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Other Contributor(s)	University of Hong Kong. Dept. of Periodontology and Public Health.
Author(s)	Lind, O. P.
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HONG KONG SURVEY
OF
ADULT ORAL HEALTH
1984

一九八四香港口腔衛生調查

O.P. LIND

R.W. EVANS

C.J. HOLMGREN

E.F. CORBET

L.P. LIM

W.I.R. DAVIES

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SUMMARY

An oral health survey among 15-19 and 35-44 year-old Chinese living in Hong Kong was conducted in 1984.

The dental service delivery system in Hong Kong is undergoing significant changes in the 1980's and 1990's and there is therefore a strongly felt need to develop an on-going planning of both the future dental education and the oral health care system.

Public water supplies - covering almost the total population - have been fluoridated since 1961.

The purpose of the survey was to supplement the existing, inadequate oral health data base with epidemiologic and socio-cultural data collected from the adolescent and adult population.

It was also the purpose to monitor and stimulate the promulgation of the World Health Organization's concept and goals of Health for All by Year 2000.

A total of 1239 Chinese citizens of both sexes living in a densely populated district of Hong Kong was surveyed utilizing the methods recommended by World Health Organization. All survey subjects were exposed to both a questionnaire inquiry and systematic clinical examinations.

Loss of teeth in both age groups was rare and no person was found to be completely edentulous.

Dental caries prevalence was low in both age groups when compared with data from surveys conducted in other countries. The average numbers of decayed, missing, and filled (DMF) teeth for the 15-19 and the 35-44 year-olds were 1.7 and 7.3 respectively.

The dental caries treatment needs were low. For the 15-19 and the 35-44 age groups, 51 and 49.9 per cent respectively did not require any treatment of dental caries. For the majority of the survey subjects in need of dental caries treatment, this need could be covered by a relatively simple therapeutic program.

Dental fluorosis did not appear to be a major problem though milder forms of dental fluorosis were rather prevalent.

Root surface caries was detected in 14.5 per cent of the 35-44 year-olds. High risk individuals were evident, in as much as ten per cent of those with root surface caries contributed over 30 per cent of the total number of teeth with root surface caries.

Though extremely few survey subjects were found to have healthy periodontal conditions, few persons required complex periodontal treatment. The periodontal situation was characterized by an almost omnipresence of dental calculus and a high prevalence of shallow pockets. Relative to periodontal treatment needs, as expressed by the Community Periodontal Treatment Needs Index (CPITN), there appears to be a definite need for a community-wide initiative to improve the oral hygiene status, and to find a pragmatic and affordable approach to the management of dental calculus.

The questionnaire inquiry revealed an urgent need to disseminate knowledge about the etiology, prevention, and treatment of the most prevalent oral diseases through an organised community-wide health education enterprise. A unanimous preference for the natural dentition was expressed by the respondents of both age groups. Though the majority of the respondents from both age groups reported that they did not use traditional Chinese cures, such as herbal medicine and "cooling" teas, the inquiry revealed that the use of traditional Chinese cures was relatively prevalent, especially among the senior subjects. Consumption of sugar, sweet drinks, and desserts was modest. Between-meal-snacking was inconspicuous.

Responses to the query about the last visit to the dentist, suggest that few consumers of the dental services in Hong Kong visit the dentist for asymptomatic, preventive reasons. The query also disclosed that a substantial number in both age groups had never visited the dentist and that the main reason was that a visit was not necessary because there was no dental problem.

Based on the data analyses from the present survey, the previous surveys conducted in Hong Kong and other recent studies, oral health goals for year 2000 are suggested and recommendations are given as proposals to ensure the achievement of the goals.

撮要

香港大學牙科學院牙周病學及公共衛生科於一九八四年進行一個以香港15-19歲及35-44歲的居民為對象的口腔衛生調查。

鑑於香港牙科服務系統在八十年代及九十年代正在不斷發生顯著的變化，因此十分需要在將來牙科教育及口腔衛生護理制度方面作一個連續進行的策劃。

至於供應給全港居民的公共食水，已於一九六一年加入氟素。

是次調查主要目的是透過搜集有關年青人及成年人在流行病學及社會文化方面的資料，以補充現行口腔衛生資料庫的不足。其次亦希望能夠促進及監察世界衛生組織“廿一世紀，人人健康”的宣言。

這次調查應用了世界衛生組織建議的方法，調查了一千二百三十九個居住於香港人口稠密地區的中國男性和女性。全部被調查的對象都需要回答一份問卷及接受一項有系統的口腔檢查。

調查發現在兩個年齡組內，很少人有牙齒缺失，及沒有全牙列缺失的情況。

在兩個年齡組內，齲齒的情況較其他國家調查所得的數據為低。年齡15-19歲及35-44歲齲齒平均數(D.M.F.T.)分別為1.7及7.3。年齡15-19歲及35-44歲的人只有很少齲齒治療的需要，無需要接受任何有關齲齒治療的人分別佔51%及49.9%。對於大部份需要治療齲齒的調查對象，他們只需要一些頗為簡單的治療。

雖然輕微的牙齦中毒頗為普遍，牙齦中毒並不是一個大問題。

有14.5%年齡屆乎35-44歲的對象被發現患有牙根齲，其中10%較易患牙根齲，他們的牙根齲數目佔總數30%以上。

雖然只有極少數的人有健康的牙周組織，但亦只有少數人需要接受複雜的牙周病治療。牙周組織大多滿佈牙石及有淺牙周袋。從“社會牙周病治療需要指數”(CPITN)所顯示出牙周病治療的需要來看，現正需要一個以整社會為基礎的行動去改善口腔衛生的情況，並找尋一個切實和為人所能負擔的方法去應付牙石問題。

問卷調查反映出現正急切需要透過有組織的社會健康教育計劃，藉以散播有關現時最流行口腔疾病的成因，預防及治療方面的知識。兩個年齡組的人都一致喜歡真牙。雖然兩個年齡組的被訪者大多表示他們沒有使用中藥及“涼茶”等中國式治療方法，但調查顯示使用中國式治療方法是頗為普遍，尤以上了年紀的人為甚。被訪者對糖類，甜飲品及甜品的飲食量並不太高，至於餐與餐之間食小點的習慣亦並不普遍。

從問卷內有關上次找牙醫情況問題可以看出，很少香港人是基於一些沒有病癥或預防性的原因去找牙醫。該問題亦顯示在兩個年齡組內，有一定數目的人從沒有找過牙醫，最主要原因是因為他們認為自己的牙齒沒有問題，沒有需要去找牙醫。

基於今次和以前在香港進行的調查及其他近期研究的資料分析，我們將會為廿一世紀口腔衛生定立目標及提出一些建議以期達到該等目標。

I. INTRODUCTION

Geographically, Hong Kong comprises a peninsula on the South China coast together with an adjacent group of islands in the South China Sea. It is located just within the tropics, although for almost half of the year the climate is remarkably temperate. The population is 98 per cent Chinese, and this survey report is only concerned with that fraction of the population. The Chinese are predominantly Cantonese in origin. At the end of 1984, the total population was 5,397,500 with an overall population density of 5,012 persons per square kilometer, making Hong Kong one of the most densely populated areas in the world. More than 90 per cent of the population is urban. In metropolitan Hong Kong, Kowloon, and Tsuen Wan, the population density was 28,479 persons per square kilometer. At the end of 1984 the most densely populated area was Sham Shui Po with 165,445 persons per square kilometer. The proportion of the population aged 15 and under was 23.5 per cent and that aged 65 and over was 7.4 per cent.

A graphic description of the age and sex distribution of the Hong Kong population is shown in Fig.I.1. (7)

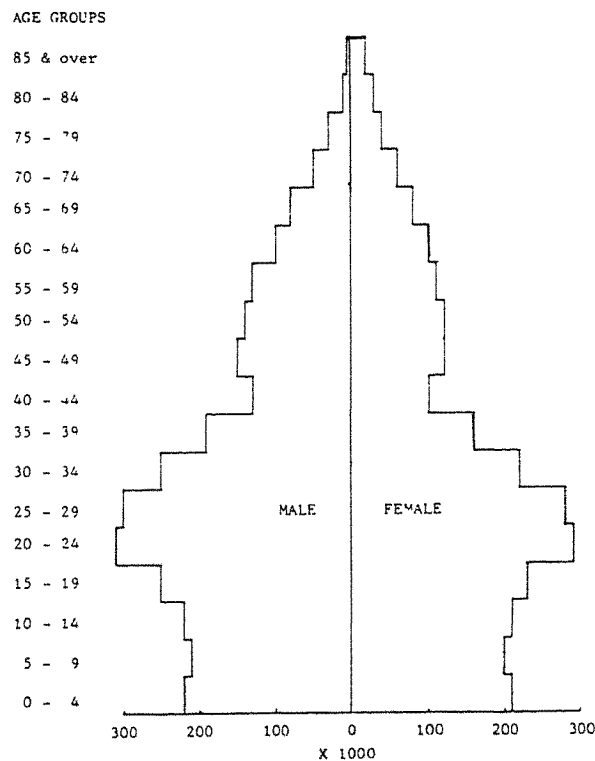


Fig. I.1. Population estimates for Hong Kong by age and sex 1984.

Census and Statistics Department, Hong Kong.

Diet and food is of central importance in Southern Chinese culture. A large proportion of income is spent on food, and discussion on food is prominent in everyday conversation. Dining is an important social occasion and the nutritional value of the food is rated in terms consistent with highly sophisticated cultural beliefs, practices, and symbolism. Great ingenuity and economy, consistent with a waste-not-want-not philosophy, pervade all aspects of cooking and food gathering (36).

The adult diet is low in calcium but is otherwise nutritionally adequate. It is very rare to find malnourishment. The protein intake is comparable with Australia or the United States of America. The diet consists largely of rice, protein, and green leafy vegetables. Bean curd is a major protein source and poultry, pork, and beef are readily available. Differences in diet across the socio-economic groups are minimal. The main difference is that the more well to do have access to the more expensive protein sources (45). For convenience, rice at breakfast is being replaced by bread or buns. The habit of taking mid-morning and mid-afternoon tea-breaks during which snack foods, such as buns or cakes, are consumed, is a recent phenomenon here. Nevertheless, the per capita use of sugar has remained steady over the last 15 years (Table I.1), at around 20 kilograms per person per year, which is approximately 40 per cent of that consumed in the United Kingdom or the United States.

Practically all toothpaste consumed in Hong Kong is fluoridated, although one leading brand has only been fluoridated since 1983. Water supplies have been fluoridated since 1961.

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Usage of raw and refined sugar per capita	21.0	26.4	16.0	18.5	18.5	14.7	17.7	21.9	20.9	22.0	16.0	20.0	21.5	25.0	22.9
Usage of sugar syrups, confectionery and chocolate per capita	2.7	2.7	2.8	3.0	2.7	2.5	2.7	3.6	3.5*	3.6*	3.6*	4.2*	4.9*	4.5*	--

Table I.1. Consumption of sugar and sugar products in Hong Kong expressed in average kilograms per year. Census and Statistics Department 1984.

* Includes local production.

I.1. PREVIOUS EPIDEMIOLOGIC STUDIES

A series of dental surveys have been conducted to study the dental health status of Chinese children attending schools in Hong Kong (37,38,40,41,42). Few surveys have been conducted to study the adult dental health status (54,55).

The pre-fluoridation survey of 6-11 year-old school children was conducted in 1960 (40) with the purpose of establishing a baseline before water fluoridation, which was introduced in 1961. The 1960-survey - the first dental survey in Hong Kong - was followed-up by surveys of children in 1962 (41), 1968 (54) and 1980 (37).

The surveys in 1960, 1962 and 1980 covered the 6-11 year-old school children whereas the survey in 1968 included the 7-54 age range and thus was the first survey sample comprising both children, adolescents and adults.

In 1982 a dental survey was conducted with the purpose of estimating the prevalence of dental diseases and conditions in government officers and their dependants (55). An additional purpose was to determine their treatment needs, demands and utilization of government dental services. The government civil servants are provided with almost free dental services by government employed dentists operating in government clinics. The 1982 government survey covered age groups ranging from 12-55 and a small number of persons above the age of 55. Though the government employees and their families cannot be considered to be representative of the general Chinese population in Hong Kong it is a sizeable subpopulation estimated to include around 400,000 persons.

The data from the dental surveys conducted before 1984 were important for the planning and analyses of the present survey and will therefore be summarized below.

I.1.1. DENTAL CARIES

The epidemiologic data collected during the period from 1960-1980 are of special interest because they illustrate the beneficial dental caries reducing effects of water fluoridation derived over the 20-year period. In 1960 the 6-8 year-olds had an average of 8.0 decayed and filled primary teeth (dft-index) as compared to a similar age group of children in 1980 who had 3.9 dft. Three out of four 6 year-olds had one or more dmf-teeth which is considered to be a rather high dental caries prevalence. The dental caries treatment needs for the primary dentition were found to be quite high in 1980. About 95 per cent of the decayed primary teeth were untreated and 72.9 per cent of the 6 year-olds required dental caries treatment. Though the dental caries situation relative to the primary dentition cannot be described as being under control, water fluoridation has led to a substantial dental caries reduction in the primary dentition.

For the permanent dentition the effects of water fluoridation on the dental caries situation can be judged from Fig.I.2 which gives the dental caries data over the 20-year-period.

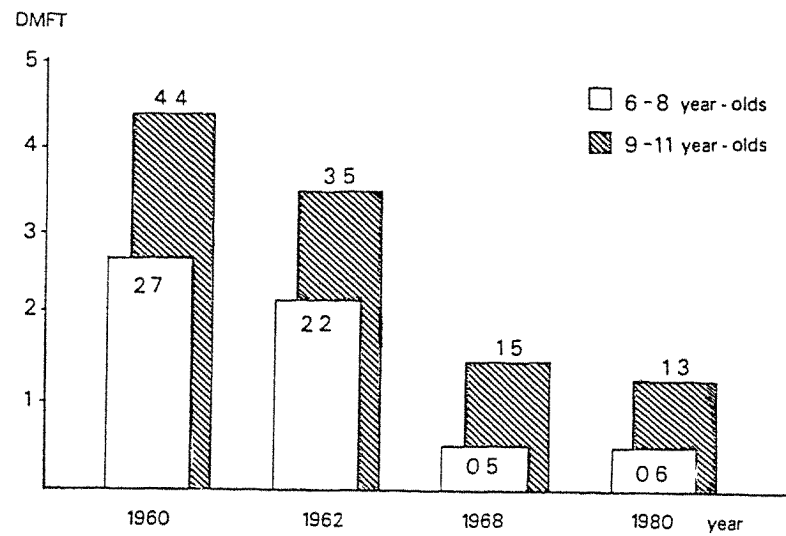


Fig. I.2. Mean number of DMFT. Hong Kong surveys 1960-1980

On an average the 6-8 year-olds had 2.7 DMF-T in 1960 whereas the same age group in 1980 had a DMF-T value of 0.6. Similarly there was a decline in the average number of DMF-T for the 9-11 year-olds from 4.4 to 1.3. The percentage reductions in dental caries experience over the 20 years were 77.7 and 70.5 respectively for the 6-8 and 9-11 year-olds. Though these percentage reductions should be interpreted cautiously they indicate that water fluoridation in Hong Kong had caries-reducing effects of at least a similar magnitude to reductions found in other areas of the world where water fluoridation has been introduced.

Fig.I.3 shows the percentages of children who were found to be clinically free of dental caries in their permanent dentition at the survey examinations in 1960 and 1980. The percentage of caries-free children increased from 15 to 70 and 7 to 48 respectively for the 6-8 and 9-11 year-olds. In other words only 3 out of 10 of the 6-8 year-olds in 1980 had dental caries.

The survey from 1980 revealed that though the dental caries experience was low and very few permanent teeth were lost for the 6-11 year-old school children the largest component of the DMF-T Index was the D representing untreated dental caries. More than one third of the 6-11 year-old children were in need of one or more fillings. More than 90 per cent of the decayed permanent teeth were untreated. However, despite the high level of untreated dental caries only 5.3 per cent of the 6-11 year-olds required one or more teeth to be extracted.

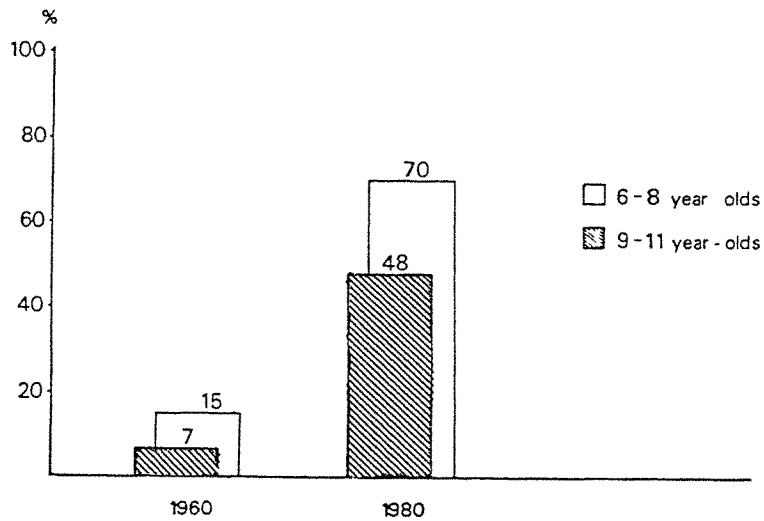


Fig. I.3. Percentage of children who were clinically caries-free in the permanent dentition. Hong Kong surveys 1960-1980.

The dental caries situation of the adolescents and adults has been surveyed in the 1968-survey and in the special survey of the government civil servants and their families conducted in 1982. These two survey data sets, separated by a time interval of 14 years, should be contrasted and interpreted with great caution, Tables I.2 & 3, show the dental caries data from these two surveys for the 15-19 and the 35-44 year age groups.

SURVEY	15-19				
	Average number of teeth				
	Present	D	M	F	DMFT
1968	27.4	3.3	0.9	0.4	4.6 (84.0)*
1982	28.2	1.2	0.3	1.8	3.3 (77.3)

Table I.2. Dental caries data from the 1968 survey (54) and the 1982 survey (55). 15-19 year-olds.

* Numbers in parentheses are percentages of survey subjects having one or more DMFT.

SURVEY	35-44				
	Average number of teeth				
	Present	D	M	F	DMFT
1968	25.5	3.2	6.5	1.6	11.3 (97.4)*
1982	27.3	1.1	3.6	5.0	9.7 (93.6)

Table I.3. Dental caries data from the 1968 survey (54) and the 1982 survey (55). 35-44 year-olds.

* Numbers in parentheses are percentages of survey subjects having one or more DMFT.

Both surveys indicated that loss of permanent teeth was modest among the 15-19 and 35-44 year-olds. Though the government civil servants appear to have slightly lower DMF-T counts than the 1968-examinees, the total DMF-T values were at the same level. The civil servants examined in 1982 had fewer untreated caries lesions, fewer permanent teeth lost, and more filled teeth than was the case for the 1968 survey subjects. It should, however, be stressed that though the comparison of the data from the surveys in 1968 and 1982 could reflect a general trend towards a modest continuous depreciation of the total DMF-T Index, such conclusion cannot be drawn directly from the data.

I.1.2. DENTAL FLUOROSIS

Very few data on the Hong Kong dental fluorosis situation are available.

According to the report of the pre-fluoridation survey conducted in 1960 very few cases of dental fluorosis were found. Out of the 8,535 children aged between 6-11 only 16 children were found to have signs of dental fluorosis and 12 of these cases were graded as questionable when scored according to the Dean's Fluorosis Index. Very few cases of dental fluorosis were diagnosed in the 1962 survey of the 6-11 year-old school children. Only 0.2 per cent of the examinees exhibited signs of fluorosis and out of the eleven cases found seven were classified as questionable.

The reports of the surveys conducted in 1968, 1980 and the survey of government officers and their dependants conducted in 1982 did not include data on dental fluorosis. However, in the 1982 survey it was reported that between 11.9 and 23.0 per cent of the 15-19 year-olds were scored as having enamel hypoplasia and between 2.4 and 3.3 as having intrinsic discolouration. For the age groups from 20-54 there appeared to be a significant decrease in the prevalence of these dental enamel defects.

I.1.3. DENTO-FACIAL ANOMALIES

Included in the 1962 survey of the 6-11 year-olds was a small survey of handicapping dentofacial anomalies (3) in which the diagnostic criteria recommended by World Health Organization in 1961 were adopted. The results showed that of the 1,123 children examined 40.9 per cent required treatment for dentofacial anomalies. Crowding was found to be the most frequently encountered anomaly and 20.3 per cent of the children exhibited this condition.

The 1968 survey recorded that 19.0 per cent of the children in the age range between 7-19 years required treatment for handicapping dentofacial anomalies and half of these cases needed treatment because of crowding.

Of all the 6-11 year-old children examined in the 1980 survey 9.8 per cent required treatment for one or more types of dentofacial anomalies, the commonest of which being crowding of teeth.

The survey in 1982 of the government officers and their dependants, disclosed that 42 per cent of the 12-19 year-olds had one or more type of dentofacial anomaly present and that crowding of teeth was the most common type. It is noteworthy that even though 4 out of 10 examinees exhibited one or more dentofacial anomalies, only 19.3 per cent required orthodontic treatment.

I.1.4. PERIODONTAL DISEASES

The main focus of the surveys conducted in 1960 and 1968 was on dental caries and very little attention was directed towards oral hygiene status and the diseases of the periodontium.

The data reported from the 1968 survey revealed that more than 60 per cent of the children had inflamed gingiva and it was stated that this phenomenon was apparently not associated with the accumulation of calculus, but possibly with oral hygiene as materia alba was found in over 90 per cent of the persons examined. However, 70 per cent of the children was assessed to have fair oral hygiene.

For the adult age groups in the age range of 20-54 examined in 1968, 47 per cent were found to have periodontal pockets greater than 3 mm and about half of these persons had six or more teeth involved. A modest 5.5 per cent had periodontal pockets greater than 6 mm and only one person had more than ten teeth involved.

In the 1968 survey report, it was concluded that only a small percentage of persons with 3 mm pockets progressed further to the advanced stage of 6 mm pockets or greater. This conclusion was felt to be corroborated by the fact that less than one per cent of the adults had teeth indicated for extraction for periodontal reasons.

The survey conducted in 1980 among primary school children

disclosed that the majority of children examined were found to have poor oral hygiene and that 80 per cent of the children having signs of poor oral hygiene had gingivitis of varying severity. However, only in one out of five children was intense gingivitis found. More than one fourth of the children (26.4 per cent) had dental calculus deposits.

The survey of the government officers and their families conducted in 1982 indicated that 14.4 per cent of the 15-19 year-olds had healthy periodontal status. Gum bleeding was diagnosed for 10.4 per cent and 55.9 per cent had dental calculus. Periodontal pockets of 3.5 - 5.5 mm were found in 18.5 per cent of the teenagers and only 0.8 per cent had pockets greater than 5.5 mm. For the 35-39 and 40-44 year-olds 1.7 and 3.7 per cent respectively were assessed to have healthy periodontal condition. Dental calculus for the same age groups was found in 57.0 and 46.4 per cent of the examinees respectively. Periodontal pockets of 3.5-5.5 mm were scored in 33.9 per cent of the 35-39 year-olds and in 39.7 per cent of the 40-44 year-olds. Four to six per cent of the 35-44 year-olds had periodontal pockets greater than 5.5 mm. The 15-19 year-olds had 2.3 healthy sextants whereas this decreased to 1.2 for the 35-44 age group. The mean number of sextants with periodontal pockets between 3.5 - 5.5 mm was 0.3 and 0.7 for the 15-19 and 35-44 year-olds respectively. Deep pockets greater than 5.5 mm were diagnosed for an average of 0.1 sextant of the 35-44 year-olds.

When all survey subjects in the age range between 15 and 55+ years were divided according to degree of attendance, i.e. regular attenders, emergency attenders and non-attenders it became evident that the periodontal condition of the regular attenders appeared better than that of the two other types of attenders.

I.1.5. ROOT SURFACE CARIES

No epidemiologic data on root surface caries has yet been published from the Hong Kong area.

I.1.6. DISORDERS OF ORAL MUCOSA AND BONE

The first data on diseases or anomalies of the oral mucosa and bone appeared in the report of the 1980 survey of school children. It was reported that only 43 (0.6 per cent) out of the 6,765 children examined showed some form of oral mucosal diseases and that most of these were traumatic or herpetic. Bone anomalies were very rare.

Oral mucosa diseases were also found to be rare in the 1982 survey of the government officers and their families. Out of the 4,240 examined in the age range between 12 and 55+ years, only 17 cases were found and only three cases required treatment.

1.1.7. ORAL HEALTH RELATED KNOWLEDGE, ATTITUDES AND BEHAVIOUR

The first data on oral health related knowledge, attitudes and behaviour were published in 1983 in the report of the survey of the government officers and their families. However, the items included in the questionnaire were limited to questions related to service utilization and need for dental advice or treatment.

Asked whether they obtained dental care in the last 12 months 55 per cent of the respondents reported that they had obtained dental care whereas 45 per cent had not visited a dentist within the last year for various reasons. The most frequent reason for not seeking dental care - stated by 39.8 per cent of the non-attenders - was that nothing was wrong with their teeth.

1.2. DENTAL SERVICES IN HONG KONG

The Government White Paper (32), published in July 1974 relating to the future development of medical and health services in Hong Kong, signified that a School Dental Service would be established and that more dentists would be provided for the general public. It was proposed that in order to prevent dental decay becoming too firmly established in young children, the School Dental Service would provide a basic conservative service. To enable the scheme to proceed, a dental therapists training school and dental clinics would be established. With regard to increasing the number of dentists, it was set forth that dentists would be trained locally and that a dental school would be established within the University of Hong Kong.

A dental therapist training school providing a 3 year curriculum was established and scheduled to produce 30 dental therapists annually (56). The first therapists completed their training in September 1980. However, this training program was partially disrupted in 1982 due to an economic recession.

A Faculty of Dentistry was established at the University of Hong Kong and designed to have an annual output of 60 graduates. In January 1985, the first batch of students completed their dental degree requirements and entered into practice in Hong Kong.

At 30 June 1985, there were 985 registered dental practitioners in Hong Kong. This number has grown rapidly over recent years, since at 31 December in 1978 and 1980, it stood at 540 and 638 respectively. The rapid increase is due to the return to Hong Kong of dentists who have graduated from overseas universities, and most recently, to the first dental graduates from the University of Hong Kong. It is estimated that there is at least an equal number of unregistered dentists practising illegally in Hong Kong.

Of the registered dentists, 136 are employed by the Medical and Health Department, Government of Hong Kong, working in one of three services; 13 in Government hospitals, 16 in the School Dental Service, and the remainder in the Civil Servants Dental

Scheme. Currently, the School Dental Service employs 120 dental therapists (inclusive of 33 final year student therapists) who cater for the dental needs of the primary school children in Hong Kong. This service is still expanding. At present, there are 234,000 patients receiving care, accounting for about 65 per cent of the four school grades eligible for enrolment.

All civil servants in Hong Kong, their dependants, and Government pensioners are eligible for free comprehensive dental care, and this service is provided for them by the dentists in the Medical and Health Department working in locations all over the territory. The department also provides simple dental treatment for the inmates of penal institutions, specialist treatment for patients at Government hospitals, and emergency treatment for members of the public.

Apart from the dentists working at the Faculty of Dentistry, University of Hong Kong (located in the Prince Philip Dental Hospital), all other registered dentists are either in private practice or associated with non-Government institutions. However, they are not readily accessible to the entire population as the greater proportion of the private dental practitioners have their dental surgeries located in or nearby the commercial districts in Hong Kong and Kowloon. The new towns in Hong Kong with populations of more than 500,000 have few dentists.

It is known that some people from Hong Kong travel for dental services to the Special Economic Region of Shenzhen adjacent to Hong Kong in the People's Republic of China.

Finally, there are between 20 and 30 dental hygienists working in Hong Kong, and of this number, ten are employed by the Prince Philip Dental Hospital.

Water fluoridation was introduced in Hong Kong in 1961. Initially the fluoride concentration was set at 0.7 ppm during summer months and 0.9 ppm during the winter. In May 1967 it was adjusted to 1.0 ppm all year round, but since June 1978 the schedule has been maintained at 0.7 ppm throughout the year.

1.3. PURPOSES OF THE PRESENT SURVEY

The planning and evaluation of a cost-effective oral health care delivery system for an area like Hong Kong require a sound data basis comprising both data on the epidemiology of the oral diseases and data on the demographic, social, cultural and economic conditions. Furthermore the oral health related knowledge, attitudes and behaviour of the various population strata should be known in as much detail as possible.

It is self-evident that the above-mentioned data will be of paramount importance in the decision-making relative to the types and numbers of oral health care personnel needed as well as the selection and design of an appropriate educational system for training all types of personnel.

Planning and evaluation of an oral health care delivery system should be an on-going process and thus necessitate surveying at regular time-intervals.

Furthermore the collection and analysis of a broad spectrum of basic data are of significance in the identification of relevant research problems.

The lack of an adequate and reliable data basis has produced serious problems in a number of countries. Poor planning and evaluation has led to severe underemployment or unemployment of both dentists and dental auxiliaries. The inadequate data-basis has in many countries hampered the discussions on educational and research policies which has consequently resulted in stagnation and in a preservation of antiquated educational curricula and research.

The fact is that the existing oral health situation in Hong Kong has not yet been surveyed to an extent adequate for planning and evaluation purposes. Only scarce and insufficient oral health data exist for the adolescent and adult population.

The Government of Hong Kong has introduced general fluoridation of the water supplies (1960), established a school dental service system (1979) in which supervised dental therapists will be delivering the bulk of preventive and curative services, and last but not least it has build a dental hospital (1981) in which a dental school with an anticipated annual output of 60-70 dentists was incorporated.

These major measures are bound to have a crucially, significant impact not only on the epidemiology of the oral health and the oral diseases in Hong Kong but also on the needs and demands for services by the people of Hong Kong. An inability to follow the dynamic changes in the oral health situation could lead to a plethora of dental public health problems which could prove to be extremely difficult to solve if identified too late.

In the light of these uncertainties and realizing the inadequacies of the data-basis the Faculty of Dentistry, University of Hong Kong has attached great importance to well-planned collection of epidemiologic and sociologic data. In fact, this type of research has been given the highest priority and is considered - both by dental professionals at the university level and by practising dentists at the community level - to be an urgent matter.

Aiming at supplementing the epidemiologic data basis already in existence for the schoolchildren population, it was decided by the survey team to concentrate their efforts and resources on selected age groups of the adolescent and adult Chinese population residing in Hong Kong. Since the 15-19 year-olds is a population group having a full complement of the permanent dentition except for the wisdom teeth and also is in the age period when more severe forms of periodontal diseases may be diagnosed, it was decided to select this age group. At the same time the 15-19 year-olds is a group which has often been used

to measure the medium-term effects of a school dental service program. The teenagers being 15-19 year-olds in 1984, have had the full benefit of water fluoridation but have never had access to the school dental services and would therefore constitute a base-line-group in the future evaluation of the medium-term effects of the program.

The 35-44 year age group was selected because it is an age group which has been used in many epidemiologic studies conducted in other countries, and therefore data from Hong Kong can be compared with international data. The 35-44 year-olds are generally considered to be an age group in which the effects of the periodontal diseases on the deeper supporting tissues become manifest potentially leading to loose teeth and loss of teeth.

The survey team considered the inclusion of more age groups especially representing the elderly population. However, the financial stringencies, and the restrictions in terms of time available made it impossible to include more age groups.

The purposes of the survey were:

1. *To collect and analyse epidemiologic data adequate for describing the existing oral health status, the oral disease situation, and the treatment needs of non-institutionalized Chinese sampled from the 15 - 19 and 35 - 44 year-olds population strata residing in a selected populous district of Hong Kong, and*
2. *To collect, and analyse socio-cultural data focusing on oral health related knowledge, attitudes and behaviour, and*
3. *To combine and correlate the epidemiologic and socio-cultural data, in such a way that the major problems relative to oral health status and oral health care delivery can be identified and defined.*
4. *To monitor and stimulate the promulgation of the World Health Organisation's concept and goals of Health for All by Year 2000.*

The fulfilment of the survey purposes would together with the epidemiologic findings from previous surveys and other studies enable a data-synthesis which could be useful in the long-term for planning purposes such as:

- A. *To develop alternative strategies, tactics and health policies for the cost-effective utilization of the existing economic and personnel resources which have already been invested, or which will be invested, in the Hong Kong oral health care delivery enterprise.*
- B. *To formulate dental research policies enabling an integration and co-operation of future research and to ensure appropriateness and relevance for the Hong Kong population.*
- C. *To serve as a basis for on-going review and development of the dental curriculum in the Faculty of Dentistry, University of Hong Kong.*

II. MATERIAL AND METHODS

II.1. SURVEY REGION

Owing to limited resources, it was not possible to contemplate a national survey, and so in line with a proposed International Collaborative Study, a region of Hong Kong was sought with a population of about 300,000. It was also decided to limit the sample to an urban region and exclude the rural population. An analysis of data from the 1981 Hong Kong Census was undertaken in order to locate a region corresponding to this population size, conveniently situated for logistical purposes, which in addition could be considered to encompass representative groups of the major socio-economic strata in Hong Kong.

The area selected was part of the northern face of Hong Kong Island bounded to the east by Central District and to the west by Mt. Davis. It comprised Sheung Wan, Sai Ying Pun, Kennedy Town, and part of the Mid-levels. The Prince Philip Dental Hospital located in the area opened in 1980.

Hong Kong is divided by the Department of Census and Statistics into Primary, Secondary, and Tertiary Planning Units for administrative convenience. Altogether, there are 270 Tertiary Planning Units (TPU's) and these are generally demarcated by such land-marks as roads or watersheds. The survey region was specifically defined as the areas covered by the TPU's 111, 112, 113, 114, 115, 116, 141, and 142.

II.2. SAMPLE SIZE

With reference to the 1980 dental survey of Government civil servants, the prevalence of both periodontal disease and dental caries was about 0.9 for the 35-44 year-olds. Thus for the purpose of calculating the sample size concerning the present study, a prevalence estimate of 0.9 was assumed. In relation to this prevalence value, an error tolerance of plus or minus 0.02, corresponding to the 95 per cent confidence interval was allowed. The required sample size for each age group was determined through use of the formula;

$$SE = \sqrt{\frac{pq}{n}}$$

where SE = standard error, p = prevalence, q = (1-p), and n = sample size. Substituting, SE = 0.02 ÷ 1.96 (for 95 per cent confidence), p = 0.9, and solving for n, the required sample size is 864, and the sampling error corresponding to a standard error of 0.01 is, 0.01 ÷ 0.9 = 1.1 per cent.

Following consultation with the Oral Health Unit, World Health Organization, and taking into account a lesser variation in

prevalence levels across social strata to be expected here, compared with that found in other countries where the International Collaborative Studies have been conducted, it was considered that a greater sampling error could be tolerated. Due to restraints in connection with the time available to carry out the field work, it was therefore decided to reduce the sample size and accept a corresponding increase in the sampling error. Hence, the sampling strategy was set to yield 700 persons in each age range, 15-19 and 35-44.

II.3. SAMPLING FRAME

Since most of the data relating to the population characteristics held by the Department of Census and Statistics is confidential, access was gained only to the addresses of all living quarters in the TPU's sampled.

The addresses of all living quarters in each TPU are maintained and regularly updated. A living quarter is defined as a room or rooms which share a common exit, in which one or more families reside. A family is defined as one or more individuals who share in the domestic arrangement of eating together. The sampling frame used was the list of living quarters in the TPU's. A separate list of squatter dwellings formed another sampling frame. The dwellings are grouped into segments demarcated by paths, ditches, or other suitable landmarks.

II.4. SAMPLING METHOD

For the purpose of selecting a representative sample of the population residing in the survey region and of increasing sampling efficiency, a cluster sampling method was chosen. Living quarters were selected by systematic sampling and within each living quarter, all persons aged 15-19 and 35-44 comprised the potential sample. Squatter dwellings were located in only four of the TPU's sampled. There were 26 segments of them altogether, and two were chosen by simple random selection. All dwellings in these two segments were selected and, as before, all persons aged 15-19 and 35-44 comprised the potential sample.

An analysis of the 1982 Census data indicated that 90 per cent of the 53,682 living quarters in the region would contain one subject within the age range 15-19 and 35-44. According to advice received from the Department of Census and Statistics, the expected response rate for a survey of this type was in the region of 30 per cent. Nevertheless, it was hoped that through publicity this could be improved to 50 per cent. The number of living quarters out of a total of 53,682 to be sampled in order to achieve the required sample size of 1400 was; $1400 \div 0.9 \div 0.5 = 3111$. Thus the sample fraction of living quarters was; $53,682 \div 3111 = 17.26$. This was rounded down to one living quarter in 17.

In fact the sample yield was less than expected, necessitating an additional sampling of the population in the survey region to make up an estimated 25 per cent shortfall, approximately. Assuming that the response rate for the second sample would be similar to the first, it was estimated that the required sample size of 1400 would be achieved if a further 500 subjects were sought. The number of living quarters to be sampled in order to find 500 eligible persons was calculated as before, that is; $500 \div 0.9 \div 0.5 = 1111$. Thus, the sampling fraction of living quarters for the second sample was; $53,682 \div 1111 = 48.32$, rounded down to 48 for convenience.

The living quarter addresses were retrieved by hand, since the records had not yet been stored on computer files.

II.5. RECRUITMENT OF THE SAMPLE

The sample of living quarters was drawn from the TPU's already referred to. A letter, bearing the living quarter serial number and addressed to the head of the household, was sent to every selected living quarter, giving information on the nature of the survey and requesting the co-operation of all occupants in the age range 15-19 and 35-44 to participate in the survey (see Appendix 1 & 2). Eligible persons were invited to call by telephone for an appointment during designated hours, and it was noted that in the event of no reply being received, a personal call would be made to living quarters by home visitors to assist with arrangements. Transport was available, if required, to facilitate bringing survey subjects to the hospital. In fact, very few respondents telephoned to make an appointment, thus most were recruited through the home visitor program.

II.6. HOME VISITOR PROGRAMME

An officer from the Department of Census and Statistics conducted an orientation for the benefit of the home visitors on the method of approach to door to door calling, and in the ways and means of finding potential respondents, and of how to improve the chances of obtaining their co-operation.

The procedure of the home visit was systematic. An identical address label bearing the living quarter number, that was used for the notification of the survey, was placed on separate home visit sheets (See Appendix 3). Details of the visit outcome were recorded on this sheet and the next stage of the follow-up was also entered when appropriate. (See Appendix 4 for instructions to home visitors, and for telephone follow-ups.)

A team of 6-8 home visitors, working in pairs, systematically called at each selected living quarter during the late afternoons and evenings of Wednesday to Sunday inclusive during a 10 week period. The visiting hours coincided with times when it was expected that it would be most likely to find people at home.

In the event of not finding anyone at home, a reminder letter was left and further recall visits were made for up to two more times before follow-up was ceased. In cases where the person who answered the door was not in the eligible age range, but who was able to confirm that another household member was eligible, a suitable time for another call was arranged, or if possible, the telephone number was obtained so that the follow-up could be made without having to call back on foot.

