3	25,5	41,3	1,5	187	0	5
	141	Tongue	0,3	0,2	1,6	4,1	8,6	19,3	31,5	1,3	167	0	
	143-5	Mouth	0,2	0,5	2,0	6,9	11,4	23,5	59,8	1,8	229	0	
	146	Oropharynx	0,0	0,1	1,3	2,0	5,1	12,3	26,1	0,8	101	0	
U.K. ENGLAND South Metropol. Region 1967-1971	140	Lip	0,1	0,3	1,2	3,2	5,8	11,4	17,3	1,0	219	0	5
	141	Tongue	0,1	0,7	1,4	3,3	7,3	12,7	20,6	1,2	225	0	
	143-5	Mouth	0,3	0,6	1,7	4,5	7,6	17,0	30,7	1,5	312	0	
	146	Oropharynx	0,1	0,4	1,2	4,2	5,6	12,1	11,4	1,0	220	0	
NEW ZEALAND Maori 1968-1971	140	Lip	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0	0	4
	141	Tongue	0,0	0,0	5,0	0,0	0,0	0,0	0,0	0,2	1	0	
	143-5	Mouth	0,0	0,0	0,0	0,0	0,0	41,3	0,0	0,0	1	0	
	146	Oropharynx	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0	0	

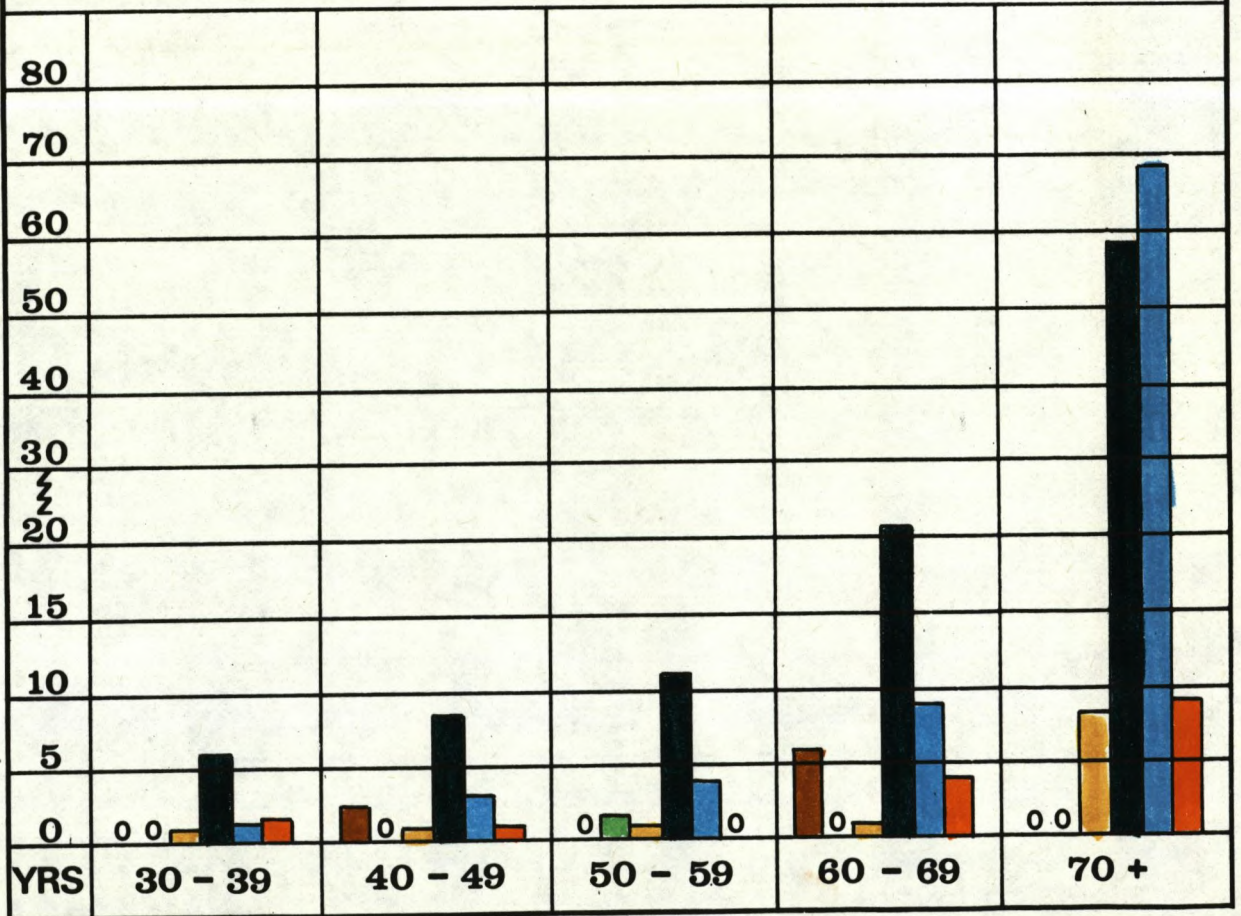
Table 5.9 Age specific incidence of oral cancer in 5 continents.

- AFRICA, NIGERIA, IBADAN ●
- ASIA, INDIA, BOMBAY ●
- EUROPE, U.K., BIRMINGHAM ●
- AMERICA, MICHIGAN, DETROIT (black) ●
- AUSTRALIA, NEW ZEALAND (non-Maori) ●
- S.A., PENINSULA CAPE COLOURED ●

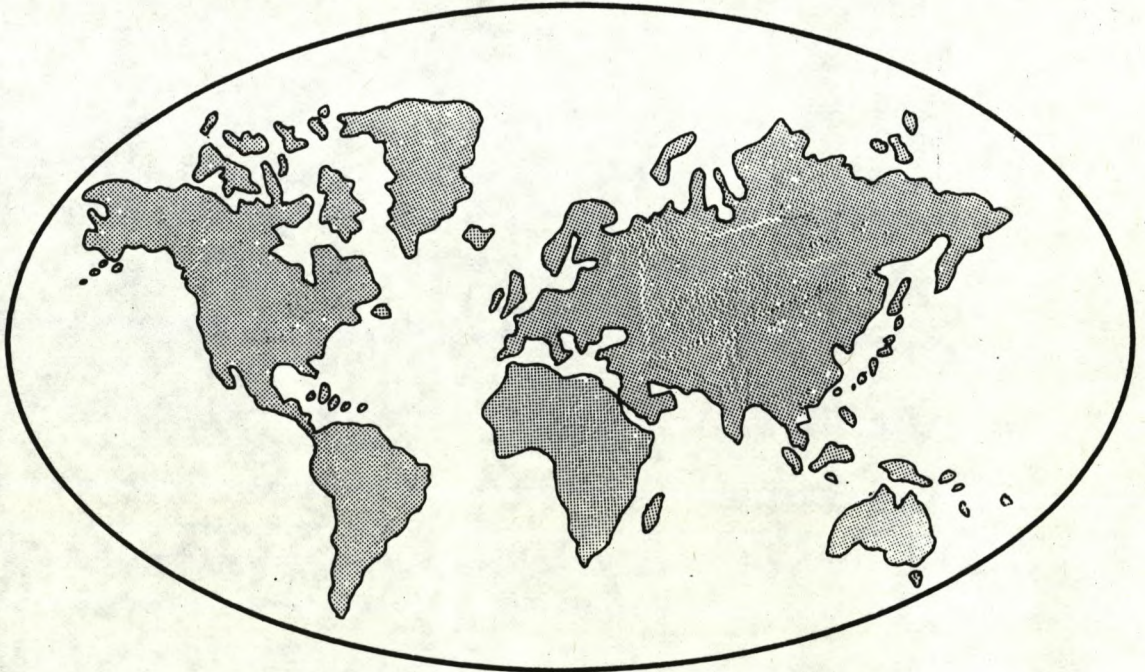


LIP (I.C.D. 140)