Each day the results of the home visiting program were checked off on a master sheet as part of the co-ordination of the program. Appointments, together with the living quarter serial number and home telephone number were entered into the appointment diary. It was thus possible to activate follow-up in cases of appointment failure.

II.7. THE QUESTIONNAIRE

The content of the questionnaire was based on that used for the International Collaborative Study (WHO) in 1973 which was conducted in the style of a structured interview. However, due to financial constraints, the questionnaire used for the present study was designed as a self-completion one. In view of problems concerning the level of literacy of some respondents it was necessary to simplify some sections of the questionnaire, especially that relating to the availability, accessibility, and acceptability of dental services. During the development of the questionnaire, discussions were held with a medical anthropologist experienced in epidemiological research in Hong Kong. Some questions were introduced to investigate Chinese cultural beliefs and practices relating to oral health. In the section relating to occupation and income, the classifications were consistent with those used by the Department of Census and Statistics, in order to allow for testing the representativeness of the population sample, and to give a basis for inferences concerning the population as a whole (See Appendix 5).

A draft of the questionnaire was reviewed by Drs. Lois Cohen and Herschel Horowitz, NIDR, during a visit to Hong Kong. The final draft (See Appendix 6) was translated into colloquial Cantonese (See Appendix 7). This translation was translated back again into English to uncover anomalies. It was then pilot tested and submitted to a final revision before going to press.

II.8. THE CLINICAL EXAMINATION

The design of the clinical examination was based on proposals from WHO relating to the next phase of the International Collaborative Study. However, in the present study, additional information was sought for special research purposes, and some modifications were therefore necessary. More detail was recorded regarding tooth status and treatment needs, especially in relation to the presence of permanent performed crowns and

bridges which are widely used in Hong Kong by unregistered dentists (See Appendix 8). However, all codes used may be transformed to the WHO system (See Appendix 9). The criteria used for defining tooth status follows the WHO system with appropriate modifications to define the extra details already referred to. The criteria relating to treatment needs have been specified in much greater detail than hitherto by WHO, and a new code identifying teeth requiring specific preventive treatment was used. The criteria relating to prosthetic status and needs were simplified and since the youngest survey subjects in the present study were aged 15, the simplified criteria defining dento-facial anomaly in Oral Health Surveys - Basic Methods (1977) were used. The recording of root surface caries was carried out using a simple present-absent notation. With regard to measuring periodontal status and treatment needs, considerably more measurements were taken than those necessary to define the CPITN Index but these were taken in a manner which allowed for the CPITN results to be calculated.

II.9. EXAMINER CALIBRATION AND MONITORING

During a two week period just prior to the survey, the clinical examiners calibrated amongst themselves in the application of the clinical diagnostic criteria. During the survey, between-examiner variability was monitored through duplicate examinations of the survey subjects, and both between-examiner and within-examiner variability was monitored through duplicate examinations conducted at two weekly intervals on a sample of over 40 members of the hospital staff.

II.10. CLINICAL CRITERIA AND PROCEDURES

The instructions for the clinical criteria to be applied in the survey examinations and a description of the clinical examination procedures are given in Appendix 10.

II.11. THE SURVEY SITE

Owing to the high urban population density, it was not possible to contemplate conducting the clinical examinations and interviews at the respondents' homes. The problems of restricted car parking facilities and of taking portable dental equipment into high rise apartment blocks (often without lifts) made this approach impossible. Instead, the survey was conducted at the Prince Philip Dental Hospital which is located centrally in the survey region.

II.12. THE INTERVIEWS AND EXAMINATIONS

On arrival, the survey subjects were registered and given the self-completion questionnaire to fill out. When there were problems of literacy, a receptionist was at hand to read the questionnaire to the respondent and record the replies. On completion, all questionnaires were checked to ensure that no sections had been missed. Then the clinical examinations were conducted in fully equipped dental surgeries. The caries and fluorosis assessments, which preceded the periodontal assessments, were conducted by RWE and LLP. The prosthetic needs, dento-facial anomaly, root surface caries, and periodontal assessments were conducted by EFC, CJH, and WIRD. Fibre optic lighting was used for the caries assessments, but not for the periodontal assessments for which intra-oral illumination was provided by the clinical overhead lighting. The results of the clinical examinations were recorded by dental surgery assistants on the clinical examination forms, which also bore the same registration number as the corresponding questionnaire. Finally, the survey subjects were given tooth-brushes and toothpaste, they attended an oral health education session, and they were given oral hygiene instruction by hygienists.

II.13. DATA PROCESSING AND ANALYSIS

Data from the questionnaires and clinical examinations were entered and stored on discs at the Centre of Computer Studies and Applications, University of Hong Kong. The analysis was carried out on the SPERRY UNIVAC 1100 Computer using SPSS-X.

The statistical methods used in comparing results from different groups included Chi-square test, Student's t-test and the F-test in the analysis of variance. Results from the inter-examiner and intra-examiner reproducibility studies were expressed in terms of Cohen's Kappa value.

III. SURVEY FINDINGS - SAMPLE RESPONSE

The sample yield of 1239 was less than the 1400 target, due in part to the fact that time did not permit sampling in TPU 115 as originally planned, and to a poorer response than hoped for. TPU's 141 and 142 were last to be surveyed, and the very low responses obtained from the Mid-levels region, especially TPU 142, was partly due to a lower degree of respondent co-operation and partly due to lack of follow-up (Table III.1). Altogether variation in the response across the TPU's was not appreciable. It was, however, statistically significant $p < 0.001$. If TPU 142 is deleted from the statistical analysis, for reasons outlined above which account for the low response there, then variation in the yield compared to the expected yield is not significant, $p > 0.05$.

TPU	Population aged 15-19 & 35-44	Sample yield	Expected yield	χ^2
111	13011	371	341	2.62
112	13208	377	346	2.73
113	5568	174	149	4.35
114	3643	91	96	0.21
116	3395	96	89	0.55
141	3087	60	81	5.41
142	5251	70	138	33.25
Total	47263	1239	1240	49.12*

Table III.1. Sampling response in Tertiary Planning Units.
Hong Kong Survey 1984.
* $p < 0.001$

Although it was aimed to achieve a 50 per cent response to the invitation to participate in the survey, the region had to be sampled twice in an attempt to achieve the sample size required, and therefore, the 50 per cent target was not achieved. However, it is estimated that the response was in the region of 40 per cent. A more accurate estimate is not available because enumeration of all eligible household members could not be carried out. This was due to problems caused by security measures which inhibited the gaining of access to living quarters. Participation in the survey was voluntary and the process of negotiating of right of access to potential respondents through telephones controlled by security staff was difficult to achieve, especially in the case of unco-operative families. It was impossible in these circumstances to get the information which was necessary for calculating the overall response.

The representativeness of the sample was assessed through comparisons of household income distributions during the 3rd quarter (July-September) 1984. According to data shown in Fig. III.1, 25 per cent of the survey respondents were from households where the total monthly income was between 2000-3999 dollars, compared with 22 per cent for Hong Kong Island and 30 per cent for all Hong Kong. In the next two monthly income groups, 4000-6999 and 6000-7999 dollars, the respondents accounted for 31 and 17 per cent of the sample which was about 10 and 7 per cent higher than the representation of these groups in Hong Kong Island. The next two groups, 8000-10000 and 10000 plus dollars, comprised 7 and 15 per cent of the sample which were about 3 and 7 per cent lower than the respective Hong Kong Island distribution. Our sample was very underrepresented in the lowest income group. Only 2 per cent of respondents claimed to be from this group compared with 10 per cent in Hong Kong Island. Overall, the average discrepancy was about 6 per cent. There is no reason to suppose that these comparisons should have revealed close similarities because the population distribution in any region is by no means homogeneous. In Fig. III.1 the trend of the survey distribution generally follows that for Hong Kong Island and all Hong Kong. There is reason to suppose that more people from the lowest income group were included, but that through shyness, these respondents indicated their incomes were in a higher bracket, thus their underrepresentation may be more apparent than real.

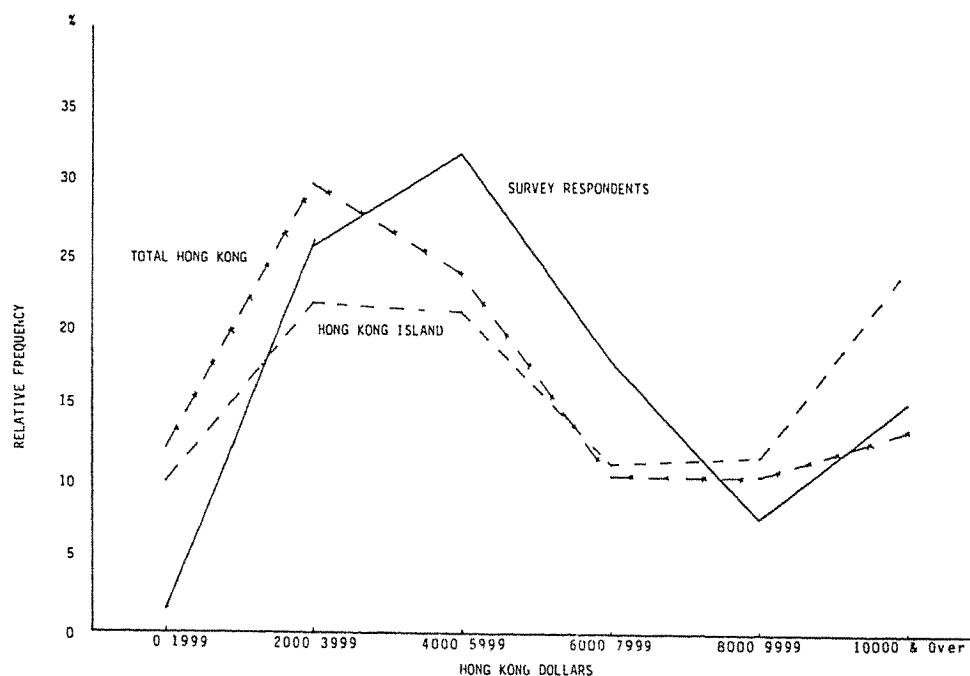


Fig. III.1. Monthly household income for Hong Kong, Hong Kong Island and the survey subjects 1984. Hong Kong Survey 1984.

Details of distributions according to the major demographic variables are presented in the following tables. The sample distribution by age and sex for the seven TPU's surveyed is shown in Table III.2. A more detailed distribution by age and sex for the total sample is given in Table III.3. Background according to Chinese origin is shown in Table III.4. According to the 1981 Census relating to the total population, the proportion whose place of origin was Chaozhou was 4.3 per cent compared with 13.9 per cent in the survey sample. The sample proportion of respondents whose origin was Guangdong province, Macao, or Hong Kong, was 72 per cent - a little lower than 81.8 per cent for all Hong Kong in 1981. Distributions of the sample population according to the major socio-economic indicators - household income, education level, and occupation, - are presented in Tables III.5, III.6, and III.7.

With the purpose of analyzing both the questionnaire and the clinical data according to social data it was decided to use three arbitrarily defined income groups and three arbitrarily defined educational groups.

With regard to income the monthly household income for 0 - 3999, 4000 - 7999 and 8000 or more Hong Kong dollars were used to divide the survey subjects from both age groups.

However, for educational achievement it was decided to limit the analyses to the 35-44 year-olds because no meaningful division of the survey subjects could be performed for the 15-19 year-olds. The 35-44 year-old survey subjects were divided into three groups representing Primary Education level, Secondary Education level, and Post-secondary level respectively.

TPU	15-19		35-44		TOTAL		
	♀	♂	♀	♂	♀	♂	♀ + ♂
111	102(35.7)	96(34.7)	90(26.5)	83(24.7)	192 (30.7)	179 (29.2)	371 (29.9)
112	75(26.2)	74(26.7)	103(30.3)	125(37.2)	178 (28.4)	199 (32.5)	377 (30.4)
113	45(15.7)	41(14.8)	43(12.6)	45(13.4)	88 (14.1)	86 (14.0)	174 (14.0)
114	21(7.3)	19(6.9)	23(6.8)	28(8.3)	44 (7.0)	47 (7.7)	91 (7.3)
116	21(7.3)	18(6.5)	33(9.7)	24(7.1)	54 (8.6)	42 (6.9)	96 (7.7)
141	9(3.1)	11(4.0)	23(6.8)	17(5.1)	32 (5.1)	28 (4.6)	60 (4.8)
142	13(4.5)	18(6.5)	25(7.4)	14(4.2)	38 (6.1)	32 (3.2)	70 (5.6)
	286(100.0)	277(100.0)	340(100.0)	336(100.0)	626 (100.0)	613 (100.0)	1239 (100.0)

Table III.2. Distribution of survey subjects by age group, sex and residence in Tertiary Planning Units (TPU). Hong Kong Survey 1984.

* Numbers in parentheses are percentages.

QUESTION 2 & 4. Age and sex.

Age	♀	♂	♀ + ♂
15	61	55	116
16	59	51	110
17	53	59	112
18	48	58	106
19	65	54	119
	<hr/>	<hr/>	<hr/>
	286 (50.8)	277 (49.2)	563 (45.4)
35	53	63	116
36	57	49	106
37	40	44	84
38	43	44	87
39	42	27	69
40	27	19	46
41	15	18	33
42	21	25	46
43	18	18	36
44	24	29	53
	<hr/>	<hr/>	<hr/>
	340 (50.3)	336 (49.7)	676 (54.6)
	<hr/>	<hr/>	<hr/>
	626 (50.5)	613 (49.5)	1239 (100.0)

*Table III.3. Distribution of survey subjects by age and sex.
Hong Kong Survey 1984.*

** Numbers in parentheses are percentages.*

QUESTION 3. What are your origins?

	15-19		35-44		TOTAL		
	♀	♂	♀	♂	♀	♂	♀ + ♂
Chaozhou	47(16.6)	45(16.1)	47(13.9)	33(9.8)	94	78	172(13.9)
Danjia/Heilao	0	1(0.4)	0	2(0.6)	0	3	3(0.2)
Fujian	25(8.7)	16(5.8)	22(6.5)	24(7.1)	47	40	87(7.0)
Kejia	4(1.4)	0	6(1.8)	2(0.6)	10	2	12(1.0)
Guangdong province/ Macao/Hong Kong	191(66.7)	202(72.9)	242(71.1)	257(76.5)	433	459	892(72.0)
Shanghai/Beijing/ Tianjin	10(3.5)	7(2.6)	11(3.2)	8(2.4)	21	15	36(2.9)
Other parts of China	6(2.1)	3(1.1)	9(2.6)	10(3.0)	15	13	28(2.3)
Don't know	3(1.0)	3(1.1)	3(0.9)	0	6	3	9(0.7)
	286(100.0)	277(100.0)	340(100.0)	336(100.0)	626	613	1239(100.0)

Table III.4. Distribution of survey subjects by age group, sex and Chinese origin.
Hong Kong Survey 1984.

* Numbers in parentheses are percentages.

QUESTION 6. Please, indicate the income range your household falls into:

Household income (HK\$)	15-19		35-44		TOTAL		
	♀	♂	♀	♂	♀	♂	♀ + ♂
0 - 1999	1.4	2.2	1.2	0.9	1.3	1.5	1.4
2000 - 3999	18.5	21.9	23.7	21.4	21.4	21.6	21.5
4000 - 5999	25.5	23.0	29.5	28.3	27.7	25.9	26.8
6000 - 7999	12.4	13.9	16.6	17.9	14.6	16.1	15.3
8000 - 9999	3.5	6.2	7.4	8.6	5.6	7.5	6.6
10000+	8.8	7.3	15.7	18.4	12.6	13.4	13.0
Don't know	29.9	25.5	5.9	4.5	16.8	14.0	15.4
	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table III.5. Distribution of survey subjects by age group, sex and monthly household income. Percentages.
Hong Kong Survey 1984.

QUESTION 7. Please, indicate the highest educational standard you have attained:

	15-19		35-44		TOTAL		
	♀	♂	♀	♂	♀	♂	♀ + ♂
Primary	1.4	2.2	36.3	20.8	20.4	12.4	16.3
Secondary	95.4	94.2	52.6	64.1	72.2	77.7	75.0
Post-secondary	1.8	1.1	5.4	8.6	3.7	5.2	4.5
Degree-course	1.4	2.5	4.5	6.5	3.1	4.7	3.9
No education	---	---	1.2	---	0.6	---	0.3
Don't know	---	---	---	---	---	---	---
	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table III.6. Distribution of survey subjects by age group, sex and educational attainment. Percentages. Hong Kong Survey 1984.

QUESTION 8A, B & C. Occupation:

Occupation*	15-19**		35-44	
	♀	♂	♀	♂
Prof. technical	5.9(40.7)	8.5(52.4)	12.9	13.4
Admin. & managerial	3.9(4.9)	4.9(1.3)	1.4	10.1
Clerical	9.8(30.5)	12.6(10.2)	13.3	17.0
Sales	26.6(4.5)	26.3(6.7)	3.7	21.2
Service workers	17.6(6.5)	13.7(8.0)	2.0	8.1
Agric. & fisheries	---(---)	0.4(---)	---	---
Production & transport.	31.9(0.8)	29.1(7.6)	14.0	27.5
Armed forces, unclassifiable	3.9(2.8)	4.5(3.6)	52.7	2.7
Don't know	0.4(9.3)	---(10.2)	---	---
	100.0(100.0)	100.0(100.0)	100.0	100.0

*Table III.7. Distribution of survey subjects by age group, sex and occupational status. Percentages.
Hong Kong Survey 1984.*

* For 15-19 age group it was the occupation of the head of household.
For 35-44 age group it was the respondent's own occupation.

** In parentheses forecasts about future occupation given by
15-19 year-olds.

IV. SURVEY FINDINGS - QUESTIONNAIRE DATA

IV.1. ORAL HEALTH RELATED PERCEPTIONS AND KNOWLEDGE

The purpose of the second part of the questionnaire was to probe into the respondents perceived susceptibility to the most common oral disease phenomena and symptoms. The questionnaire also sought information on their perceptions about the preventability of these possible events. Information about their preferences relative to natural versus false teeth and their knowledge about the etiology of gum diseases, dental caries, and tooth loss were also solicited.

The information contained in the respondents' reactions to questions in this particular area is - among other aspects - of paramount importance for the design of community-wide oral health programs.

IV.1.1. SUSCEPTIBILITY

Tables IV.1 & 2 show the distribution of the responses to Question 9, about the perception of susceptibility according to age and sex.

QUESTION 9. During the next five years, do you think you will get:

	15-19							
	No. of Respondents		Likely		Not Likely		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Bleeding gums	283	275	52.7	51.3	27.2	27.6	20.1	21.1
Broken tooth	283	273	19.1	29.3	53.4	41.8	27.6	28.9
Toothache	283	275	59.0	58.5	25.4	22.5	15.5	18.9
Tooth decay	283	275	60.8	60.0	23.3	20.0	15.9	20.0
Loose teeth	283	275	18.7	22.2	57.6	50.5	23.7	27.3

Table IV.1. Perceived likelihood of experiencing specified symptoms during the next five years according to sex. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 9. During the next five years, do you think you will get:

	35-44							
	No. of Respondents		Likely		Not Likely		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Bleeding gums	331	332	67.4	66.6	13.9	16.0	18.7	17.5
Broken tooth	332	330	50.6	55.2	27.1	25.8	22.3	19.0
Toothache	336	334	76.2	82.6	14.0	9.6	9.8	7.8
Tooth decay	338	335	84.6	80.9	8.9	11.6	6.5	7.5
Loose teeth	334	332	50.9	52.1	29.9	31.0	19.2	16.9

Table IV.2. Perceived likelihood of experiencing specified symptoms during the next five years according to sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

From the data presented in Tables IV.1 & 2, there appears to be a rather strong age differential determining the perceptions of susceptibility to the five specified oral phenomena.

The likelihood of experiencing the five phenomena was greater among the 35-44 year-olds than among the younger generation. However, within age groups there appears to be very little difference between the two sexes except for the fact that more 15-19 year-old males expected to experience a 'broken tooth' than their female counterparts.

In general, respondents of both age groups perceived themselves as rather susceptible to periodontal disease, toothache, dental caries, and loose teeth.

An analysis of the responses to Question 9, about perceptions of susceptibility according to three arbitrarily chosen economic strata based on household income, revealed small and insignificant differences, except for the 35-44 year-olds relative to forecasts of experiencing toothache and tooth decay during the next five years.

Tables IV.3 & 4 depict the distribution of the 35-44 year-olds' responses to the question about perceived susceptibility to toothache and tooth decay according to monthly household income.

QUESTION 9. During the next five years, do you think you will get TOOTHACHE?

Household Income (HK dollars)	No. of Respondents	35-44		
		Likely	Not Likely	Don't know
0 - 3999	158	78.5	7.6	13.9
4000 - 7999	307	81.8	10.7	7.5
8000+	168	78.6	14.9	6.5

Table IV.3. Perceived likelihood of experiencing toothache during the next five years by monthly household income. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

QUESTION 9. During the next five years, do you think you will get TOOTH DECAY?

Household Income (HK dollars)	No. of Respondents	35-44		
		Likely	Not Likely	Don't Know
0 - 3999	159	83.6	6.9	9.4
4000 - 7999	309	84.5	8.7	6.8
8000+	168	80.4	14.9	4.8

Table IV.4. Perceived likelihood of experiencing tooth decay during the next five years by monthly household income. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

Though the likelihood of experiencing the five oral symptoms or phenomena during the next five years did not appear to vary significantly among economic strata, among the 35-44 year-olds there seems to be more respondents in the highest income stratum who felt that it was not likely that they would experience toothache or tooth decay. The least privileged group had more "don't know" answers while the middle income group fell in between.

An analysis of the responses given by the 35-44 year-olds to Question 9 did not reveal any significant differences between the three educational levels.

IV.1.2. PREVENTABILITY

Question 10 probed into the respondents' perceptions of preventability of the five specified symptoms and the responses are given in Tables IV.5 & 6.

QUESTION 10. During the next five years, can you do much to prevent:

	No. of Respondents		15-19					
			Much		Not Much		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Bleeding gums	282	274	35.5	38.3	30.5	31.0	34.0	30.7
Broken tooth	281	273	31.0	34.4	35.9	33.7	33.1	31.9
Toothache	280	273	49.3	52.0	30.4	28.6	20.4	19.4
Tooth decay	281	274	67.6	62.4	21.4	20.8	11.0	16.8
Loose teeth	281	272	24.6	32.4	34.5	31.3	40.9	36.4

Table IV.5. Assessment of own ability to prevent specified symptoms during the next five years according to sex. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 10. During the next five years, can you do much to prevent:

	No. of Respondents		35-44					
			Much		Not Much		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Bleeding gums	333	331	39.6	33.2	39.7	42.3	20.7	24.5
Broken tooth	331	329	32.0	24.3	43.8	50.2	24.2	25.5
Toothache	331	333	41.1	33.3	46.2	50.2	12.7	16.5
Tooth decay	335	333	47.8	38.1	42.1	46.8	10.1	15.0
Loose teeth	335	333	21.5	20.1	56.4	53.8	22.1	26.1

Table IV.6. Assessment of own ability to prevent specified symptoms during the next five years according to sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

The data shown in Tables IV.5 & 6 indicate that the respondents, both in the 15-19 and the 35-44 year age groups, were not optimistic about preventing the five specified symptoms by their own personal efforts. Only modest sex differences were found in the two age groups' perceptions of preventability. When preventability by own personal efforts were analysed according to household income, it was found that only for the 35-44 year-olds could statistically significant differences be found with respect to the prevention of toothache, tooth decay, and loose teeth. Tables IV.7, 8, and 9 show that the economically most privileged among the 35-44 age group were more confident in their own ability to do something about preventing toothache, tooth decay, and loose teeth than the less privileged.

QUESTION 10. During the last 5 years, can you do much to prevent TOOTHACHE?

Household Income (HK dollars)	No. of Respondents	35-44		
		Much	Not Much	Don't Know
0 - 3999	157	33.8	54.1	12.1
4000 - 7999	306	35.0	50.0	15.0
8000+	164	43.9	38.4	17.7

Table IV.7. Assessment of own ability to prevent toothache during the next five years by monthly household income. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

QUESTION 10. During the next 5 years, can you do much to prevent TOOTH DECAY?

Household Income (HK dollars)	No. of Respondents	35-44		
		Much	Not Much	Don't Know
0 - 3999	158	38.6	48.7	12.7
4000 - 7999	307	41.0	46.9	12.1
8000+	166	53.0	33.1	13.9

Table IV.8. Assessment of own ability to prevent tooth decay during the next five years by monthly household income. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

QUESTION 10. During the next 5 years, can you do much to prevent LOOSE TEETH?

Household Income (HK dollars)	No. of Respondents	35-44		
		Much	Not Much	Don't Know
0 - 3999	159	17.0	60.4	22.6
4000 - 7999	308	18.8	56.8	24.4
8000+	164	27.4	45.7	26.8

Table IV.9. Assessment of own ability to prevent loose teeth during the next five years by monthly household income. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

Tables IV.10 & 11 are accounts of the responses to Question 11, which probed into the survey subjects perceptions of the preventability of the five specified symptoms by professional dental efforts. There appears to be a rather strong confidence in the dentist's therapeutic capabilities for both age groups which contrasted to the respondents somewhat pessimistic assessment given in Tables IV.5 & 6 of their own possibilities of preventing the onset of the five symptoms. The preventability of loose teeth by either personal or professional dental efforts appears to be viewed as a rather remote or unknown possibility by the respondents from both age groups.

QUESTION 11. Do you think a dentist can successfully treat:

	15-19							
	No. of Respondents		Much		Not Much		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Bleeding gums	284	275	79.2	79.3	8.5	7.3	12.3	13.5
Broken tooth	283	272	62.9	62.5	17.7	20.2	19.4	17.3
Toothache	283	275	89.4	86.9	5.7	6.5	4.9	6.5
Tooth decay	283	275	90.5	88.4	4.6	6.2	4.9	5.5
Loose teeth	283	274	61.5	56.6	19.1	23.4	19.4	20.1

Table IV.10. Assessment of the dentist's ability to prevent specified symptoms according to sex. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 11. Do you think a dentist can successfully treat:

	35-44							
	No. of Respondents		Much		Not Much		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Bleeding gums	335	335	80.3	79.4	8.1	8.7	11.6	11.9
Broken tooth	333	335	76.6	69.9	12.6	14.9	10.8	15.2
Toothache	336	334	92.9	88.6	3.6	6.3	3.6	5.1
Tooth decay	338	335	91.4	86.6	5.0	7.8	3.6	5.7
Loose teeth	336	336	54.2	56.8	26.5	23.8	19.3	19.3

Table IV.11. Assessment of the dentist's ability to prevent specified symptoms according to sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

From the distribution of the responses to Questions 10 and 11, only modest differences in the perceptions of preventability could be found between age groups and sex.

When the responses to the questions on perceptions of preventability, either by their own action or the treatment by a dentist, were distributed according to household income, there appeared to be no statistically significant differences among the 15-19 year-olds.

An analysis of the responses given by the 35-44 year-olds to Questions 10 and 11, about preventability by personal or professional efforts, indicated that the higher the educational level, the more confident and optimistic the respondents were that both forms of prevention would be successful. The difference was found to be highly significant for the prevention of bleeding gums, broken tooth, toothache, and tooth decay by personal efforts.

Tables IV.12 & 13 indicate that more respondents in the highest income group felt that the dentist cannot do much to successfully treat bleeding gums and tooth decay than did those in the lower income groups. However, the vast majority of all respondents were quite confident that the dentist would be able to treat bleeding gums and tooth decay.

QUESTION 11. Do you think a dentist can successfully treat BLEEDING GUMS?

Household Income (HK dollars)	No. of Respondents	35-44		
		Much	Not Much	Don't Know
0 - 3999	159	78.0	6.9	15.1
4000 - 7999	309	81.6	5.8	12.6
8000+	167	78.4	15.0	6.6

Table IV.12. Assessment of the dentist's ability to prevent bleeding gums by monthly household income. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

QUESTION 11. Do you think a dentist can successfully treat TOOTH DECAY?

Household Income (HK dollars)	No. of Respondents	35-44		
		Much	Not Much	Don't Know
0 - 3999	159	88.1	4.4	7.5
4000 - 7999	309	92.2	3.9	3.9
8000+	168	85.7	11.3	3.0

Table IV.13. Assessment of the dentist's ability to prevent tooth decay by monthly household income. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

IV.1.3. VALUE OF NATURAL TEETH

Table IV.14 shows the distribution of responses according to age group and sex to Question 12, through which the value of the natural dentition was solicited.

The vast majority, i.e. more than nine out of ten respondents, indicated that natural teeth were better than false teeth.

It is noteworthy that 98.2 per cent of the females aged 35-44 felt that natural teeth were better than false teeth.

QUESTION 12. Some people have false teeth (dentures). Do you think:

	15-19		35-44	
	♀	♂	♀	♂
Natural teeth are better than false teeth	93.6	89.9	98.2	94.0
False teeth are better than natural teeth	0.7	1.8	0.0	0.3
Both are about the same	2.5	3.6	0.3	1.2
Don't know	3.2	4.7	1.5	4.5
	100.0 (281)*	100.0 (275)	100.0 (336)	100.0 (331)

Table IV.14. Opinion about the value of natural teeth versus dentures by age group and sex. Percentages. Hong Kong Survey 1984.

** Numbers in parentheses are the number of survey subjects.*

No significant statistical differences among the 35-44 year-olds were found when data on the value of teeth were analysed according to household income. However, for the younger generation, there appears to be a slightly weaker preference for the natural dentition among the less privileged teenagers.

A remarkable and unanimous strong preference for natural teeth was thus found among Hong Kong Chinese irrespective of economic, sex, and age group status. This may imply that the natural dentition has a conspicuous cultural role to play as compared to, for example, the role of the natural dentition among people in many countries with a prevailing Western-European cultural orientation.

Educational level was found to have little influence on the value the respondent attached to natural teeth.

IV.1.4. BELIEFS ABOUT ETIOLOGY OF ORAL DISEASES

Asked about the causes of gum diseases, the respondents reactions were distributed as illustrated in Table IV.15.

QUESTION 13A. What do you think causes gum diseases:

	15-19		35-44	
	♀	♂	♀	♂
Inadequate oral hygiene	21.0	22.8	21.8	22.8
Bacteria/infection	3.4	5.3	3.8	3.9
Inadequate diet	16.2	14.8	6.7	2.6
Calculus	1.1	1.1	4.5	2.6
Chinese explanation	2.6	0.0	6.1	6.2
Others	6.8	4.9	5.4	6.2
Don't know	48.9	51.1	51.7	55.7
	100.0 (266)*	100.0 (264)	100.0 (312)	100.0 (307)

Table IV.15. Beliefs about the causes of gum disease by age group and sex. Percentages. Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

Again, it is noteworthy that there appears to be very little difference both between age groups and between the two sexes.

Half of the respondents indicated that they did not know what the causes of gum diseases are. However, approximately 20 per cent of the total number of respondents across sex and age indicated that inadequate oral hygiene was an important causal factor, and 6 per cent of the 35-44 year-olds gave explanations according to Chinese traditional beliefs.

The data about the etiology of gum diseases amplified very strongly that the population was ill-informed about the causes of periodontal diseases.

Table IV.16 shows that both age groups gave more specific indications about the causes of dental caries and appeared to be better informed about the etiology of this disease.

QUESTION 13B. What do you think causes tooth decay:

	15-19		35-44	
	♀	♂	♀	♂
Inadequate oral hygiene	43.3	35.9	47.8	41.9
Bacteria/infection	40.5	39.3	32.7	29.1
Inadequate diet	3.2	6.7	2.1	1.9
Calculus	1.1	3.3	0.6	0.3
Chinese explanation	0.0	0.0	0.0	0.3
Others	2.2	1.5	2.4	1.2
Don't know	9.7	13.3	14.4	25.3
	100.0 (279)*	100.0 (270)	100.0 (327)	100.0 (320)

Table IV.16. Beliefs about the causes of tooth decay by age group and sex. Percentages. Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

The younger age group seemed to be more knowledgeable about the microbial factors involved in the onset of dental caries.

Almost none of the respondents indicated Chinese traditional explanations for the etiology of dental caries.

The questions focusing on the etiology of gum diseases and dental caries were open-ended, whereas the question about the causes of tooth loss was multiple choice in design, allowing for five possibilities.

Tables IV.17 & 18 show the distribution of the respondents reactions to the possible causes of tooth loss. Between 82.9 and 89.1 per cent of the respondents, spanning over both age groups and both sexes, believed that old age causes tooth loss.

QUESTION 13C. What do you think causes tooth loss:

	15-19							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Tooth decay	277	273	71.1	71.8	15.5	16.1	13.4	12.1
Gum disease	275	273	32.0	46.5	25.5	22.0	42.5	31.5
Broken tooth	277	274	39.4	40.5	30.7	33.9	30.0	25.5
Old age	280	275	83.2	86.9	8.6	4.4	8.2	8.7

Table IV.17. Beliefs about the causes of tooth loss by sex. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 13C. What do you think causes tooth loss:

	35-44							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Tooth decay	325	330	73.8	74.2	16.6	15.8	9.5	10.0
Gum disease	313	325	39.6	44.3	39.6	36.0	20.8	19.7
Broken tooth	314	319	45.9	44.8	36.3	35.1	17.8	20.1
Old age	330	327	89.1	82.9	5.8	6.4	5.2	10.7

Table IV.18. Beliefs about the causes of tooth loss by sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

Of the more specific causes, between 71.1 and 74.2 per cent of the respondents from both age groups, indicated that tooth decay is a rather common cause of tooth loss.

It is noteworthy to observe that gum diseases play a more modest role in explaining tooth loss. More respondents in the younger age bracket seemed to be uncertain about the role of gum diseases in the loss of teeth.

An analysis, according to household income, of the responses given by both age groups to the query about the etiology of gum diseases, revealed that the lower income groups did not feel that inadequate oral hygiene was as important an etiologic factor as was felt by the highest income group. For the 35-44 year-olds, the analysis of the data, according to household income, indicated that the lower income groups had significantly more "don't know" statements.

No statistically significant differences were found among the teenagers relative to the statements about the causes of tooth decay. For the 35-44 year-olds, the highest income groups seemed to be more in favour of inadequate oral hygiene as the important cause of tooth decay, whereas the lower income groups had more "don't know" statements.

The responses to the questions about the causes of tooth loss did not reveal any statistically significant differences between the respondents from the three economic strata of the two age groups.

The responses of the 35-44 year-olds to the questions about the causes of gum disease, tooth decay, and loss of teeth did not show any significant differences when analysed according to educational level.

IV.2. ORAL HEALTH CARE PRACTICES

IV.2.1. USE OF TRADITIONAL CHINESE CURES

Tables IV.19 & 20 depict the distribution of the respondents' indications about the utilization of traditional Chinese cures relative to toothache, gum problems, and that described as a 'sour' feeling in the tooth.

QUESTION 14. Do you drink "cooling" teas or consume herbal medicine to cure:

	No. of Respondents		15-19					
			Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
"Sour" feeling in tooth	280	275	11.4	7.3	85.4	87.6	3.2	5.1
Toothache	280	275	16.1	11.6	80.7	84.4	3.2	4.0
Gum problems	281	274	23.8	15.0	69.8	78.8	6.4	6.2

Table IV.19. Use of Chinese cures according to sex. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 14. Do you drink "cooling" teas or consume herbal medicine to cure:

	35-44							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
"Sour" feeling in tooth	329	329	20.7	17.3	78.7	78.7	0.6	4.0
Toothache	330	332	35.5	33.7	63.3	64.5	1.2	1.8
Gum problems	334	329	38.6	37.7	59.0	58.1	2.4	4.2

Table IV.20. Use of Chinese cures according to sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

The expression as translated **sour-feeling** refers to sensitivity and discomfort emanating from the teeth, and to a lesser extent their supporting structures.

The older generation appears to be more inclined than the younger generation to utilize traditional Chinese cures. However, the percentage of the 35-44 year-olds utilizing traditional cures for toothache and gum problems was between 33.7 and 38.8. It should be noted, however, that the formulation of the question did not allow any conclusion to be drawn as to whether the traditional Chinese cures were utilized as sole cures or whether they were utilized in conjunction with other more westernized remedies or active dental treatment.

No statistically significant differences were found between the teenagers when the data on the use of **cooling** teas or herbal medicine were analysed according to household income. However, the analysis, according to household income as shown in Table IV.21, indicated that the lower income groups among the 35-44 year-olds used **cooling** teas or herbal medicine significantly more frequently than the highest income group.

It is noteworthy that 31.7 per cent of the highest income group of the 35-44 year-olds, used **cooling** teas or herbal medicine to cure gum problems.

When the responses given by the 35-44 year-olds to questions about the use of cooling teas or herbal medicine were analysed according to educational level, a rather strong trend was found in the application of cooling teas or herbal medicine to cure toothache and gum problems: the higher the educational level, the less **cooling** teas and herbal medicine were used as a cure.

QUESTION 14. Do you drink 'cooling' teas or herbal medicine to cure:

	Household income (HK dollars)		
	0 - 3999	4000 - 7999	8000+
'Sour' feeling in tooth	23.9	19.6	10.6
Toothache	45.5	35.1	18.5
Gum problems	46.2	36.3	31.7

Table IV.21. Use of Chinese cures by monthly household income. 35-44 year-olds. Hong Kong Survey 1984.

IV.2.2. ORAL HYGIENE MEASURES

According to the distribution of responses to the kind of oral hygiene measure the survey subjects performed yesterday, Tables IV.22 & 23 demonstrate very clearly that the most important home measure was toothbrushing.

QUESTION 15. Which of the following did you do yesterday:

	15-19							
	No. of Respondents		Yes		No		Never heard of it	
	♀	♂	♀	♂	♀	♂	♀	♂
Used toothbrush	283	276	98.6	96.4	1.4	3.3	0.0	0.4
Used toothpick	282	275	39.7	52.4	59.6	46.9	0.7	0.7
Used dental floss	281	275	6.8	5.1	88.6	89.8	4.6	5.1
Used disclosing tablet	280	274	0.7	1.8	85.0	86.5	14.3	11.7
Used mouthwash	281	275	20.3	21.1	79.4	77.8	0.4	1.1
Rinsed after eating	279	276	47.7	40.2	52.0	59.1	0.4	0.7
Used toothpaste containing fluoride	281	275	87.5	88.4	10.3	10.2	2.1	1.5
Massaged gums	283	275	6.0	10.5	90.5	87.3	3.5	2.2
Drink cooling teas or consume herbal medicine	282	276	7.1	5.4	87.2	86.6	5.7	8.0

Table IV.22. Personal oral health care practices according to sex. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 15. Which of the following did you do yesterday:

	No. of Respondents		35-44				Never heard of it	
	♀	♂	Yes		No		♀	♂
			♀	♂	♀	♂		
Used toothbrush	337	335	98.8	99.4	0.9	0.3	0.3	0.3
Used toothpick	335	330	81.2	85.2	18.2	14.2	0.6	0.3
Used dental floss	330	329	10.9	9.7	71.8	79.1	17.3	11.2
Used disclosing tablet	331	328	0.3	0.3	71.0	78.4	28.7	21.3
Used mouthwash	333	328	27.3	27.7	72.4	70.4	0.3	1.8
Rinsed after eating	328	323	53.7	48.3	45.4	50.8	0.9	0.9
Used toothpaste containing fluoride	325	325	74.2	72.6	18.2	22.8	7.7	4.6
Massaged gums	329	324	4.9	4.6	92.7	93.5	2.4	1.9
Drink cooling teas or consume herbal medicine	330	330	9.4	15.1	87.3	81.0	3.3	3.9

Table IV.23. Personal oral health care practices according to sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

A range, from 96.4 to 99.4 per cent of all survey subjects used a toothbrush and from 72.6 to 88.4 per cent used a toothpaste containing fluoride.

Among the 35-44 year-olds, the use of toothpicks to clean the teeth reached 81.2 and 85.2 per cent for the females and males respectively. The use of toothpicks among the 15-19 year-olds was less common and reached 39.7 to 52.4 per cent for females and males respectively.

Dental floss was not used very much by either the 15-19 year-olds or the 34-45 year-olds.

Very few used disclosing tablets as part of their oral health home care program.

Rinsing after eating was practiced quite frequently among both age groups and this practice was accepted by both sexes. Table IV.24 demonstrates that only a negligible number of the respondents in both age groups did not possess a toothbrush, and the vast majority of all respondents had a toothbrush which was purchased less than one year ago.

QUESTION 16. Do you have a toothbrush:

	15-19						35-44					
	No. of Respondents		Yes		No		No. of Respondents		Yes		No	
	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂
Toothbrush	283	275	97.9	98.2	2.1	1.8	338	336	99.1	97.9	0.9	2.1
Less than one year old	273	269	98.2	96.3	---	---	327	323	99.7	98.5	---	---

*Table IV.24. Percentage distribution of respondents having their own toothbrush and age of toothbrush by age group and sex.
Hong Kong Survey 1986.*

Household income, as a differential in the use of various oral hygiene methods and accessories at home, did not appear to be of any importance for the teenagers. For the 35-44 year-olds, the use of floss and disclosing tablets is apparently more prevalent among the respondents from the highest income bracket although they were not generally accepted oral hygiene adjuncts among the 35-44 year-olds.

It is noteworthy that a significantly greater proportion of the highest income group used fluoride toothpaste.

The possession of a toothbrush, and how recently it was purchased, did not appear to be influenced much by economic status for either of the two age groups.

Educational level appeared to influence the use of dental floss, disclosing tablets, and fluoridated toothpaste among the 35-44 year-olds rather strongly. The higher the educational level, the more respondents reported to have used dental floss, disclosing tablets, and fluoridated toothpaste. It should be noted however, that the absolute number of respondents, even among the higher educational group who used dental floss and disclosing tablets, was very small. It is also noteworthy that the respondents representing the group with only primary education declared in rather large numbers, that they did not know what dental floss and disclosing tablets were. The use of fluoridated toothpaste was rather common among all respondents in the 35-44 age group irrespective of educational level (60.1 - 82.9 per cent), but was used among significantly more respondents belonging to the highest educational level.

IV.2.3. KNOWLEDGE OF FLUORIDE

Table IV.25 shows the distribution of the respondents responses to Question 17, which explored awareness of and knowledge about fluoride.

QUESTION 17. Have you ever heard of 'fluoride':

	15-19		35-44	
	♀	♂	♀	♂
Yes	91.2	94.5	75.1	75.5
No	5.3	3.3	16.9	17.3
Don't know	3.5	2.2	8.0	7.2
	100.0 (283)*	100.0 (275)	100.0 (337)	100.0 (335)

Table IV.25. Knowledge about fluoride by age group and sex. Percentages. Hong Kong Survey 1984.

** Numbers in parentheses are the number of survey subjects.*

Around nine out of ten of the 15-19 year-olds and 75 per cent of the 35-44 year-olds had heard of fluoride. Asked whether they knew what fluoride issued for, the younger generation seemed to be more knowledgeable than the senior generation.

The highest income groups of the 35-44 year-olds were significantly more knowledgeable about fluoride whereas no difference could be found between the three income groups of the teenagers. Approximately one third of the lowest income group of 35-44 year-olds reported that they had never heard of fluoride as compared to a modest 3.6 per cent among the economically most privileged respondents.

The same trend was found when the data for the 35-44 year-old respondents were analysed according to educational level. A highly significant difference was found indicating that the higher the level of education the more respondents declared they knew what fluoride was.

IV.2.4. CONSUMPTION OF SWEET DRINKS AND FOOD

Table IV.26 shows the distribution according to age group and sex of responses to a question about the consumption of sweet drinks between the three daily meals.

QUESTION 18A. Yesterday, how many times did you have a sweet DRINK between the three daily meals:

	15-19		35-44	
	♀	♂	♀	♂
None	19.9	16.4	37.5	31.1
Once	32.6	27.0	39.9	35.3
Twice	27.3	27.0	17.0	21.9
Three times	7.8	10.2	3.9	6.0
>Three times	12.4	19.4	1.8	5.7
	100.0 (282)*	100.0 (274)	100.0 (336)	100.0 (334)

Table IV.26. Frequency of sweet drinks between meals by age group and sex. Percentages.
Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

The consumption of sweet drinks between meals appears to be more frequent among the 15-19 year-olds than among the 35-44 year-olds. The 15-19 year-old males had sweet drinks more often than their female counterparts i.e. 29.6 per cent had sweet drinks three times or more a day as compared to 20.2 per cent of the females

The same picture emerges when studying Table IV.27 which is an account of the frequency of between-meal-snacking.

QUESTION 18B. Yesterday, how many times did you have between-meal-snacks:

	15-19		35-44	
	♀	♂	♀	♂
None	31.8	45.8	52.5	52.5
Once	28.6	23.1	28.7	35.5
Twice	21.6	15.4	14.6	10.1
Three times	7.4	5.1	2.7	0.6
>Three times	10.6	10.6	1.5	1.2
	100.0 (283)*	100.0 (273)	100.0 (335)	100.0 (335)

Table IV.27. Frequency of between-meal-snacks by age group and sex. Percentages.
Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

More than half of the survey subjects aged between 35 and 44 did not have any between-meal-snacks the day before the questioning. Very few of the 35-44 year-olds indulged in between-meal-snacking three or more times.

As a follow-up to the question on consumption of sweets, the survey subjects were queried about the eating of sweet desserts at meal times. Table IV.28 shows the percentage distribution of the responses relative to the eating of sweet desserts at meal times according to age group and sex.

QUESTION 18C. Yesterday, how many times did you have a sweet dessert at meal times:

	15-19		35-44	
	♀	♂	♀	♂
None	65.0	71.3	69.5	63.7
Once	25.4	17.8	26.0	29.8
Twice	7.8	6.5	3.3	4.7
Three times	0.7	2.2	1.2	0.9
>Three times	1.1	2.2	0.0	0.9
	100.0 (283)*	100.0 (275)	100.0 (335)	100.0 (336)

Table IV.28. Frequency of eating dessert at meal times by age group and sex. Percentages. Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

The eating of sweet desserts at meal times does not appear to be a common habit in as much as more than two thirds of the survey subjects, irrespective of age and sex, did not eat sweet dessert at meal times the day before the inquiry.

The teenagers displayed an almost identical pattern, irrespective of income relative, to the consumption of sweet drinks and snacks between meals as well as having had a sweet dessert the day before the inquiry. The eating of snacks and the intake of sweet dessert at meal time were more common among the highest income respondents of the 35-44 year-olds.

When the responses to Question 18 on dietary habits, given by the 35-44 year-olds, were analysed according to educational level, statistically significant differences were found. The respondents belonging to the higher educational groups consumed sweet foods more often and had more frequent between-meal-snacks.

IV.3. ORAL HEALTH CONDITIONS AND PROBLEMS

Respondents were asked whether they had experienced any of a list of eleven specified dental conditions during the last year.

Reactions to Question 19 are given in Tables IV. 29 & 30 for both age groups and both sexes.

QUESTION 19. Have you had any of the following problems during the last year:

	15 - 19							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Swelling inside the cheek or lip	279	273	25.4	26.0	68.5	68.9	6.1	5.1
Broken teeth	282	273	8.2	16.1	88.6	79.9	3.2	4.0
Broken filling	279	270	7.9	7.4	84.9	82.2	7.2	10.4
Gum boil, sinus	281	273	11.7	12.1	79.7	77.3	8.6	10.6
Gingival inflammation	281	274	31.0	26.6	63.0	63.1	6.0	10.2
Aphthous ulcer	282	275	75.5	64.7	20.2	28.0	4.3	7.3
Bad breath	281	275	32.7	34.2	40.9	42.9	26.3	22.9
Bleeding gums	283	275	62.5	56.4	35.0	41.8	2.5	1.8
Toothache	282	273	38.3	42.9	59.2	53.1	2.5	4.0
Loose teeth	282	274	14.5	21.9	78.4	67.5	7.1	10.6
Dental calculus	281	274	18.5	15.3	48.4	46.4	33.1	38.3

Table IV.29. Experience of specified oral health problems during the last year according to sex. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 19. Have you had any of the following problems during the last year:

	35-44							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Swelling inside the cheek or lip	333	327	19.5	30.6	77.8	68.2	2.7	1.2
Broken teeth	329	331	19.5	27.8	79.0	68.9	1.5	3.3
Broken filling	334	327	30.2	28.1	64.7	67.9	5.1	4.0
Gum boil, sinus	328	324	13.1	20.0	82.6	77.2	4.3	2.8
Gingival inflammation	333	329	42.0	52.3	54.7	44.4	3.3	3.3
Aphthous ulcer	333	329	58.3	51.7	37.8	43.1	3.9	5.2
Bad breath	328	330	53.4	58.8	35.4	30.9	11.2	10.3
Bleeding gums	329	330	60.8	57.6	37.4	40.9	1.8	1.5
Toothache	327	330	46.5	51.5	52.6	48.2	0.9	0.3
Loose teeth	326	325	19.6	32.6	75.2	64.0	5.2	3.4
Dental calculus	330	328	41.8	45.1	31.8	32.0	26.4	22.9

Table IV.30. Experience of specified oral health problems during the last year according to sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

Overall, the 35-44 year-olds had experienced more morbid dental conditions than their younger counterparts. Broken teeth, broken fillings, gingival inflammation, bad breath, toothache, and dental calculus were indicated more frequently among the 35-44 year-olds, whereas aphthous ulcers were more common among the 15-19 year-olds. Bleeding gums were the most frequently experienced morbid dental condition in both age groups.

Household income did not appear to be an influential background factor among the 15-19 year-olds relative to the experience of the eleven oral health problems referred to in Question 19 during the last year.

The highest income group among the 35-44 year-olds, reported to have had significantly fewer cases of gum boils, gum soreness, and loose teeth than the lower income groups. Aphthous ulcers were reported by the highest income group more frequently than the lower income groups.

IV.4. DENTURE WEARERS

Questions 20 and 21 A, B, C, D, E focused on denture wearers, the function of the dentures, and the source from which the dentures were acquired.

Table IV.31 shows that very few teenagers were denture wearers, i.e. a total of 16 survey subjects out of 554. Within the 35-44 year-olds, a total of 144 respondents reported that they had some kind of denture, i.e. 26.2 per cent of the females and 17.1 per cent of the males.

QUESTION 20. Do you have removable false teeth:

	15-19		35-44	
	♀	♂	♀	♂
Yes	3.2 (9)*	2.6 (7)	26.2 (87)	17.1 (57)
No	95.4 (268)	93.4 (255)	73.2 (243)	82.0 (273)
Don't know	1.4 (4)	4.0 (11)	0.6 (2)	0.9 (3)
	100.0 (281)	100.0 (273)	100.0 (332)	100.0 (333)

Table IV.31. Percentages of survey subjects having removable false teeth by age group and sex.
Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

QUESTION 21A. Do you wear your false teeth:

	35-44	
	♀	♂
Only when eating	1.1 (1)*	0.0
Only outside home	2.3 (2)	8.5 (5)
Only during day	26.1 (23)	28.8 (17)
Most of the time	20.5 (16)	27.1 (16)
Hardly ever	8.0 (7)	11.9 (7)
All the time incl. when sleeping	42.0 (37)	23.7 (14)
	100.0 (88)	100.0 (59)

Table IV.32. Percentage distribution of survey subjects having removable false teeth by habit of wearing them.
35-44 year-olds.
Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

Table IV.32. demonstrates that 62.5 per cent and 50.8 per cent of the female and male 35-44 year-olds respectively, wore their dentures all the time (including when sleeping) or at least most of the time. More females, i.e. 42 per cent wore their dentures all the time as compared to 23.7 per cent of the male 35-44 year-olds. The fact that 37.5 and 49.2 per cent of the female and male 35-44 year-olds reported to wear their dentures only during limited periods of time, or hardly ever, indicated that a very substantial number of denture wearers had problems with their dentures.

Indications of the problems can be inferred from Table IV.33, which shows that 26.1 and 33.9 per cent respectively of the females and males reported that they had problems when eating.

QUESTION 21B. Function of the removable false teeth:

	35-44							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Can you:								
Talk clearly?	91	65	90.1	83.1	6.6	10.8	3.3	6.2
Eat alright?	82	62	71.6	59.7	26.1	33.9	2.3	6.5
Do they:								
Look alright?	89	64	77.5	76.6	18.0	12.5	4.5	10.9
Fit alright?	90	61	77.8	58.9	17.8	24.6	4.4	6.6
Are they painful?	85	65	8.2	7.7	89.4	84.6	2.4	7.7
Any other problems?	5	3	1.5	0.9	0.0	0.0	0.0	0.0

Table IV.33. Percentage distribution of survey subjects having removable false teeth by aspects of functioning. 35-44 year-olds. Hong Kong Survey 1984.

The dissatisfaction with the function of the dentures is also demonstrated in Table IV.34, indicating that 21.3 and 22.9 per cent respectively of the females and males did not feel that they were able to chew better with their false teeth than without them. The appearance and fit of the dentures seem to have been less problematic though almost one fourth of the males reported that the fit of the dentures was not satisfactory.

QUESTION 21E. Can you chew better with your false teeth than without them

	35-44	
	♀	♂
Yes	74.4 (70)*	68.5 (48)
No	21.3 (20)	22.9 (16)
Don't know	4.3 (4)	8.6 (6)
	100.0 (94)	100.0 (70)

Table IV.34. Satisfaction with the masticatory function of dentures. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

** Numbers in parentheses are the number of survey subjects.*

According to the data presented in Table IV.35, more than half of the dentures among the 35-44 year-olds were acquired within the last five years. Table IV.36 shows that more than two thirds of the dentures were delivered by a licensed dentist in private practice. However, 18.5 and 17.2 per cent of the females and males respectively reported that an unlicensed private 'dentist' provided the dentures. The provision of dentures by the government dental services was rather rare. Only 3 respondents were provided with the dentures by the recently established Prince Philip Dental Hospital.

QUESTION 21C. Years you got your false teeth?

	35-44	
	♀	♂
Within the last 3 years	34.1 (29)*	49.2 (30)
Within the last 5 years	50.6 (43)	65.6 (40)
Within the last 10 years	84.7 (72)	88.5 (54)

Table IV.35. Time of acquisition of dentures according to sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

** Numbers in parentheses are the number of survey subjects.*

QUESTION 21D. Was the dentist who made your false teeth.

	35-44	
	♀	♂
Here, at the Prince Philip Dental Hospital	1 1 (1)*	3 1 (2)
At a government clinic	5 4 (5)	9 4 (6)
A licensed dentist in private practice	68 5 (63)	65 6 (42)
An unlicensed dentist in private practice	18 5 (17)	17 2 (11)
Others	6 5 (6)	4 7 (3)
	100 0 (92)	100 0 (64)

Table IV.36. Type of dental practitioner who made the dentures according to sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

When the questionnaire responses to the questions about removable false teeth etc. were analysed according to household income and educational level for the 35-44 year-olds, no statistically significant differences were found between the economic strata. However, the small number of denture wearers made statistical analyses less meaningful. Larger numbers of respondents having false teeth would be necessary for the purpose of defining problems related to denture wearing.

IV.5. SATISFACTION WITH THE CONDITION AND APPEARANCE OF THE TEETH

The survey subjects level of satisfaction with the condition of the gums and the condition and appearance of the teeth is detailed in Tables IV. 37 & 38.

QUESTION 22. Are you satisfied with:

	15-19							
	No of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
The condition of your gums	279	273	50.2	52.7	26 2	31.4	23 7	15.4
The condition of your teeth	278	273	28.8	35.2	56.1	52.4	15 1	12.5
The appearance of your teeth	279	274	22.6	23 0	64.9	66.1	12.5	10 9

Table IV.37. Satisfaction with the condition of gums, teeth and the appearance of teeth according to sex. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 22. Are you satisfied with:

	35-44							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
The condition of your gums	326	326	50.3	43.6	36.2	42.0	13.5	14.4
The condition of your teeth	328	329	30.5	24.0	61.9	64.7	7.6	11.2
The appearance of your teeth	326	329	46.9	34.0	46.9	56.2	6.1	9.7

Table IV.38. Satisfaction with the condition of gums, teeth and the appearance of teeth according to sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

A range, from 43.6 per cent to 52.7 per cent, of the survey subjects of both age groups were satisfied with the condition of their gums. There appears, however, to be a rather strong dissatisfaction with the condition and appearance of the teeth. The self-assessment of the **condition** of the teeth can be judged from the fact that 61.9 and 64.7 per cent of the female and male 35-44 year-olds respectively indicated their dissatisfaction. Similarly 56.1 and 52.4 per cent of the female and male 15-19 year-olds respectively declared their dissatisfaction.

Asked to self-assess the **appearance** of their teeth, approximately two thirds of all the 15-19 year-old survey subjects (64.9 and 66.1 per cent) declared that they were dissatisfied. Likewise 46.9 and 56.2 per cent of the female and male 35-44 year-olds respectively were dissatisfied.

Analyses of the data on the respondents' satisfaction with their teeth, according to household income for both age groups, indicated only that the higher the household income the more satisfied the respondents were with the appearance of their teeth. No significant differences could be found in either age group between the economic strata relative to the satisfaction with the condition of gums and teeth.

When the 35-44 year-old respondents answers to the question about their satisfaction with the condition of their teeth and gums, and their satisfaction with the appearance were analysed according to educational level, no difference between the three educational levels could be found.

IV.6. USE OF PROFESSIONAL SERVICES

IV.6.1. LAST VISIT TO THE DENTIST

The percentage distribution of the responses to the question, "Please indicate when you last visited the dentist" is shown in Table IV.39. Among the 15-19 year-olds, 31.3 and 29.5 per cent females and males respectively, never visited the dentist, whereas among the 35-44 year-old females and males the percentages were 10.0 and 14.0. If the percentages for the respondents, who did not see the dentist within the last 3 years, are added to the percentages for the respondents who either never visited or did not remember having visited the dentist, then it can be deduced that 57.8 and 61.2 per cent of the 15-19 year-old females and males respectively were very rare and sporadic consumers of dental services. Similarly, the percentages for the senior age group were 42.0 and 47.1 respectively.

QUESTION 23. Please indicate when you last visited the dentist:

	15-19		35-44	
	♀	♂	♀	♂
0 - 6 months	16.2	15.5	26.0	23.1
7 - 12 months	9.4	9.6	11.8	10.6
13 - 24 months	13.3	10.7	17.2	15.2
25 - 36 months	3.2	3.0	3.0	4.0
> 36 months	24.1	28.0	31.4	31.6
Never	31.3	29.5	10.0	14.0
Don't remember	2.5	3.7	0.6	1.5
	100.0 (274)*	100.0 (271)	100.0 (338)	100.0 (329)

Table IV.39. Last dental visit by age group and sex. Percentages. Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

Stratification of the respondents by age, according to three household income brackets, demonstrated that income level was a rather strong factor influencing the recency of the last visit to the dentist. Table IV.40 shows that less than one quarter of the 15-19 year-olds, belonging to the lowest and the middle income strata, visited a dentist within the last twelve months, whereas for the highest income group 38.9 per cent paid a visit within the last year. Almost four out of ten of the teenagers belonging to the least privileged group had never visited a dentist, or did

not remember having visited a dentist whereas the percentage for the highest income group was 23.6.

QUESTION 23. Please indicate when you last visited a dentist:

	Household income (HK dollars)		
	0 - 3999	4000 - 7999	8000+
0 - 12 months	22.2	23.9	38.9
0 - 24 months	29.9	40.0	50.0
> 36 months ago including those who never visited or don't remember	66.7	57.0	44.4
Never been to the dentist or don't remember	39.3	34.1	23.6

Table IV.40. Last dental visit by monthly household income. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 23. Please indicate when you last visited a dentist:

	Household income (HK dollars)		
	0 - 3999	4000 - 7999	8000+
0 - 12 months	31.6	33.0	43.7
0 - 24 months	47.7	50.5	61.1
> 36 months ago including those who never visited or don't remember	50.4	46.3	33.6
Never been to the dentist or don't remember	18.1	13.3	9.6

Table IV.41. Last dental visit by monthly household income. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

Table IV.41 shows that less than one out of three 35-44 year-olds, belonging to the lowest and middle income groups, had visited a dentist within the last year. For the three income levels, 18.1, 13.3, and 9.6 per cent of the 35-44 year-olds respectively, never visited a dentist or did not recall having been to a dentist.

IV.6.2. REASONS FOR THE LAST VISIT TO THE DENTIST

Tables IV.42 & 43 show the percentage distribution, according to age and sex, of the survey subjects' stated reasons for the last visit to the dentist.

QUESTION 24. What was your reason for visiting the dentist:

	15-19							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
I had no complaint - I just went for a check up	184	190	21.7	23.2	75.5	75.8	2.7	1.1
I had toothache	184	189	33.2	34.4	65.8	64.6	1.1	1.1
I had a broken tooth	184	191	46.7	39.8	52.2	59.2	1.1	1.0
I had a broken filling	183	189	11.5	5.8	85.2	93.7	3.3	0.5
I had problem with my gums	182	190	6.0	14.2	91.2	84.7	2.7	1.1
To get false teeth or have them adjusted	183	188	1.6	1.6	97.9	97.8	2.2	0.5
For tooth extraction	189	187	33.3	37.4	64.0	60.4	2.6	2.1
To get my teeth straightened	177	185	1.7	2.2	93.2	91.9	5.1	5.9
Other reasons	23	8	8.0	2.9	---	---	---	---

Table IV.42. Reasons for last dental visit according to sex. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 24. What was your reason for visiting the dentist:

	35-44							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
I had no complaint - I just went for a check up	285	262	22.5	22.9	77.5	76.0	0.0	1.1
I had toothache	290	266	42.4	48.5	57.2	50.8	0.3	0.8
I had a broken tooth	282	267	40.8	46.8	58.2	52.4	1.1	0.7
I had a broken filling	281	262	24.6	24.0	74.0	74.8	1.4	1.1
I had problem with my gums	283	260	14.1	20.0	84.8	77.3	1.1	2.7
To get false teeth or have them adjusted	281	262	20.6	14.9	78.3	82.8	1.1	2.3
For tooth extraction	281	261	23.8	29.1	74.7	70.1	1.4	0.8
To get my teeth straightened	279	253	0.0	0.8	98.2	98.0	1.8	1.2
Other reasons	14	30	4.1	8.9	---	---	---	---

Table IV.43. Reasons for last dental visit according to sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

Visiting the dentist on a preventive basis, i.e. 'I just went for a check up', was stated by 21.7 and 23.2 per cent of the 15-19 year-old females and males respectively. For the 35-44 year-olds, the percentages were 22.5 and 22.9 per cent respectively. Comparing Table IV.42 and Table IV.43, it can be deduced that only a modest number of respondents from both age groups visited the dentist on a regular and preventive basis. Only when something was wrong, such as toothache, a broken tooth or filling, did the majority, i.e. close to 80 per cent of the respondents, feel a need for the dentist's services.

Tables IV.42 & 43 demonstrate that the respondents postponed their visit to the dentist until alarming symptoms such as toothache appeared.

The visiting pattern and the underlying behaviour of the respondents in both age groups seemed to be rather symptomatic. It is noteworthy that, both for the recency of visits to the dentist and the reasons for the visits, only very modest differences between the two sexes can be observed.

QUESTION 24. What was YOUR REASON for visiting the dentist.

	Household income (HK dollars)		
	0 - 3999	4000 - 7999	8000+
I had no complaint - I just went for a check-up	16.2	22.3	40.7
For tooth extraction	43.2	36.2	20.8

Table IV.44. Reasons for last dental visit by monthly household income. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 24. What was YOUR REASON for visiting the dentist

	Household income (HK dollars)		
	0 - 3999	4000 - 7999	8000+
I had no complaint - I just went for a check-up	13 0	17 1	39 9
I had toothache	54 3	49 4	32 9
I had a broken tooth	51 6	48 4	28 4
I had problems with my gums	24 2	15 0	14 6

Table IV.45. Reasons for last dental visit by monthly household income. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

Analyses of the responses to the reasons for the last visit to a dentist, according to household income, as illustrated in Tables IV.44 & 45, clearly demonstrate that income stratification produced statistically significant differences for both age groups especially relative to preventive visiting behaviour. Approximately three times as many respondents from the highest income group reported to have visited a dentist for a check-up than respondents from the lowest income group. This was the case for both age groups.

It was also found that more than double the number of the 15-19 year-old respondents in the lowest income group, as compared to the highest income respondents, reported to have visited a dentist for tooth extraction.

For the 35-44 year-old survey subjects, the picture was somewhat different from that of the 15-19 year-olds. Statistically significant differences between the income groups of the 35-44 year-olds were found for toothache, broken tooth and problems with the gums as can be seen from Table IV.45. More than half of the respondents from the lowest income group of the 35-44 year-olds reported to have visited the dentist because of toothache, whereas 32.9 per cent of the respondents belonging to the highest income group reported toothache to be the reason for the last visit.

It is noteworthy that almost one fourth of the lowest income group of the 35-44 year-olds, reported to have visited the dentist because of gum problems, whereas 14.6 per cent of the most economically privileged respondents stated this reason.

IV.6.3. DENTAL SERVICES RECEIVED

Tables IV.46 & 47 are accounts of the type of service received by respondents, from both age groups, during their last visit to the dentist.

QUESTION 25. At the last visit, what did the dentist do:

	15-19							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
x-rays	187	191	11.8	14.7	84.5	82.7	3.7	2.6
Tooth cleaning/scaling	191	194	29.3	32.0	67.5	65.5	3.1	2.6
Teach you how to brush your teeth	188	193	19.7	25.4	78.2	72.5	2.1	2.1
Gum surgery	188	192	3.2	4.2	94.1	94.3	2.7	1.6
Fillings, crowns, root canal treatment	188	193	37.2	32.1	59.0	65.8	3.7	2.1
Extraction of teeth	192	193	40.1	43.0	57.8	54.9	2.1	2.1
Make new dentures or adjust them	185	192	0.5	1.6	96.8	95.8	2.6	2.6
Straighten the teeth	185	192	2.2	4.2	93.5	90.1	4.3	5.7
Just a check-up	185	189	31.7	32.3	63.2	63.5	4.9	4.2
Other	5	4	1.7	1.4	---	---	---	---

Table IV.46. Dental services received at the last dental visit according to sex. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 25. At the last visit, what did the dentist do:

	35-44							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
x-rays	293	270	28.3	26.3	71.3	73.0	0.3	0.7
Tooth cleaning/scaling	295	276	38.0	46.7	61.4	52.5	0.7	0.7
Teach you how to brush your teeth	293	267	19.8	16.1	79.5	83.1	0.7	0.7
Gum surgery	294	266	2.7	4.5	96.3	94.4	1.0	1.1
Fillings, crowns, root canal treatment	296	272	45.3	43.0	54.1	56.3	0.7	0.7
Extraction of teeth	295	270	36.3	38.1	63.1	61.5	0.7	0.4
Make new dentures or adjust them	292	270	19.5	15.5	80.1	83.3	0.3	1.1
Straighten the teeth	291	264	0.3	2.7	97.9	96.2	1.7	1.1
Just a check-up	288	269	27.4	31.6	72.2	66.9	0.3	1.5
Other	10	4	2.9	1.2	---	---	---	---

Table IV.47. Dental services received at the last dental visit according to sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

The most frequent type of services received were extraction of teeth and restorative treatment, such as fillings, crowns, and root canal therapy.

Though there appears to be some differences between the types of services delivered to the age groups, the main characteristics were, that the average service program was centered around emergency treatment; it was symptomatic in nature and not preventively orientated.

For the 15-19 year-olds, household income did not appear to be an influential differential in the dental care received at the last visit, except for check-ups which were received by a larger proportion of the respondents belonging to the highest income group. The teenagers from the highest income group appear to have received more oral hygiene instruction, whereas the lowest income group had more teeth extracted. However, this was only a trend and only approached statistical significance.

Household income was a more influential differential for the treatment program received by the 35-44 year-olds. Table IV.48 shows that the higher the income level, the more that check-up and tooth cleaning/scaling became an important part of the treatment program, whereas for the lower the income level, tooth extraction was a conspicuous part of the dental care program.

Analysis of the 35-44 year-olds responses, according to educational level, showed that the less educated had proportionately more extractions of teeth than had respondents belonging to the higher educational level.

QUESTION 25. At this last visit, what did THE DENTIST DO:

	Household income (HK dollars)		
	0 - 3999	4000 - 7999	8000+
Tooth cleaning/scaling	32.5	40.3	53.7
Extraction of teeth	48.4	41.7	20.8
Just a check-up	16.9	28.5	43.8

Table IV.48. Dental services received at the last dental visit by monthly household income. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

IV.6.4. TYPE AND LOCATION OF DENTIST VISITED

Queried about what sort of dentist the respondents consulted at their last visit, they responded as shown in Table IV.49.

QUESTION 26A. At this last visit, was the dentist:

	15-19		35-44	
	♀	♂	♀	♂
Here, at the Prince Philip Dental Hospital	10.4	10.0	5.7	2.8
At a government clinic	17.1	17.4	11.0	12.7
A licensed dentist in private practice	58.0	57.4	63.0	68.6
An unlicensed dentist in private practice	8.3	6.3	13.3	9.2
Other	4.1	6.3	6.7	6.0
Don't know	2.1	2.6	0.3	0.7
	100.0 (193)*	100.0 (190)	100.0 (300)	100.0 (284)

Table IV.49. Type of dental practitioner consulted at the last visit by age group and sex. Percentages. Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

More than half of the respondents in both age groups visited a licensed dentist in private practice.

Visits to government dental clinics were made by about 17 per cent of the 15-19 year-olds and by about 12 per cent of the 35-44 year-olds.

In spite of the rather recent addition of the Prince Philip Dental Hospital to the Hong Kong delivery system, only about one out of ten 15-19 year-olds consulted this institution. Likewise, only 5.7 and 2.8 per cent of the females and males respectively in the 35-44 year age bracket were seen by staff or students at the new dental hospital.

Visits to unlicensed dentists in private practice had been made by quite a few respondents; 13.3 per cent of the 35-44 year-old females indicated that they had visited an unlicensed dentist. Whilst household income did not influence the choice of dentist among the teenagers it had a statistically significant effect for the 35-44 year-olds.

Table IV.50 shows that almost 3 out of four respondents from the highest income group reported to have consulted a licensed dentist in private practice whereas 20.6 per cent of the lower income group visited an unlicensed dentist. Likewise it was

found that the 35-44 year-olds belonging to the less educated group of respondents visited an unlicensed dentist in greater number than did the higher education groups.

QUESTION 26A. At this last visit, was the dentist:

	Household income (HK dollars)		
	0 - 3999	4000 - 7999	8000+
Here, at the Prince Philip Dental Hospital	7.9	3.3	3.2
At a government clinic	10.3	11.4	4.3
A licensed dentist in private practice	54.0	67.2	72.7
An unlicensed dentist in private practice	20.6	12.5	2.6
Other and don't know	7.1	5.6	7.1
	99.9	100.0	99.9

Table IV.50. Type of dental practitioner consulted at the last visit by monthly household income. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

The last visit to the dentist occurred in Hong Kong for the vast majority of respondents in both age groups.

According to Table IV.51 more than nine out of ten visited a dentist in Hong Kong whereas between 3.1 and 6.3 per cent went to China to consult a dentist.

Only respondents from the lower income groups appear to have consulted dentists in China.

QUESTION 26B. Was this last visit to a dentist:

	15-19		35-44	
	♀	♂	♀	♂
In Hong Kong	96.4	95.4	91.1	91.5
In China	3.1	4.1	6.3	4.6
In another country	0.5	0.5	2.6	3.9
	100.0 (194)*	100.0 (195)	100.0 (302)	100.0 (283)

Table IV.51. Dental practitioner's practice location by age group and sex. Percentages. Hong Kong Survey 1984.

IV.6.5. ACCESSIBILITY AND AVAILABILITY OF DENTAL SERVICES

Tables IV.52 & 53 show the respondents reactions to a query about aspects on the availability and accessibility of dental services.

QUESTION 27. At your last visit to the dentist:

	15-19							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Was the dentist too far away?	194	195	13.4	19.0	83.5	75.9	3.1	5.1
Were you able to get off work?	173	176	69.4	66.3	4.0	5.8	26.6	27.9
Were you able to get an appointment at a time that suited you?	192	190	82.3	74.7	11.5	11.6	6.3	13.7
On arrival, did you have to wait for a long time?	194	195	25.3	22.1	69.2	71.3	5.2	6.7
Was the treatment too expensive?	193	194	25.4	25.3	52.8	58.8	21.8	16.0

Table IV.52. Perceived accessibility and availability of dental services according to sex. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 27. At your last visit to the dentist:

	35-44							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
Was the dentist too far away?	296	284	21.3	25.7	78.4	73.2	0.3	1.1
Were you able to get off work?	225	262	82.7	85.5	8.9	10.3	8.4	4.2
Were you able to get an appointment at a time that suited you?	292	280	86.3	82.5	12.3	15.4	1.4	2.1
On arrival, did you have to wait for a long time?	296	281	24.7	27.0	73.6	71.5	1.7	1.4
Was the treatment too expensive?	297	277	43.1	43.3	50.8	50.2	6.1	6.5

Table IV.53. Perceived accessibility and availability of dental services according to sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

Generally it was not felt by either the teenagers or the 35-44 year-olds that the dentist they consulted at their last visit was too far away.

More than two thirds of the teenagers were able to get off work when they were about to visit the dentist. The rather large percentage of teenagers who indicated 'don't know' was probably due to the fact that many were still attending an educational institution.

Respondents from both age groups appeared to have no problems relative to obtaining an appointment at a time suitable to them.

Waiting time in the dentists' clinic did not appear to pose a problem for most of the respondents, in as much as approximately 7 out of 10 respondents from both age groups, reported that waiting time on arrival was not too long.

The cost of the dental services was found, not to be too expensive, by more than half of the teenagers. However, the data on the cost factor for the teenagers have to be interpreted cautiously because a substantial number of the teenagers dental bills were probably paid by their parents.

Treatment was considered to be too expensive by approximately four out of ten 35-44 year-olds.

Both for the teenagers and the 35-44 year-olds, household income did not appear to be an influential factor relative to most of the aspects of availability and accessibility into which the questions probed. Only for the 35-44 year-olds belonging to the lowest income group did the possibility of getting off from work appear to be a problem.

IV.6.6. SATISFACTION WITH SERVICES RECEIVED

The respondents' satisfaction with the treatment received at the last visit to a dentist is shown in Table IV.54.

QUESTION 28. At the last visit, were you satisfied with the treatment you received?

	15-19		35-44	
	♀	♂	♀	♂
Very satisfied	9.7	7.7	11.1	10.8
Satisfied	69.2	83.0	64.4	68.2
Not satisfied	20.5	9.3	24.5	21.0
Don't know	0.5	---	---	---
	100.0 (195)*	100.0 (194)	100.0 (298)	100.0 (286)

Table IV.54. Satisfaction with treatment received at the last visit by age group and sex. Percentages. Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

A range, from 64.4 to 83.0 per cent, of the respondents were satisfied but only a modest few were very satisfied with the treatment received.

Dissatisfaction was expressed by between 9.3 and 24.5 per cent of the respondents from both age groups.

Among the teenagers, the degree of satisfaction was not significantly influenced by the household income factor. However, for the 35-44 year-olds, statistically significant differences in the degree of satisfaction were found between household income groups.

Table IV.55 illustrates the stratification of satisfaction between household income groups.

QUESTION 28. At the last visit, were you satisfied with the treatment received:

	Household income (HK dollars)		
	0 - 3999	4000 - 7999	8000+
Very satisfied	10.9	5.5	19.2
Satisfied	59.4	73.1	60.9
Not satisfied	29.7	21.4	19.9
	100.0	100.0	100.0

Table IV.55. Satisfaction with treatment received at the last visit by age group and sex. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

The highest income group reported to be very satisfied more often than lower income group whereas the lowest income group reported dissatisfaction more frequently. Similarly the 35-44 year-old respondents belonging to the least educated group reported that they had not been satisfied with the treatment provided at their last visit to the dentist.

IV.6.7. REASONS FOR NOT VISITING THE DENTIST

The respondents from both age groups who reported that they never visited a dentist were exposed to Question 29, which was a multiple response question including ten statements of reasons for never visiting the dentist.

Tables IV.56 & 57 show the distribution of the two age groups' reactions to Question 29.

QUESTION 29. Which reasons below explain why you have never visited the dentist:

	15-19							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
I have no dental problem	88	80	46.6	50.0	35.2	30.0	18.2	20.0
I'm afraid of the pain	88	79	27.3	13.9	71.6	81.0	1.1	5.1
I'm afraid of the dentist	87	79	13.8	10.1	85.1	86.1	1.1	3.8
It's too expensive	88	79	34.1	39.2	58.0	50.6	8.0	10.1
It's too far to go	88	79	6.8	6.3	85.2	83.5	8.0	10.1
I haven't time	88	79	13.6	29.1	81.8	63.3	4.5	7.6
I'm unable to get off work	87	79	5.7	16.5	88.5	82.3	5.7	1.3
Waiting time to see dentist is too long	86	79	25.6	30.4	54.7	46.8	19.8	22.8
A dentist cannot help my dental problems	87	78	1.1	3.8	85.1	80.8	13.8	15.4
Other reasons	4	5	1.4	1.8	---	---	---	---

Table IV.56. Reasons for not visiting the dentist. Percentages. 15-19 year-olds. Hong Kong Survey 1984.