AGE - SPECIFIC RATES

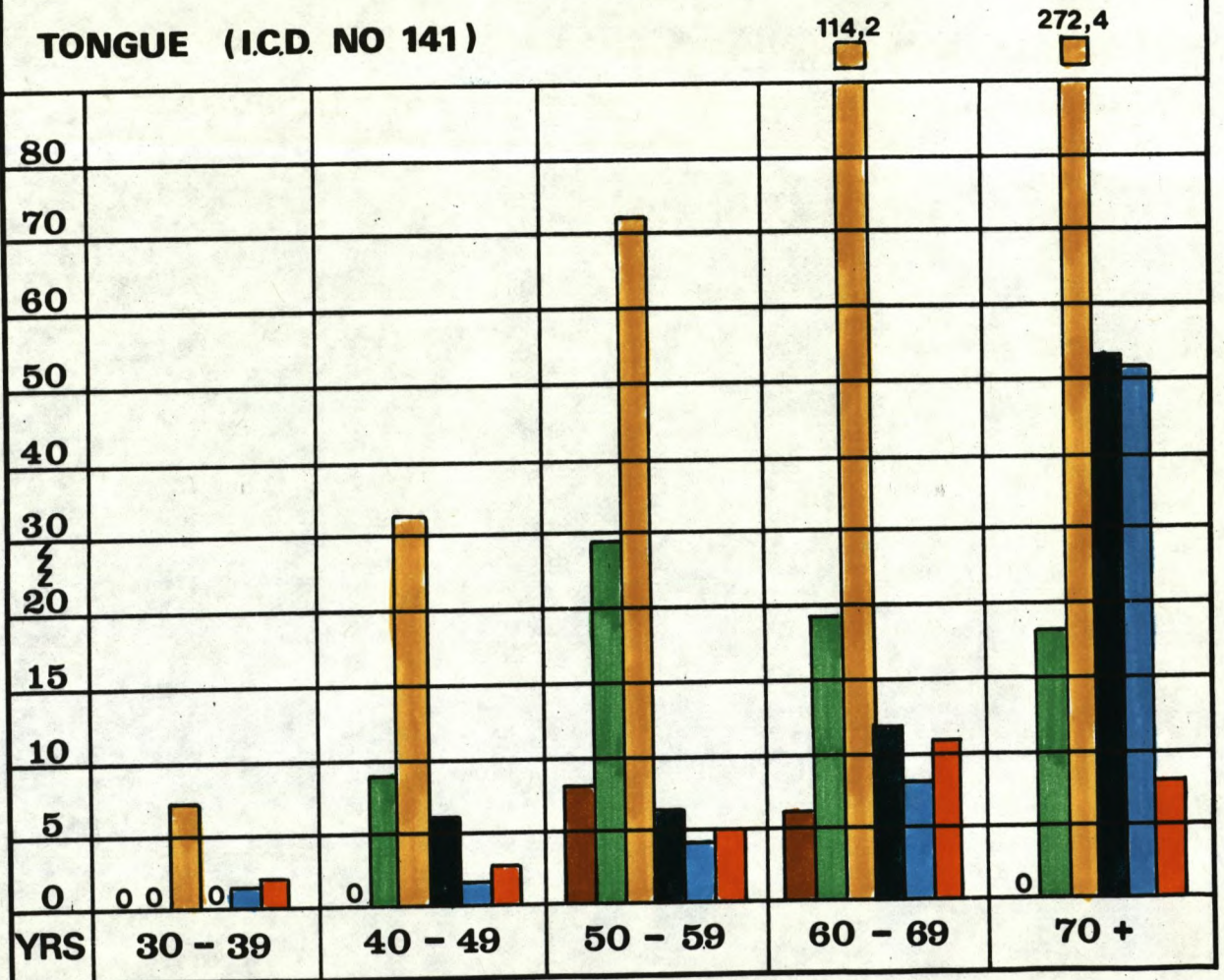


- AFRICA, NIGERIA, IBADAN ●
- ASIA, INDIA, BOMBAY ●
- EUROPE, U.K., BIRMINGHAM ●
- AMERICA, MICHIGAN, DETROIT (black) ●
- AUSTRALIA, NEW ZEALAND (non-Maori) ●
- S.A., PENINSULA CAPE COLOURED ●

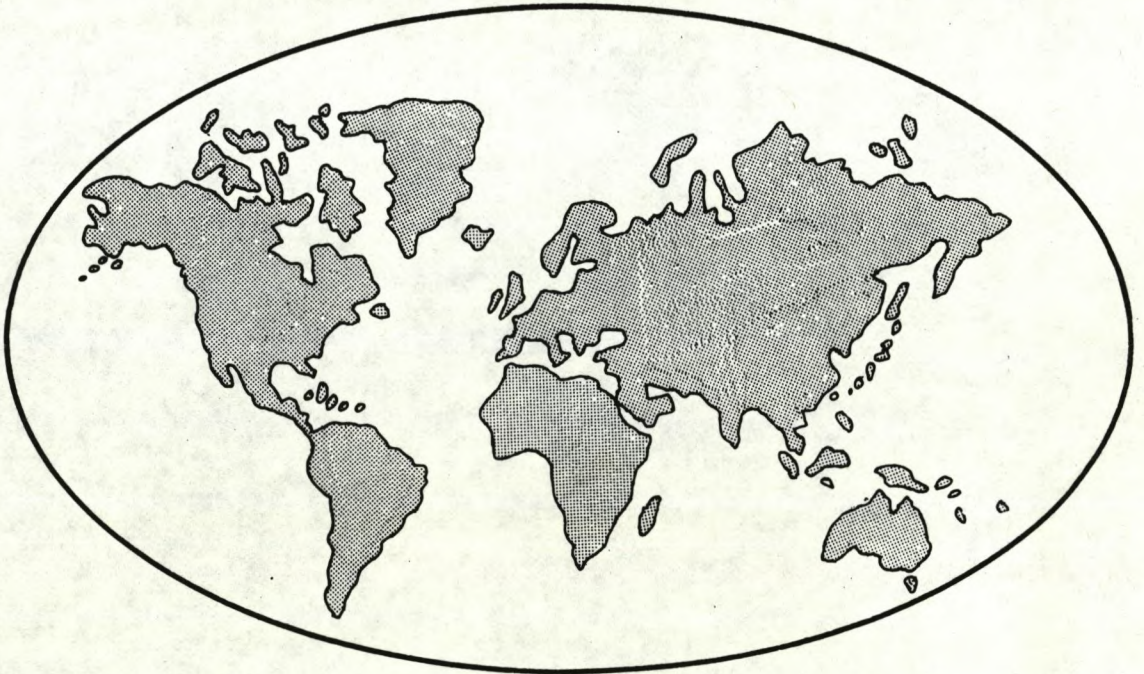


TONGUE (I.C.D. NO 141)