QUESTION 29. Which reasons below explain why you have never visited the dentist:

	35-44							
	No. of Respondents		Yes		No		Don't Know	
	♀	♂	♀	♂	♀	♂	♀	♂
I have no dental problem	36	47	72.2	53.2	22.2	40.4	5.6	6.4
I'm afraid of the pain	36	46	22.2	8.7	75.0	91.3	2.8	0.0
I'm afraid of the dentist	36	45	16.7	2.2	80.6	95.6	2.8	2.2
It's too expensive	36	46	30.6	32.6	66.7	58.7	2.8	8.7
It's too far to go	36	46	2.8	6.4	94.4	84.8	2.8	8.7
I haven't time	36	46	38.9	40.4	58.3	59.6	2.8	0.0
I'm unable to get off work	36	46	13.9	10.9	83.3	89.1	2.8	0.0
Waiting time to see dentist is too long	35	46	28.6	23.9	68.6	63.0	2.9	13.0
A dentist cannot help my dental problem	36	46	2.8	8.7	91.7	82.6	5.6	8.7
Other reasons	0	2	0.0	0.6	---	---	---	---

Table IV.57. Reasons for not visiting the dentist. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

The most frequent reason given by the respondents in both age groups was: "I have no dental problem." Close to half of the teenagers stated that they had had no dental problems up to the time of the inquiry, whereas almost three out of four females aged 35-44 and more than half of the males aged 35-44, stated they had had no dental problems.

Approximately one third of the teenagers and the senior respondents felt that cost of the dental services was a problem which may have acted as a barrier to their seeking dental care. There appears to have been some concern by respondents from both age groups, that the "waiting time to see the dentist is too long". More than one third of the 35-44 year-olds indicated that they did not have time available to see the dentist.

Fear of pain and fear of the dentist were not important factors precluding the male respondents from both age groups, in seeking the assistance of a dentist. However, fear of pain was more common among the females of both age groups, and reached 27.3 and 22.2 per cent respectively for the teenagers and the 35-44 year-olds.

It is noteworthy that rather few, in both age brackets, stated that they believed that the dentist could not help with their dental problems.

Household income, as an economic indicator, did not have a significant impact on the distribution of responses to Question 29.

QUESTION 29. Dental care is too expensive:

	Household income (HK dollars)		
	0 - 3999	4000 - 7999	8000+
Yes	55.2	25.0	7.1
No	44.8	66.7	85.7
Don't know		8.3	7.1
	100.0	100.0	99.9

Table IV.58. Cost as a perceived barrier in seeking dental care by monthly household income. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

Table IV.58 shows that more than half of the 35-44 year-olds belonging to the low income group, as compared to a modest 7.1 per cent of those in the highest income group, felt that cost was an important barrier in their seeking of dental care.

V. SURVEY FINDINGS - CLINICAL DATA

V.1. TEETH PRESENT AND TEETH MISSING

Tables V.1 & 2 contain data illustrating the presence of permanent teeth at the time of the clinical examination for both age groups according to sex.

Percentage of survey subjects having	AGE					
	15-19			35-44		
	♀	♂	♀ + ♂	♀	♂	♀ + ♂
No natural teeth	0.0	0.0	0.0	0.0	0.0	0.0
1-20 natural teeth	0.0	0.0	0.0	6.2 (21)	2.4 (8)	4.3 (29)
≥ 21 natural teeth	100.0 (286)*	100.0 (277)	100.0 (563)	93.8 (319)	97.6 (328)	95.7 (647)
Total	100.0 (286)	100.0 (277)	100.0 (563)	100.0 (340)	100.0 (336)	100.0 (676)

Table V.1. Dental status by age group and sex. Percentages.
Third molars included.
Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

Average no. of permanent teeth present	AGE					
	15-19			35-44		
	♀	♂	♀ + ♂	♀	♂	♀ + ♂
Including third molars	28.0	28.4	28.2	27.1	27.9	27.5
Excluding third molars	27.5	27.6	27.6	24.8	25.3	25.0

Table V.2. Mean number of permanent teeth by age group and sex.
Hong Kong Survey 1984.

It is obvious from these two accounts that loss of permanent teeth among the 15-19 year-olds was a negligible dental health problem. None of the teenagers had less than 21 permanent teeth present and on average, both sexes had 28.2 and 27.6 permanent teeth present when third molars were included and excluded respectively. For the 35-44 year-olds, the tooth mortality situation was remarkable, considering the fact that none of the survey subjects in this middle age group of Hong Kong Chinese was found to be edentulous. A modest 4.3 per cent, i.e. 29 persons out of 676 examinees in the 35-44 age bracket had less than 21 permanent teeth. On average, the 35-44 year-olds had 27.5 and 25.0 permanent teeth present when third molars were included and excluded respectively.

When the data on the average number of permanent teeth present were redistributed according to household income, as shown in Table V.3, it became apparent that economic stratum had no major impact on the loss of permanent teeth.

Household income (HK dollars)	AGE					
	15-19			35-44		
	♀	♂	♀ + ♂	♀	♂	♀ + ♂
0 - 3999	27.9	28.3	28.1	26.8	27.6	27.2
4000 - 7999	27.8	28.2	28.0	27.1	27.9	27.5
8000+	27.7	28.1	27.9	27.3	28.1	27.7

Table V.3. Mean number of permanent teeth by age group, sex and monthly household income. Third molars included.
Hong Kong Survey 1984.

Analyses of the distribution of missing teeth for the 35-44 year-old examinees were performed. The term 'missing' in this age group is interpreted to mean extraction due to either caries, periodontal disease, or for prosthetic reasons. In the case of third molars, 'missing' means not present, for reasons including congenital absence, non-eruption, or extraction for any reason. The problem congenital absence must also be taken into account when interpreting the data in relation to missing second premolars and upper lateral incisors.

Fig. V.1 gives a graphic representation of all teeth scored as missing, including third molars. The tooth type most commonly missing was the lower first molar, with just about twice as many lower first molars compared to upper first molars being absent. More lower second molars than upper second molars were missing. For premolars, canines and incisors more teeth were missing in the maxillary as compared to the mandibular arch. The tooth least commonly missing was the lower canine.

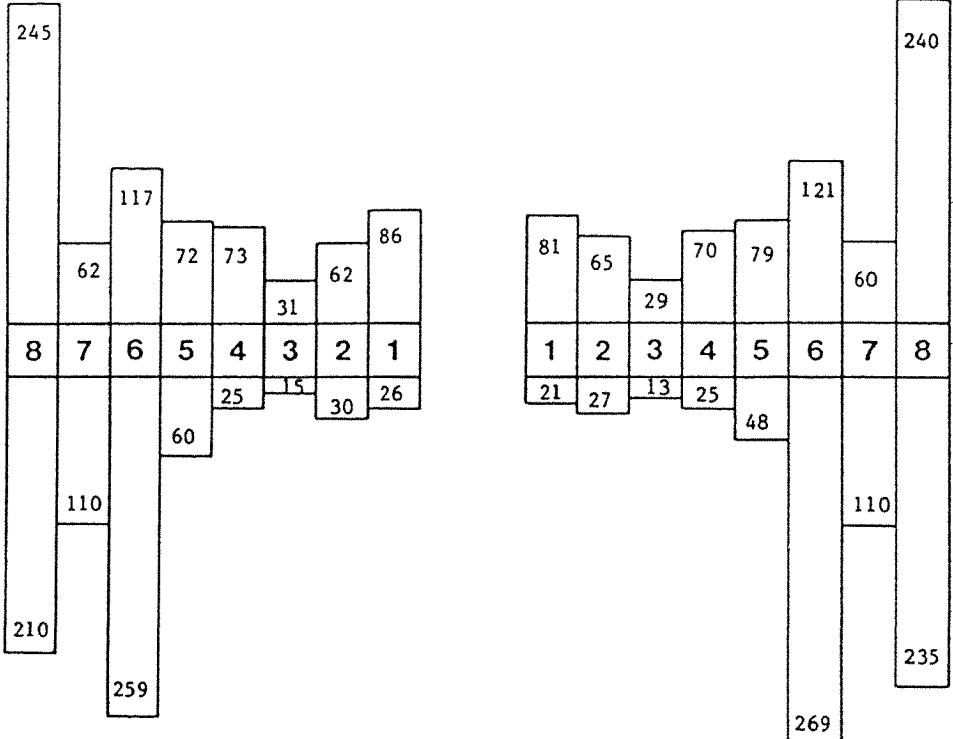


Fig. V.1. Missing teeth by type of tooth. 35-44 year-olds. Hong Kong Survey 1984.

V.2. DENTAL CARIES

Tables V.4 & 5 show the dental caries prevalence and the dental caries experience expressed in terms of DMF-T. Tables V.4 & 5 present the dental caries data when the third molars were included and excluded respectively.

		AGE					
		15-19			35-44		
		♀	♂	♀ + ♂	♀	♂	♀ + ♂
Number examined		286	277	563	340	336	676
Number of examinees having dental caries		163	155	318	303	303	606
Percentage of examinees having one or more DMF-T		57	56	56.5	89.1	90.2	89.6
Mean number of:	Decayed teeth D	0.5	0.7	0.6	0.8	1.0	1.0
	Missing teeth M	0.2	0.2	0.2	3.0	2.5	2.7
	Filled teeth F	0.8	0.9	0.9	4.1	3.0	3.5
	Filled teeth with primary decay	0.00	0.02	0.01	0.09	0.04	0.06
	Filled teeth with secondary decay	0.01	0.03	0.02	0.06	0.07	0.06
	DMF-T	1.6	1.8	1.7	8.0	6.5	7.3

Table V.4. Dental caries prevalence and experience by age group and sex. Third molars included. Hong Kong Survey 1984.

		AGE					
		15-19			35-44		
		♀	♂	♀ + ♂	♀	♂	♀ + ♂
Number examined		286	277	563	338	336	676
Number of examinees having dental caries		163	155	318	300	299	599
Percentage of examinees having one or more DMF-T		57	56	56.5	88.2	89	88.6
Mean number of:	Decayed teeth D	0.5	0.6	0.6	0.7	0.8	0.8
	Missing teeth M	0.2	0.2	0.2	3.0	2.5	2.7
	Filled teeth F	0.8	0.9	0.9	3.6	2.6	3.1
	Filled teeth with primary decay	0.00	0.02	0.01	0.05	0.04	0.05
	Filled teeth with secondary decay	0.01	0.03	0.02	0.05	0.06	0.06
	DMF-T	1.6	1.7	1.7	7.4	6.0	6.7

Table V.5. Dental caries prevalence and experience by age group and sex. Third molars excluded. Hong Kong Survey 1984.

The dental caries prevalence expressed as the percentage of the survey population having one or more DMF-T was 56.5 and 89.6 for the 15-19 and the 35-44 year-olds respectively when third molars were included. Excluding the third molars, the percentages were 56.5 and 88.6 respectively. The mean number of DMF-T was 1.7 and 7.3 respectively for the 15-19 and the 35-44 year-olds when third molars were included whereas the DMF-T was 1.7 and 6.7 respectively when third molars were excluded. There appeared to be no variation according to sex in the mean number of DMF-T among the teenagers, whereas the DMF-T mean was higher for the female 35-44 year-olds as compared to their male counterparts. It should be noted, however, that the M-component included missing permanent teeth due to causes other than dental caries. The inflated M-component has led, therefore, to an over-all increase of the DMF-T Index especially for the 35-44 year-olds.

The proportional composition of the DMF-T Index is given in in Tables V.4 & 5. Fig. V.2 is a graphical illustration of the various components of the DMF-T, including a differentiation between the 35-39 and the 40-44 year-olds.

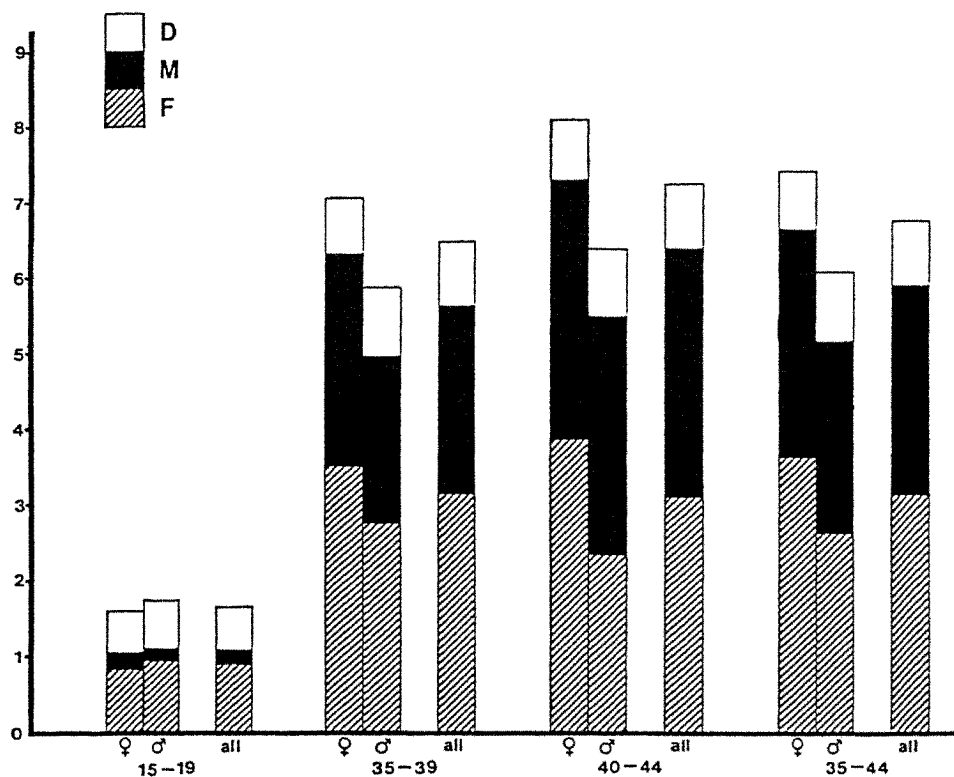


Fig.V.2. The DMFT index and its composition by age and sex. Hong Kong Survey 1984

Less than one permanent tooth on average per examinee irrespective of age exhibited untreated dental decay. Proportionately, the F components were substantially larger than both the D and the M components in both age groups, which indicates that dental caries treatment needs were relatively low for both these groups. The mean number of filled teeth with either primary or secondary decay was extremely low in both age groups. The dental caries experience in terms of the mean number of DMF-T was higher among the 35-44 year-old females as compared to their male counterparts. The female 35-44 year-olds had, on average, relatively more filled and missing teeth than the male 35-44 year-olds.

Fig. V.3 is a graphical representation of the cumulative relative frequency distribution of DMF-T for both age groups.

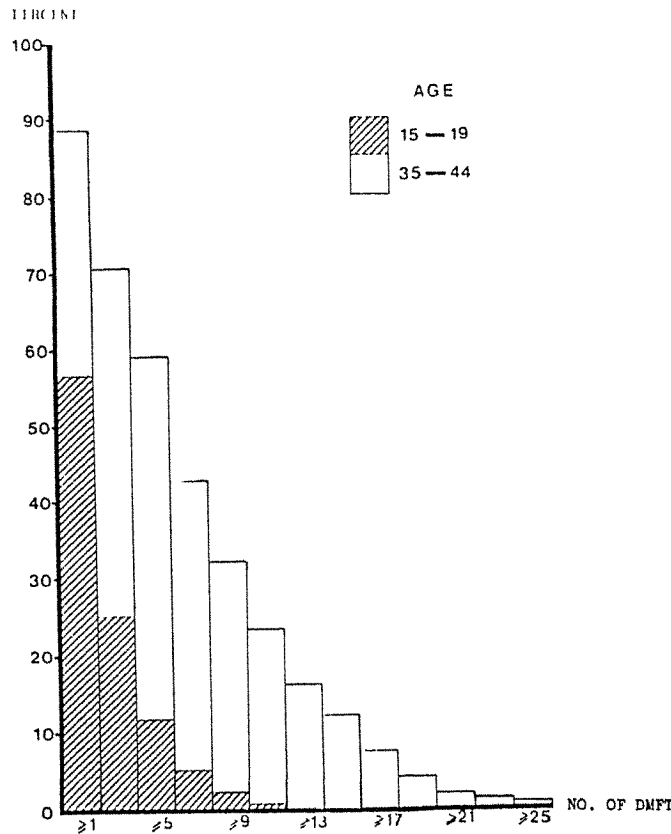


Fig.V.3. Cumulative frequency distribution of the DMFT index by age. Hong Kong Survey 1984.

The cumulative relative frequency distribution demonstrates that a modest 12 per cent of the teenagers had 5 or more DMF-T and that a negligible proportion had 12 or more DMF-T. For the 35-44 year-olds, who did not receive waterborne fluoride during the developmental period of the permanent dentition, the cumulative relative frequency distribution shows that around 16 per cent had 13 or more DMF-T.

Tables V.6 & 7 are distributions of the DMF data according to household income for the age groups.

Household income	Number examinees	Percentage examinees	Percentage clinically caries-free	Average number of permanent teeth:			
				D	M	F	DMF
0 - 3999	123	30.4	45.5	0.7	0.1	0.7	1.5
4000 - 7999	209	51.7	43.1	0.6	0.2	1.0	1.8
8000+	72	17.9	36.1	0.5	0.3	1.4	2.2
All examinee	404	100.0	42.6	0.6	0.2	1.0	1.8

Table V.6. Dental caries experience by monthly household income. Third molars included. 15-19 year-olds. Hong Kong Survey 1984.

Household income	Number examinees	Percentage examinees	Percentage clinically caries-free	Average number of permanent teeth:			
				D	M	F	DMF
0 - 3999	159	24.9	10.7	1.5	3.0	2.7	7.2
4000 - 7999	311	48.7	9.6	1.0	2.7	3.2	7.0
8000+	169	26.4	10.7	0.6	2.5	4.7	7.8
All examinee	639	100.0	10.2	1.0	2.7	3.5	7.2

Table V.7. Dental caries experience by monthly household income. Third molars included. 35-44 year-olds. Hong Kong Survey 1984.

A weak trend towards moderately higher DMF-T values for the highest income group is apparent. The F components also appear to be higher for the economically more privileged survey subjects. However, the general impression was, that household income did not exert a major impact on the dental caries status for the two age groups.

Fig. V.4. is a graphic representation showing the dental caries attack rate for each permanent tooth pooled and averaged for both sides of the jaws and depicted for both age groups. As expected for a water-fluoridated area, the teeth most frequently attacked by dental caries were teeth with pits and/or fissures. The first and second permanent molars in the upper and lower jaws for both age groups had the highest attack rate. For the 15-19 year-olds who had been exposed to waterborne fluoride during the whole time period of tooth formation, mineralization and maturation, the anterior permanent teeth were affected very little by dental caries.

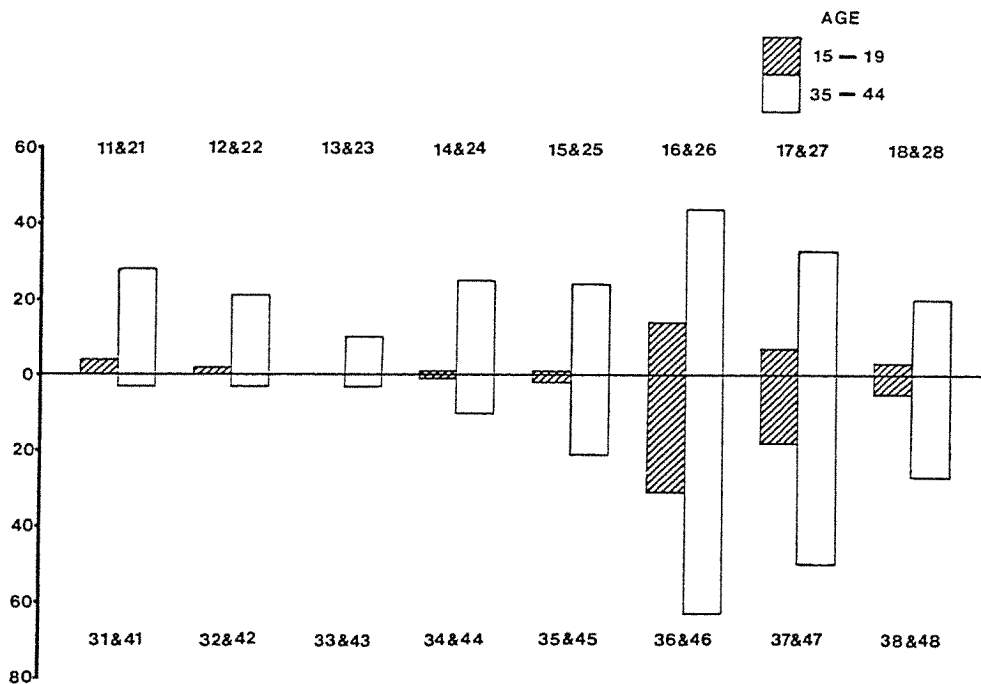


Fig. V.4. Dental caries attack rates according to age and type of permanent tooth.
Hong Kong Survey 1984.

When the survey subjects responses to queries about their susceptibility to tooth decay and toothache were cross-tabulated with their dental caries experience, it can be seen from Tables V.8 and V.9 that respondents who perceived that it was likely that they would get tooth decay or toothache also had the highest average number of DMF-T. This correlation was found to be highly significant ($p < 0.001$).

Q9. During the next five years, do you think you will get tooth decay

		AGE			
		15-19.		35-44	
		LIKELY	NOT LIKELY	LIKELY	NOT LIKELY
Number examined		337	121	557	69
Average number of	Decayed teeth D	0.8	0.3	1.1	0.4
	Missing teeth M	0.2	0.1	2.9	1.9
	Filled teeth F	1.1	0.6	3.7	3.0
	DMF-T	2.1	1.0	7.7	5.3

Table V.8. Dental caries experience by age group and perceived susceptibility to tooth decay.
Hong Kong Survey 1984.

Q9. During the next five years, do you think you will get toothache

		AGE			
		15-19		35-44	
		LIKELY	NOT LIKELY	LIKELY	NOT LIKELY
Number examined		328	134	532	79
Average number of	Decayed teeth D	0.8	0.2	1.1	0.4
	Missing teeth M	0.3	0.1	2.9	2.1
	Filled teeth F	0.9	0.9	3.5	3.9
	DMF-T	2.0	1.3	7.5	6.4

Table V.9. Dental caries experience by age group and perceived susceptibility to toothache.
Hong Kong Survey 1984.

Table V.10 reflects that among the 15-19 year-olds, those who had between-meal-snacks three times or more the day before the inquiry, had a significantly higher average number of DMF-T ($p < 0.02$).

Q18B. Yesterday, how many times did you have between-meal snacks:

	Number examinees	Percentage examinees	Average number of permanent teeth			
			D	M	F	DMF-T
None	215	38.7	0.5	0.1	0.7	1.4
Once/twice	247	44.4	0.6	0.2	1.0	1.8
Three times or more	94	16.9	0.8	0.3	1.0	2.1
All examinees	556	100.0	0.6	0.2	0.9	1.7

Table V.10. Dental caries experience by frequency of between-meal-snacks. Third molars excluded. 15-19 year-olds. Hong Kong Survey 1984.

As can be seen from Table V.11, the respondents who were least satisfied with the condition of their teeth, had considerably higher DMF-T averages ($p < 0.001$).

Respondents who reported that they had never visited the dentist because they did not have a dental problem were found to have a noteworthy lower average number of DMF-T (Table V.12). The 15-19 and the 35-44 respondents had an average DMF-T of 0.4 and 1.5 respectively as compared to the DMF-T values of 1.7 and 7.3 for the same age groups who had visited a dentist on one or more occasions (Tables V.13 & V.14). This correlation was found to be highly significant ($p < 0.001$).

Q22. Are you satisfied with the condition of your teeth:

		AGE			
		15-19		35-44	
		YES	NO	YES	NO
Number examined		179	299	179	416
Average number of	Decayed teeth D	0.3	0.9	0.5	1.2
	Missing teeth M	0.1	0.2	1.9	3.2
	Filled teeth F	0.8	1.0	3.0	3.7
	DMF-T	1.2	2.1	5.4	8.1

Table V.11. Dental caries experience by age group and satisfaction with the condition of teeth. Hong Kong Survey 1984.

Q29. I have never visited the dentist and I have no dental problem

		AGE					
		15-19			35-44		
		♀	♂	♀ + ♂	♀	♂	♀ + ♂
Number examined		41	40	80	26	25	51
Average number of:	Decayed teeth D	0.2	0.4	0.3	0.6	0.6	0.6
	Missing teeth M	0	0.02	0.01	0.7	0.4	0.6
	Filled teeth F	0.1	0	0.04	0.2	0.5	0.3
	DMF-T	0.3	0.4	0.4	1.5	1.5	1.5

Table V.12. Dental caries experience of the survey subjects who had never visited the dentist and who reported that they had no dental problem by age group and sex. Hong Kong Survey 1984.

Tables V.13 & 14 are cross-tabulations showing recency of the last visit to the dentist and the DMF-T Index.

Last visit to dentist	Number of examinees	Percentage of examinees	Mean number of permanent teeth				
			present	D	M	F	DMF
≤ 12 months	139	25.3	27.9	0.5	0.3	2.2	3.0
> 12 months	410*	74.7	28.3	0.6	0.1	0.5	1.2
≤ 24 months	205	37.3	27.9	0.6	0.4	2.0	2.9
> 24 months	344*	62.7	28.4	0.6	0.1	0.3	1.0
≤ 36 months	222	40.4	27.9	0.6	0.4	1.9	2.9
> 36 months	327*	59.6	28.4	0.6	0.1	0.2	0.9
All examinees	549**	100.0	28.2	0.6	0.2	0.9	1.7

Table V.13. Mean number of permanent teeth present and dental caries experience by recency of last dental visit. Third molars included. 15-19 year-olds. Hong Kong Survey 1984.

* Survey subjects who did not remember or who had never visited a dentist are included.

** 14 survey subjects did not respond.

Last visit to dentist	Number of examinees	Percentage of examinees	Mean number of permanent teeth:				
			present	D	M	F	DMF
≤ 12 months	239	35.9	27.4	0.8	3.2	4.8	8.8
> 12 months	428*	64.1	28.0	1.1	2.5	2.9	6.5
≤ 24 months	347	52.1	27.3	0.8	3.1	4.9	8.9
> 24 months	320*	47.9	28.3	1.2	2.3	2.0	5.5
≤ 36 months	370	55.6	27.3	0.8	3.2	4.9	9.0
> 36 months	297*	44.4	28.4	1.2	2.1	1.8	5.2
All examinees	667**	100.0	27.8	1.0	2.7	3.5	7.3

Table V.14. Mean number of permanent teeth present and dental caries experience by recency of last dental visit. Third molars included. 35-44 year-olds. Hong Kong Survey 1984.

* Survey subjects who did not remember or who had never visited a dentist are included.

** 9 survey subjects did not respond.

For the 15-19 year-olds, divided according to recency of the last visit to the dentist, the DMF-T picture was almost identical and consistent. For those teenagers who had seen the dentist less recently or who had never visited the dentist, there also appeared to be a trend towards having more permanent teeth present at the time of the clinical examination. It is noteworthy that the D components were similar, irrespective of the visiting pattern. However, the M and F components were consistently higher in value for those who had visited the dentist most recently. The 35-44 year-olds exhibited an almost identical and equally consistent pattern. However, for the senior survey subjects, higher values for the D, M, and F components were found in all of the three subgroups.

V.3. DENTAL CARIES TREATMENT NEEDS

Table V.15 is an account of the survey subjects who did not have any need for dental caries therapy at the time of the clinical examination.

Survey subjects not having treatment needs for dental caries	AGE					
	15-19			35-44		
	♀	♂	♀ + ♂	♀	♂	♀ + ♂
Absolute number	151	136	287	177	160	337
Percentage	52.8	49.1	51.0	52.1	47.6	49.9

*Table V.15. Survey subjects without need for dental caries treatment by age group and sex. Third molars included.
Hong Kong Survey 1984.*

Across age and sex, around one half of all the survey subjects examined did not have any need for treatment as assessed according to the level of dental caries diagnosis applied during the survey.

Table V.16 shows the more specified treatment need for both age groups expressed in absolute numbers.

	AGE					
	15-19			35-44		
	♀	♂	♀ + ♂	♀	♂	♀ + ♂
Number examined	286	277	563	340	336	676
No treatment needed	151	136	287	177	160	337
Preventive measures	67	63	130	0	0	0
One surface restoration	79	76	155	101	98	199
Two or more surfaces restoration	27	48	75	94	95	189
Crown	5	5	10	11	20	31
Pulp treatment	7	5	12	6	19	25
Extractions due to any reason	18	31	49	43	67	110

Table V.16. Dental caries treatment needs by age group and sex. Third molars included. Absolute numbers. Hong Kong Survey 1984.

The vast majority of the treatment needed by both age groups fell into the most simple therapeutic categories. Of the 563 teenagers examined, 155 needed one-surface restorations and 75 required restorations covering more than one-surface. Few crowns and pulp treatments were needed. Tooth extractions were needed by 49 examinees.

For the 35-44 year-olds the general picture was somewhat more onerous, particularly because they were in need of proportionately more crowns, pulp treatments, and especially extraction of teeth.

Table V.17 gives a percentage distribution of the survey subjects in need of dental caries prevention and therapy by age, sex, and specified type of treatment.

Similarly, Table V.18 details the mean number of teeth per survey subject in need of a specified treatment type.

	AGE						
	15-19			35-44			
	♀	♂	♀ + ♂	♀	♂	♀ + ♂	
Number examined	286	277	563	340	336	676	
Percentage having no treatment need	52.8	49.1	51.0	52.1	47.6	49.9	
Percentage in need of:	preventive measures	23.4	22.7	23.0	0.0	0.0	0.0
	one surface restoration	27.6	27.4	27.5	29.7	29.2	29.5
	two or more surfaces restoration	9.4	17.3	13.3	27.6	28.3	28.0
	crown	1.7	1.8	1.8	3.2	6.0	4.6
	pulp treatment	2.4	1.8	2.1	1.8	5.7	3.7
	extractions due to any reason	6.3	11.2	8.7	12.6	19.9	16.3

Table V.17. Dental caries treatment needs by age group and sex. Third molars included. Percentages. Hong Kong Survey 1984.

	AGE						
	15-19			35-44			
	♀	♂	♀ + ♂	♀	♂	♀ + ♂	
Number examined	286	277	563	340	336	676	
Teeth with no treatment need	26.9	27.3	27.1	26.1	26.7	26.4	
Teeth needing:	preventive measures	0.4	0.3	0.3	---	---	---
	one surface restoration	0.5	0.5	0.5	0.5	0.5	0.5
	two or more surfaces restoration	0.1	0.2	0.2	0.4	0.4	0.4
	crowns	---	---	---	0.1	0.1	0.1
	pulp treatment	---	---	---	---	0.1	0.1
	extractions due to any reason	0.1	0.1	0.1	0.2	0.4	0.3

Table V.18. Mean number of teeth in need of dental caries treatment by age group and sex. Third molars included. Hong Kong Survey 1984.

Table V.17 indicates that the proportions of survey subjects in both age groups in need of complicated and high-cost therapeutic measures, such as crowns and pulp treatment (including root fillings), were rather inconspicuous.

From Table V.18 it can be deduced that the spectrum of treatment needs in terms of average number of teeth needing caries therapy was quite narrow. The mean numbers of teeth in need of crowns and pulp treatment for the 15-19 year-olds were less than one tenth of a tooth per person and only reached 0.1 tooth for the 35-44 year-olds.

Tables V.19 & 20 are percentage distributions for the two age groups, illustrating how the total bulk of dental caries treatment needs was shared among survey subjects having various degrees of need for multiple treatment programs.

Number of teeth needing treatment	Treatment need for dental caries				
	Fillings covering		Crowns	Endodontics	Extractions
	One surface	Two surfaces or more			
1	16.1 (91)*	10.6 (60)	1.2 (7)	2.1 (12)	6.9 (39)
2	6.4 (36)	1.8 (10)	0.4 (2)	---	1.4 (8)
3	2.3 (13)	0.5 (3)	---	---	0.2 (1)
4	1.6 (9)	0.4 (2)	0.2 (1)	---	0.2 (1)
≥ 5	1.1 (6)	---	---	---	---
Σ	27.5 (155)	13.3 (75)	1.8 (10)	2.1 (12)	8.7 (49)

Table V.19. Percentage of 15-19 year-olds by number of teeth in need of specified caries treatment. Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

Number of teeth needing treatment	Treatment need for dental caries				
	Fillings covering		Crowns	Endodontics	Extractions
	One surface	Two surfaces or more			
1	18.9 (128)*	19.7 (133)	3.6 (24)	3.4 (23)	10.5 (71)
2	5.8 (39)	6.2 (42)	0.7 (5)	0.2 (1)	3.1 (21)
3	2.7 (18)	1.3 (9)	0.3 (2)	0.2 (1)	1.3 (9)
4	1.2 (8)	0.6 (4)	---	---	0.7 (5)
≥ 5	0.9 (6)	0.2 (1)	---	---	0.6 (4)
≥ .	29.5 (199)	28.0 (189)	4.6 (31)	3.7 (25)	16.3 (110)

Table V.20. Percentage of 35-44 year-olds by number of teeth in need of specified caries treatment. Hong Kong Survey 1984.

* Numbers in parentheses are the number of survey subjects.

The actual number of survey subjects in both age groups in need of multiple, complicated caries therapy was small. The needs of the majority of survey subjects for caries therapy, could be met through a rather simple therapeutic program. In this context it should be noted that around half of the total number of survey subjects were not found to be in need of any dental caries treatment at all.

Table V.21 contains values of over-all indicators and ratios describing met and unmet needs according to age group and sex.

	AGE					
	15-19			35-44		
	♀	♂	♀ + ♂	♀	♂	♀ + ♂
DMFT	1.59	1.78	1.69	8.00	6.53	7.27
D/DMF	0.34	0.38	0.36	0.12	0.17	0.14
M/DMF	0.14	0.09	0.11	0.37	0.38	0.38
F/DMF	0.53	0.53	0.53	0.51	0.45	0.49
D/DF	0.39	0.42	0.40	0.18	0.27	0.22
F/DF	0.61	0.58	0.60	0.82	0.73	0.78

Table V.21. Dental caries treatment needs, treatment/need ratios and met and unmet needs by age group and sex. Third molars included. Hong Kong Survey 1984.

V.4. DENTAL FLUOROSIS

Data in Table V.22 describes the dental fluorosis situation for each age cohort of the 15-19 year-olds expressed in terms of Dean's Community Fluorosis Index (CFI)

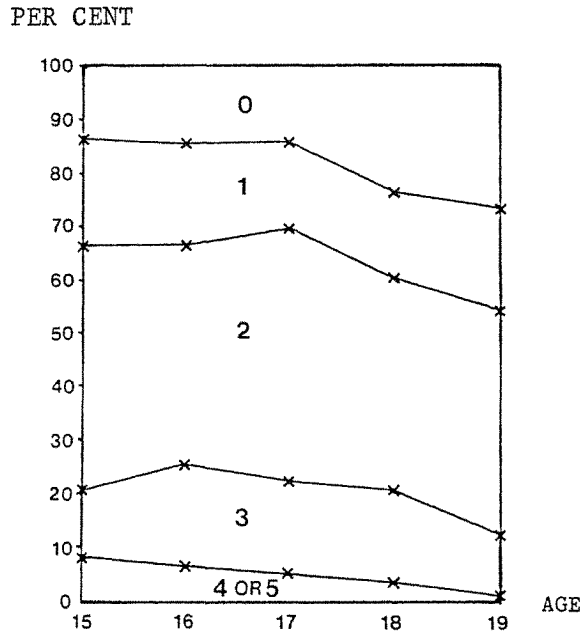
Dental Fluorosis Index	AGE					
	15	16	17	18	19	15-19
Normal (0)	13.8 (16)*	14.5 (16)	14.3 (16)	23.6 (25)	26.9 (32)	18.7 (105)
Questionable (1)	19.8 (23)	19.1 (21)	16.1 (18)	16.0 (17)	18.5 (22)	17.9 (101)
Very mild (2)	45.7 (53)	40.9 (45)	47.3 (53)	39.6 (42)	42.0 (50)	43.2 (243)
Mild (3)	12.9 (15)	19.1 (21)	17.0 (19)	17.0 (18)	10.9 (13)	15.3 (86)
Moderate (4)	7.8 (9)	6.4 (7)	5.4 (6)	3.8 (4)	0.8 (1)	4.8 (27)
Severe (5)	0.0	0.0	0.0	0.0	0.8 (1)	0.2 (1)
Total	100.0 (116)	100.0 (110)	100.0 (112)	100.0 (106)	100.0 (119)	100.0 (563)
CFI	1.05 [0.79]**	1.08 [0.80]	1.05 [0.75]	0.93 [0.77]	0.79 [0.70]	0.98 [0.77]

Table V.22. Dental fluorosis scores. Dean's Index and the Community Fluorosis Index. 15-19 year-olds. Hong Kong Survey 1984.

* Numbers in parentheses are absolute numbers.

In May 1967, the artificially adjusted concentration of fluoride in the general water supplies of Hong Kong was increased from 0.7/0.9 ppm (summer/winter) to an all-year 1.0 ppm. The data on dental fluorosis in Table V.17 appear to reflect this change. The 15-17 year age group had proportionately fewer subjects exhibiting zero score (normal) of the Dean's Fluorosis Index when compared with that of the 18-19 year-olds. Similarly the Community Fluorosis Index (CFI) increased from 0.79 to 1.05 for the 19 year-olds and the 15 year-olds respectively. In June 1978 the concentration of fluoride in the water supplies was again adjusted from 1 ppm to an all-year 0.7 ppm and it seems to be justifiable to expect that the proportion of children in Hong Kong with score zero according to Dean's Fluorosis Index will increase in the future.

Fig. V.5 depicts the relative frequency distribution of the Dean's Fluorosis Index scores for the 15-19 year-olds.



*Fig. V.5. Distribution of dental fluorosis scores.
Dean's fluorosis index.
15-19 year-olds.
Hong Kong Survey 1984.*

From Fig. V.5 it can be observed that two thirds of the 15 year-olds who were exposed to a higher concentration of waterborne fluoride during the formation and mineralization of their permanent dentition were scored as very mild, or more, according to the Dean's Index. For the 19 year-olds the percentage of subjects who were scored very mild or higher was 54.5.

V.5. DENTURE POSSESSION AND REQUIREMENT

The percentage distribution of denture wearers according to age, sex, and type of denture is displayed in Table V. 23.

Percentage of survey subjects having	AGE					
	15-19			35-44		
	♀	♂	♀ + ♂	♀	♂	♀ + ♂
No dentures	99.3 (284)*	99.3 (275)	99.2 (559)	76.8 (261)	83.9 (282)	80.4 (543)
Lower partial only	0.7 (2)	0.0	0.4 (2)	2.6 (9)	5.4 (18)	4.0 (27)
Lower full only	0.0	0.0	0.0	0.0	0.0	0.0
Upper partial only	0.0	0.7 (2)	0.4 (2)	15.9 (54)	8.9 (30)	12.4 (84)
Upper partial & lower partial	0.0	0.0	0.0	3.8 (13)	1.8 (6)	2.8 (19)
Upper partial & lower full	0.0	0.0	0.0	0.0	0.0	0.0
Upper full only	0.0	0.0	0.0	0.6 (2)	0.0	0.3 (2)
Upper full & lower partial	0.0	0.0	0.0	0.3 (1)	0.0	0.1 (1)
Upper full & lower full	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0 (286)	100.0 (277)	100.0 (563)	100.0 (340)	100.0 (336)	100.0 (676)

Table V.23. Denture possession by age group and sex.
Hong Kong Survey 1984.

* Numbers in parentheses are absolute number of survey subjects.

Only four partial denture wearers were identified among the 15-19 year-olds. Out of the 676 survey subjects in the 35-44 year-old age bracket, 133 were found to wear some form of partial denture or combination of partial and full dentures. None of the survey subjects had both upper-full and lower-full dentures. Three 35-44 year-olds had upper-full and only in one case was upper-full combined with a lower-partial denture. Proportionately more women were denture wearers (23.2 per cent) as compared with the men (16.1 per cent).

Table V.24 is a classification of the survey subjects' denture requirement status according to age and sex.

Percentage of survey subjects requiring	AGE					
	15-19			35-44		
	♀	♂	♀ + ♂	♀	♂	♀ + ♂
No dentures	100.0 (286)*	98.6 (273)	99.3 (559)	91.7 (312)	90.7 (305)	91.4 (617)
Lower partial only	0.0	0.0	0.0	1.2 (4)	3.6 (12)	2.4 (16)
Lower full only	0.0	0.0	0.0	0.0	0.3 (1)	0.1 (1)
Upper partial only	0.0	1.4 (4)	0.7 (4)	6.2 (21)	4.5 (15)	5.3 (36)
Upper partial & lower partial	0.0	0.0	0.0	0.6 (2)	0.6 (2)	0.6 (4)
Upper partial & lower full	0.0	0.0	0.0	0.0	0.0	0.0
Upper full only	0.0	0.0	0.0	0.0	0.0	0.0
Upper full & lower partial	0.0	0.0	0.0	0.0	0.3 (1)	0.1 (1)
Upper full & lower full	0.0	0.0	0.0	0.3 (1)	0.0	0.1 (1)
Total	100.0 (286)	100.0 (277)	100.0 (563)	100.0 (340)	100.0 (336)	100.0 (676)

Table V.24. Denture requirements by age group and sex.
Hong Kong Survey 1984.

* Numbers in parentheses are absolute number of survey subjects.

Of the 563 teenagers, four examinees were found to require an upper-partial denture. Among the 35-44 year-olds, 59 examinees required a denture but only one person needed both upper-full and lower-full dentures. Less than ten per cent of all the 35-44 year-olds were found to require a denture and the majority of such cases was in need of an upper partial.

Table V.25 & 26 are classifications of the survey subjects' bridge possession status and bridge requirements.

Percentage of survey subjects having	AGE					
	15-19			35-44		
	♀	♂	♀ + ♂	♀	♂	♀ + ♂
No bridge	99.7 (285)*	100.0 (277)	99.8 (562)	85.6 (291)	85.7 (288)	85.6 (579)
Upper bridge only	0.0	0.0	0.0	5.0 (17)	7.7 (26)	6.4 (43)
Lower bridge only	0.3 (1)	0.0	0.2 (1)	7.4 (25)	4.8 (16)	6.1 (41)
Both upper and lower bridge	0.0	0.0	0.0	2.0 (7)	1.8 (6)	1.9 (13)
Total	100.0 (286)	100.0 (277)	100.0 (563)	100.0 (340)	100.0 (336)	100.0 (676)

Table V.25. Bridge possession by age group and sex.
Hong Kong Survey 1984.

* Numbers in parentheses are absolute number of survey subjects.

Percentage of survey subjects requiring	AGE					
	15-19			35-44		
	♀	♂	♀ + ♂	♀	♂	♀ + ♂
No bridge	100.0 (286)*	99.6 (276)	99.8 (562)	98.2 (334)	97.6 (328)	97.9 (662)
Upper bridge only	0.0	0.4 (1)	0.2 (1)	0.9 (3)	2.1 (7)	1.5 (10)
Lower bridge only	0.0	0.0	0.0	0.9 (3)	0.3 (1)	0.6 (4)
Both upper and lower bridge	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0 (286)	100.0 (277)	100.0 (563)	100.0 (340)	100.0 (336)	100.0 (676)

Table V.26. Bridge requirements by age group and sex.
Hong Kong Survey 1984.

* Numbers in parentheses are absolute number of survey subjects.

Apart from one teenager with a lower bridge, 97 of the 676 35-44 year-olds had a bridge, i.e. 14.3 per cent of the 35-44 year-olds. One of the teenagers was found to be in need of an upper bridge, whereas 14 of the 35-44 year-olds needed either an upper or a lower bridge.

V.6. DENTOFACIAL ANOMALIES

The 15-19 year-olds were classified with respect to dentofacial anomaly, when in the opinion of the examiner, an anomaly was evident. The subject's perception regarding this feature was not taken into account and treatment was indicated only when the anomaly was considered disfiguring. Table V.27 gives the percentages of the teenagers exhibiting dentofacial anomalies in need of treatment.

Dentofacial anomaly	15-19		
	♀	♂	♀ + ♂
Absent	90.9 (260)	88.5 (245)	89.7 (505)
Present	8.4 (34)	10.8 (30)	9.6 (54)
Treatment need	0.7 (2)	0.7 (2)	0.7 (4)
	100.0 (286)	100.0 (277)	100.0 (563)

*Table V.27. Prevalence of dentofacial anomalies by sex.
15-19 year-olds.
Hong Kong Survey 1984.*

Approximately ten per cent of the 15-19 year-olds were found to exhibit one or more dentofacial anomaly but only four out of 563 were deemed to require orthodontic treatment.

V.7. ROOT SURFACE CARIES

Table V.28 presents the prevalence of root surface caries among the 35-44 year-olds. Carious lesions on root surfaces were found in 14.5 percent of the examinees. There appears to be a moderately higher prevalence among males as compared to females.

	A G E		
	35 - 44 (676)*		
	♀ (340)	♂ (336)	♀ + ♂ (676)
No Root Surface Caries	86.2 (293)	84.6 (285)	85.5 (578)
Root Surface Caries	12.8 (47)	15.2 (51)	14.5 (98)

Table V.28. Prevalence of root surface caries. 35-44 year-olds. Hong Kong Survey 1984.

* Numbers in parentheses are numbers of survey subjects.

Since the prevalence of root surface caries is known to increase with age, the examinees were divided into the 35-39 and the 40-44 year-olds.

	A G E	
	35 - 39 (462)*	40 - 44 (214)
No Root Surface Caries	86.6 (400)	83.2 (178)
Root Surface Caries	13.4 (62)	16.8 (36)

Table V.29. Prevalence of root surface caries by sex. Hong Kong Survey 1984.

Table V.29 illustrates that root surface caries on at least one surface of one tooth was more prevalent in the 40-44 year-old examinees than in the 35-39 year-olds, but the sample size of the younger group was larger. Notwithstanding this, the difference was statistically significant.

NUMBER OF TEETH AFFECTED BY ROOT SURFACE CARIES PER EXAMINEE	A G E		
	35 - 39	40 - 44	35 - 44
1	63 (39)*	47 (17)	57 (56)
>1	37 (23)	53 (19)	43 (42)

*Table V.30. Root surface caries by number of teeth affected and age.
Hong Kong Survey 1984.*

* Numbers in parentheses are numbers of survey subjects.

From Table V.30 it can be noted that 57 per cent of those examinees detected as having root surface caries had only one tooth affected. Furthermore 96.4 per cent of the teeth scored as having root surface caries had only one root surface on which caries was found. No tooth had three or four carious root surfaces.

High risk individuals were evident in each of the two age groups. For the 35-39 year-old examinees 9 per cent (6) of those with root surface caries accounted for 32 per cent (32) of the teeth with carious root surface in this group. For the 40-44 year-old examinees 14 per cent (5) of those with root surface caries accounted for 40 per cent (32) of the teeth with carious root surfaces in this group. Overall, for the examinees aged 35-44, 10 per cent of those with root surface caries contributed just over 30 per cent of the total number of teeth with root surface caries.

Evidence linking root surface caries to socio-economic factors in other than Western industrialised countries has not yet been published. The root surface caries data was therefore analysed according to the household income groups used in the analysis of coronal caries.

35-44		
HOUSEHOLD INCOME (HK\$)	NO ROOT SURFACE CARIES	ROOT SURFACE CARIES
0 - 3999	81.1	18.9
4000 - 7999	86.5	13.5
8000 +	87.6	12.4

Table V.31. Prevalence of root surface caries by monthly household income. 35-44 year-olds. Hong Kong Survey 1984.

Table V.31 shows that the percentage of survey subjects having root surface caries was highest in the lowest income group and lowest in the highest income group. These differences however were not statistically significant.

Table V.32 gives the distribution of teeth without and with root surface caries, according to type of tooth for the 35-44 year-olds. No consistent pattern could be detected with respect to the distribution of root surface caries within arches or quadrants, which was probably due to an inadequate sample size for a disease with such a low prevalence.

It is worth noting that of the 18,656 teeth present in the 676 adult examinees, only 186 (1 per cent) had root surface caries detected by the clinical examination method employed. Only one percent of the teeth present was affected by root surface caries and only 14.5 percent of the subjects exhibited this phenomenon.

M A X I L L A

	4	5	9	8	7	6	5	5	5	6	8	6	5	11	10	6
Root Surface Caries	427	609	550	596	596	639	609	585	590	605	639	600	592	544	606	430
No Root Surface Caries	(245)	(62)	(117)	(72)	(73)	(31)	(62)	(86)	(81)	(65)	(29)	(70)	(79)	(121)	(60)	(240)
(Missing)																

8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

(Missing)	(210)	(110)	(259)	(60)	(25)	(15)	(30)	(26)	(21)	(27)	(13)	(25)	(48)	(269)	(110)	(235)
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No Root Surface Caries	464	561	407	608	644	657	645	650	655	646	660	637	623	402	555	439
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	2	5	10	8	7	4	1	0	0	3	3	14	5	5	11	2
Root Surface Caries																

M A N D I B L E

Table V.32. Location of root surface caries lesions by type of tooth, 35-44 year-olds. Hong Kong Survey 1984.

V.8. PERIODONTAL STATUS

The Community Periodontal Index of Treatment Needs - CPITN (2) was designed primarily for use by Public Health planners to assess possible levels of intervention for managing periodontal disease on a community basis. The index also allows for limited assessment of the severity of periodontal disease in a population.

The World Health Organization (WHO) recommends that presentation of data obtained using the CPITN be presented in four basic tabulations:

1. The percentage of persons, distributed according to the highest CPITN score (see Table V.33).
2. The mean number of sextants recorded per person for each score of the index (see Table V.34).
3. The treatment needs expressed as percentage of persons distributed according to the treatment indicated by this index system (see Table V.35).
4. A frequency distribution on how many sextants per person were recorded for each score of the index (see Table V.36A and B).

As a supplement to these four basic tabulations recommended by WHO the mean number of sextants per person in those found to have Code 1, 2, 3 or 4 as the highest score was calculated (Table V.37). It was also found of interest to determine the distribution of the highest scores within the mouths of those examined in both age groups (Fig. V.6 & 7).

Table V.33 shows that negligible proportions of each age group were scored as having healthy gingiva (Code 0).

AGE GROUP	NUMBER OF EXAMINEES 1231	NO PERIODONTAL DISEASE (CODE 0)	BLEEDING ONLY (CODE 1)	CALCULUS (CODE 2)	SHALLOW POCKETS (CODE 3)	DEEP POCKETS (CODE 4)
15 - 19	563	2	2	70	26	1
35 - 44	668	1	0	28	56	16

Table V.33. Periodontal status expressed as the highest CPITN score by age group. Percentages. Hong Kong Survey 1984.

It should be observed that the total number of persons scored for the CPITN was less than the total number of persons examined for dental caries, because the Medical History of a small number contra-indicated periodontal probing.

For the teenagers, the majority had calculus as the highest score. Just over one-quarter of them however had shallow pockets as the highest score. For most of these the shallow pockets recorded were due to inflammatory swelling of the marginal gingiva and perhaps a reduced resistance to the light probing forces by markedly inflamed marginal gingival tissues. Only one per cent were assessed as having deep pockets.

For the 35-44 year age group over one-half had shallow pockets as the highest score. As in the teenagers, this finding of shallow pockets did not always reflect a loss of periodontal attachment. Sixteen per cent of the 35-44 year age group exhibited deep pockets as the highest score.

AGE GROUP	NUMBER OF EXAMINEES 1231	NO PERIODONTAL DISEASE (CODE 0)	BLEEDING (CODE 1+2+3+4)	CALCULUS (CODE 2+3+4)	SHALLOW POCKETS (CODE 3+4)	DEEP POCKETS (CODE 4)	EXCLUDED LESS THAN 2 TEETH (CODE X)
15 - 19	563	1.1	4.9	4.4	0.5	0.0	0.0
35 - 44	668	0.4	5.5	5.4	1.8	0.3	0.1

*Table V.34. Mean number of sextants by CPITN scores and age group.
Hong Kong Survey 1984.*

Table V.34 shows that for the teenage group, a mean of just over one sextant per person was assessed as having no clinical signs of periodontal disease. The remaining sextants were scored for bleeding or a higher score, with a mean of 4.4 sextants per person being scored for calculus or higher but only a mean of 0.5 sextants per person being scored for shallow pockets.

For the 35-44 year old age-group a mean of 5.5 sextants per person was scored for bleeding or a higher score, with a mean of 1.8 sextant being scored for shallow or deep pockets. Only a mean of 0.3 sextant per person was scored for deep pockets. An average of 0.1 sextant per person had less than two teeth present.

V.9. PERIODONTAL TREATMENT NEEDS

In line with the criteria proposed by the CPITN (2) subjects were classified into the different treatment need categories according to the highest score recorded during the examination. A recording of Code 0 for all six sextants indicated that there was no need for treatment. If codes of 1 were the only ones identified, a need for improvement in the personal oral hygiene of that individual was indicated. A maximum code of 2 indicated a need for professional cleaning of the teeth in addition to improved personal oral hygiene. As moderate pocketing of 4 or 5 mm (Code 3) can be managed with a combination of professional and personal cleaning of the teeth, the treatment need for Codes 2 and 3 were the same.

A sextant scoring Code 4 (pockets 6 mm or deeper) may or may not be successfully treated by means of deep scaling and efficient personal oral hygiene measures. Code 4 was therefore assigned to 'complex treatment' which may involve deep scaling and root planing under local anaesthesia, or require surgical exposure of the infected root surface in order to gain access needed for cleaning.

A subject or a sextant would thus be classified according to periodontal treatment need into one of the following categories:

TN = 0 i.e. No treatment

TN = 1 i.e. Oral Hygiene Instruction

TN = 2 i.e. Oral Hygiene Instruction & Scaling

TN = 3 i.e. Oral Hygiene Instruction & Scaling plus Complex Treatment

The data were analysed to show the proportions of persons indicated as having these treatment needs by the CPITN, and are presented as the percentage of persons and the mean number of sextants indicated for the treatment TN = 2 and TN = 3.

AGE	NUMBER OF EXAMINEES 1231	NO TREATMENT (TN=0)	ORAL HYGIENE INSTRUCTION (TN=1)	ORAL HYGIENE & SCALING (TN=2)	ORAL HYGIENE, SCALING & COMPLEX TREATMENT (TN=3)
15 - 19	563	2	98	96 (4.4)	1 (0.0)
35 - 44	668	1	99	99 (5.4)	16 (0.3)

Table V.35. Periodontal treatment needs by age group. Percentages. Hong Kong Survey 1984.

* Numbers in parentheses are mean number of sextants.

From Table V.35 it can be noted that 96 per cent of the teenagers were found to have a need for Oral Hygiene Instruction and Scaling. On average each teenager needed TN=2 in 4.4 sextants.

In the 35-44 year-olds, 99 per cent needed Oral Hygiene Instruction and Scaling. On average each of the 35-44 year-olds needed Oral Hygiene Instruction and Scaling in 5.4 sextants. It should be noted that the mean number of sextants were derived from the total population.

	NO PERIODONTAL DISEASE (CODE 0)	BLEEDING ONLY (CODE 1)	CALCULUS (CODE 2)	SHALLOW POCKETS (CODE 3)	DEEP POCKETS (CODE 4)	EXCLUDED LESS THAN 2 TEETH (CODE X)
0 SEXTANTS SCORED	250 (44)	378 (67)	24 (4)	415 (74)	557 (99)	563 (100)
1 SEXTANT SCORED	139 (25)	116 (21)	39 (7)	81 (14)	5 (1)	-
2 SEXTANTS SCORED	96 (17)	45 (8)	54 (10)	29 (5)	1	-
3 SEXTANTS SCORED	30 (5)	21 (4)	88 (16)	22 (4)	-	-
4 SEXTANTS SCORED	30 (5)	2 (0)	120 (21)	10 (2)	-	-
5 SEXTANTS SCORED	8 (1)	-	148 (26)	5 (1)	-	-
6 SEXTANTS SCORED	10 (2)	1 (0)	90 (16)	1 (0)	-	-

Table V.36A. Frequency distribution of CPITN score by number of sextants involved. Absolute numbers of survey subjects. 15-19 year-olds. Hong Kong Survey 1984.

* Numbers in parentheses are percentages of total number of 15-19 year-olds examined.

Table V.36A is a specification of the CPITN-findings for the 15-19 year age group. The category "No Periodontal Disease" for a particular sextant indicates that no clinical signs of periodontal disease was found and therefore that the sextant was clinically healthy. From the left hand column it can be deduced that only 10 teenage survey subjects (2 per cent) were found to have all 6 sextants clinically healthy whereas 250 out of the 563 examinees (44 per cent) were diagnosed as having all sextants with CPITN-scores ranging from 1 to 4. From the left hand column it can further be calculated that 78 teenagers (13 per cent) had three or more sextants scored as healthy. The third column indicates that 90 teenagers (16 per cent) had calculus as the highest score in all six sextants. No less than 446 teenagers (eight out every 10) had calculus in three or more sextants. It is noteworthy that 415 teenagers (74 per cent) did not exhibit any shallow pockets and that only 6 survey subjects were found to have deep pockets. No teenager had sextants with less than two teeth.

	NO PERIODONTAL DISEASE (CODE 0)	BLEEDING ONLY (CODE 1)	CALCULUS (CODE 2)	SHALLOW POCKETS (CODE 3)	DEEP POCKETS (CODE 4)	EXCLUDED LESS THAN 2 TEETH (CODE X)
0 SEXTANTS SCORED	514 (77)	606 (91)	31 (5)	204 (31)	562 (84)	628 (94)
1 SEXTANT SCORED	102 (15)	51 (8)	59 (9)	155 (23)	70 (10)	27 (4)
2 SEXTANTS SCORED	35 (5)	7 (1)	98 (15)	134 (20)	20 (3)	8 (1)
3 SEXTANTS SCORED	8 (1)	2 (0)	110 (16)	92 (14)	8 (1)	3 (0)
4 SEXTANTS SCORED	2 (0)	2 (0)	139 (21)	58 (9)	5 (1)	2 (0)
5 SEXTANTS SCORED	2 (0)	-	132 (20)	20 (3)	3 (0)	-
6 SEXTANTS SCORED	5 (1)	-	99 (15)	5 (1)	-	-

Table V. 36B. Frequency distribution of CPITN score by number of sextants involved. Absolute numbers of survey subjects. 35-44 year-olds. Hong Kong Survey 1984.

* Number in parentheses are percentages of the total number of 35-44 year-olds.

Table V.36B gives an account of the CPITN-findings for the 35-44 year age group. Forty survey subjects (6 per cent) out of the 668 examined had one or more sextants excluded because less than two teeth were present. From the left hand column it can be observed that only five out of the total number of examinees (1 per cent) were found to be without any clinical signs of periodontal disease in all six sextants. Out of the total number of the 35-44 year-olds, 514 (77 per cent) were found to have all sextants with CPITN-scores ranging from 1 to 4. No less than 95 per cent had one or more sextants in which calculus was found. Shallow pockets in one or more sextants were found in 69 per cent of the examinees whereas deep pockets were found in only 16 per cent. Only 36 (5 per cent) were found to have deep pockets in more than one sextant. Sixteen of the examinees (2 per cent) had more than two sextants in which deep pockets were diagnosed and none was found to have deep pockets in all sextants. Less than two per cent were found to have more than one sextant with less than 2 teeth.

Table V.36B shows that 514 (77 per cent) of the 35-44 year olds were found to have no sextant scored as healthy with only 17 (2 per cent) found to have three or more sextants scored as healthy.

AGE	NUMBER OF EXAMINEES 1231	BLEEDING (CODE 1)	CALCULUS (CODE 2)	SWALLOW POCKETS (CODE 3)	DEEP POCKETS (CODE 4)
15 - 19	563	2.4	4.2	1.8	1.2
35 - 44	668	4.0	5.2	2.3	1.6

*Table V.37. Mean number of sextants indicated by the highest CPITN score, in those persons so scored by age group.
Hong Kong Survey 1984.*

From Table V.37 it can be noted that for those 70 per cent of teenagers found to have calculus as the highest score, calculus was found in a mean of 4.2 sextants per person. For those 56 per cent of the 35-44 year old age group found to have shallow pockets as the highest score, this finding was encountered in only a mean of 2.3 sextants per person. For those 16 per cent of adults with deep pockets, this finding was encountered in a mean of only 1.6 sextants per person with deep pockets.

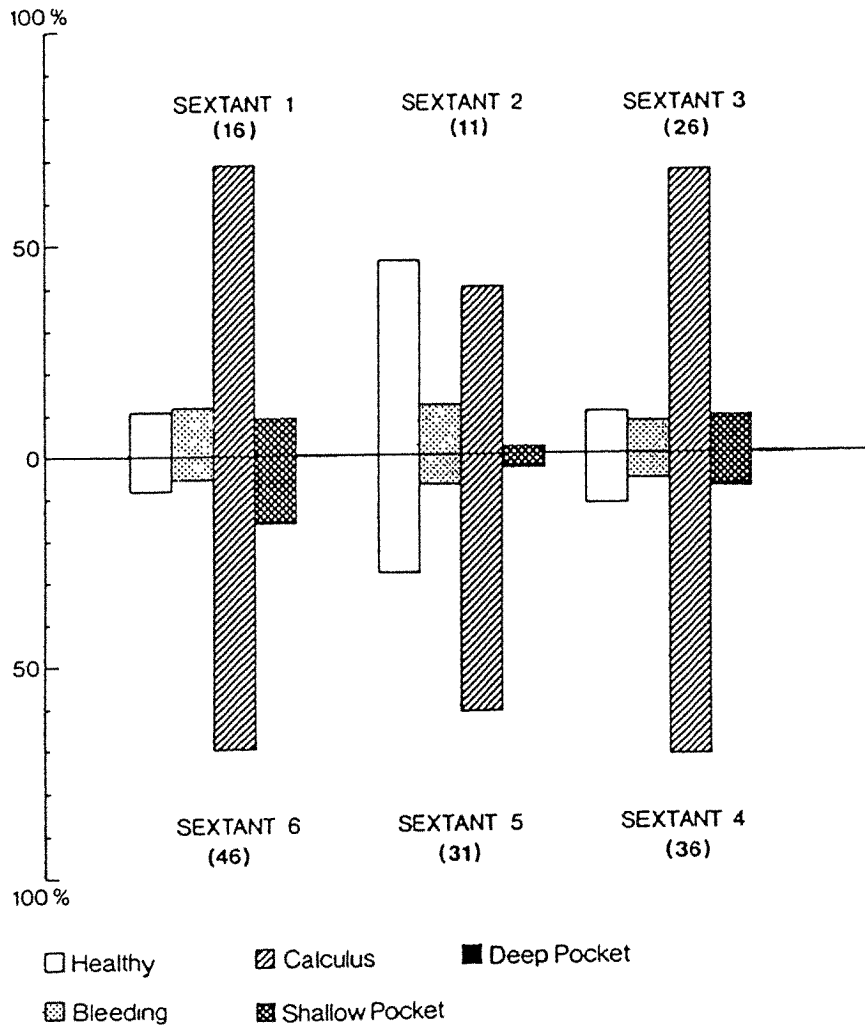


Fig. V.6. Distribution of the highest scores according to CPITN-index teeth for the 15-19 year-old age group. Hong Kong Survey 1984.

* Numbers in parentheses indicate the index teeth.

As can be seen from Fig. V.6 fewer anterior sextants were found to have calculus and shallow pockets as the highest score. Calculus was a more common finding in lower anterior sextants than in upper anterior sextants.

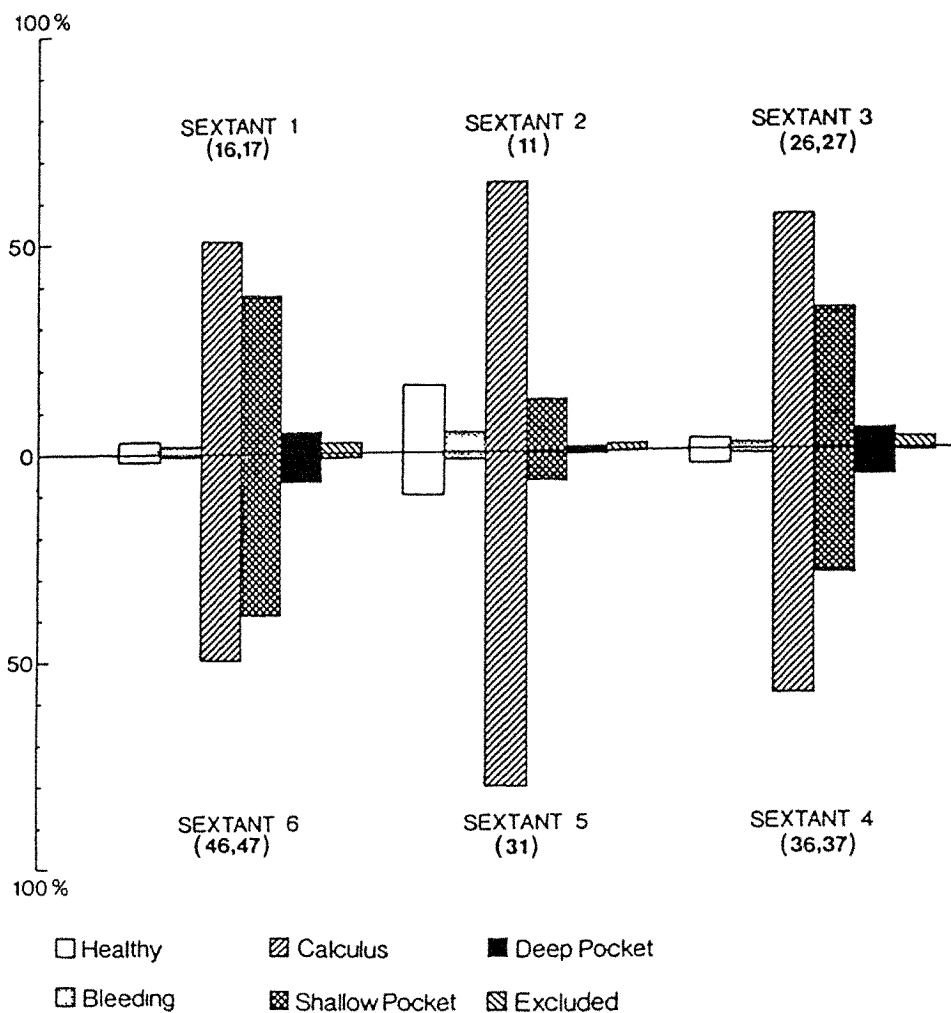


Fig. V.7. Distribution of the highest scores according to CPITN-index teeth for the 35-44 year-old age group.
Hong Kong Survey 1984.

* Numbers in parentheses indicate the index teeth.

Fig. V.7 suggests that for 35-44 year old age group, pockets, both shallow and deep, were encountered more in posterior sextants. The adults however were found to have fewer anterior sextants free from calculus compared to the teenagers.

Table V.38 indicates that there was very little difference in the CPITN-scores between females and males in the teenager group. However this was not so for the 35-44 year old age group with nearly one-quarter of the males found to have at least one sextant with deep pockets compared to less than 10 per cent of the females with the same finding.

SEX	AGE	NUMBER OF EXAMINEES 1231	NO PERIODONTAL DISEASE (CODE 0)	BLEEDING ONLY (CODE 1)	CALCULUS (CODE 2)	SHALLOW POCKETS (CODE 3)	DEEP POCKETS (CODE 4)
♀	15 - 19	286	2	2	72	23	1
♂	15 - 19	277	2	2	67	28	1
♀	35 - 44	337	1	0	34	56	9
♂	35 - 44	331	0	0	21	55	23

Table V.38. Periodontal status expressed as the highest CPITN score by age group and sex. Percentages. Hong Kong Survey 1984.

From Table V.39 it can be seen that the mean number of sextants with pockets, both shallow and deep, found in the 35-44 year old males were significantly more than in the 35-44 year old females. However no significant difference was encountered between males and females with respect to the loss of teeth as indicated by the mean number of excluded sextants.

SEX	AGE	NUMBER OF EXAMINEES 1231	NO PERIODONTAL DISEASE (CODE 0)	BLEEDING (CODE 1+2+3+4)	CALCULUS (CODE 2+3+4)	SHALLOW POCKETS (CODE 3+4)	DEEP POCKETS (CODE 4)	EXCLUDED LESS THAN 2 TEETH (CODE X)
♀	15 - 19	286	1 1	4 9	4 5	0 5	0 0	0 0
♂	15 - 19	277	1 2	4 8	4 2	0 5	0 0	0 0
♀	35 - 44	337	0 5	5 4	5 3	1 5	0 1	0 1
♂	35 - 44	331	0 3	5 7	5 6	2 2	0.4	0 1

Table V.39. Mean number of sextants by CPITN scores, age group and sex. Hong Kong Survey 1984.

Table V.40 indicates that the proportion of 35-44 year-old males requiring complex treatment in addition to Oral Hygiene and Scaling was significantly higher than the proportion of 35-44 year-old females.

SEX	AGE	NUMBER OF EXAMINEES 1231	NO TREATMENT (TN=0)	ORAL HYGIENE INSTRUCTION (TN=1)	ORAL HYGIENE & SCALING (TN=2)	ORAL HYGIENE SCALING & COMPLEX TREATMENT (TN=3)
♀	15 - 19	286	2	98	96 (4.5)	1 (0.0)
♂	15 - 19	277	2	98	96 (4.2)	1 (0.0)
♀	35 - 44	337	1	99	99 (5.3)	9 (0.1)
♂	35 - 44	331	0	100	100 (5.6)	23 (0.4)

Table V.40. Periodontal treatment needs by age group and sex. Percentages. Hong Kong Survey 1984.

* Numbers in parentheses are mean number of sextants.

From Table V.41 it can be noted that while significantly more 35-44 year-old males were found to have deep pockets than 35-44 year-old females, the mean number of sextants with deep pockets for these individuals with deep pockets was similar, irrespective of gender. Thus, while deep pockets were more prevalent in 35-44 year-old males, the severity of the disease, as assessed by this index, was no greater in males than in females.

SEX	AGE	NUMBER OF EXAMINEES 1231	BLEEDING ONLY (CODE 1)	CALCULUS (CODE 2)	SHALLOW POCKETS (CODE 3)	DEEP POCKETS (CODE 4)
♀	15 - 19	286	2.5	4.4	2.0	1.3
♂	15 - 19	277	2.2	4.0	1.7	1.0
♀	35 - 44	337	4.0	5.0	2.1	1.5
♂	35 - 44	331	0.0	5.4	2.5	1.6

Table V.41. Mean number of sextants indicated by the highest CPITN score in those persons so scored by age group and sex. Hong Kong Survey 1984.

The different household income groups used in the analyses of the caries data were applied to the CPITN data.

HOUSEHOLD INCOME (IN HK\$)	AGE	N* (1035)	NO PERIODONTAL DISEASE (CODE 0)	BLEEDING ONLY (CODE 1)	CALCULUS (CODE 2)	SHALLOW POCKETS (CODE 3)	DEEP POCKETS (CODE 4)
0 - 3999	15 - 19	123	0	2	73	23	2
4000 - 7999	15 - 19	209	1	1	72	24	1
8000 +	15 - 19	72	3	0	65	29	3
0 - 3999	35 - 44	157	1	0	26	59	15
4000 - 7999	35 - 44	308	1	0	27	58	15
8000 +	35 - 44	166	1	1	28	52	18

Table V.42. Periodontal status expressed as the highest CPITN score by age group and monthly household income. Percentages. Hong Kong Survey 1984.

Table V.42 shows that there were no significant differences detected in the prevalence of those with the various highest scores in the different household income groups, for both age groups.

HOUSEHOLD INCOME (IN HK\$)	AGE	N* (1035)	NO PERIODONTAL DISEASE (CODE 0)	BLEEDING (CODE 1+2+3+4)	CALCULUS (CODE 2+3+4)	SHALLOW POCKETS (CODE 3+4)	DEEP POCKETS (CODE 4)	EXCLUDED LESS THAN 2 TEETH (CODE X)
0 - 3999	15 - 19	123	1.1	4.9	4.3	0.4	0.0	0.0
4000 - 7999	15 - 19	209	1.1	4.9	4.4	0.5	0.0	0.0
8000 +	15 - 19	72	1.2	4.8	4.3	0.5	0.0	0.0
0 - 3999	35 - 44	157	0.3	5.6	5.5	1.9	0.3	0.1
4000 - 7999	35 - 44	308	0.3	5.6	5.5	1.9	0.2	0.1
8000 +	35 - 44	166	0.5	5.4	5.2	1.6	0.3	0.1

Table V.43. Mean number of sextants by CPITN scores, age group and monthly household income. Hong Kong Survey 1984.

From Table V.43 it can be observed that the mean number of sextants found to have the various scores did not differ for those persons in the three household income brackets.

HOUSEHOLD INCOME (IN HK\$)	AGE	N* (1035)	NO TREATMENT (TN=0)	ORAL HYGIENE INSTRUCTION (TN=1)	ORAL HYGIENE & SCALING (TN=2)	ORAL HYGIENE, SCALING & COMPLEX TREATMENT (TN=3)
0 - 3999	15 - 19	123	0	100	98 (4.3)	2 (0.0)
4000 - 7999	15 - 19	209	1	99	97 (4.4)	1 (0.0)
8000 +	15 - 19	72	3	97	97 (4.3)	3 (0.0)
0 - 3999	35 - 44	157	1	99	99 (5.5)	15 (0.3)
4000 - 7999	35 - 44	308	1	99	99 (5.5)	15 (0.2)
8000 +	35 - 44	166	1	99	98 (5.2)	18 (0.3)

Table V.44. Periodontal treatment needs by age group and monthly household income. Percentages. Hong Kong Survey 1984.

* Numbers in parentheses are mean number of sextants.

Table V.44 suggests that the indicated treatment requirements did not differ for those persons in the three different household income brackets.

Levels of Educational Attainment were used to redistribute the CPITN-data for the 35-44 year-olds as shown in Table V.45.

The number of persons who had received post secondary education, including degree courses, was small and therefore prevented meaningful interpretation. However it would appear as though there was no influence of educational attainment on the prevalence or severity of the disease.

HIGHEST EDUCATIONAL STANDARD ATTAINED	AGE	N* (658)	NO PERIODONTAL DISEASE (CODE 0)	BLEEDING ONLY (CODE 1)	CALCULUS (CODE 2)	SHALLOW POCKETS (CODE 3)	DEEP POCKETS (CODE 4)
Primary	35 - 44	189	1	0	31	57	12
Secondary	35 - 44	385	1	0	25	55	19
Post-secondary	35 - 44	84	2	0	30	55	13

Table V.45. Periodontal status expressed as the highest CPITN score by educational attainment. Percentages. 35-44 year-olds. Hong Kong Survey 1984.

Tables V.46A, B & C are cross-tabulations of the CPITN-data for the two age groups with the pattern of history of dental visits as determined by the survey-questionnaire. The three tables indicate that the variable "Last visit to the dentist" did not influence the distribution of the CPITN-data significantly.

LAST VISIT (MONTHS)	AGE	N* (1184)	NO PERIODONTAL DISEASE (CODE 0)	BLEEDING ONLY (CODE 1)	CALCULUS (CODE 2)	SHALLOW POCKETS (CODE 3)	DEEP POCKETS (CODE 4)
0 - 12	15 - 19	139	2	4	68	25	1
12 - 36	15 - 19	83	2	1	67	28	1
> 36	15 - 19	143	0	2	69	27	1
NEVER	15 - 19	167	3	1	71	25	1
0 - 12	35 - 44	238	1	0	28	58	13
12 - 36	35 - 44	130	1	0	31	52	16
> 36	35 - 44	206	0	0	28	56	17
NEVER	35 - 44	78	0	0	22	58	21

Table V.46A. Periodontal status expressed as the highest CPITN score by age group and last visit to the dentist. Percentages. Hong Kong Survey 1984.

LAST VISIT (MONTHS)	AGE	N* (1184)	NO PERIODONTAL DISEASE (CODE 0)	BLEEDING (CODE 1+2+3+4)	CALCULUS (CODE 2+3+4)	SHALLOW POCKETS (CODE 3+4)	DEEP POCKETS (CODE 4)	EXCLUDED LESS THAN 2 TEETH (CODE X)
0 - 12	15 - 19	139	1.4	4.6	4.0	0.5	0.0	0.0
12 - 36	15 - 19	83	1.1	4.9	4.4	0.5	0.0	0.0
> 36	15 - 19	143	1.0	5.0	4.6	0.6	0.0	0.0
NEVER	15 - 19	167	1.1	4.9	4.4	0.4	0.0	0.0
0 - 12	35 - 44	238	0.5	5.4	5.3	1.8	0.3	0.1
12 - 36	35 - 44	130	0.5	5.4	5.2	1.7	0.2	0.1
> 36	35 - 44	206	0.3	5.6	5.6	2.0	0.2	0.1
NEVER	35 - 44	78	0.1	5.9	5.9	2.1	0.3	0.0

Table V.46B. Mean number of sextants by age group and last visit to the dentist. Percentages.
Hong Kong Survey 1984.

LAST VISIT (MONTHS)	AGE	N* (1184)	NO TREATMENT (TN=0)	ORAL HYGIENE INSTRUCTION (TN=1)	ORAL HYGIENE & SCALING (TN=2)	ORAL HYGIENE, SCALING & COMPLEX TREATMENT (TN=3)
0 - 12	15 - 19	139	2	98	94 (4.0)	1 (0.0)
13 - 36	15 - 19	83	2	98	96 (4.4)	1 (0.0)
> 36	15 - 19	143	0	100	98 (4.6)	1 (0.0)
NEVER	15 - 19	167	3	97	96 (4.4)	1 (0.0)
0 - 12	35 - 44	238	1	99	98 (5.3)	13 (0.3)
13 - 36	35 - 44	130	1	99	99 (5.2)	16 (0.2)
> 36	35 - 44	206	0	100	100 (5.6)	17 (0.2)
NEVER	35 - 44	78	0	100	100 (5.9)	21 (0.3)

Table V.46C. Periodontal treatment needs by age group and last visit to the dentist. Percentages.
Hong Kong Survey 1984.

No difference in percentage distribution of the survey subjects according to highest CPITN score were found when comparing those who thought that they would get bleeding gums during the next five years with those who thought that this was not likely (Table V.47).