AGE - SPECIFIC RATES

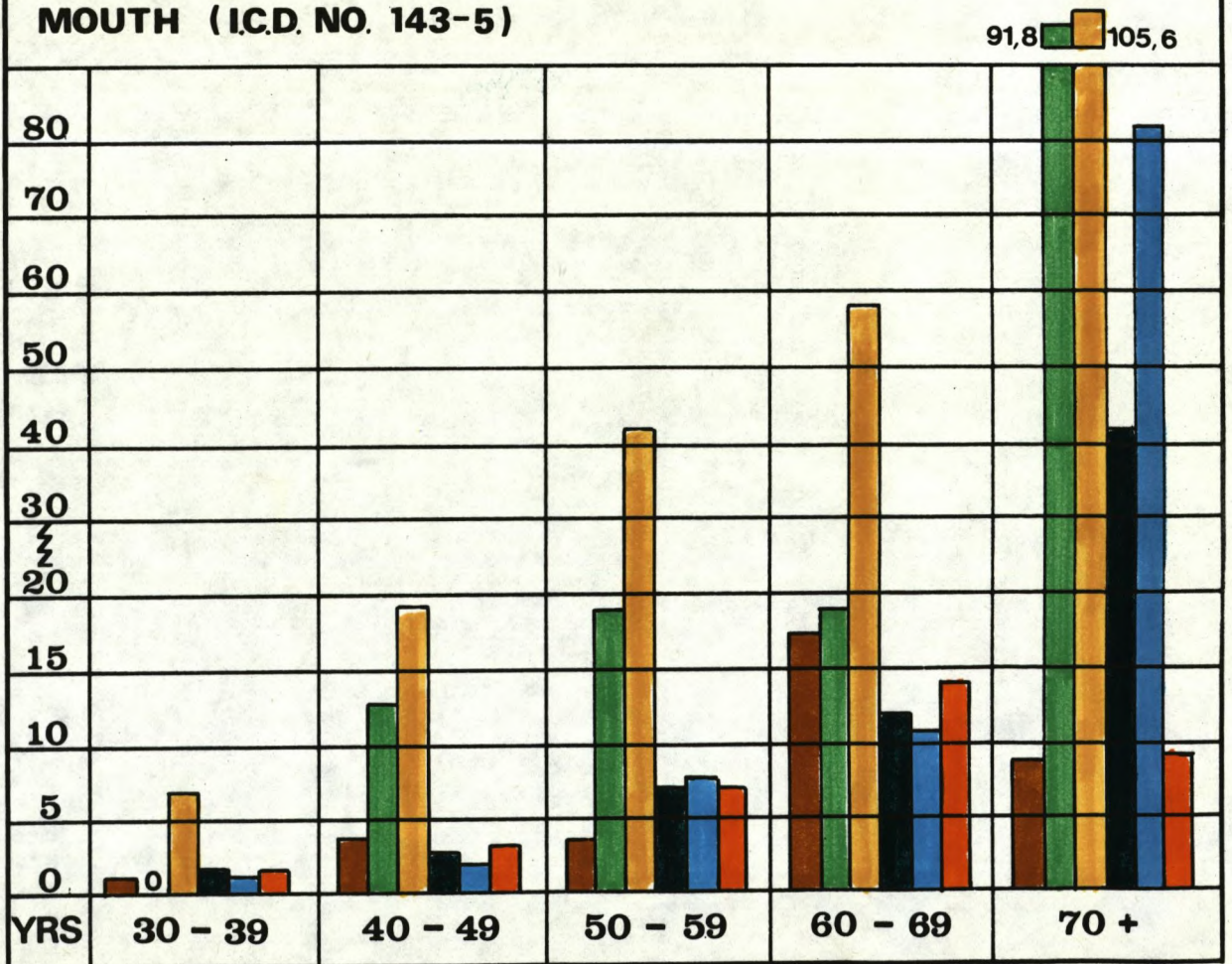


- AFRICA, NIGERIA, IBADAN ● AMERICA, MICHIGAN, DETROIT (black) ●
- ASIA, INDIA, BOMBAY ● AUSTRALIA, NEW ZEALAND (non-Maori) ●
- EUROPE, U.K., BIRMINGHAM ● S.A., PENINSULA CAPE COLOURED ●

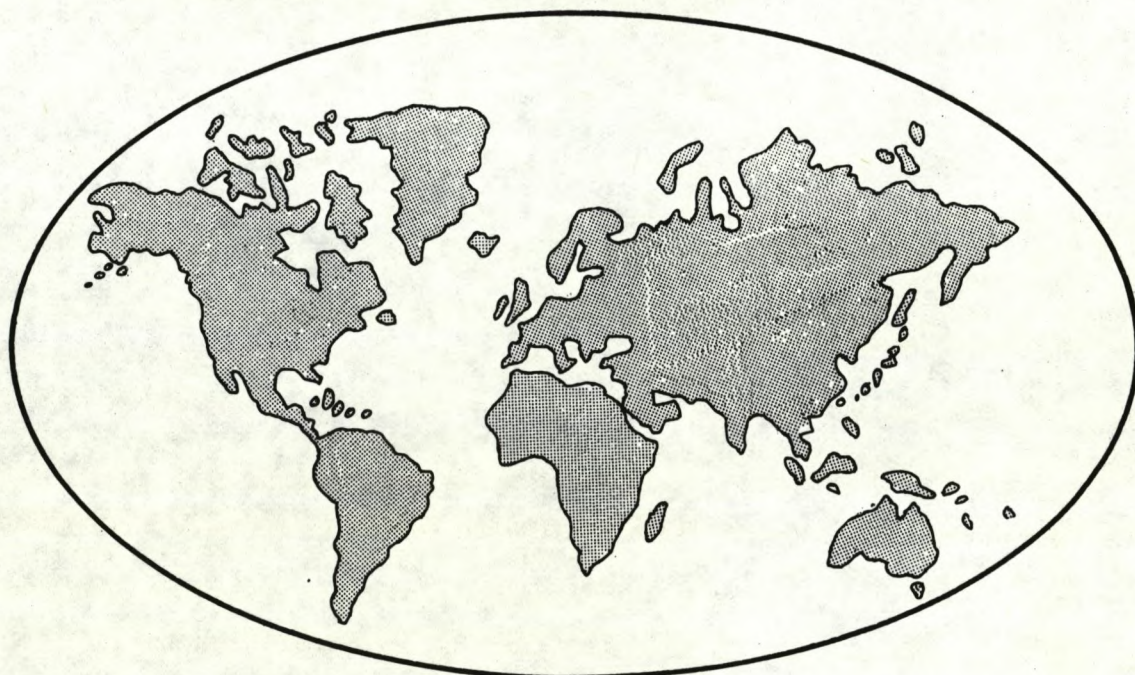


MOUTH (I.C.D. NO. 143-5)