Q9. During the next five years, do you think you will get bleeding gums

	AGE			
	15-19		35-44	
	LIKELY	NOT LIKELY	LIKELY	NOT LIKELY
Number examined	291	153	420	88
<u>Percentage according to highest CPITN score</u>				
No Periodontal Disease (code 0)	1	3	1	1
Bleeding only (code 1)	1	4	0	0
Calculus (code 2)	66	71	24	38
Shallow Pockets (code 3)	30	22	59	45
Deep Pockets (code 4)	1	0	16	16

Table V.47. Periodontal status expressed as the highest CPITN score by age group and perceived susceptibility to bleeding gums. Percentages. Hong Kong Survey 1984.

When the survey subjects who thought that inadequate hygiene was the cause of gum disease were compared to those who reported that they did not know what causes gum disease, no statistically significant difference in the percentage distribution according to the highest CPITN score was found (Table V.48).

Q13. What do you think causes gum disease

	AGE			
	15-19		35-44	
	INADEQUATE ORAL HYGIENE	DON'T KNOW	INADEQUATE ORAL HYGIENE	DON'T KNOW
Number examined	116	265	131	310
<u>Percentage according to highest CPITN score</u>				
No Periodontal Disease (code 0)	3	1	0	1
Bleeding only (code 1)	1	2	0	0
Calculus (code 2)	73	69	28	29
Shallow Pockets (code 3)	23	27	54	56
Deep Pockets (code 4)	0	2	17	14

Table V.48. Periodontal status expressed as the highest CPITN score by age group and knowledge of the causes of periodontal diseases. Percentages. Hong Kong Survey 1984.

A comparison of the 35-44 year-olds who had never been to the dentist because they had no dental problems, with the total sample revealed no statistically significant difference. In the distribution of the highest CPITN scores (Table V.49), no significant difference was found in the 15-19 year age group either.

Q.29. I have never visited the dentist and I have no dental problems

Age	Number of Examinees	No Periodontal Disease (Code 0)	Bleeding Only (Code 1)	Calculus (Code 2)	Shallow Pockets (Code 3)	Deep Pockets (Code 4)
15-19	81	3	2	68	27	1
	All (563)	2	2	70	26	1
35-44	50	2	0	28	55	16
	All (668)	1	0	28	56	16

Table V.49. Periodontal status expressed as the highest CPITN score for survey subjects who have never visited the dentist and said that they had no dental problem. Percentages. Hong Kong Survey 1984.

VI. DISCUSSION

I.1. MATERIAL

Prior to 1984, only two dental surveys have included adult Chinese living in Hong Kong, namely the 1968 and the 1982 surveys (54,55). The 1968 survey conducted by the Government Dental Service in co-operation with WHO, included adult Chinese in the age range 15 to 54 years, drawn from "the 1.3 million people living in the various housing estates". According to the survey report: "The sampling method employed could be described as a mixture of stratified and purposive methods. It was not a satisfactory one. However, under the circumstances it was the only practical method available". The 1982 survey was limited to the Government servants and their dependants and as such, was an easily accessible population group devoid of complex sampling and recruitment problems.

It is generally accepted among government statisticians and scientists working in the fields of social, cultural, economic, and medical sciences that the task of obtaining a truly representative population sample of Hong Kong people is complicated by a series of problems such that the recruitment of sampled individuals for interviews, medical examinations etc. is bound to be less than adequate and sufficient. This is especially so for dental surveys where the adult population's low dental awareness, busyness, the feeling of having no dental problems, and fear of the unknown will lead to a low participation rate.

The above-mentioned problems and barriers were considered during the planning of the survey and it was decided to take relevant measures and precautions. With the purpose of ensuring an acceptable degree of control, it was decided to limit the survey to a reasonably representative district of Hong Kong in which around 300,000 Chinese would be residing. This follows the approach used by WHO in the international collaborative studies and thus the sample would be of both national and international interest. This decision about the geographical location of the survey was felt to be judicious for various reasons. First, the vast majority of Chinese people lives in the metropolitan part of Hong Kong and only a small fraction of the population resides in what could be called rural areas. Second, the Chinese culture, and especially the diet, has a homogenizing impact on important social class traits relative to oral health. Third, the fact that Hong Kong has had a water fluoridation scheme since 1961 covering the whole of the metropolitan area. Finally, the generally low dental awareness of the public, the low availability of dental services as a consequence of the low dentist to population ratio, and the almost non-existence of financial schemes to support demand for dental services. These prevalent factors and conditions were considered to have a smoothing out effect on the oral disease patterns and the utilization of the existing dental services. The data and information collected during the present survey should be interpreted in the light of these factors and

conditions.

One of the shortcomings of the present survey was that the study population was limited to the 15-19 and 35-44 year-old Chinese.

Though the survey data and information cannot be taken as strictly representative for the Hong Kong population, it is felt that they can serve as a reliable data base for planning purposes and as a valid but incomplete picture of the existing oral health situation of the Chinese people living in Hong Kong.

Senior dental students conduct projects spanning over their final year of study. Each group of seven or eight students completes a project under the close supervision of dental epidemiologists from the Faculty of Dentistry. During the years 1983/1986, twelve such projects have studied selected population groups using data collection methods and instruments similar to those employed in this survey of adult oral health (11, 12, 14, 20-23, 25-29). It is therefore legitimate to consider these projects as being satellite surveys. The findings from these satellite surveys appear to corroborate many of the findings from the present survey.

In combination, the data and information collected in recent years by the government, the present survey team, and the supervised dental student teams relative to the oral health situation of the Chinese population, appear to form an appropriate data base at the level of accuracy needed for planning purposes and for the formulation of oral health goals.

VI.2. METHODS

The diagnostic criteria, the clinical examination procedures, and the monitoring of the survey followed the recommendations given by WHO (57,58,60,61).

The questionnaire was heavily inspired by, but not identical to, the questionnaires developed for the international collaborative studies conducted by WHO/USPHS (57,61). The questionnaire used in the present survey was completed by the survey respondents themselves and not given as a person-to-person interview. The completion of the questionnaire was supervised and the respondents were encouraged to ask the supervisor's assistance in the event of there being any problems in understanding. This method may have introduced misconceptions, misinterpretations, and other difficulties for the respondents which may have influenced the responses to some extent. However given that the completion by the respondents was supervised, and that only a very small number of questionnaires were incomplete, it would appear that this potential limitation was not a major problem.

It should be noted that the clinical diagnostic criteria and the clinical examination procedures, as defined by WHO, differ from those in general use by general dental practitioners. This emphasizes that a dental survey has a purpose which is markedly

different from the purpose of a clinical examination performed in a general dental practice. The clinical criteria applied in a survey are usually less refined, but strictly standardized, to ensure consistent interpretation and reproducibility. It is appreciated that clinical survey data from the individual point of view of a general practitioner, may appear to underscore the true situation. The epidemiological data collected through the present survey must therefore be interpreted with this consideration in mind by colleagues, who in their daily practice, use clinical criteria that are individualized to cover the single patient's unique needs. Survey-data cannot be individualized, as in individual patient treatment planning. They are population group assessments exclusively utilized for descriptive purposes and in the planning process. Nevertheless, the data concerned with both the type and degree of affliction of the given conditions, may be utilized to define a valid and meaningful description of the average affected individual.

VI.3. ORAL HEALTH RELATED KNOWLEDGE, BELIEFS, VALUES AND BEHAVIOUR.

The Chinese culture is a very strong common denominator, having a deep and forceful impact on the health related beliefs and behaviour of Chinese. It permeates all strata of the social system, even in an area like Hong Kong which is strongly exposed to Western culture. Traditional Chinese Medicine plays an important role among modern Chinese (53,65). In Hong Kong, traditional Chinese Medicine and Western Medicine co-exist and complement each other.

The questionnaires used in the international collaborative studies (WHO) were constructed with a view to the Western health care consumer and in some respects this approach is not appropriate for the Chinese living in Hong Kong. The holistic approach by the Chinese in the development and maintenance of a functional body equilibrium seeking to ensure optimal health in their daily life determines, to a large extent, health care practices at home and the consumption of Westernized health care services. An illustrative example of these cultural aspects is the paramount importance of the Chinese diet and the dietary habits. The Chinese diet serves many purposes and among these, the curative value and the health promotion value have a conspicuous bearing on the most prevalent dental diseases. With these cultural determinants in mind, the survey questionnaire was modified and supplemented following advice by a Chinese cultural anthropologist.

The questionnaire items focusing on acceptability, availability, and accessibility were likewise simplified and rephrased to ensure correct interpretation by the respondents. Direct comparisons with similar questionnaire data from non-Chinese respondents living in Western countries should be performed with caution. It is likewise important to realize that lack of knowledge among Chinese about the etiology, prevention, and cure of the major dental diseases, in terms of the Western medical

philosophy, is very often compensated by Chinese medical interpretation of the pathological phenomena.

The value of the questionnaire part of the survey must be seen in the light of the fact that the health care services and perhaps, especially the dental services in Hong Kong, are being planned and developed according to a Western health care model. This implies that health education of the health care consumers becomes the cornerstone of the service system.

The respondents reactions to questions related to their knowledge about the causes of the major oral diseases and their perceived susceptibility and preventability clearly revealed that some of the important objectives of health education will be in the dissemination of knowledge about the etiology, pathogenesis, prevention, and therapy of the oral diseases. Findings from the controlled satellite surveys conducted by senior dental students of the Faculty of Dentistry, University of Hong Kong, in various adult age strata and among student teachers attending the teaching colleges in Hong Kong (11,12,14,20-23,25-29), corroborate the revelation that widespread misconceptions and ignorance about oral diseases and oral health exist in the adult population in Hong Kong. Within the tenets of the Health Belief Model (6), widespread misconceptions about the etiology of the common major dental disorders would certainly reduce the effectiveness of any planned, educational initiatives to improve the oral health status of a community. One half of all respondents in the present survey indicated that they did not know what the causes of gum bleeding actually are. Furthermore between 82 per cent and 89 per cent of all respondents considered old age to be a cause of tooth loss. From these findings it can be concluded that the promotion of a more scientific orientation to the understanding of the causes of periodontal disease and tooth loss should be initiated without delay.

It is important to note that generally, the respondents were rather pessimistic about their own capabilities to prevent dental caries, bleeding gums, and toothache, whereas they had a stronger confidence in the dentist's capability to prevent these phenomena with the exception of the treatment of loose teeth. The respondents' pessimistic view of their own capabilities to prevent dental caries etc., may also be explained by differences in culturally defined concepts. There is good reason to believe that a potent contribution towards shaping the attitudes of the Hong Kong population regarding oral health care is the information promulgated by those delivering dental care. Perhaps a lack of confidence in the professions ability to manage advanced periodontal disease signals a need for the dissemination of more accurate information through the members of the dental profession.

A unanimously strong preference for natural teeth was found among Hong Kong Chinese, in both the present survey and in the satellite surveys conducted by senior dental students. This strong value was found to be prevalent, irrespective of economic, sex, and age group status.

The older generation of respondents in the present survey appeared to be more inclined than the younger generation to use "cooling" teas and herbal medicine to cure toothache and gum problems. Though the use of traditional Chinese cures was rather prevalent among the 35-44 year-old Chinese it appeared that both educational attainment and household income had a differential effect. The higher the educational level and the more economically privileged the respondents were, the less they were inclined to use traditional Chinese cures such as cooling teas and herbal medicine. The utilization of traditional Chinese cures etc. is an area of study which deserves much more attention than given in the present survey. The possibility that the utilization of the traditional Chinese cures could be a factor leading to delay in seeking advice and treatment, needs to be further investigated. From a Western point of view, the traditional Chinese cures are often measures which "cure" symptoms, whereas the Chinese see them as potent in re-establishing functional bodily equilibrium. Without a deeper understanding of the traditional Chinese cures and how they can be incorporated in the management of disease problems, the Western orientated health educator will be in a weak position to change health and disease behaviour with culturally acceptable methods.

For both the 15-19 and the 35-44 year-old Chinese, toothbrushing was practiced by more than 98 per cent as indicated by the positive reaction to the question of what they did yesterday. More than three quarters of the respondents used a fluoride dentifrice, and the use of toothpicks and mouthrinsing after eating were more prevalent among Chinese living in Hong Kong than found in many of the other survey populations exposed to similar questions. However, the degree to which these oral hygiene practices were oral health orientated, or based on other motivations was not investigated in the present survey. The findings related to home care practices were supported by the data gathered in the student satellite surveys.

Bearing in mind that Hong Kong's public water supplies have been fluoridated since 1961, and because of rather intensive television advertizing of toothpastes containing fluoride, it was not surprising that nine out of ten 15-19 year-olds and two thirds of the senior age group in the present survey knew about fluoride.

The eating of between-meal-snacks was considerably less frequent among the 15-19 year-old Hong Kong Chinese than found in comparable surveys from other countries. For the 35-44 year-old Chinese, it was found to be even less frequent than for the teenagers. Around 40 per cent of the 15-19 and 50 per cent of the 35-44 year-olds did not have any between-meal-snacks the day before the inquiry. The same trend, though somewhat weaker, was found for both age groups when asked about the intake of sweet drinks between the three daily meals. Asked about having sweet dessert at meal times yesterday, more than two thirds of the respondents of both age groups reported that they did not. A similar situation relating to between-meal-snacks etc. was found in the student satellite surveys (22,23,25,27,28). From the

statistics on annual per capita usage of sugar and sugar products in Hong Kong, which has been around 20 kgs since 1970, these findings about between-meal-snacks and sweet drinks or desserts were not unexpected.

According to findings from the WHO international collaborative studies (4) the 13-14 year-old Japanese students were clearly the least satisfied with the condition of their teeth and gums. A similar degree of dissatisfaction with the teeth and gums was found among the teenage Chinese, irrespective of sex, in the present survey.

Contrasting the data from the present survey, on the matter of timing of the last visit to the dentist, reasons for the visit and the services received, with similar data from comparable surveys conducted in other countries (4,9,10,47), is difficult, and conclusions should be drawn with caution. A direct comparison indicated that the Hong Kong Chinese consumers of dental services were very much different from the consumers in the other survey countries. Less than one quarter of the Hong Kong teenagers visited a dentist in the past 12 months whereas more than two thirds of the teenagers from the other countries did. Likewise the percentage of the 35-44 year-old Chinese who visited the dentist in the past twelve months was markedly lower than that in the other countries surveyed. It is also illustrative to note that more than half of the Chinese teenagers had never visited a dentist, had not done so in the last three years, or did not remember. The proportion was only slightly larger for the senior survey subjects. It was found in the present survey that household income was a strong factor influencing visiting behaviour.

The major reasons reported for never having visited the dentist, were; no dental problem, lack of time, and the perception that dental treatment is too expensive. "I have no dental problem", was stated by around two thirds of the teenagers and around one half of the 35-44 year-olds. An internal analysis revealed that those who indicated that they had no dental problem generally had a very low dental caries score namely, 0.4 and 1.5 DMF-T for the 15-19 and 35-44 year-olds respectively, as contrasted to 1.7 and 7.3 DMF-T for the total groups.

Asymptomatic reasons for the last visit to the dentist were reported by around one fifth of the Chinese aged 15-19 and 35-44 respectively. For the teenagers, this is an extremely low proportion in comparison with the findings of the majority of surveys mentioned earlier. But for the 35-44 year-olds, this lower percentage of subjects visiting the dentist for reasons which were not symptom related, was similar to that found in the comparable studies conducted in Poland, USA, and Japan. Household income was found to be a rather strong factor in the decision by the Hong Kong Chinese to make asymptomatic visits to the dentist.

Dental services in Hong Kong are delivered both by dentists registered with the Dental Council of Hong Kong, and by practitioners who are not registered with the Dental Council.

There is no reliable estimate of the exact number of unregistered practitioners, many of whom are believed to have received a formal dental education. The difference between these two categories of dental care providers is often not appreciated by the consumers of dental care in Hong Kong. However, it may be that some of the respondents, who reported no visits to a dentist in the past two years, had in fact visited an unregistered practitioner. It is also possible that a proportion of those who reported on their last dental visit were in fact reporting upon a visit to an unregistered practitioner.

The survey subjects of both age groups who had visited a dentist, reported that the dental services were generally accessible and available. It was, however, reported by one quarter of the teenagers that dental services were too expensive. The responses to the questions about accessibility and availability probably also reflected that the public transportation system in metropolitan Hong Kong to a large extent made it easy to visit dentists, irrespective of the distance between home, work, and dental practice locations. The majority of the registered dentists practice dentistry in the more centrally located areas of Hong Kong.

When queried about their satisfaction with the treatment received by dentists, only around ten per cent of both age groups reported that they were very satisfied. For the reasons previously explained, it cannot be assumed that the reported levels of satisfaction with the dental treatment received pertain to care delivered by registered or by unregistered practitioners. Almost thirty per cent of the economically least privileged among the 35-44 year age group were dissatisfied with the treatment received at the last visit. When discussing the accessibility, availability, and acceptability of the dental services in Hong Kong, it is noteworthy that the Chinese consumers of medical and dental services in Hong Kong are disinclined to complain or become involved in litigation. Very few malpractice cases are brought before the professional organizations, the medical and health authorities, or the court system. This situation is probably both culturally and pragmatically determined.

The low dental awareness and the rather symptomatic visiting pattern by Hong Kong people have lead to concerns about future prospects for the dental profession. Senior dental students have therefore involved themselves in analyses of the situation (15, 16, 17).

VI.4. CLINICAL FINDINGS

Teeth present

The average number of teeth present, both in the 15-19 and the 35-44 year-old Hong Kong Chinese, was higher than that found in any of the comparable surveys conducted in other countries (4,9,10,47). None of the Chinese survey subjects was found to be

edentulous in both jaws and all of the 15-19 year-olds had 21 or more teeth present. This was also the case for close to 96 per cent of the 35-44 year-olds. Compared with the percentage of edentulous survey subjects found in other countries, Hong Kong appears to represent an area with an extremely low tooth mortality. It is noteworthy that no edentulous 35-49 year-old government civil servants were found in the survey conducted in Hong Kong in 1982 (55), and that the average number of teeth present was close to the number found in the present survey.

Dental caries

In a population which has been exposed to water fluoridation for more than twenty years and which has a low per capita consumption of sugary products, it would be expected to find a low or very low level of dental caries. This expectation has now been confirmed in the present Hong Kong Survey and also corroborated by findings in the student satellite surveys (11-13,22,23,25-28).

For the 15-19 year-old Hong Kong Chinese, the prevalence of dental caries, in terms of the percentage of examinees having one or more DMF-T (Decayed, Missing, or Filled - Teeth), was 56.5, and for the 35-44 year-olds, around 90. The average number of DMF-T was 1.7 and 7.3 respectively for the teenagers and the senior subjects. It should, however, be noted that the 35-44 year-olds were not exposed to an optimal level of waterborne fluoride during their childhood. It can be foreseen that at year 2000, when water fluoridation has been in operation for forty years, the average number of DMF-T among the 35-44 year-olds will be even lower; probably 4-5 DMF-T when measured at the level of clinical diagnosis applied in the present survey. The fact that fluoridated toothpastes have been marketed effectively in Hong Kong during the last decade, and that more than two thirds of the subjects in the present survey reported that they used a toothpaste containing fluoride, may lead to a further depreciation of the dental caries experience in Hong Kong. If the dental caries data are compared with similar survey data gathered by the Joint Working Group of the Federation Dentaire International and the World Health Organization (30), it appears that the dental caries situation in Hong Kong ranks among the most favourable in the World. This assessment is further corroborated when the Hong Kong data are compared with the data from the previously mentioned surveys conducted in other countries or areas (4) and supplemented by previous surveys conducted by the Hong Kong Government and those conducted by senior dental students.

Dental caries treatment needs

Approximately half of the Hong Kong survey subjects from both age groups was found to have no need for any type of dental caries therapy. In countries like New Zealand (9,10) and Australia (47), similar proportions of survey subjects having no dental caries treatment need were found, irrespective of marked differences between these countries and Hong Kong in the dental

caries situation as a whole. For the Hong Kong population the large proportion having no dental caries treatment need reflected the low level of the disease whereas the large number of people with no need in New Zealand and Australia may have been influenced by the highly developed and easily accessible dental care systems. If the treatment need ratios (D/DF) for the three survey populations are compared, it is noteworthy that the ratio was considerably higher for the Hong Kong subjects than for the subjects examined in the two other countries. Dental caries treatment needs were low in both age groups, both in terms of the percentage of survey subjects in need of specified types of treatment and in terms of the average number of the treatment modalities needed per person. Assessment of the treatment needs, in terms of the complexity of the therapy needed, demonstrated that though there was a need for complex therapy, most of the therapeutic need was simple in nature. Very few 15-19 year-old Hong Kong subjects were found to be in need of pulp treatment and extractions due to caries, and with an average number of teeth in need of these types of treatment being a small fraction of one tooth (0.1), the absolute number of required treatments for a whole birth cohort in the age range between 15-19 can be estimated to be small. This trend, though not as marked, was also found for the 35-44 year-old Hong Kong Chinese.

In comparing these dental caries treatment needs with data from the dental student satellite surveys and surveys conducted in other countries or areas, it is justified to assume that the Hong Kong dental caries situation in the run-up to year 2000 - all other things being equal - is very propitious and promising.

Dental fluorosis

As there have been no data published on dental fluorosis in Hong Kong since 1962, the findings of this study are of added interest. The Community Fluorosis Index value for the 35-44 year age group was zero. The value for the 19 year-olds was 0.79 and, according to the index, is of slight public health significance. The higher index value of 1.05 for the 15 year-olds, places these teenagers just into the level where the condition is of medium public health significance. However, further analysis of the data indicates that for the major sub-group comprising only Hong Kong born and raised 15-19 year-olds, the Community Fluorosis Index is classified as slight. It should be noted that the above borderline levels of dental fluorosis observed in this study are related to earlier water fluoride concentration levels which have since been adjusted downwards, in line with more recent developments concerning the establishment of optimal fluoride concentration levels in tropical regions. As a result of these changes, the level of dental fluorosis will have declined and this change should now be evident in the younger population. It is of interest that the fluorosis observed, and classified as slight from the public health standpoint, was not a cause for concern among the survey subjects. This is illustrated in the data concerning the subjective opinions of the survey respondents towards the appearance of their own teeth. Fewer 15-19 year-olds were dissatisfied with the appearance of their teeth as compared

with the 35-44 year-olds.

Root surface caries

Early manifestations of root surface caries have been observed clinically in Hong Kong Chinese in their thirties and the anecdotal evidence from clinicians is that root surface caries accounts for a sizeable proportion of extracted teeth in age groups of 50 years and above. In view of these observations and the water fluoridation in Hong Kong it was decided to shed more light on root surface caries by including systematic observations in the present survey.

The diagnostic criteria applied in systematic observations of root surface caries have varied greatly from study to study (52). The diagnostic criteria applied in the present survey were based upon those recommended by the National Institute of Dental Research, National Institutes of Health, Bethesda, Maryland, USA in 1984 (44). These criteria are conservative.

A tooth surface completely covered by calculus was not scored for root surface caries. A mean of 5.4 sextants per person was found to have calculus and/or a higher CPITN Score. The presence and the amounts of calculus encountered, certainly produced an underscoring of root surface caries. Abundant plaque on root surfaces also probably obscured the presence of many lesions. There was, thus, a possibility that the found prevalence expressed as 14.5 per cent of persons having at least one tooth with root surface caries was an underestimate.

Many studies on root surface caries have been conducted in special population groups. A recent study of root surface caries prevalence in an adult population was conducted in Finland, under similar clinical conditions and applying comparable diagnostic criteria (51). In the age range 30-39 years, between 7.3 per cent and 11.2 per cent of subjects exhibited root surface caries. In the age range 40-49 years, between 11 per cent and 19 per cent of the subjects had root surface caries. In the Hong Kong survey, for the age ranges 35-39 and 40-44 years, the prevalence ranged between 13.2 per cent and 18.3 per cent which appears to be in line with the results from Finland. In both Hong Kong and Finland, the prevalence in males was higher than in females. The percentage of teeth present and attacked by root surface caries in the 35-44 year age group in Hong Kong was 1, whereas in Finland for the 30-39 year-olds this percentage was between 0.6 and 0.9.

Both of these prevalence estimates appear to be less than in other studies of selected groups. While it is likely that differences in the oral hygiene practices, diets, racial characteristics, and socio-economic levels of different populations might account for differences in the prevalence of root surface caries within different communities, the prevalences in Hong Kong and Finland as determined by representative population sampling and similar diagnostic criteria, appear to be strikingly similar.

The present survey did not include the elderly age strata of the Chinese population in Hong Kong and therefore the findings relative to the root surface caries phenomenon were exploratory in nature. The findings that the Chinese people in Hong Kong apparently retain their permanent dentition considerably longer than for similar Western populations indicates that Hong Kong is an exceptionally suitable area for detailed longitudinal epidemiologic studies of root surface caries.

Periodontal status

Much of the information on periodontal disease in Asians has been derived from data gathered employing the Periodontal Index (8). Application of the Periodontal Index has tended to show that the disease is much more prevalent and more severe in many Asian (and African) countries than in the USA or Scandinavia (31).

The Periodontal Index has inherent limitations and on the basis of recommendations from the World Health Organization has been largely replaced by the Community Periodontal Index of Treatment Needs, CPITN (2,48). Since the development of this index, both the World Health Organization and the Federation Dentaire Internationale have actively campaigned to promote its use in epidemiological investigations. The index was designed principally as an index to be utilized in the planning of oral health care services and though still being scrutinized it is generally accepted as an index which reflects the periodontal disease status within a community. In view of this, data over-and-above that required by the CPITN recommendations were recorded in the present survey. However these supplementary data will be presented in special articles at a later stage. The use of the CPITN in the present survey was in line with the recommendations of the WHO, and therefore should allow for valid comparisons with data from other countries and areas.

Only negligible proportions in both age groups had healthy gingiva. Calculus was found to be virtually omnipresent.

Twenty-six per cent of the teenage group was found to have shallow pockets. Were this finding to indicate that destructive periodontal disease had already commenced in over one-quarter of the teenagers, this would be highly significant. For the most part, however, these shallow pockets were not the result of the loss of periodontal attachment nor were they false pockets surrounding recently erupted teeth, as the second molars were not included as index teeth. Rather they were detected in the examination procedure due to swelling at the gingival margin and a reduced resistance to probing offered by the highly inflamed marginal gingiva even with the very light-probing forces employed. This finding of 26 per cent of the 15-19 year age group exhibiting some shallow pockets should be taken more as a reflection of the degree of marginal gingival inflammation, than as an indicator that destructive inflammation had spread to the deeper tissues of the periodontium. This was - in all probability - also the case for many of the 56 per cent of the 35-44 year-olds exhibiting shallow pockets.

The finding that 16 per cent of the 35-44 year-olds exhibited deep pockets is noteworthy in as much as deep pockets, registered by the CPITN, are taken to be an indicator of advanced loss of periodontal attachment. In a Hong Kong survey of Government Civil Servants conducted in 1982 (55) using similar criteria, it was found that only 4-6 per cent of the 35-44 year-olds had deep pockets. This marked discrepancy in prevalences of deep pockets between the two Hong Kong surveys cannot readily be explained. However, in the present survey each index tooth was probed at six sites, whereas in the 1982-survey study it was rare for more than four sites per sextant to have been probed.

It has previously been widely accepted that the more advanced stages of periodontal disease were significant oral health problems for adults. However, recent large surveys conducted in a range of countries using CPITN have indicated that it was only small proportions of the 35-44 year-olds who exhibited deep pockets (49). Surveys in both Tanzania and the Netherlands (49) have shown that only 5 per cent of 35-44 year-old subjects were found to have deep pockets, the prevalence of edentulous persons within this age range being zero for Tanzania and 19 per cent for the Netherlands. In Brisbane, Queensland (47) 4 per cent of 35-44 year-olds were found to have deep pockets and in New Zealand 8 per cent of 35-44 year-olds had deep pockets (9). In both Morocco and the German Democratic Republic (49), surveys have shown that 14 per cent of the 35-44 year-olds had deep pockets. Therefore it can be concluded that the prevalence of deep pockets in the 35-44 year-old Chinese in Hong Kong as detected in this survey was within the higher range of prevalences found in other studies from non-Asian populations. In a survey conducted recently in Thailand (8) the proportion of persons with deep pockets was not reported, but the mean number of sextants with deep pockets per person in the 35-44 year age group was found to be 0.2, with a mean of 0.2 sextants per person excluded because of inadequate numbers of teeth. This compares with the Hong Kong finding of a mean of 0.3 sextants per person with deep pockets and a mean of 0.1 sextants excluded for the same reason.

However, despite the rather high prevalence of deep pockets (16 per cent) found in the present survey among the 35-44 year-old Hong Kong Chinese, as compared to the prevalences reported in non-Asian studies, only 6 per cent was found to have one or more deep pockets in more than one sextant. This indicates that only this proportion could be considered to have a generalized advanced periodontal problem. This is not in accord with the generally held view that generalized advanced periodontal destruction is wide-spread among adults in Asian countries. The finding indicates that there was among adult Chinese residing in Hong Kong rather few individuals in the age range 35-44 years who appeared to be, or to have been, affected by generalized advanced periodontal destruction. The other findings clearly indicate that less serious periodontal conditions were widely prevalent in the 35-44 year age group.

Though advanced periodontal disease among the 35-44 Hong Kong Chinese was found to be more prevalent in males than in females it did not appear to be more severe or generalized in males than

in females. It has not been possible to compare this finding of a large difference in prevalence of deep pockets between males and females in the Hong Kong 35-44 year-olds with other surveys, because these other surveys did not publish any breakdown of data according to gender.

The proportion of the 35-44 year-old individuals in whom deep pockets were encountered remained constant irrespective of social indicators such as household income and level of educational attainment.

The Treatment Needs component of CPITN should be taken to indicate levels of, and strategies for, possible intervention on a community basis to improve the periodontal status of that community. The treatment needs should not be interpreted as delineating the treatment plans for individual survey subjects. In line with this, and by way of emphasizing the necessity for further investigations prior to the implementation of any mass interventions based on these assessed treatment needs, the chief of the Oral Health Unit, World Health Organization, has written: "regarding the provision of scaling, the decisions on - Whom to scale? In how many sessions or stages? When and how much? - need to be made before economically feasible and acceptable programs can be developed" (5).

VII. GOALS FOR ORAL HEALTH YEAR 2000

As a guide for countries in developing their own oral health goals, World Health Organization in co-operation with the International Dental Federation has established the so-called global goals for oral health by the year 2000 (63). It was stressed that the global goals were established after careful review of available information and taking into account the time span involved, as well as the realities of achieving changes in oral health status of populations. The five global goals are:

AGE	GOAL
(1) 5-6 years	50 per cent should be free of dental caries
(2) 12 years	3 or fewer decayed, missing, or filled teeth
(3) 18 years	85 per cent should retain all their teeth
(4) 35-44 years	A 50 per cent reduction in 1981 levels of edentulousness
(5) 65 years and over	A 25 per cent reduction in 1981 levels of edentulousness

Additional goals have been established for periodontal health specifically for the populations of the EEC-countries, for the USA and for the WHO Western Pacific Region. On the basis of these periodontal health goals some, but only few countries have developed their own goals.

The first global goal set for the 5-6 year-olds stipulates that half of these children should be free of dental caries. According to the 1980-survey of Hong Kong children (37), around three quarters of the 6 year-olds were found to have one or more dmf-teeth, whereas the proportion of 6 year-olds having one or more DMF-T was 17.8 per cent. Though the dental caries situation of the permanent dentition for the 6 year-olds in Hong Kong appears to be at a low prevalence level, the situation for the primary dentition needs to be considerably improved. Three surveys of the children population have been launched recently by staff of the Faculty of Dentistry to assess the situation in detail. One survey is focusing on the 5 year-olds, another survey is assessing the dental caries situation of children in the age range between 6 and 12, and the third is concerned with 12 year-olds.

The second global goal for the 12 year-old children has already been attained with the 1.5 DMF-T found in the 1980-survey for this benchmark group.

The third global goal relative to the 18 year-olds, stipulating that 85 per cent should retain all their teeth, has also been attained and the fact is that for the Hong Kong teenager, close to 100 per cent have a full complement of permanent teeth if the third molars are excluded.

The attainment of the fourth and the fifth goals set for the 35-44 and the 65 and over age groups, cannot be evaluated. However, the findings from the present survey that the 35-44 year-old Hong Kong Chinese were found to have 25.0 and 27.5 teeth present in 1984, when third molars were excluded and included respectively, augures very well for the situation in year 2000.

The present relatively advantageous oral health situation in Hong Kong with respect to the preservation of a functional permanent dentition and a low prevalence of dental caries on a population-wide basis should be maintained in the run-up to year 2000. Though there is ample room for improvement and enrichment of the oral health care delivery system in Hong Kong, and thereby for a further improvement of the oral health status, the maintenance of the present oral health situation with regard to the preservation of a functional permanent dentition and a low level of dental caries, appears to be a realistic goal. The important preventive measure which will ensure the maintenance of the present situation regarding the permanent dentition is the continuation of territory-wide water fluoridation.

It should be emphasized that there is a special need for improvement of the primary dentition. The high dental caries levels need to be reduced by additional measures, over and above the reduction given by water fluoridation.

In relation to water fluoridation, there is a need to continue monitoring the fluoride concentration of the drinking water in order to hold dental fluorosis at a negligible level.

Clearly there exists a need for an improvement in the periodontal status generally of people living in Hong Kong. The World Health Organization has encouraged countries to set goals for health to be achieved by the year 2000. One objective is that the pathway to achieving these goals can be monitored by the use of appropriate indices. The need to develop global goals for periodontal diseases is generally accepted. However, this presents many difficulties, given the current level of knowledge concerning the etiology and epidemiology of the various periodontal diseases. In terms of periodontal disease, the goals which have been set regionally and nationally, are largely couched in terms so as to be monitorable through the application of the CPITN.

The European Economic Community (31) has set the goals for periodontal health for the year 2000 to be (i) "At age 18, 90 per cent will have an acceptable gingival health status to the extent

that each person will have at least 3 healthy sextants (CPITN=0)", (ii) "At age 35-44, 75 per cent will have acceptable gingival health to the extent that each person will have at least 3 healthy sextants (CPITN=0)" and (iii) "At age 65 and over, no more than 10 per cent should have one or more sextants with deep pockets". These goals are certainly measurable by CPITN. However, these goals are only likely to be met through the intensive efforts of the already established and well developed dental care delivery systems with which economically privileged societies are endowed.

Other countries, territories, or regions engaged in setting goals for periodontal health, measurable by CPITN, must look to elements of CPITN appropriate to their situation, in terms of their existing periodontal disease levels and their dental care delivery systems.

In 1984 in Hong Kong, of those surveyed in the 15-19 year age group, only 14 per cent exhibited an acceptable gingival health status to the extent that each person had at least three sextants with CPITN=0. Therefore, a goal concerning the 15-19 year-olds that the proportion with acceptable periodontal health should increase from 16 to 90 per cent in 16 years, might be unrealistic.

Similarly, in 1984, only 3 per cent of the 35-44 year age group had an acceptable gingival health status such that at least 3 sextants had a CPITN=0. Those who will be 35 years of age in the year 2000 were 19 year-olds in 1984. At that date, 98 per cent of them were found to have CPITN=2. Thus a goal specifying an improvement for this age group in terms of CPITN=0, is dependent upon the removal of much calculus. This might well be unattainable.

Instead, as shallow pockets appear largely to be a reflection of the intensity of marginal gingival inflammation, it might be wise to couch the goals for Periodontal Health for All in Hong Kong by Year 2000, specifically in terms of shallow pockets. The prevention of, or a reduction in, shallow pockets within this community is not dependent upon intervention by dental care providers, but probably could be achieved purely through adequate personal oral hygiene. The 15-19 year age group of the year 2000 were born between 1981 and 1985. This cohort should have benefited from maximum exposure to the School Dental Service. If the School Dental Service can increase its emphasis on prevention, rather than repair, then this, coupled with a well planned oral health education initiative should ensure that the personal oral hygiene of this age group improves to the extent that a negligible proportion of 15-19 year-olds shall have shallow pockets in the year 2000. This should be the interim goal for this age group. For the 35-44 year age group in the year 2000, the goal should also be based on self-reliance and personal oral hygiene, rather than on dental intervention. The interim goal proposed for this age group for the year 2000, is that 80 per cent should not exhibit shallow pockets. At this stage it is not possible to formulate goals for the elderly as currently there is insufficient baseline data.

Contrasting the global goals for oral health by the year 2000 for the population aged 5-44 years as established by WHO/FDI, with the findings of the present survey, the Government surveys conducted in 1980 (37) and 1982 (55), and the satellite surveys conducted by senior dental students (22,25,26), it appears there is justification for the following tentative oral health goals for year 2000 in Hong Kong:

AGE	GOAL
5-6 years	30 per cent should be free of dental caries in their primary dentition*;
	80 per cent should be free of dental caries in their permanent dentition and the mean number of DMF-T should be less than 0.3 *;
12 years	60 per cent should be free of dental caries in their permanent dentition and the mean number of DMF-T should be 1 or less *;
18 years	50 per cent should be free of dental caries in their permanent dentition and the mean number of DMF-T should be 2, or less *;
	90 per cent should retain all their permanent teeth not counting teeth extracted for orthodontic reasons;
	90 per cent should be free of shallow periodontal pockets **;
	60 per cent should have an acceptable gingival health status to the extent that each person should have at least 3 non-bleeding sextants **;
35-44 years	Less than 1 per cent should be edentulous in both jaws;
	95 per cent should retain over twenty permanent teeth;
	20 per cent should be free of dental caries and the mean number of DMF-T should be 6 or less *;
	90 per cent should be free of root surface caries ***;
	80 per cent should be free of shallow periodontal pockets **;

30 per cent should have an acceptable gingival health status to the extent that each person should have at least 3 non-bleeding sextants **.

- * As measured by the clinical diagnostic criteria recommended by WHO.
- ** As measured by the diagnostic criteria recommended for CPITN.
- *** As measured by the clinical diagnostic criteria applied in the present survey.

VIII. CONCLUSIONS AND RECOMMENDATIONS

On the basis of the broad variety of data on the oral health related perceptions, knowledge, values, and behaviour collected through the present survey of selected age groups involving adult Chinese residing in Hong Kong it can be concluded that:

- large proportions of the adult Chinese population had perceptions about their susceptibility to and the preventability of the most prevalent oral diseases which may inhibit positive oral health related behaviour,
- misconceptions and lack of knowledge about the etiology and prevention of the most prevalent oral diseases, especially periodontal diseases were rather common,
- the vast majority of the age groups surveyed had a strong preference for the natural dentition, whereas the expressed satisfaction with the condition and appearance of the teeth was rather low,
- oral health care practices at home, such as toothbrushing with a toothpaste containing fluoride, use of toothpicks, and mouthrinsing after eating were common,
- consumption of sweet drinks and food was low and few respondents indulged in frequent between-meal-snacks,
- traditional Chinese medical beliefs and cures were quite common as an adjunct to the Western medical concepts,
- relatively large proportions of the respondents had experienced toothache, gingival inflammation, or gum bleeding during the last year,
- more than half of the 15-19 year-olds had not visited a dentist within the last three years or had never visited a dentist,
- four out of ten 35-44 year-olds had not visited a dentist within the last three years or had never visited a dentist,
- asymptomatic, preventive visits to the dentist were practiced by little more than twenty per cent of the respondents from both age groups,
- toothache, broken teeth, and tooth extractions were the most frequently quoted reasons for visiting the dentist during the last year, especially for the economically less privileged,

- the services of a registered dentist were utilized by the majority of the respondents, but as far as could be discerned unregistered dentists' services were relied upon by a substantial number of low income respondents,
- the accessibility and availability of dental services were judged by the respondents to be satisfactory, but the satisfaction with the services received was characterized by some reservations,
- perceiving no dental problem was the most frequent reason given by both age groups for having never visited a dentist.

The clinical findings of the present survey lead to the conclusions that:

- edentulousness and loss of permanent teeth among Hong Kong Chinese below the age of 45 were insignificant oral health problems,
- dental caries prevalence and experience measured at the clinical diagnostic level applied, were low among the 15-19 year-olds and moderate among the 35-44 year-olds,
- the dental caries situation - all other things being equal - should improve further in the run-up to year 2000 because more birth cohorts will have had the benefit of water fluoridation and exposure to fluoridated toothpaste,
- the volume of dental caries treatment needs for the vast majority of Hong Kong Chinese below the age of 45 was modest and could be covered by rather simple therapeutic programs,
- mild forms of dental fluorosis appeared to be rather prevalent among the 15-19 year-olds who had been exposed to a fluoride concentration of 1.0 ppm from May 1967. It is expected that the lowering of the fluoride concentration to an all-year 0.7 ppm in 1978 will lead to a reduction in the level of fluorosis in future,
- the clinical assessment of dentofacial anomalies and the required orthodontic treatment were too crude to give sufficient information,
- root surface caries was detected in around 15 per cent of 35-44 year-olds, but relatively few teeth were affected. Root surface caries was not found to be widespread among the 35-44 year-old Chinese on the basis of the criteria and methods of clinical examination employed,
- dental calculus was found to be virtually omnipresent in both age groups and only relatively few persons in both age groups were found to have clinically healthy gingiva,

- deep periodontal pockets were found in only 16 per cent of the 35-44 year-olds. Among these persons, few had more than one sextant affected. A small proportion appeared to be, or to have been, affected by generalized advanced periodontal destruction.

The proposed set of goals for year 2000 for the Hong Kong population is based on the following assumptions:

- water fluoridation will be continued at a level of fluoride concentration which both ensures maximum dental caries protection and holds dental fluorosis at negligible levels,
- the number of registered dentists with a modern comprehensive professional education will gradually increase,
- the number of dental ancillaries with a modern comprehensive training will gradually increase.

Taking into consideration the survey data collected in Hong Kong during the last three decades, the following recommendations are made to ensure the achievement of the proposed set of oral health goals for year 2000:

- continuous oral health surveys of strategic population strata should be launched with appropriate time spacing. Especially the oral health situation of the elderly population needs to be investigated,
- the advancement of dental research is of paramount importance. Besides the continuous development of basic sciences and clinical studies, there is an urgent need for supplementation of existing epidemiologic and sociologic data, especially in study areas such as:
 - the prevalence and severity of dental caries in the primary dentition and the effects of early loss of primary teeth on the development and function of the permanent dentition,
 - dental fluorosis and other dental hard tissue defects,
 - the prevalence and severity of dento-facial anomalies,
 - the prevalence and severity of root surface caries, especially in population strata over the age of 50 years,

- the prevalence and severity of periodontal diseases in selected age groups, in particular to investigate periodontal diseases in the elderly population,
- the causes of loss of permanent teeth,
- the prevalence and severity of oral mucosa diseases,
- an oral health data bank should be established with the purpose of ensuring easy data retrieval for planning purposes,
- on the basis of the data and information available, a system for the analysis of future oral health manpower requirements should be established and developed with due regard to local conditions and the future administrative structure in Hong Kong.
- expansion of the school dental services should lead to the development of a systematic oral health care delivery system for children from 3-16 years of age. This future system should be founded on health education and prevention. With the long term purpose of improving the periodontal health status of the adult population, heavy emphasis should be placed on effective oral hygiene. The health education program should be firmly organised and systematic, both in strategy and tactics, according to modern health education principles and methods (35,64).
- the enhancement of the school dental service will bring benefits not limited to the child population. Experiences from other countries in which the traditional school dental services have been further developed, and enriched, indicate strongly that the effects permeate the adult population. Considering the cost-effectiveness of the existing school dental services and the consumer satisfaction (13) with the services rendered, further expansion and improvements would probably be one of the least expensive means of improving the general oral health status of Hong Kong people,
- an area-wide health education enterprise coupled with modern marketing approaches should be implemented as a co-operative government-dental profession initiative to ensure that the considerable increase in possible dental service output be matched with a comparable increase in the population's demand for services,
- dental health education programs should be delivered in a form which is culturally acceptable to the people of Hong Kong.
- dental health education should be integrated and co-ordinated with general health education as much as possible and the basic principles of the primary health care approach (62-64) should be followed,

- judicious utilization of available dental services should be enhanced through initiatives such as third party financial schemes. Such financial schemes should encourage prevention and should motivate individuals to assume responsibility for their own oral health. The schemes should be carefully monitored to ensure cost-effectiveness and quality,
- planned research studies should be conducted with the purpose of designing cost-effective programs for the delivery of oral health care to all population groups, including those with special needs, such as the handicapped and the elderly.

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APPENDICES

1. Invitation to heads of household to participate in Survey (English)
2. Invitation to heads of household to participate in Survey (Chinese)
3. Control sheet for home visitors
4. Instruction to home visitors
5. Classification of Occupation
6. Survey Questionnaire (English)
7. Survey Questionnaire (Chinese)
8. Clinical Record Form
9. Transformation of caries diagnosis codes to WHO codes
10. Clinical Examination Criteria
11. Computation of the CPITN score for each sextant

To the head of the household:

Dental Health Survey

In order to evaluate the dental health of the residents of Hong Kong, and to make recommendations for the future development of dental services, The Prince Philip Dental Hospital, University of Hong Kong, is conducting a survey in this district. This will include an interview with your family members in the age range of 15-19 and 35-44 years. In addition, the hospital will provide the following services for the respondents: free dental checkups, advice relating to dental health and oral hygiene instruction. Oral hygiene aids will be given to the respondents as well.

Please encourage your family members in the two age groups, 15-19 and 35-44 years, to participate in the survey. Please call 5-4090385 to arrange for a free dental checkup. The office hours are as follows:

Monday - Friday	9:00 am - 5:00 pm
Saturday	2:00 pm - 8:00 pm
Sunday	10:00 am - 4:00 pm

If you are not able to call the Hospital, our staff will visit your home (with documents of identification) and assist you in making arrangements. If necessary, we will provide transport from your home to the hospital. The address of the hospital is:
34 Hospital Road, Sai Ying Pun, Hong Kong

All the personal data obtained during the survey will be kept strictly confidential. I look forward to your co-operation which will ensure that this important survey is completed.

Yours sincerely,

Professor W.I.R. Davies
Director

UNIVERSITY OF HONG KONG

Faculty of Dentistry



The Prince Philip Dental Hospital,
34 Hospital Road, Hong Kong.
Tel: 5-4090

逕啓者：

牙齒健康調查

為推進本港居民之牙齒健康，菲臘牙科醫院現在本區進行一項牙齒健康研究，其中包括訪問府上15-19及35-44歲的各位成員。是次研究，菲臘牙科醫院將免費特別為所有被訪者提供一次牙齒檢驗服務，包括牙齒健康及口腔衛生指導，並贈送口腔衛生用品。

懇請閣下鼓勵府上15-19歲及35-44歲之成員參與是次研究，閣下可於下列時間致電5-4090385以安排到菲臘牙科醫院作免費的牙齒檢驗。

本院接聽電話時間：

星期一至五	上午9時至下午5時
星期六	下午2時至8時
星期日	上午10時至下午4時

倘閣下未暇致電本院，本院將派職員携同身份證明文件(工作証)到府上為閣下安排上述服務。如有需要，並盡可能為被訪者，提供到本院之交通服務。本院地址為：香港西營盤醫院道34號。

是次研究中所有個人資料將予保密，敬希閣下與本院合作，俾能完成此項重要之研究。

此致

貴戶主

菲臘牙科醫院院長戴義安教授

Professor W. I. R. Davies



ORAL HEALTH SURVEY 1984
CONTROL SHEET

RECORD OF LIVING QUARTER CALLS	CALL 1	CALL 2	CALL 3	CALL 4
Home Visitor Number	&	&	&	&
Date of call Day/Month	/	/	/	/
Time of call	:	:	:	:

OUTCOME

Telephone number _____

Appointment(s) made	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No suitable age	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not co-operative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Caretaker problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vacant	<input type="checkbox"/>			
Demolished	<input type="checkbox"/>			

ACTION

Telephone	Day/Month	/	/	/	/
	Time	:	:	:	:
Call again	Day/Month	/	/	/	/
	Time	:	:	:	:
Arrange transport	Day/Month	/	/	/	/
	Time	:	:	:	:
Cease follow-up		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NAME

APPOINTMENT

Day/Month /
Time :

 /
 :

 /
 :

 /
 :

 /
 :

PERIODONTOLOGY AND PUBLIC HEALTH**TELEPHONE FOLLOW-UP - WORKING FROM THE CONTROL SHEET**

The reasons for a telephone follow-up are:

1. To arrange an appointment time.
2. To confirm transport arrangements.
3. To make contact with suitable household members.
4. To make arrangements relating to any combination of (1), (2), or (3) above.

ARRANGE APPOINTMENT TIME

On the reverse side of the control sheet, the names of the survey subjects have already been entered. Explain you are calling in relation to the Oral Health Survey being conducted by HKU. Arrange a time and enter it on both the **CONTROL SHEET** and on the **MASTER APPOINTMENT SHEET**. If it is still not possible to arrange an appointment time, please find when you should phone again to complete the arrangement. Make a note on the **CONTROL SHEET** relating to such information.

CONFIRM TRANSPORT ARRANGEMENTS

When this is necessary, further information will be provided for you.

MAKE CONTACT WITH SUITABLE HOUSEHOLD MEMBER

There may not be names entered on the reverse side of the **CONTROL SHEET**. However the telephone number is entered in the **OUTCOME** section and the 'contact not suitable' box will also have been ticked. Look to see what time and/or date has been entered in the 'phone' box in the **ACTION** section. This should indicate the time you should phone to contact a suitable person.

When your call is answered:

1. Explain you are calling in relation to the Oral Health Survey being conducted by HKU.
2. Ask to speak to the named person or household head.
3. If not available find out when to phone back and make a note of the time and date.

4. Enter the person's name and check that the person is in the age range 15-19 or 35-44.
5. Also enter names of all other family members in these age ranges and make appointments for them as well.
6. Then check if any other households live at that address.
7. If yes, then ask to speak to the head of that household, and arrange appointments as above.
8. If yes, but they are not in, ask for the family name, enter it, and find out when to phone back, and make a note of that time and date.
9. Check if there are any further households.
10. Express thanks for their co-operation.

31 July 1984.

OCCUPATION

Occupation – The kind of work done during the reference period by a person employed (or performed previously by the unemployed) The classification used in the By-census follows the major groups of the International Standard Classification of Occupation

- | | |
|---|---|
| <i>Professional, technical and related workers</i> – Includes qualified professional scientists, doctors and dentists, architects, engineers and surveyors, marine and aviation officers and engineers, university academic staff, qualified teachers, system analysts and computer programmers, lawyers, accountants, members of religious orders, writers, artists, sportsmen librarians, social workers, nurses and other para-medical workers, and other technicians | 1 |
| <i>Administrative and managerial workers</i> – Includes administrative officers in government service, consular staff; directors, managers and working proprietors (except wholesale and retail trade import and export, catering and lodging services) in industry, commerce, transport and services | 2 |
| <i>Clerical and related workers</i> – Includes executive officers in government service stenographers and typists, punching and computing machine operators, book-keepers and clerks of any kind, transport conductors, postmen, telephone operators, ship s radio officers and flight radio operators | 3 |
| <i>Sales workers</i> – Includes managers and working proprietors in wholesale and retail, import and export trade; sales supervisors, salesmen shop assistants and hawkers | 4 |
| <i>Service workers</i> – Includes managers and working proprietors of catering and lodging services, hotel and domestic staff, building caretakers, laundry workers, barbers and hairdressers, police and other disciplined services, tourist guides and other service workers | 5 |
| <i>Agricultural workers and fisherfolk</i> – Includes master farmers, farm hands, gardeners in parks, master fishermen, fishermen, fish farmers and oyster culturists | 6 |
| <i>Production and related workers transport equipment operators and labourers</i> – Includes foremen and supervisors in manufacturing and construction industries, miners and quarrymen, metal and chemical processers, food and beverage processers, tobacco workers, textile workers, tailors and other clothing workers, shoe-makers and other leather workers, blacksmiths, tool-makers, fitters and machinists, radio and electrical workers, goldsmiths and jewellers glass and pottery workers rubber and plastic product workers, printing and painting workers, musical instrument makers and other production workers bricklayers carpenters and other construction workers, and stationary engine operators hand packers, dockers and loaders, riggers and crane operators, seamen, drivers and lighthouse operators | 7 |
| <i>Armed forces and unclassifiable</i> – Includes members of the armed services of Britain and other countries, persons in occupation inadequately described or unclassifiable | 8 |

HONG KONG ORAL HEALTH SURVEY 1984

SECTION 1 IDENTIFICATION

QUESTION 1

Name _____ Phone number: Home _____

Work _____

Address _____

QUESTION 2

Sex Male _____

Female _____

QUESTION 3

What are your origins:

1. Chaozhou _____

2. Danjia/Helao _____

3. Fujian _____

4. Kejia _____

5. Guangdong Province/Macau/Hong Kong _____

6. Shanghai/Beijing/Tianjin _____

7. Other parts of China (Specify) _____

QUESTION 4

What is your age by the western calendar _____ years

QUESTION 5

How many years have you lived in Hong Kong _____ years

QUESTION 6

Please indicate the income range
your household falls into:

- 1. 0 - 1999 _____
- 2. 2000 - 3999 _____
- 3. 4000 - 5999 _____
- 4. 6000 - 7999 _____
- 5. 8000 - 9999 _____
- 6. 10000 + _____
- 7. Don't know _____

QUESTION 7

Please indicate the highest educational standard you have
attained:

- 1. Primary school _____
- 2. Secondary school _____
- 3. Post secondary (including vocational
training and non-degree courses at
Polytech) _____
- 4. Degree course Polytech/University _____

QUESTION 8A (15-19 year-olds only)

Occupation of head of household _____

What are you doing now:

- 1. Secondary school student _____
- 2. Post-secondary student (including
vocational training and non-degree student
at Polytech) _____
- 3. Degree student Polytech/University _____
- 4. I am not a student, my occupation is _____

QUESTION 8B (15-19 Year olds only)

If you are still a student, what will your future occupation be:

(Specify) _____

QUESTION 8C (35-44 year-olds only)

What is your occupation: _____(Title)

Where do you work: _____

If you are a employer, supervisor, or manager,
how many employees do you supervise? _____

SECTION 2 ORAL HEALTH KNOWLEDGE

QUESTION 9

During the next five years, do you think you will get:

	Likely	Not likely	Don't know
1. Bleeding gums	_____	_____	_____
2. Broken tooth	_____	_____	_____
3. Toothache	_____	_____	_____
4. Tooth decay	_____	_____	_____
5. Loose teeth	_____	_____	_____

QUESTION 10

During the next 5 years, can you do much to prevent:

	Much	Not much	Don't know
1. Bleeding gums	_____	_____	_____
2. Broken tooth	_____	_____	_____
3. Toothache	_____	_____	_____
4. Tooth decay	_____	_____	_____
5. Loose teeth	_____	_____	_____

QUESTION 11

Do you think a dentist can successfully treat:

	Much	Not much	Don't know
1. Bleeding gums	_____	_____	_____
2. Broken tooth	_____	_____	_____
3. Toothache	_____	_____	_____
4. Tooth decay	_____	_____	_____
5. Loose teeth	_____	_____	_____

QUESTION 12

Some people have false teeth (dentures). Do you think:

1. Natural teeth are better than false teeth	_____
2. False teeth are better than natural teeth	_____
3. Both are about the same	_____
4. Don't know	_____

QUESTION 13A

What do you think causes gum disease: _____

QUESTION 13B

What do you think causes tooth decay: _____

QUESTION 13C

What causes tooth loss:

	Yes	No	Don't know
1. Tooth decay	_____	_____	_____
2. Gum disease	_____	_____	_____
3. broken tooth	_____	_____	_____
4. Old age	_____	_____	_____
5. Other (Specify) _____			

SECTION 3 ORAL HEALTH PRACTICES

QUESTION 14

Do you drink "cooling" teas or consume herbal medicine to cure:

	Yes	No	Don't know
1. 'Sour' feeling in tooth	___	___	___
2. Toothache	___	___	___
3. Gum problems, e.g. gingivitis	___	___	___

QUESTION 15

Which of the following did you do yesterday:

	Yes	No	Never heard of it
1. Used a toothbrush to clean teeth	___	___	___
2. Used a toothpick to remove food particles	___	___	___
3. Used dental floss to clean between teeth	___	___	___
4. Used a disclosing tablet to observe plaque	___	___	___
5. Used a mouthwash to clean teeth	___	___	___
6. Rinsed the mouth after eating	___	___	___
7. Used a toothpaste that contained fluoride	___	___	___
8. Massaged the gums	___	___	___
9. Drink cooling teas or consume herbal medicine to cure toothache or gum problems	___	___	___

QUESTION 16

	Yes	No	
Do you have your own toothbrush:	_____	_____	
How long have you had your present toothbrush	_____	_____	Months

QUESTION 17

	Yes	No	Don't know
Have you ever heard of "fluoride":	_____	_____	_____
If "yes", what is it used for:			
(Specify)	_____		

QUESTION 18A

Yesterday, how many times did you have a sweet drink between the three main daily meals: (Check one only)

- 1. None _____
- 2. Once _____
- 3. Twice _____
- 4. Three times _____
- 5. More than three times _____

QUESTION 18B

Yesterday, how many times did you have between meal snacks except fruits: (check one only)

- 1. None _____
- 2. Once _____
- 3. Twice _____
- 4. Three times _____
- 5. More than three times _____

QUESTION 18C

Yesterday, how many times did you have a sweet desert at mealtimes: (check one only)

- 1. None _____
- 2. Once _____
- 3. Twice _____
- 4. Three times _____
- 5. More than three times _____

SECTION 4 ORAL HEALTH CONDITION

QUESTION 19

Have you had any of the following problems during the last year:

	Yes	No	Don't know
1. A swelling inside the cheek or lips	___	___	___
2. A broken tooth	___	___	___
3. A broken filling	___	___	___
4. Gum boil, sinus	___	___	___
5. Gingival inflammation/periodontal disease	___	___	___
6. Aphthous ulces	___	___	___
7. Bad breath	___	___	___
8. Bleeding gums	___	___	___
9. Toothache	___	___	___
10. Loose teeth	___	___	___
11. Dental calculus	___	___	___

QUESTION 20

	Yes	No	Don't know
Do you have REMOVABLE false teeth	___	___	___

QUESTION 21A

Answer this question if you have REMOVABLE false teeth, otherwise go to Question 22

Do you wear your false teeth: (Check one only)

1. Only when eating _____
2. Only when outside of the home _____
3. Only during the day _____
4. Most of the time _____
5. Hardly ever _____
6. All the time including sleeping _____

QUESTION 21B

When you wear your false teeth:

- | | Yes | No | Don't know |
|--|-------|-------|------------|
| 1. Can you talk clearly | _____ | _____ | _____ |
| 2. Can you eat all right | _____ | _____ | _____ |
| 3. Do they look all right | _____ | _____ | _____ |
| 4. Do they fit all right | _____ | _____ | _____ |
| 5. Are they painful | _____ | _____ | _____ |
| 6. Do you have any other problems with them (Specify)_____ | | | |

QUESTION 21C

How many years ago did you get your present false teeth: _____Years

QUESTION 21D

Was the dentist who made your false teeth: (Check one only)

- 1. Here, at the Prince Philip Dental Hospital _____
- 2. At a government clinic _____
- 3. A licenced dentist in private practice _____
- 4. An unlicenced dentist in private practice _____
- 5. Other (Specify) _____

QUESTION 21E

	Yes	No	Don't know
Can you chew better with your false teeth than without them:	_____	_____	_____

QUESTION 22

	Yes	No	Don't know
Are you satisfied with:			
1. The condition of your gums	_____	_____	_____
2. The condition of your teeth	_____	_____	_____
3. The appearance of your teeth	_____	_____	_____

SECTION 5 PROFESSIONAL SERVICES

Please indicate when you last visited a dentist:

- 1. _____ (Month) _____ (Year)
- 2. I have never visited a dentist _____

QUESTION 23

If you have never been to a dentist, please turn to the green page and fill it in now.

QUESTION 24

What was YOUR REASON for visiting the dentist:

	Yes	No	Don't know
1. I had no complaint - I just went for a check-up	___	___	___
2. I had toothache	___	___	___
3. I had a broken tooth	___	___	___
4. I had a broken filling	___	___	___
5. I had problems with my gums	___	___	___
6. To get false teeth or have them adjusted	___	___	___
7. For tooth extraction	___	___	___
8. To get my teeth straightened	___	___	___
9. Other reason (Specify) _____			

QUESTION 25

At this last visit, what did THE DENTIST DO:

	Yes	No	Don't know
1. X-rays	___	___	___
2. Tooth cleaning/scaling	___	___	___
3. Teach you how to brush your teeth	___	___	___
4. Gum surgery	___	___	___
5. Fillings, crowns, root canal treatment	___	___	___
6. Extraction of teeth	___	___	___
7. Make new dentures or adjust them	___	___	___
8. Straighten the teeth	___	___	___
9. Just a check-up	___	___	___
10. Other (Specify) _____			

QUESTION 26A

At this last visit, was the dentist:

1. Here, at the Prince Philip Dental hospital _____
2. At a government clinic _____
3. A licenced dentist in private practice _____
4. An unlicenced dentist in private practice _____
5. Other (Specify) _____

QUESTION 26B

Was this last visit to a dentist:

1. In Hong Kong _____
2. In China _____
3. In another country (Specify) _____

QUESTION 27

At your last visit to a dentist:

- | | Yes | No | Don't know |
|--|-------|-------|------------|
| 1. Was this dentist too far away | _____ | _____ | _____ |
| 2. Were you able to get off work | _____ | _____ | _____ |
| 3. Were you able to get an appointment at a time that suited you | _____ | _____ | _____ |
| 4. On arrival, did you have to wait for a long time | _____ | _____ | _____ |
| 5. Was the treatment too expensive | _____ | _____ | _____ |

QUESTION 28

At this last visit, were you satisfied with the treatment you received:

1. Very satisfied _____
2. Satisfied _____
3. Not satisfied _____ Why not (Specify)_____

Thank you for completing the questionnaire
Please hand it to the clerk now.

NOTE: This question is to be printed on GREEN paper

QUESTION 29

This question is to be answered only by those who have never visited a dentist

Which reasons below explain why you have never visited a dentist:

	Yes	No	Don't know
1. I have no dental problem	___	___	___
2. I'm afraid of the pain	___	___	___
3. I'm afraid of the dentist	___	___	___
4. It's too expensive	___	___	___
5. It's too far to go	___	___	___
6. I haven't time	___	___	___
7. I'm unable to get off work	___	___	___
8. Waiting time to see dentist is too long	___	___	___
9. A dentist cannot help my dental problems	___	___	___
10. Other reason (Specify) _____			

Thank you for completing this questionnaire.

Please hand it to the clerk now.

一九八四香港口腔衛生問卷

□□□□

1-4

咭 1

5

第一部份：個人資料

TPU □□□□

6-8

一、姓名：_____ 電話：(住宅)_____

(辦事處)_____

地址：_____

二、性別：男_____

女_____

9

三、籍貫：

10

潮州 _____

蛋家 / 鶴佬 _____

福建 _____

客家 _____

廣東省，澳門或香港 _____

上海 / 北京 / 天津 _____

中國其他地方 _____

四、年齡 (按西曆計算) _____ 歲

11-12

五、你喺香港住咗幾耐? _____ 年

13-14

六、你家庭總收入有幾多錢?

15

0 -1999 _____

2000-3999 _____

4000-5999 _____

6000-7999 _____

8000-9999 _____

10000 + _____

唔知道 _____

七、你嘅教育程度有幾高呢?

16

1. 小學 _____
2. 中學 (包括預科) _____
3. 專上 (包括工業學院及理工非學位課程) _____
4. 大學或理工學位課程 _____

八、A. (只適用於十五至十九歲)	17
你屋企嘅一家之主嘅職業係乜嘢? _____	
你而家係	18
1. 中學生 _____	
2. 專上(包括工業學院及理工學位課程) _____	
3. 大學或理工之學位學生 _____	
4. 而家唔係學生，我嘅職業係 _____	
八、B. (只適用於十五至十九歲)	19
如果你仍然係一個學生，你想將來做乜嘢職業? _____	
八、C. (只適用於卅五至四十四歲)	20
你而家職業係 _____ (職位) _____	
你喺邊度做嘢 _____	
如果你做緊「老板」(或經理，主管)，你有幾個職員? _____	

- (A) 學童牙齒保健計劃是為照顧兒童的牙齒而設。
- | | 是 | 否 | 不知道 | |
|-----------------------|-------|-------|-------|----|
| (I) 以前曾聽過此項服務？ | _____ | _____ | _____ | 9 |
| 如答「是」， | | | | |
| (II) 家庭中有成員參加了此項計劃。 | _____ | _____ | _____ | 10 |
| 你覺得此項服務是 | | | | |
| (III) 為中、小學學童而設 | _____ | _____ | _____ | 11 |
| (IV) 只是提供與小學學童 | _____ | _____ | _____ | 12 |
| (V) 收費昂貴 | _____ | _____ | _____ | 13 |
| (VI) 很難參加 | _____ | _____ | _____ | 14 |
| (VII) 所有牙科治療過程由註冊牙醫執行 | _____ | _____ | _____ | 15 |
- (B) 你認為學童牙科保健計劃能否充份提供以下的服務？
- | | 足夠 | 不足夠 | 不知道 | |
|----------|-------|-------|-------|----|
| (a) 補牙 | _____ | _____ | _____ | 16 |
| (b) 脫牙 | _____ | _____ | _____ | 17 |
| (c) 洗牙 | _____ | _____ | _____ | 18 |
| (d) 矯正牙齒 | _____ | _____ | _____ | 19 |
- (C) 你認為刷牙流牙血是否正常現象？
- | | 是 | 否 | 不知道 | |
|--|-------|-------|-------|----|
| | _____ | _____ | _____ | 20 |
- (D) 你認為以下那些食物特別加有「氟」素？
- | | 是 | 否 | 不知道 | |
|----------|-------|-------|-------|----|
| (I) 食物 | _____ | _____ | _____ | 21 |
| (II) 水 | _____ | _____ | _____ | 22 |
| (III) 牙膏 | _____ | _____ | _____ | 23 |
| (IV) 牛奶 | _____ | _____ | _____ | 24 |
- (E) 你估計一個在中環或尖沙咀執業的註冊牙醫對以下的治療收費多少？
- | | | | |
|--------------|--------|--|----|
| (I) 脫牙 | _____元 | | 25 |
| (II) 檢查牙齒 | _____元 | | 26 |
| (III) 洗牙 | _____元 | | 27 |
| (IV) 補牙 | _____元 | | 28 |
| (V) 修補撞損了的門牙 | _____元 | | 29 |
| (VI) 一副全口牙托 | _____元 | | 30 |
- (F) 你認為所有註冊牙醫都是同一收費？
- | | | | |
|---------|---------|-----------|----|
| 是 _____ | 否 _____ | 不知道 _____ | 31 |
|---------|---------|-----------|----|

第二部份：口腔衛生知識

九、喺未來五年，你估你會唔會有：

	好可能會有	唔多可能會有	唔知道	
1. 牙肉出血	_____	_____	_____	21
2. 崩牙 (或裂牙)	_____	_____	_____	22
3. 牙痛	_____	_____	_____	23
4. 蛀牙	_____	_____	_____	24
5. 牙齒鬆脫 (甩牙)	_____	_____	_____	25

十、喺未來五年，你估你有冇辦法去預防以下嘅情形呢？

	有好多辦法	冇乜辦法	唔知道	
1. 牙肉出血	_____	_____	_____	26
2. 崩牙 (裂牙)	_____	_____	_____	27
3. 牙痛	_____	_____	_____	28
4. 蛀牙	_____	_____	_____	29
5. 甩牙 (牙齒鬆脫)	_____	_____	_____	30

十一、你估一個牙醫能唔能夠醫得倒：

	能夠	冇乜辦法	唔知道	
1. 牙肉出血	_____	_____	_____	31
2. 崩牙 (裂牙)	_____	_____	_____	32
3. 牙痛	_____	_____	_____	33
4. 蛀牙	_____	_____	_____	34
5. 甩牙 (牙齒鬆脫)	_____	_____	_____	35

十二、有啲人有假牙，你認為真牙同假牙比較，點樣呀？

1. 真牙好過假牙	_____	36
2. 假牙好過真牙	_____	
3. 大家差唔多咁好	_____	
4. 唔知道	_____	

十三、A. 你認為有乜嘢會引致牙肉病 (牙周病) _____ 37

十三、B. 你認為有乜嘢會引致蛀牙？ _____ 38

十三、C.你認為有乜嘢會引致甩牙？

	會	唔會	唔知道	
1. 蛀牙	_____	_____	_____	39
2. 牙肉發炎	_____	_____	_____	40
3. 崩牙(裂牙)	_____	_____	_____	41
4. 年老	_____	_____	_____	42
5. 其他(請註明)	_____			43

第三部份：口腔衛生習慣

十四、你平時有冇飲涼茶或者中藥嚟醫治

	有	冇	唔知道	
1. 牙齒酸軟	_____	_____	_____	44
2. 牙痛	_____	_____	_____	45
3. 牙肉問題，例如牙肉發炎	_____	_____	_____	46

十五、你琴日有冇做下面嘅嘢？

	有	冇	未聽過	
1. 用牙刷刷牙	_____	_____	_____	47
2. 用牙簽擦牙	_____	_____	_____	48
3. 用牙線清潔牙罅	_____	_____	_____	49
4. 用驗牙片嚟顯出口腔細菌	_____	_____	_____	50
5. 用漱口水漱口	_____	_____	_____	51
6. 食完嘢之後漱口	_____	_____	_____	52
7. 用加氟牙膏 (即加咗Fluoride嘅牙膏)	_____	_____	_____	53
8. 按摩牙肉	_____	_____	_____	54
9. 飲涼茶或者用中藥 嚟醫牙痛或牙肉問題	_____	_____	_____	55

十六、你有冇屬於自己嘅牙刷？

有_____ 冇_____	56
你而家用緊嗰支牙刷用咗幾耐呀？_____個月	57-58

十七、你有冇聽過「氟」(Fluoride)呢種嘢？

有_____ 冇_____ 唔知道_____	59
如果有，你話「氟」係用嚟做乜嘢嘢？_____	60

十八、A. 琴日三餐正餐之外，你飲過幾多次甜嘅嘢呀？ 61

1. 冇飲過 _____
2. 一次 _____
3. 兩次 _____
4. 三次 _____
5. 三次以上 _____

B. 琴日三餐正餐之外，你食過幾多次甜嘅零食呀(唔計生菓)？ 62

1. 冇食過 _____
2. 一次 _____
3. 兩次 _____
4. 三次 _____
5. 三次以上 _____

C. 琴日你食飯後有無食甜品呀？ 63

1. 冇食過 _____
2. 一次 _____
3. 兩次 _____
4. 三次 _____
5. 三次以上 _____

第四部份：口腔衛生情況

十九、睇過去一年你有過下面嘅問題冇呢？

	有	冇	唔知道	
1. 面頰或口脣裡便腫咗	_____	_____	_____	64
2. 崩牙	_____	_____	_____	65
3. 補咗嘅牙有冇崩過	_____	_____	_____	66
4. 牙瘡	_____	_____	_____	67
5. 牙肉發炎	_____	_____	_____	68
6. 生飛滋	_____	_____	_____	69
7. 口臭	_____	_____	_____	70
8. 牙肉出血	_____	_____	_____	71
9. 牙痛	_____	_____	_____	72
10. 鬆牙	_____	_____	_____	73
11. 牙石	_____	_____	_____	74

二十、你有冇除得出嚟嘅假牙？

有_____ 冇_____ 唔知道_____

75

				5
廿一、A.	如果你有除得出嚟嘅假牙，請你答呢條問題，如果有，請你答第廿二條			
	你幾時戴假牙呢？（只揀一項）			9
	1. 淨係食嘢嘅時候先至戴	_____		
	2. 淨係出街嘅時候先至戴	_____		
	3. 淨係日頭嘅時候先至戴	_____		
	4. 差唔多時時都戴	_____		
	5. 好少，差唔多唔戴	_____		
	6. 時時戴，連瞓覺嘅時候都戴住	_____		
廿一、B.	你戴住假牙嘅時候			
	1. 講嘢可唔可以講得好清楚	可以_____ 唔可以_____ 唔知道_____		10
	2. 食嘢食得好唔好	好_____ 唔好_____ 唔知道_____		11
	3. 睇上嚟都算幾好	係_____ 唔係_____ 唔知道_____		12
	4. 戴得都幾妥貼	係_____ 唔係_____ 唔知道_____		13
	5. 痛唔痛	痛_____ 唔痛_____ 唔知道_____		14
	6. 有冇乜嘢其他問題呢？			
	（請註明）_____			15
廿一、C.	你係幾多年前配咗而家呢副假牙㗎？_____年前			16-17
廿一、D.	同你配假牙嗰個牙醫係（只揀一項）			18
	1. 菲臘牙科醫院嘅牙醫	_____		
	2. 政府診所嘅牙醫	_____		
	3. 註冊嘅私家牙醫	_____		
	4. 無牌私家牙醫	_____		
	5. 其他（請註明）	_____		
廿一、E.	你食嘢嘅時候戴住假牙係唔係好過唔戴呢？			
	係_____ 唔係_____ 唔知道_____			19
廿二、	你滿唔滿意			
		滿意	唔滿意	唔知道
	1. 你牙肉嘅情況	_____	_____	_____
	2. 你牙齒嘅情況	_____	_____	_____
	3. 你牙齒嘅外表	_____	_____	_____

第五部份：專業性嘅服務

你上次睇牙醫係幾時？

1. _____年_____月
2. 我從來未睇過牙醫_____

23-24

25

廿三、如果你從來未睇過牙醫，請你揭去綠色個頁。

廿四、你上次點解去睇牙醫？

	係	唔係	唔知道	
1. 無特別原因, 例行檢查啫	_____	_____	_____	26
2. 牙痛	_____	_____	_____	27
3. 崩牙或爛牙	_____	_____	_____	28
4. 補咗嘅牙崩咗或者裂咗	_____	_____	_____	29
5. 牙肉有問題	_____	_____	_____	30
6. 配假牙/或者較好副假牙	_____	_____	_____	31
7. 剝牙	_____	_____	_____	32
8. 箍牙?	_____	_____	_____	33
9. 其他(註明)	_____	_____	_____	34

廿五、你上次睇牙醫嘅時候，醫生同你做咗乜嘢呀？

	有	冇	唔知道	
1. 照 X 光	_____	_____	_____	35
2. 洗牙	_____	_____	_____	36
3. 教你刷牙	_____	_____	_____	37
4. 牙肉手術	_____	_____	_____	38
5. 補牙, 做牙冠, 杜牙根	_____	_____	_____	39
6. 剝牙	_____	_____	_____	40
7. 配假牙/或者較好副假牙	_____	_____	_____	41
8. 箍牙	_____	_____	_____	42
9. 例行檢查啫	_____	_____	_____	43
10. 其他(註明)	_____	_____	_____	44

廿六、A. 你上次去睇牙醫，嗰個牙醫係

1. 喺菲臘牙科醫院嘅 _____
2. 喺政府診所嘅 _____
3. 註冊嘅私家牙醫 _____
4. 無牌嘅私家牙醫 _____
5. 其他(請註明) _____

45

廿六、B.你上次去睇牙醫係喺			46
1. 香港	_____		
2. 中國大陸	_____		
3. 其他地方(註明)	_____		
廿七、你上次睇牙醫嘅時候,			
1. 嗰個牙醫係唔係太遠?	係 _____ 唔係 _____ 唔知道 _____		47
2. 你告唔告倒假?	告倒 _____ 告唔倒 _____ 唔知道 _____		48
3. 你揀唔揀倒適合自己嘅 時間?	揀倒 _____ 揀唔倒 _____ 唔知道 _____		49
4. 使唔使等好耐?	要 _____ 唔使 _____ 唔知道 _____		50
5. 係唔係太貴?	係 _____ 唔係 _____ 唔知道 _____		51
廿八、你上次睇牙,覺得滿唔滿意呀?			
1. 非常滿意 _____			52
2. 滿意 _____			
3. 唔滿意 _____ 點解唔滿意? _____			53
多謝合作,請將呢份問卷交俾職員			

廿九、如果你從來未睇過牙醫，請你答下面嘅問題：
你點解從來未睇過牙醫？

	係	唔係	唔知道	
1. 我啲牙冇問題	_____	_____	_____	54
2. 我怕痛	_____	_____	_____	55
3. 我怕牙醫	_____	_____	_____	56
4. 太貴	_____	_____	_____	57
5. 太遠	_____	_____	_____	58
6. 冇時間	_____	_____	_____	59
7. 請唔倒假	_____	_____	_____	60
8. 約時間見醫生排期好耐	_____	_____	_____	61
9. 牙醫幫唔到我嘅	_____	_____	_____	62
10. 其他(請註明)	_____			63

多謝合作，請將呢份問卷交番俾職員。

EXAMINATION NUMBER <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 1-4 DUPLICATE <input type="checkbox"/> 5																					
HONG KONG SURVEY OF ORAL HEALTH STATUS AND TREATMENT NEEDS 1984																					
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SEX M=1 F=2 <input type="checkbox"/> 9	AGE <input type="text"/> <input type="text"/> 10-11 CARD NUMBER <input type="text"/> 1 12																				
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EXAMINER <input type="checkbox"/> 13																					
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STATUS CODES	TREATMENT CODES																				
O Sound (No caries) T Trauma into dentine D Decayed M Extraction - caries, perio, or pros 8 Extraction - 3rd molar, ortho, or trauma. Unerupted - congenital absence or impaction F Filled and sound 1 Filled with primary decay 2 Filled with secondary decay C Crown and sound K Crown with secondary decay R Preformed crown and sound S Preformed crown with secondary decay X Excluded (Restored for reasons other than caries) P Pontic	O None or leave P Preventive 1 One-surface filling or simple anterior 2 Two-surface filling or complex anterior 3 Three-surface filling 4 Crown A Endo plus one-surface or simple anterior B Endo plus two-surface or complex anterior C Endo plus crown 5 Extraction for caries 6 Extraction for perio 7 Extraction for other reason (Pros, Ortho, Trauma) 8 Extraction for impaction 9 Other																				
FORMAT AND INDEX CODES																					
CARD NUMBER <input type="text"/> 2 12 EXAMINER <input type="checkbox"/> 13																					
FLUOROSIS <input type="checkbox"/> 14 CODES 0 Normal 1 Questionable 2 Very mild 3 Mild 4 Moderate 5 Severe	DISCOLOURATION <input type="checkbox"/> 15 CODES 0 Absent 1 Present	HYPOPLASIA 13 12 11 21 22 23 <table border="1" style="width: 100%; height: 15px;"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> 16-21 <table border="1" style="width: 100%; height: 15px;"><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> 22-27 43 42 41 31 32 33 CODES 0 Absent 1 Present																			

FORMAT AND INDEX CODES

CARD NUMBER (12)

EXAMINER (13)

PROSTHETIC STATUS AND NEEDS

DENTURE POSSESSION

DENTURE REQUIREMENTS

Upper Jaw		Lower Jaw		Upper Jaw		Lower Jaw	
Full	Partial	Full	Partial	Full	Partial	Full	Partial
(14) <input type="text"/>	(15) <input type="text"/>	(16) <input type="text"/>	(17) <input type="text"/>	(18) <input type="text"/>	(19) <input type="text"/>	(20) <input type="text"/>	(21) <input type="text"/>

BRIDGE POSSESSION

BRIDGE REQUIREMENT

No bridge	= 0	Upper Jaw	Lower Jaw	No = 0	Upper Jaw	Lower Jaw
One bridge	= 1			Yes = 1		
Two bridges	= 2	(22) <input type="text"/>	(23) <input type="text"/>		(24) <input type="text"/>	(25) <input type="text"/>
Three or more bridges	= 3					

ORAL MUCOSA (26)

Other (27)

ORAL CONDITION (28)

Other (29)

DENTOFACIAL ANOMALY (30)

0 = Absent 1 = Present 2 = Treatment Need

ROOT SURFACE CARIES

	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28	
(31)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	(46)
(47)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	(62)
	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38	

0 = Root caries absent
1 - 4 = Root caries (# surfaces affected)
9 = Tooth missing

CPITN

FORMAT AND INDEX(12) CODE	<input type="text" value="4"/>	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28	38	37	36	35	34	33	32	31	41	42	43	44	45	46	47	48	(45) RECESSION
FORMAT AND INDEX(12) CODE	<input type="text" value="5"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	(77) POCKETS
FORMAT AND INDEX(12) CODE	<input type="text" value="4"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	(45) CALCULUS
FORMAT AND INDEX(12) CODE	<input type="text" value="4"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	(77) BLEEDING

CODES	RECESSION	POCKETS	CALCULUS	BLEEDING
	0-absent	0 absent	0 absent	0-absent
	1- recession < 2 mm within black band	1 pocket 4 or 5mm black band partially visible	1-present	1 present
	2- recession > 2 mm < 3.5 mm from ball to black band	2 pocket .6mm black band not visible		
	3- recession > 3.5 mm < 5 mm from ball into black band			
	4- recession > 5 mm from ball beyond black band			

17/18	11	26/27
<input type="text"/>	<input type="text"/>	<input type="text"/>
47/48	31	36/37
<input type="text"/>	<input type="text"/>	<input type="text"/>

LEAVE THESE BOXES BLANK

INDICATE MISSING TEETH AS [9]

Transformation of caries diagnosis codes to WHO codes.