AGE - SPECIFIC RATES

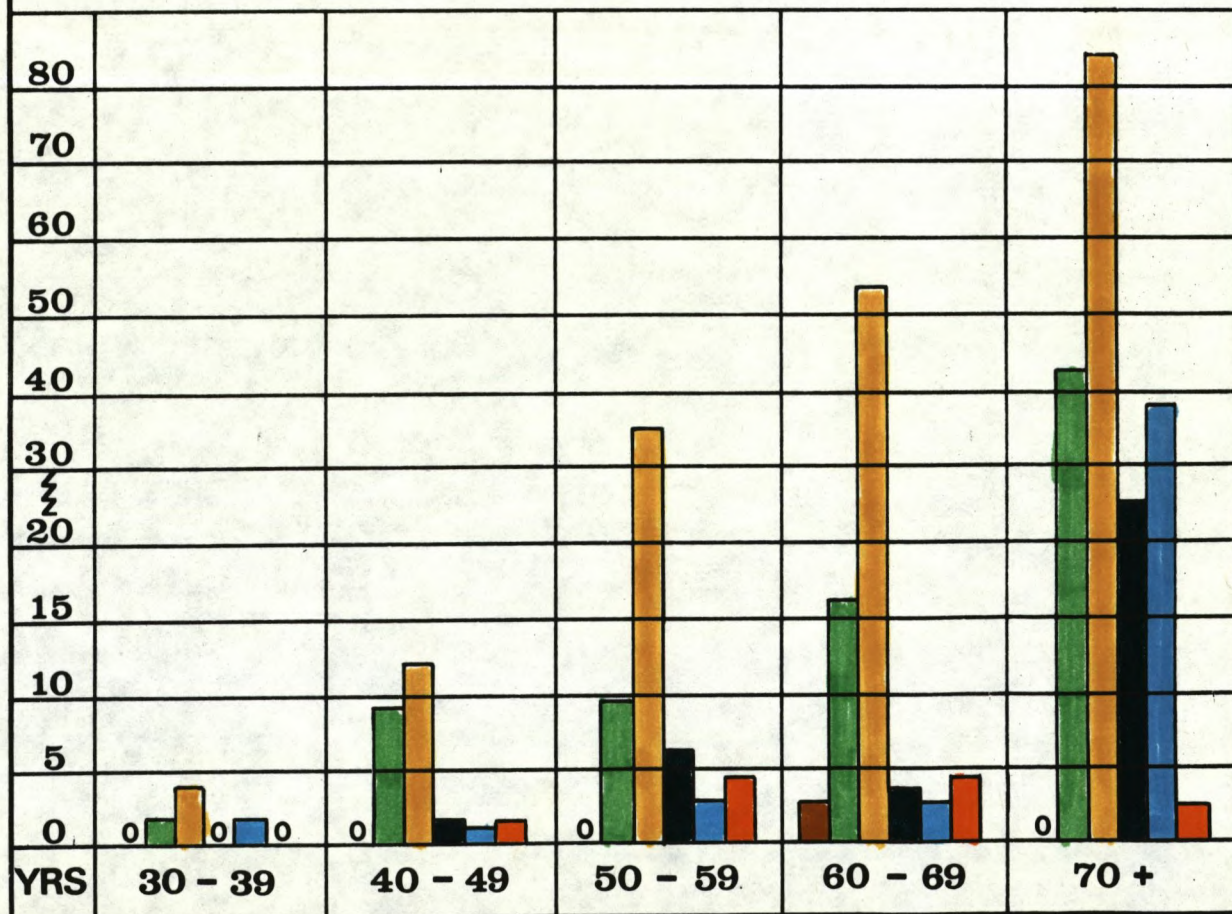


AFRICA, NIGERIA, IBADAN ● AMERICA, MICHIGAN, DETROIT (black) ●
 ASIA, INDIA, BOMBAY ● AUSTRALIA, NEW ZEALAND (non-Maori) ●
 EUROPE, U.K., BIRMINGHAM ● S.A., PENINSULA CAPE COLOURED ●



OROPHARYNX (I.C.D. NO. 146)

AGE - SPECIFIC RATES



When the age specific incidence rates of various continents are compared to the Cape Coloureds and Cape Indians (Tables 5.6 to 5.10 and Figures 5.2 tot 5.5) it can be seen that its occurrence is on the low side. It is possible that this low figure is solely due to the high incidence of lip cancer in some countries, which as mentioned, is low in the Cape Coloureds. On the other hand if intra-oral cancers are compared the figures would probably be comparable.

Similarly the male:female ratio is comparable (Table 5.11).

Author	Population Group	M:F Ratio
Shanmugaratnam, 1973	Chinese	9:1
Doll, Payne and Waterhouse, 1966	Denmark	7,4:1
Doll et al, 1966	U.S.A. Connecticut	4,9:1
Doll et al, 1966	U.S.A. New York	4,6:1
BREYTENBACH, VAN WYK, 1978	CAPE COLOURED	4,6:1
Doll et al, 1966	England and Wales	3,2:1
Shanmugaratnam, 1973	Malays	2,8:1
Doll et al, 1966	Japan	1,8:1
Shanmugaratnam, 1973	Indians and Pakistans	1,1:1

Table 5.11 Sex ratio for oral malignancy as found by various authors in the world, indicating the position occupied by the Cape Coloured.

With regard to the site distribution the Cape Coloureds roughly occupy a position between the Western World and Africa (Table 5.12 to 5.15).

Lip - I.C.D. No.140

Age						
50-59	Australasia	Europe	America	Asia	Africa*	C.C.*
60-69	Australasia	Europe	Africa	C.C.	Asia	America
70+	Europe	Australasia	C.C.	Asia	America*	Africa*

Table 5.12 Relative position of Cape Coloureds in 5 continents. Lip cancer by age-specific rates. Truncated.

Tongue - I.C.D. No.141

Age						
50-59	Asia	America	Africa	Australasia	C.C.	Europe
60-69	Asia	America	Australasia	C.C.	Europe	Africa
70+	Asia	Australasia	Europe	America	C.C.	Africa

Table 5.13 Relative position of Cape Coloureds in 5 continents. Tongue cancer by age-specific rates. Truncated.

Mouth - I.C.D. No.143-5

Age						
50-59	Asia	America	Europe	Australasia	C.C.	Africa
60-69	Asia	America	Africa	C.C.	Australasia	Europe
70+	Asia	America	Europe	Australasia	C.C.	Africa

Table 5.14 Relative position of Cape Coloureds in 5 continents.
Mouth cancer by age-specific rates. Truncated.

Oropharynx - I.C.D. No.146

Age						
50-59	Asia	America	Australasia	C.C.	Europe	Africa
60-69	Asia	America	Europe	C.C.	Australasia	Africa
70+	Asia	America	Europe	Australasia	C.C.	Africa

Table 5.15 Relative position of Cape Coloured in 5 continents.
Oropharyngeal cancer by age-specific rates. Truncated.

5.7.3 Direct standardisation

Using the method of direct standardisation (Annexe)
the picture remains essentially the same (Tables 5.16
to 5.19).

Age	Lip (140)			Tongue (141)			Mouth (143-145)			Dropharynx (146)		
	pS	C	CpS	pS	C	CpS	pS	C	CpS	pS	C	CpS
20-29	,267	0	0	,267	1	,267	,267	0	0	,267	0	0
30-39	,200	2	,400	,200	4	,800	,200	1	,200	,200	0	0
40-49	,200	1	,200	,200	9	1,800	,200	7	1,400	,200	5	1
50-59	,150	0	,00	,150	10	1,500	,150	12	1,800	,150	8	1,200
60-69	,117	3	,351	,117	12	1,404	,117	17	1,989	,117	5	,585
70+	,067	5	,335	,067	4	,268	,067	5	,335	,067	1	,067
			1,286			6,039			5,724			2,852

Table 5.16 Direct standardisation (rates per 100 000) using world standard population. Total sample Peninsula Cape Coloureds, Malays and Asians.

Age	Lip (14)			Tongue (141)			Mouth (143-145)			Oropharynx (146)		
	pS	C	CpS	pS	C	CpS	pS	C	CpS	pS	C	CpS
20-29	,267	0	0	,267	0	0	,267	0	0	,267	0	0
30-39	,200	0	0	,200	0	0	,200	0	0	,200	0	0
40-49	,200	0	0	,200	1	,200	,200	0	0	,200	0	0
50-59	,150	0	0	,150	0	0	,150	0	0	,150	0	0
60-69	,117	0	0	,117	1	,117	,117	2	0,234	,117	0	0
70+	,067	0	0	,067	0	0	,067	0	0	,067	0	0
						,317			,234			0

Table 5.17 Direct standardisation (rates per 100 000) using world standard population. Cape Asian population group.

Age	Lip (140)			Tongue (141)			Mouth (143-145)			Oropharynx (146)		
	pS	C	CpS	pS	C	CpS	pS	C	CpS	pS	C	CpS
20-29	,267	0	0	,267	0	0	,267	0	0	,267	0	0
30-39	,200	0	0	,200	0	0	,200	1	,200	,200	0	0
40-49	,200	0	0	,200	0	0	,200	1	,200	,200	0	0
50-59	,150	0	0	,150	1	,150	,150	1	,150	,150	1	,150
60-69	,117	0	0	,117	0	0	,117	1	,117	,117	0	0
70+	,067	0	0	,067	1	,067	,067	2	,134	,067	0	0
			0			,217			,801			,150

Table 5.18 Direct standardisation (rates per 100 000) using world standard population. Cape Malays.

Age	Lip (140)			Tongue (141)			Mouth (143-145)			Oropharynx (146)		
	pS	C	CpS	pS	C	CpS	pS	C	CpS	pS	C	CpS
20-29	,267	0	0	,267	1	,267	,267	0	0	,267	0	0
30-39	,200	2	,400	,200	4	,800	,200	1	,200	,200	0	0
40-49	,200	1	,200	,200	8	1,600	,200	7	1,400	,200	5	1,00
50-59	,150	0	0	,150	10	1,50	,150	12	1,800	,150	8	1,200
60-69	,117	3	,351	,117	11	1,287	,117	15	1,755	,117	5	,585
70+	,067	5	,335	,067	4	,268	,067	5	,335	,067	1	,067
			1,286			5,722			5,490			2,852

Table 5.19 Direct standardisation (rates per 100 000) using world standard population. Cape Coloured population group.

A synopsis of tables 5.18 to 5.21 is summarised in

Table 5.22.

Population Group	S I T E			
	Lip	Tongue	Mouth	Oropharynx
Total	1,286	6,039	5,724	2,852
Cape Coloureds	1,286	5,722	5,490	2,852
Cape Asians	0	0,317	0,234	0
Cape Malays	0	0,217	0,801	0,150

Table 5.20 Synopsis of results of tables 5.16 to 5.19.

Applying the same formula (A.1) to selected cities/areas formerly used as examples of the five continents table

	Lip	Tongue	Mouth	Oropharynx
Africa Nigeria Ibadan 1960-1969	1,3	1,9	4,0	0,4
Ameria U.S.A. Michigan Detroit (Black) 1969-1971	0,3	11,3	13,7	8,0
Asia India Bombay 1968-1972	1,3	49,8	24,6	20,4
Australasia New Zealand Non-Maori 1968-1971	11,8	7,1	6,0	3,4
Europe U.K. England Birmingham Region 1968-1972	6,6	5,5	8,5	3,7

Table 5.21 Direct standardisation. Oral cancer in 5 continents.

Once again a combination can be represented with the five continents and the results obtained in the population groups of the Peninsula, where the incidence is arranged in declining order. (Table 5.22).

From table 5.22 it is again evident that the Cape Coloured population group occupies a relatively low position on the comparative table. The Cape Malay and the Cape Asian have a very low incidence rate.

SITE	C O U N T R Y							
	Australasia	Europe	Asia *	Africa *	CAPE COLOUREDS	America	CAPE ** ASIANS	CAPE ** MALAYS
Lip								
Tongue	Asia	America	Australasia	CAPE COLOUREDS	Europe	Africa	CAPE ASIANS	CAPE MALAYS
Mouth	Asia	America	Europe	Australasia	CAPE COLOUREDS	Africa	CAPE MALAYS	CAPE ASIANS
Oro-pharynx	Asia	America	Europe	Australasia	CAPE COLOUREDS	Africa	CAPE MALAYS	CAPE ASIANS

Table 5.22 Relative position of country in specific type of oral cancer.
Position of Cape Coloured, Asian and Malay illustrated.

CHAPTER 6

SUMMARY

Due to the fact that a national cancer register does not exist in South Africa, knowledge of the pattern of cancer among the various population groups is incomplete. Information about oral cancer, especially among the Cape Coloureds is indeed very limited (and incomplete).

The aim of this study is to determine the pattern of oral cancer among the Cape Coloured population group residing in the Peninsula of the Cape of Good Hope. With this in mind, all cases of oral cancer diagnosed and treated at the Groote Schuur and Tygerberg hospitals from 1970 to 1975 were investigated.

A comparison was also made of the pattern of oral cancer among the Cape Coloureds residing in the Peninsula and those living in rural areas to determine the effect of culture and acculturation. In addition the pattern of oral cancer was also compared to the Cape Coloureds belonging to the Islamic faith - the Cape Malay - and the South Africans of Indian extract living in the Peninsula.