HK	WHO
T, 0	0
D	1
F, C, R	2
1	3
2, K, S	4
M, P (age 15-19)	5
8 (age 15-19)	6
M, P (age 35-44)	7
8 (age 35-44)	8
X	9

CLINICAL EXAMINATION - CRITERIA, CODES AND PROCEDURES (see Appendix)

ASSESSMENT OF TOOTH STATUS (boxes 14-29 and 46-61 Card 1)

The assessment of tooth status is primarily achieved through a visual inspection which may be secondarily confirmed by way of tactile inspection using a sickle-shaped explorer. The teeth should not be cleaned nor dried before the examination. They should be illuminated by a fibre optic light reflected from a plane mouth mirror. In addition, the explorer may be used to remove food debris obscuring a visual inspection of the tooth surfaces. While the tooth surfaces must be inspected visually, there is no need to probe every pit and fissure. Similarly, there is no need to probe all proximal surfaces. The use of the explorer should be restricted to confirming actual status following the visual detection of a suspected lesion in a manner to be described below.

Criteria for diagnosis and coding

Sound (no caries)

Code 0 - A tooth should be considered sound if it shows no evidence of treated or untreated caries or if it is at the doubtful stage where one might clinically decide to place a filling but where frank decay has not been positively detected, for example, a **sticky** fissure. These scores may also apply in the case of defects not to be counted as caries such as:

1. White and/or chalky spots;
2. Discoloured or rough spots;
3. Hard-stained pits or fissures in the enamel that catch on the explorer point but do not have a detectably softened cavity, undermined enamel, or softening in the walls of the pit or fissure.

Thus it is possible to have a recording of 0 for a condition and yet a treatment recording which indicates the need for a restoration.

Trauma into dentine

Code T - A tooth should be recorded under this category when part of its substance is missing due to a fracture which is unrelated to the existence of treated or untreated caries. This score should not be used when a tooth is also filled and/or decayed in addition to the trauma.

Decayed

Code D - Caries will be considered to be present in a tooth when any lesion has a detectably softened floor, undermined enamel, or softened wall. On an interproximal surface of molars and premolars, the probe point must enter a lesion with certainty. Where caries is seen by means of transillumination to have extended beyond the amelodentinal junction in incisors or canines, caries is recorded as present, even when a probe may not enter such a lesion. In all cases where doubt exists, caries should not be diagnosed as being present.

It must be emphasised that clinical caries is a stage in the process of dental caries. Dental caries proceeds from a microscopic lesion, which cannot be diagnosed by clinical examination. The upper limit for this category is complete destruction of a crown. Where only roots remain for primary teeth, decayed, is recorded only when no permanent successor has erupted.

The stages of dental caries that precede cavitation and other conditions similar to the early stages of caries should be deliberately excluded because they cannot be diagnosed positively and reliably.

Decay is recorded where a tooth contains a temporary filling requiring further treatment, or where a complete filling is lost.

Missing teeth

Code M - This score is given to teeth which have been extracted.

There are three exceptions:

1. Extracted 3rd molars should be coded 8;
2. Teeth extracted for orthodontic purposes should be coded 8;
3. Teeth extracted owing to trauma should be coded 8.

Inasmuch as very few teeth are extracted because of periodontal diseases in persons under 30 years of age, all extracted teeth (with the exception of those specified above) in persons up to the age of 30 years should be classified in the analysis of the data as having been extracted because of caries. In persons aged 30 years and older, the score M will be classified as extraction due to caries, periodontal disease, or for prosthetic reasons.

One problem that may be encountered, particularly in some age groups, is to distinguish between unerupted teeth (code 8) and teeth extracted because of caries. Basic knowledge of tooth eruption patterns, the status of the corresponding contralateral tooth, the appearance of the alveolar ridge in the area of the tooth space in question, and the caries status of other teeth in the mouth may provide helpful clues in making a differential diagnosis between unerupted and extracted teeth.

Unerupted

Code 8 - The teeth placed in this category include all unerupted teeth which should normally be present. In some cases the teeth concerned may be congenitally absent. In addition, 3rd molars which are not present for any reason (including congenitally absent, impacted, or extracted) are placed in this category. Finally, teeth extracted for orthodontic purposes, or following trauma are also scored 8.

The teeth included in this category are excluded from the DMFT analysis.

Filled tooth with no decay

Code F - Teeth are considered filled without decay whenever one or more permanent restorations are present and there is no secondary (recurrent) caries or other area of the tooth with primary caries.

Filled tooth with primary decay

Code 1 - A tooth is scored as filled with primary decay when it contains one or more permanent restorations and also one or more areas that are decayed but have no obvious physical association with the restoration(s). A tooth with a temporary filling should be coded as **decayed - code D**.

Filled tooth with secondary decay

Code 2 - A tooth is scored as filled with secondary decay when it contains one or more permanent restorations and there is secondary decay (in physical contact with the restoration(s)). If a tooth is filled and contains both primary and secondary decay it should be recorded in this category.

Crowned and sound

Code C - A tooth with a crown which has been fabricated on a cast of the abutment and placed because of previous decay is recorded as crowned. This applies to both three-quarter and full coverage crowns. A tooth which is crowned and acts as a bridge abutment is coded as C, but in the analysis for DMFT, it will be treated as if it were coded X and thus **excluded**.

Crowned with secondary decay

Code K - Teeth which are crowned for any reason are should be scored as crowned with secondary decay when this condition is present.

Preformed crown and sound

Code R - As for crowned and sound except that it is distinguished as being preformed.

Preformed crown with secondary decay

Code S - As for crowned with secondary decay except that the crown is distinguished as being preformed.

Excluded tooth

Code X - A tooth should be excluded from calculations concerning dental caries if it has been restored for reasons other than caries, such as trauma, cosmetic purposes, or as an abutment for a bridge.

Pontic

Code P - The code P is entered when a tooth space is occupied by a bridge pontic.

ASSESSMENT OF TREATMENT NEEDS (boxes 30-45 and 62-77 Card 1)

The criteria given below relate to treatment concerning prevention, removal of caries and restoration of lost tissue, endodontics and subsequent restoration, replacement of existing restorations, and tooth extraction.

No treatment needed

Code 0 - This code is used when it is considered that a tooth requires no treatment. Whereas for primary teeth, this code may be assigned following a diagnosis of caries because, for example, such a tooth may be due to exfoliate, but in the case of permanent teeth, code 0 for treatment need should not be assigned when caries is diagnosed as present.

Preventive treatment

Code P - This code indicates a need for a specific preventive measure, such as the application of topical fluoride or fissure sealant. When the status of a tooth is scored as if it were sound, after it has been determined to assign a lesser score in a case of doubt, such teeth should then be scored code P for treatment. Its use should be restricted to subjects up to the age of 19, and is most commonly used for indicating the treatment of **sticky** fissures. When this condition is encountered, code P may be given irrespective of whether the fissure concerned is stained or unstained. When grey coloured staining is visible

through translucent enamel adjacent to a **sticky** fissure diagnosed as **sound**, code as for a restoration needed. This latter criteria should apply in all age groups. Note that such grey stains adjacent to shallow **non-sticky** fissures diagnosed as sound should be coded 0 for treatment need.

This treatment code should also be given to anterior teeth coded as sound when lesions seen by transillumination are still confined to the enamel.

Restorative treatment

With regard to determining the extent of restorative treatment needed, these codes should be used to designate treatment required to remove carious lesions (primary and secondary), to repair trauma, or replace unsatisfactory fillings, taking into account both function and appearance.

Anterior teeth It is assumed that the fillings placed in the incisors and canines will be of the adhesive resin type.

Code 1 - This code is given when the contour of the tooth may be restored using a simple matrix strip alone.

Code 2 - If after polymerisation of the resin, it is anticipated that, apart from removing flashes of resin, additional contouring will be necessary in order to restore the normal tooth form, the treatment need should be coded 2.

Code 4 - If two or more fillings are required to restore a tooth and if each proposed filling considered independently would otherwise be coded 2, then the treatment need code for such a tooth is 4. Included in this category are crowns of any type.

Posterior teeth

Code 1 - This code is assigned for a one-surface filling. When the preparation of an occlusal surface will need to be extended to include palatal or buccal grooves and pits, the tooth will still be considered as needing a one-surface filling only. This applies even when a separate buccal pit filling is needed in addition to an occlusal filling.

Code 2 - A two-surface filling is indicated when a matrix band is necessary to satisfactorily restore both an occlusal and other (usually proximal) surface, such as the DO or MO type.

Code 3 - A need for a three-surface filling exists when the proposed cavity preparation is the MOD type or when one cusp restoration is to be included with a DO or MO restoration.

Code 4 - The need for any restorative procedure more complex than is indicated by code 3 is to be recorded as code 4.

Replacement of existing fillings

Teeth which show no evidence of primary or secondary caries and coded as sound may need existing fillings or crowns replaced if they exhibit any one or more of the following features:

1. A deficient margin which, on the evidence of insertion of an explorer, allows leakage at least to dentine.
2. A fracture or defect in a filling allowing leakage at least to dentine.
3. A deficient contact or marginal ridge allowing or facilitating food impaction.
4. A discolouration or disharmony of shape or colour of an existing filling or crown on anterior teeth.

When existing fillings are to be replaced, assign the appropriate code, 1, 2, 3, or 4, as described in the section relating to restorative treatment.

Endodontics

The need for treatment of pulpally involved teeth should be recorded only when there is obvious evidence of a pulp exposure in a tooth that can be satisfactorily restored with a filling or a crown. A probe should never be inserted into the depth of a cavity to confirm a suspected exposure.

Molars Although it is recognised that endodontic treatment of multirooted teeth may be successfully carried out, when the condition of molars is such that endodontic treatment is necessary, they should nevertheless be coded for extraction due to caries - **Code 5**.

All other teeth Broken down premolars, canines, and incisors with cavities extending to the pulp and which still have at least one third of the remaining crown intact, should be indicated for endodontic treatment with subsequent restoration.

A chronic sinus associated with a tooth indicates a need for endodontics. Again, molars should be coded for extraction but all other teeth should be coded for endodontic treatment, provided they meet the criteria outlined above. Teeth that fail to meet the criteria should then be coded for extraction due to caries - **Code 5**.

Trauma involving the pulp of incisors or canines should be coded for endodontic and subsequent restorative treatment provided that at least one third of the remaining crown remains intact. If this criterion cannot be met, the tooth should be coded for extraction due to trauma - **Code 7**.

Code A - Endodontics plus a subsequent restoration of a type as indicated by **Code 1**.

Code B - Endodontics plus a subsequent restoration of a type as indicated by **Code 2**.

Code C - Endodontics plus a subsequent restoration of a type as indicated by **Code 3** or **Code 4**.

Extraction of teeth

Code 5 - Extraction due to caries. This code is to be assigned when teeth do not qualify for endodontic treatment. Remaining roots should be included in this category.

Code 6 - Extraction due to periodontal disease. This code is to be assigned when teeth are so loose such that they are no longer functional, or when looseness is such that they would not become firm again following periodontal treatment.

Code 7 - Extraction due to trauma, and for orthodontic or prosthetic purposes.

When trauma has damaged a tooth beyond the limits allowing successful endodontic and subsequent restorative care, as outlined under the section dealing with endodontics, the tooth should be extracted.

Teeth, usually premolars, which are crowded out of the arch should be coded for extraction.

A tooth should be indicated for extraction for prosthetic reasons when extraction is not specifically required because of caries or periodontal disease, but rather because a full denture is planned. Individually, these teeth could be restored or conserved, but because there are too few for proper function, extraction to make way for a prosthesis is the best possible treatment.

A single tooth may be indicated for extraction for more than one reason, for example, for caries and periodontal disease. In such cases the examiner should attempt to decide the major reason for extraction and record that reason only.

Code 8 - To be assigned when the extraction of 3rd molars is indicated.

Other treatment

Code 9 - This code is used for any other treatment not covered by the preceding codes, for example, recontouring of existing restorations.

ASSESSMENT OF DENTAL FLUOROSIS

Dean's Dental Fluorosis Index

Code 0 - Normal The enamel presents the usual translucent, semi vitriform type of structure. The surface is smooth, glossy, and usually of a pale creamy white colour.

Code 1 - Questionable The enamel discloses slight aberrations from the translucency of normal enamel, ranging from a few white flecks to occasional white spots. This classification is utilized in those instances where a classification of "normal" is not justified.

Code 2 - Very Mild Small, opaque, paper-white areas scattered irregularly over the tooth but not involving as much as approximately 25 percent of the tooth surface. Frequently included in this classification are teeth showing no more than about 1 - 2 mm of white opacity at the tip of the summit of the cusps of the bicuspid or second molars

Code 3 - Mild The white opacity in the enamel of the teeth is more extensive but does not involve as much as 50 percent of the tooth.

Code 4 - Moderate All enamel surfaces of the teeth are affected, and surfaces subjects to attrition show marked wear. Brown stain is frequently a disfiguring feature.

Code 5 - Severe All enamel surfaces are affected and hypoplasia is so marked that the general form of the tooth may be affected. The major diagnostic sign of this classification is the discrete or confluent pitting. Brown stains are widespread and teeth often present a corroded appearance.

The normal application of this index is to code each tooth of every survey subject, and the Community Fluorosis Index is calculated from pooled data. Each subject's score corresponds to the highest fluorosis code assigned, provided that at least two teeth bear this code. It is found that there are differences in the degree to which incisors, canines, premolars, and molars are affected by fluorosis. The upper central incisors are affected slightly less than the premolars and molars, but since dental fluorosis is primarily an aesthetic problem, the application of the index was modified, in that the assessment was entirely based upon the clinical appearance of the most severely affected upper central incisor.

DISCOLOURATION (box 15 Card 2)

Discolouration is noted when the generalised appearance of the teeth departs from the range of normal variation in terms of colour. This category excludes superficial stains on teeth.

Code 0 - Absent

Code 1 - Present

HYPOPLASIA (boxes 16-27 Card 2)

Hypoplasia is recorded when areas of reduced enamel thickness of developmental origin are noted. The signs of pitting, grooves, or enamel absence should be obvious without cleaning or drying of the teeth. Only the incisors and canines are to be coded.

Code 0 - Absent

Code 1 - Present

PROSTHETIC STATUS AND DENTURE REQUIREMENTS

The following criteria and codes for prosthetic status and the need for dentures apply to full, partial, upper, and lower dentures.

Prosthetic Status (boxes 14 - 17 Card 3)

Code 0 - No denture This code is recorded when on clinical examination, no denture is present.

Code 1 - Denture wearing This code is recorded when a denture is worn at the time of the examination, irrespective of the number of partial dentures in an arch.

Denture Requirements (boxes 18 - 21 Card 3)

Code 0 - No denture required This code is recorded when no denture is required, either because the subject has a complete or functional dentition, or the denture(s) being worn fulfil(s) functional and aesthetic demands.

Code 1 - New denture required This code is recorded when a subject is edentulous, or when his remaining dentition is sufficiently incomplete with edentulous spaces **anterior to the first molars** and he has not already been provided with a denture, or when the denture he possesses is unsatisfactory in terms of function.

BRIDGE POSSESSION AND REQUIREMENTS

Bridge Possession (boxes 22 and 23 Card 3)

Code 0 - No Bridge This code is recorded when there is no bridge present in an arch.

Codes 1, 2, 3 These codes are used to record the actual number of bridges present in an arch.

Bridge Requirements (boxes 24 and 25 Card 3)

Code 0 - No bridge This code is recorded when there is no requirement for a bridge in an arch.

Code 1 - Bridge requirement This code is recorded only when an existing (or pre-existing) bridge requires **replacement** because it is displaced, lost or fractured, or has caries associated with the abutment restorations on firm and stable abutment teeth in an arch in which no removable partial denture is being worn or is indicated.

ORAL MUCOSA (boxes 26 and 27 Card 3)

Any obvious pathological condition which is apparent to the examiner on the basis of the examination of the buccal, lingual, sublingual, and palatal mucosa are recorded in words and code 1 is placed on one of the above boxes, which otherwise are coded 0.

ORAL CONDITION (boxes 28 and 29 Card 3)

Any obvious condition, not arising from the mucosa, for example, an alveolar abscess which is apparent on intra-oral inspection is recorded in words and a score of 1 is placed in one of the above boxes which is otherwise coded 0.

DENTOFACIAL ANOMALY (box 30 Card 3)

Code 0 - Absent This code is recorded where there is not an obvious dento-facial anomaly which clearly interferes with aesthetics.

Code 1 - Present This code is recorded when an obvious dento-facial anomaly clearly interferes with aesthetics.

Code 2 - Treatment Need This code is recorded when there is a clear need for treatment of the dento-facial anomaly and the patient is aware of an aesthetic disability.

ROOT SURFACE CARIES (boxes 31 - 62 Card 3)

Root surface caries is to be examined only in the 35-44 year-old subjects. The fibre-optic light is to be used, particularly for transillumination. The diagnosis on buccal and lingual root surfaces exposed by recession is made on the basis of the visual examination, the caries probe only being used to confirm softness of the stained tooth tissue at the base of an area of destruction. Approximal surfaces exposed by recession are only to be probed to confirm the presence of root surface destruction and softness at the base when the visual examination suggests the presence of a lesion. No root surface completely covered and obscured by calculus is to be scored positive for root surface caries.

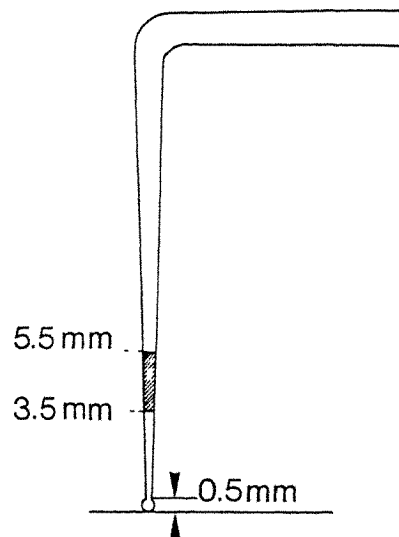
Code 0 - No root surface caries present.

Code 1 - 4 Number of carious root surfaces Each tooth is divided into four root surfaces: buccal, lingual, mesial and distal. Enter a code corresponding to the number of these surfaces affected.

Code 9 - Tooth is missing.

PERIODONTAL ASSESSMENT

To enable the findings of this study to be compatible with current WHO recommendations with respect to periodontal assessments, components of the WHO Community Periodontal Index of Treatment Needs (CPITN), <Ainamo et al., 1982> will be utilized. As recommended, the specially designed periodontal probe described in WHO Technical Report Series #621 (1978) manufactured by J.R. Morita, Japan, will be used in the periodontal assessment.



The WHO Periodontal Probe

(WHO Techn. Rep. Ser. 621, 1978)

The Probing Procedure

A tooth is probed to determine loss of attachment as evidenced by recession and/or increased probing depths, calculus and bleeding response after probing the depths. The probing force can be divided into a working component to determine probing depth, and a sensing component to detect subgingival calculus. The working force should be no more than 25g. Probing forces will however be standardized before the survey by use of a pressure sensitive probe. (Vine Valley Research, U.S.A.). A practical test for establishing the 25g force during the survey proper can be to gently insert the probe under the finger nail without causing pain or discomfort. Pain to the patient during the probing is in most cases indicative of the use of too heavy a probing force. When inserting the probe into the gingival pocket, the ballpoint should follow the anatomic configuration of the surface of the tooth root.

Sites to be probed The teeth will be probed and assessed at six sites around each tooth. These will be mesio-buccal, mid-buccal, disto-buccal, disto-lingual, mid-lingual and mesio-lingual sites of each tooth.

Use of index teeth For partial mouth scoring the dentition is divided into sextants i.e. sixths of the dentition. The sextants contain the following teeth.

17 - 14	13 - 23	24 - 27
47 - 44	43 - 33	34 - 37

Separate recordings are taken from each of the six sextants utilizing specific index teeth. The index teeth to be examined are as follows, irrespective of age:

17,16	11	26,27
47,46	31	36,37

Sequence of Examination

The sequence of examination will be to commence in the maxillary right sextant and score 17,16; then to score 11 followed by 26,27. In the lower arch the examination will start in the mandibular left sextant where 37,36 will be scored, then 31, followed by 46,47.

Missing Teeth and Teeth Indicated for Extraction

If the index tooth/teeth are missing from a sextant qualifying for examination, all the remaining teeth in that sextant will be examined. In this case third molars will be excluded except when

they are functioning in place of another molar. An attempt should be made to discern between false and true pockets e.g. on the distal aspect of third molars by attempting to identify the cement enamel junction with the periodontal probe. Only true pockets are to be recorded.

If the index tooth/teeth within a sextant are indicated for extraction then this is denoted by placing a / in the box indicating the tooth number e.g. 11 . In this case all teeth in the sextant are examined as above.

The indication for extraction because of periodontal involvement is that the tooth has vertical mobility and/or causes discomfort to the patient.

The indication for extraction because of caries is that the tooth cannot be restored. All margins must be supragingival to enable the tooth to be crowned.

Missing index teeth are indicated by entering the code 9 in the appropriate boxes.

DEFINITION OF PERIODONTAL PARAMETERS

Parameters assessed at each index tooth are recorded separately in the appropriate box on the recording form. (Fig. 2).

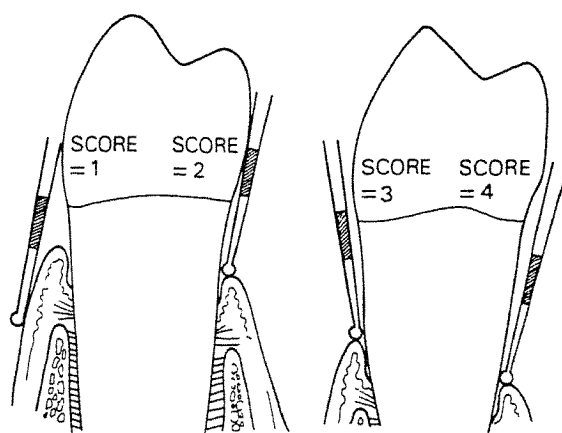
CPITN		18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28	38	37	36	35	34	33	32	31	41	42	43	44	45	46	47	48	
FORMAL AND INDEX (12)	4																																	
CODE	(46)																																	
FORMAL AND INDEX (12)	5																																	
CODE	(46)																																	

Assessment of recession (boxes 14-45 Card 4)

Recession refers to the distance between the cement enamel junction and the gingival margin.

After probing a tooth to determine probing depths, calculus and bleeding, an assessment of recession is made at that site exhibiting the greatest probing depth.

Recession is scored utilizing the following criteria:- (Fig. 3)



Cross-Section of Teeth Showing Method of Scoring for Recession

Code 0 - No Recession

Code 1 - Recession \leq 2 mm (as measured by black band)

Code 2 - Recession $>$ 2 mm \leq 3.5 mm (as measured from tip of ball to black band)

Code 3 - Recession $>$ 3.5 mm \leq 5.5 mm (measured from tip of ball into black band)

Code 4 - Recession $>$ 5.5 mm (as measured from tip of ball to beyond the black band)

In those teeth which do not exhibit a probing depth score of 1 or 2 (i.e. those teeth with pocket $<$ 3.5) but which exhibit recession, then the presence of recession is scored at the site exhibiting the greatest amount of recession.

Likewise in a tooth exhibiting probing depth scores of 1 or 2 in more than one of the six sites around that tooth, the presence of recession is scored at the site exhibiting the greatest amount of recession.

In those teeth where calculus or plaque obscures the cement enamel junction, or where it is difficult to discern, an estimate as to the amount of recession present should be made. Assign the lesser score when in doubt.

Probing depth (boxes 46-77 Card 4)

Probing depth refers to the distance between the gingival margin and the most apical position reached by the probe tip whilst probing the gingival sulcus/pocket.

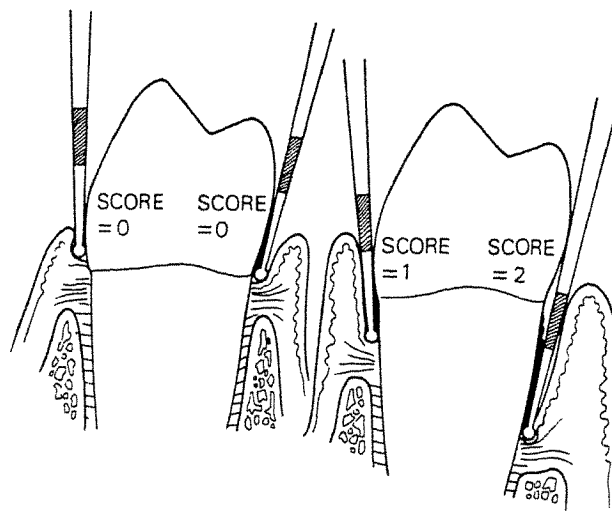
Probing depth is scored utilizing the following criteria:-
(Fig. 4)

Code 0 - Probing depth \leq 3.5 mm (black band wholly visible)

Code 1 - Probing depth $>$ 3.5 mm $<$ 5.5 mm (i.e. pocket of 4 or 5 mm). (black band partially visible)

Code 2 - Probing depth $>$ 6 mm (black band not visible)

Note: When in doubt assign the lower score.



Cross-Section of Teeth Showing
Correct Probing Angles and
Method of Scoring for Probing Depth

Calculus (boxes 14-45 Card 5)

This refers to hard deposits which are visible or can be detected with the WHO periodontal probe on the tooth surface above or below the level of the gingival margin. For sensing subgingival calculus, the lightest possible force which will allow movement of the probe ballpoint along the tooth surface is used.

Code 0 - No calculus

Code 1 - Calculus detected.

Note: Sometimes it is not easy to decide on the presence of subgingival calculus - record \emptyset if in doubt. However any calculus detected below the gingival margin requires a recording of 1.

Gingival bleeding (boxes 46-77 Card 5)

Code 1 - If, after gently probing to determine the presence of subgingival calculus and probing depth, any bleeding occurs from the gingival margin or depth of the pocket. Otherwise **Code 0**.

Full mouth scoring

In cases designated for full mouth scoring, all standing teeth will be examined.

Missing teeth are indicated by entering the Code 9 in the appropriate box.

If a tooth is indicated for extraction then this is denoted by placing a / in the box indicating the tooth number

e.g. 1

See criteria for extraction under 'Use of index teeth'.

Examination commences at tooth 18 and proceeds to tooth 28 scoring separately for recession, probing depths, calculus, and the presence of bleeding after probing.

Examination continues in a likewise manner for tooth 38 to tooth 48.

Scoring of teeth with preformed crowns

An assessment of the periodontal status of teeth with preformed crowns will be made should they be present, even should they not be index teeth.

Any tooth that has been scored under "Dental Caries status and treatment needs" under codes R or S will thus also be scored for periodontal status.

Recording procedure

All data from the periodontal assessment will be entered onto a specially designed data collection form by the DSA. Design of the form is such that data can be easily and rapidly entered for such assessment. The form is computer compatible to facilitate transfer to a mainframe computer by the data preparation services unit of the Computer Centre, Hong Kong University.

COMPUTATION OF THE CPITN SCORE FOR EACH SEXTANT

A specially written computer programme enabled the CPITN score for a sextant to be derived from the separate recordings of pockets, calculus and bleeding after gentle probing, entered for each tooth scored.

The CPITN score of each sextant was derived from the highest finding for the index tooth or teeth.

For this analysis the index teeth used for the computations followed the recommendations of Ainamo (1982, 1983) and used the following index teeth:

AGE GROUP 15-19

16	11	26
46	31	36

AGE GROUP 35-44

17, 16	11	26, 27
47, 46	31	36, 37

(In those sextants where the index teeth were absent or were indicated for extraction, the periodontal treatment need for that sextant was derived from the highest finding on those teeth remaining in that sextant.)

The logic for the programme was as follows: (Fig. 1). If a code 2 had been recorded for probing depths within a sextant then this indicated that a probing depth equal to or greater than 6 mm had been detected. The sextant was therefore allocated a CPITN score of 4.

If a code 1 had been recorded for probing depths within a sextant then this indicated that a probing depth of 4 or 5 mm had been detected. The sextant was therefore allocated a CPITN score of 3.

If a code 0 had been recorded for probing depths within a sextant then this indicated that no probing depths over 3.5 mm had been detected. The programme then checked for a record indicating the presence of calculus. If calculus was present as indicated by the score 1 in the appropriate box, then a CPITN score of 2 was allocated to that sextant irrespective of the presence or absence of scores for bleeding after gentle probing.

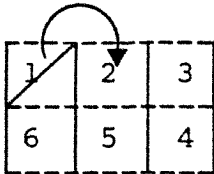
If a code 0 had been recorded for probing depths as well as calculus then the programme checked for the presence of a record of bleeding after gentle probing within the sextant. If bleeding was present as indicated by the score 1 in the appropriate box then a CPITN score of 1 was allocated to the sextant.

If a code 0 had been recorded for probing depths, calculus and

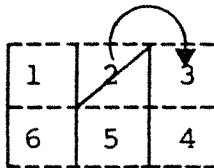
Figure 2.

SEXTANT 1 18 - 14	SEXTANT 2 13 - 23	SEXTANT 3 24 - 28
48 - 44	43 - 33	34 - 38
SEXTANT 6	SEXTANT 5	SEXTANT 4

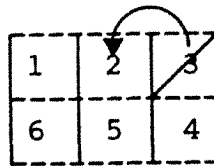
The logic applied was as follows:



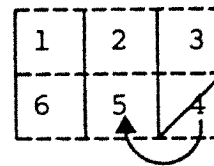
If only one tooth remained in sextant 1 then this was included in sextant 2.
Note: excluded sextant indicated by /.



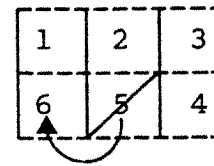
If only one tooth remained in sextant 2 then this was included in sextant 3.



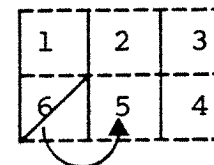
If only one tooth remained in sextant 3 then this was included in sextant 2.



If only one tooth remained in sextant 4 then this was included in sextant 5.



If only one tooth remained in sextant 5 then this was included in sextant 6.



If only one tooth remained in sextant 6 then this was included in sextant 5.

bleeding after gentle probing within a sextant then a CPITN score of 0 was allocated to the sextant.

Figure 1.

CPITN		18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28	38	37	36	35	34	33	32	31	41	42	43	44	45	46	47	48	
AND INDEX (12)	4	5	0	0					0							0	1			0	0			0					0	0	1	1	0	(45) RECESSION
(46)	2	0							1							0	0			0	0			0					0	1	1	0	(177) POCKETS	
AND INDEX (12)	5	5	1	1					1							0	1			0	0			0					1	1	1	0	(45) CALCULUS	
(46)	1	1							1							1	1			1	1			0				1	1	1	1	(177) BLEEDING		

CPITN=4 CPITN=3 CPITN=2 CPITN=1 CPITN=0 CPITN=3

In the example above (Fig. 1):

Index teeth 16, 17 show a highest score of 2 for pockets (probing depths indicating a CPITN score = 4.

Index tooth 11 shows a highest score for 1 for pockets (probing depths) indicating a CPITN score = 3.

Index teeth 26, 27 show a highest score of 1 for calculus indicating a CPITN score = 2.

Index teeth 36, 37 show a highest of 1 for bleeding indicating a CPITN score = 1.

Index tooth 31 shows zero score for pockets (probing depths), calculus and bleeding, indicating a CPITN score = 0.

Index teeth 46, 47, are missing, therefore all remaining teeth in the sextant are scored. The scores for the teeth indicate a highest score for the whole sextant of 1 for pockets (probing depths) therefore CPITN score = 3.

Sextants with only one remaining tooth

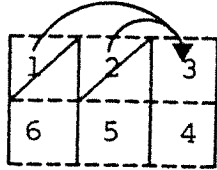
The recording of periodontal treatment needs in a sextant were recorded only when 2 or more teeth were present and not indicated for extraction. If only one functioning tooth remained in a sextant it was included in the adjoining sextant.

A specially written computer programme was formulated in order to achieve this transformation from the raw data.

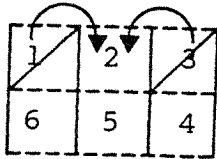
Each sextant was numbered as below to permit a suitable logic to be derived.

- Sextant 1 = Tooth 18 to 14.
- Sextant 2 = Tooth 13 to 23.
- Sextant 3 = Tooth 24 to 28.
- Sextant 4 = Tooth 38 to 34.
- Sextant 5 = Tooth 33 to 43.
- Sextant 6 = Tooth 44 to 48.

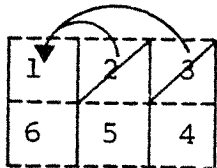
If only one tooth remained in each of a pair of sextants in either arch, and when the third sextant had more than one tooth then the following logic was applied.



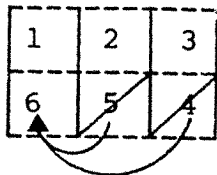
If only one tooth remained in both sextant 1 and 2, then these two teeth were included in sextant 3.



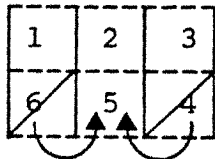
If only one tooth remained in both sextant 1 and 3, then these two teeth were included in sextant 2.



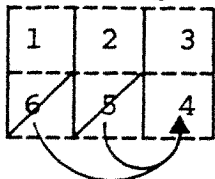
If only one tooth remained in both sextant 2 and 3, then these two teeth were included in sextant 1.



If only one tooth remained in both sextant 4 and 5, then these two teeth were included in sextant 6.



If only one tooth remained in both sextant 4 and 6, then these two teeth were included in sextant 5.



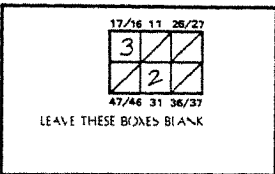
If only one tooth remained in both sextant 5 and 6, these two teeth were included in sextant 4.

If only one tooth remained in each of the three sextants within an arch, then the highest finding was indicated in the sextant in which it was found. In the event of all the teeth remaining within an arch having an equally high score then in the maxillary arch the score was allocated to sextant 2 whilst in the mandibular arch the score was allocated to sextant 5.

CPITN

	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28	38	37	36	35	34	33	32	31	41	42	43	44	45	46	47	48	
AND INDEX (12)	4	5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	(46)		9	9	9	1	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
AND INDEX (12)	5	5	9	9	9	1	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	(46)		9	9	9	1	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9

CODES	RECESSION	POCKETS	CALCULUS	BLEEDING
	0 absent	0 absent	0=absent	0=absent
	1 recession < 2mm within black band	1 pocket 4 or 5mm black band partially visible	1=present	1 present
	2 recession > 2mm < 3.5mm from ball to black band	2 pocket > 6mm black band not visible		
	3 recession > 3.5mm < 5mm from ball into black band			
	4 recession > 5mm from ball beyond black band			



INDICATE MISSING TEETH AS 9

Recording of Highest Finding Per Sextant Relating to Index Teeth for Young Adults (age group 15-19).

Ainamo (1983) has noted that for subjects under the age of 20 in industrialized countries it is fairly uncommon to find loss of attachment around other teeth if the first molars and/or incisors are not affected. Therefore the suggestion has been made that in determining the treatment needs in such young adults it is recommended to restrict the examination to six teeth as below:

16	11	26
46	31	36

The reason given for reducing the number of index teeth from ten to six is to reduce the tendency for second molars to give false positives with regard to deep pockets during the eruptive stages of these teeth.

Those members of the survey team who examined the periodontal status felt able to differentiate between true and false pockets clinically and therefore excluded false pockets due to the eruption of these teeth from the scoring. In view of this all ten index teeth were examined in the 15-19 year old age group.

However only

16	11	26
46	31	36

were used in the calculation of the CPITN for 15-19 year old subjects in this survey.

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