Finally the oral cancer pattern of the mentioned groups was compared to the pattern found in population groups in the rest of Africa and the five continents.

The most important results were the following:

- 1 The morbidity rate of oral cancer in the Cape Coloured population more or less resembles that of other groups in South Africa.
- 2 The Coloured female compared to the male has a low morbidity

rate.

- 3 The site of oral cancer in the Cape Coloured resembles that found in Blacks and Whites of South Africa with the exception of oropharyngeal and lip cancer. Lip cancer in this group resembles that of the Blacks - possibly due to protection afforded by pigmentation. The explanation of the high incidence of oropharyngeal cancer is difficult. This may be due to the intake of noxious stimuli in their liquor or possibly due to tongue cancer which spreads to the oropharynx and is subsequently erroneously diagnosed by the clinician.
- 4 The age incidence of oral cancer in the Cape Coloured is slightly lower than that of the Whites, but comparable to that found in Blacks, possibly due to earlier exposure to etiological agents.
- 5 There was a significant difference in the male:female ratio of oral cancer where the rural and urban Cape Coloureds are concerned. This was significant at the $p < .05$ level, a result which cannot be explained and requiring epidemiological studies.
- 6 Using age specific incidence rates of oral cancer and comparing the Cape Coloured with that found in the other continents it was found to be on the low side.
- 7 The same conclusion is reached when using world population standardisation and comparing the Cape Coloureds with the other continents.
- 8 The morbidity rate of the Cape Malay is lower than that of the Cape Coloured not belonging to the Islamic Faith, and it is

suggested that the abstinence from alcohol may very well be a factor.

- 9 The male:female ratio of oral cancer of the Cape Malay is lower than that found in the Cape Coloured not belonging to the Islamic faith.
- 10 The morbidity rate of oral cancer of the Cape Indian is slightly higher than that found by Schonland and Bradshaw (1968) but this could possibly be due to the small number of Cape Indians, making calculations difficult.

Therefore it can be concluded that the pattern of oral cancer in the Cape Coloured closely resembles that of other South African population groups with some exceptions. Subsequent etiological studies should be undertaken to solve these problems.

OPSOMMING

Aangesien 'n nasionale register vir maligniteit nie bestaan waarin informasie ten opsigte van kanker onder die verskillende bevolkingsgroepe van Suid-Afrika nagegaan kan word nie, kan die verspreidingspatroon alleenlik bepaal word deur spesifieke projekte. Die resultaat is dat daar nog nie 'n geheelbeeld vir kanker in Suid-Afrika bestaan nie. Wat mondkanker betref, is kennis fragmentaries. Inligting oor die verspreiding daarvan onder die Kaapse Kleurlingbevolkingsgroep is beperk en net sekere aspekte daarvan is tot hede uitgelig.

Die doel van hierdie studie is om mondkanker na te gaan in die Kaapse Kleurlingbevolkingsgroep wat woonagtig is in die Skiereiland van die Kaap die Goeie Hoop. Met hierdie oogmerk, is alle mondkankergevalle wat in die Grootte Schuur- en Tygerberg-hospitale behandel is, van 1970 tot 1975, nagegaan.

By wyse van vergelyking en ook om die invloed van eie kultuur en akkulturasie na te gaan, is aandag gegee aan mondkankergevalle van Kleurlinge woonagtig in die Skiereiland en dié in die platteland wat in die Skiereiland behandeling ondergaan het.

Verder is vergelykings ook getref tussen die Kaapse Maleier wat die Moslem-geloof aanhang en die Kaapse Kleurling wat nie hierdie geloof aanhang nie. Die mondkankerpatroon van die Indiërs wat in die Skiereiland woonagtig is, is ook nagegaan.

Ten slotte is die genoemde groepe se mondkankerpatroon vergelyk met dié gevind onder die ander groepe wat in Suid-Afrika bestudeer is, dié in die res van Afrika en ook met dié in die ander kontinente.

Die belangrikste resultate was die volgende:

- 1 Die morbiditeit van mondkanker in die Kaapse Kleurling is min of meer dieselfde as dié gevind in die ander Suid-Afrikaanse bevolkingsgroepe.
- 2 Die Kaapse Kleurlingvrou het 'n lae morbiditeit in vergelyking met die man.
- 3 Die plek van voorkoms van mondkanker in die Kaapse Kleurling is vergelykbaar met dié gevind in die Swartes en Blankes van Suid-Afrika met die uitsondering van kanker van die orofarinks en die tong. Lipkanker in hierdie groep is vergelykbaar met dié gevind in die Swartes - waarskynlik as gevolg van die beskerming wat pigment hierdie areas bied. Die verduideliking van die hoë voorkomsyfer van kanker van die orofarinks is moeilik om te gee. Dit mag moontlik te wyte wees aan die inname van skadelike stimuli in hulle drank of moontlik as gevolg van tongkanker wat na die orofarinks gesprei het en gevolglik deur die klinikus verkeerdelik gediagnoseer is.
- 4 Die ouderdomsvorkomsyfer van mondkanker in die Kaapse Kleurling is effens laer as dié gevind by die Blanke, dog vergelykbaar met dié gevind by die Swarte, waarskynlik as gevolg van vroeëre blootstelling aan die etiologiese faktore.
- 5 Daar was 'n betekenisvolle verskil in die man:vrou verhouding van mondkanker in die vergelyking van die plattelandse en stedelike Kaapse Kleurling. Hierdie was betekenisvol by die waarde $p < ,05$, 'n resultaat wat nie verduidelik kan word nie, dog wat verdere epidemiologiese studies verg.
- 6 Indien die ouderdomspesifieke waardes vir mondkanker gebruik word en die Kaapse Kleurling vergelyk word moet groepe uit

die ander kontinente, dan word eersgenoemde as redelik laag gevind.

- 7 Dieselfde gevolgtrekking word bereik wanneer die wêreldgestandardiseerde bevolking gebruik word.
- 8 Die morbiditeit van die Kaapse Maleier is laer as dié van die Kaapse Kleurling wat nie aan die Islam-geloof behoort nie, en dit word voorgestel dat hierdie die gevolg is van alkohol-onthouding van eersgenoemde groep.
- 9 Die man:vrou verhouding van mondkanker van die Kaapse Maleier is laer as dié gevind in die Kleurling wat nie aan die Islam-geloof behoort nie.
- 10 Die morbiditeit van mondkanker van die Kaapse Indiër is effens hoër as die gevind deur Schonland en Bradshaw (1968), dog dit mag die gevolg wees van die klein getal Kaapse Indiërs wat ondersoek is, wat berekenings bemoeilik.

Daar kan dus tot die slotsom geraak word dat die voorkoms van mondkanker in die Kaapse Kleurling baie naby is aan dié gevind in die ander bevolkingsgroepe van Suid-Afrika, met 'n paar uitsonderings. Verdere epidemiologiese studies behoort dus onderneem te word om hierdie probleme op te los.

ZUSAMMENFASSUNG

Da für ganz Südafrika kein gültiges Register über das Vorkommen von bösartigen Krebsfällen geführt wird, das dessen Verbreitung in den verschiedenen Bevölkerungsgruppen Südafrikas nachweist, können diese nur durch spezifische Forschungsprojekte festgestellt werden. Daher kann man sich noch nicht ein genaues Bild von Krebsverbreitung in Südafrika machen. Das Vorkommen von Mundkrebs ist zum Beispiel noch nicht genügend bekannt. Seine Verbreitung unter Mischlingen des Kaplands ist nur zum Teil bekannt, und nur Teilaspekte wurden bisher beleuchtet.

Das Ziel der Vorlegenden Arbeit ist, das Vorkommen von Mundkrebs in der Mischlingbevölkerung, die auf der Halbinsel des Kaps der Guten Hoffnung ansässig ist, zu untersuchen. Unter diesem Gesichtspunkt sind alle Fälle von Mundkrebs, die von 1970 bis 1975 in den Krankenhäusern Groote Schuur und Tygerberg behandelt wurden, berücksichtigt worden.

Fälle von Mundkrebs bei Mischlingen vom Kap und den auf dem Lande ansässigen, aber am Kap behandelten Mischlingen wurden verglichen, um mögliche Einwirkungen von ihrer eigenständigen Kultur beziehungsweise von Anpassung an grosstädtische Verhältnisse festzustellen.

Weiter wurden auch die Kapmalayen, die Mohamedaner sind, mit den Kapmischlingen, die nicht Angehörige dieser Religion sind, verglichen. Ferner wurde das Vorkommen von Mundkrebs bei Indern, die auf der Kaphalbinsel wohnen, berücksichtigt.

Zum Schluss wurde das Vorkommen von Mundkrebs in den genannten Bevölkerungsgruppen mit dem in den übrigen Bevölkerungsgruppen in Südafrika, in den anderen Ländern Afrikas und in den anderen Kontinenten verglichen.

Als wichtigste Ergebnisse sind zu nennen:

- 1 Der Morbiditätsausgang bei Mundkrebs unter den Kapmischlingen ist etwa so häufig wie bei den übrigen südafrikanischen Bevölkerungsgruppen.
- 2 Die Morbidität unter Männern der Kapmischlinge sind häufiger

- als bei den Frauen.
- 3 Mundkrebs kommt bei den Kapmischlingen an denselben Stellen wie bei Schwarzen und Weissen in Südafrika vor, mit Ausnahme von Oropharynx- und Zungenkrebs. Das Vorkommen von Lippenkrebs in dieser Gruppe lässt sich mit dem bei Schwarzen vergleichen - wahrscheinlich wegen des Pigmentschutzes in diesem Gesichtsteil. Es ist schwer, das häufige Vorkommen von Oropharynxkrebs zu erklären. Der Gebrauch von schädlichen Anregungsmitteln in Getränken oder zu spät erkannter, bereits auf dem Oropharynx übergreifender Zungenkrebs können als mögliche Erklärungen angeführt werden.
 - 4 Das Vorkommen von Mundkrebs bei den Kapmischlingen ist weniger häufig als bei Weissen, aber vergleichbar mit dem bei Schwarzen, wahrscheinlich als Folge von frühzeitigem Erkennen von Krankheitssymptomen.
 - 5 Ein bemerkenswerter Unterschied im Verhältnis der Verbreitung von Mundkrebs bei männlichen und weiblichen Mischlingen vom Lande zu denen der Stadt war festzustellen. Dieses ist $p = 0,05$, ein Ergebnis, das hier nicht erklärt werden kann, vielmehr weitere epidemiologische Forschung verlangt.
 - 6 Wenn das Vorkommen von Mundkrebs in spezifischen Altersgruppen ausgewertet und der Kapmischling mit Gruppen aus anderen Erdteilen verglichen wird, ist bei ersteren eine geringere Häufigkeit festzustellen.
 - 7 Man kommt zu demselben Ergebnis bei dem Vergleich mit der Gesamtbevölkerung der Erde.
 - 8 Die Morbinität bei der Gruppe der Kapmalayen ist niedriger als die der Kapmischlinge, die nicht dem Islam angehören. Man nimmt an, dass Abstinenz von Alkohol bei der erstgenannten Gruppe die Ursache für dieses Faktum ist.
 - 9 Das Verhältnis von Krankheitsfällen bei Mitgliedern der Gruppe von Kapmalayen ist niedriger als bei Kapmischlingen, die nicht dem Islam angehören.
 - 10 Die Fälle von Mundkrebs mit morbiditätsausgang bei Indern des

Kaps sind etwas höher als die von Schönland und Bradshaw (1968) festgestellt wurden, aber diese Differenz könnte damit erklärt werden, dass nur eine geringe Anzahl von Indern untersucht wurde, und Berechnungen dadurch erschwert wurden.

Zum Schluss kann man aus dieser Forschung folgende Schlüsse ziehen: das Vorkommen von Mundkrebs bei den Kapmischlingen ist mit wenigen Ausnahmen vergleichbar mit dem anderen Bevölkerungsgruppen Südafrikas. Weitere epidemiologische Forschung sollte also unternommen werden, um dieses Problem auszugleichen.

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APPENDIX

CONTENTS

- I.C.D. classification of Tumours
- Population pyramids of Cape Coloureds in various residential areas in the Peninsula
- Standard world population
- Direct standardisation method

MALIGNANT NEOPLASM OF BUCCAL CAVITY AND PHARYNX (140-149)

140 MALIGNANT NEOPLASM OF LIP

Includes: frenulum labii
mucose membrane of lip (internal) (exposed)

Excludes: malignant neoplasm of skin of lip (172.0, 173.0)

140.0 *Upper lip*

140.1 *Lower lip*

140.2 *Both lips*

Lips NOS

140.9 *Lip unspecified*

Commissure of lip

Lip NOS

Mucous membrane of lip NOS

141 MALIGNANT NEOPLASM OF TONGUE

141.0 *Base of tongue*

141.1 *Dorsal surface of tongue*

Foramen caecum of tongue

Papillae:

filiform

lingual NOS

vallate

141.2 *Borders and tip of tongue*

Papillae (lingual):

foliate

fungiform

lenticular

141.3 *Ventral surface of tongue*

Frenulum linguae

Excludes: "book leaf" neoplasm involving both the ventral surface
of the tongue and the floor of the mouth (144)

141.9 *Part unspecified*

Lingual cancer

142 MALIGNANT NEOPLASM OF SALIVARY GLAND

Includes: salivary:
glands
ducts

142.0 *Parotid gland*142.8 *Other specified salivary gland*

Sublingual gland

Submaxillary gland

142.9 *Unspecified salivary gland*

143 MALIGNANT NEOPLASM OF GUM

Includes: alveolus (process or ridge)
gingiva (alveolar) (marginal)
interdental papillae

143.0 *Upper gum*143.1 *Lower gum*143.9 *Gum unspecified*

144 MALIGNANT NEOPLASM OF FLOOR OF MOUTH

145 MALIGNANT NEOPLASM OF OTHER AND UNSPECIFIED PARTS OF MOUTH

145.0 *Buccal mucosa*

Buccal:

commissure

groove (lower) (upper)

Cheek, internal

Retromolar area

Vestibule of mouth

145.1 *Palate (hard) (soft)*

Roof of the mouth

145.8 *Other specified parts*

Uvula

145.9 *Part unspecified*

Buccal cavity NOS

146 MALIGNANT NEOPLASM OF OROPHARYNX

146.0 *Tonsils*

Tonsil:

faucial

lingual

Excludes: faucial pillars (146.8)

146.8 *Other specified parts*

Branchial cleft or vestiges

Epiglottis, anterior surface

Vallecula (epiglottis)

146.9 *Part unspecified*

Fauces NOS

Mesopharynx (oral) NOS

Oropharynx NOS

147 MALIGNANT NEOPLASM OF NASOPHARYNX

Adenoid tissue	} of pharynx
Lymphadenoid tissue	
Pharyngeal bursa	

148 MALIGNANT NEOPLASM OF HYPOPHARYNX

148.0 *Posterior region*148.1 *Pyriiform fossa*148.8 *Other specified parts*

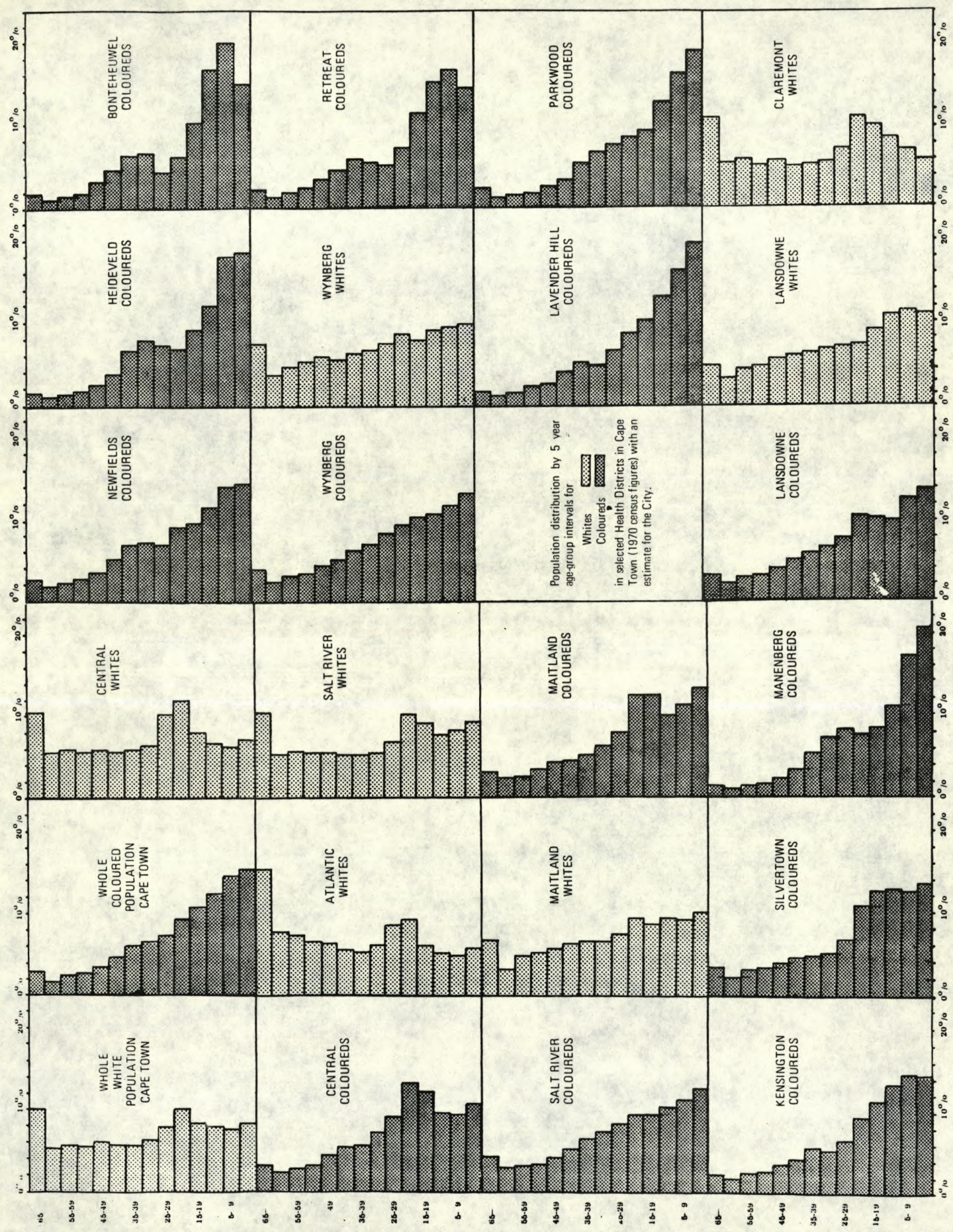
Hypopharyngeal wall

Posterior wall of hypopharynx

148.9 *Part unspecified*

149 MALIGNANT NEOPLASM OF PHARYNX, UNSPECIFIED

Malignant neoplasm of throat



STANDARD WORLD POPULATION USED FOR THE COMPUTATION
OF AGE-STANDARDISED AND TRUNCATED STANDARDISED INCIDENCE
RATES.

Age (in years)	African	World	European	Truncated
0-	2 000	2 400	1 600	-
1-4	8 000	9 600	6 400	-
5-9	10 000	10 000	7 000	-
10-14	10 000	9 000	7 000	-
15-19	10 000	9 000	7 000	-
20-24	10 000	8 000	7 000	-
25-29	10 000	8 000	7 000	-
30-34	10 000	6 000	7 000	-
35-39	10 000	6 000	7 000	6 000
40-44	5 000	6 000	7 000	6 000
45-49	5 000	6 000	7 000	6 000
50-54	3 000	5 000	7 000	5 000
55-59	2 000	4 000	6 000	4 000
60-64	2 000	4 000	5 000	4 000
65-69	1 000	3 000	4 000	-
70-74	1 000	2 000	3 000	-
75-79	500	1 000	2 000	-
80-84	300	500	1 000	-
85 and over	200	500		-
Total	100 000	100 000	100 000	31 000

Direct standardisation

The method of standardisation used very frequently is the so-called direct method. Direct standardisation may be applied only when the schedule of specific rates for a given population is available. The data necessary for its implementation are:

1. The schedule of specific rates for the population being studied, say $C_1, C_2 \dots\dots\dots$
2. The distribution across the various strata for a selected standard population, say $pS_1, pS_2 \dots\dots\dots$

In this case we are using the standard population as set out

The direct adjusted rate is then simply $C_{\text{direct}} = \sum C_p S$

The term direct refers to working directly with the specific rates of the population being studied.