CANADA



# ROYAL COMMISSION ON HEALTH SERVICES

# UTILIZATION OF DENTISTS IN CANADA

Oswald Hall

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# PREFACE

The study reported here forms a part of a set of three enquiries launched by the Royal Commission on Health Services into the current status of dentistry in Canada. One of these focuses on the education of dentists and a second deals with the matters pertaining to manpower. This one is an attempt to describe the organization of dental practice in Canada with specific reference to the kind and amount of services provided by various kinds of dentists, the kinds of clients attracted to each type of dentist, and the costs and incomes associated with various forms of practice.

The kinds of facts sought here can only be secured by personal interview with dentists. The reliability of the findings rests, therefore, on the willingness of the members of the profession to discuss freely with an outsider the daily workings of their practices and related matters. It is a pleasure to record the uniformly warm welcome extended to the interviewers by over two-hundred dentists from widely separated parts of Canada. A similar expression of appreciation goes to the team of interviewers, Miss Kathleen Herman and Messrs. John Boundy and David Peasgood. Thanks to their efforts the data were assembled in extremely prompt fashion and the whole project was brought almost to completion in the space of an academic summer.

Professor Bernard Blishen facilitated the project at many points, to him, thanks also.

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CHAPTER I

# INTRODUCTION

This is a report on the present day practice of dentistry in Canada. It was undertaken to explore the sociology of dental practice, about which very little is known. There have been, to date, no specific studies undertaken which were aimed at describing and analysing dentistry as a specialized occupation. A perusal of the bibliography accompanying the brief submitted to the Royal Commission on Health Services by the Canadian Dental Association includes no items dealing with the actual organization of dental practice.

The organization of dental practice refers to two related matters. One is the substance of the practice: the location, the space, the equipment, and the personnel. The other is the set of activities carried on, and the way these activities are shared and co-ordinated among the various kinds of personnel.

This study begins with the assumption that the social organization of dentistry will be a conspicuously varied affair. Therefore the first task of the sociologist in studying such matters is to discover the whole variety of forms that dentists have devised for carrying on their work. Such a study is aimed not at the essence of dental practice but at the different patterns that dental practice assumes.

The sociology of dental care represents only one of the specialized ways in which dentistry can be studied. A psychologist would be able to undertake a specialized study, one with distinctive but different objectives. Similarly an economist would be able to launch a study, focussed presumably on the market for dental services. The sociological study of dentistry is not a general survey, nor is it an amalgam of the work of other social sciences. It is a specialized type of study, aimed at securing one kind of knowledge about dentistry.

In order to make clear what kinds of questions will be explored, a statement is necessary regarding the frame of reference of this study. It comprises three main items, or notions. These are:

1. the idea of a profession,
2. the idea of an enterprise, and
3. the idea of a clientele.

Because each of these is central to this discussion of dentistry, each will be briefly discussed in order that the reader may follow the subsequent analysis.

## THE PROFESSION

To state that dentistry is a profession is to imply several things. In the first place this implies the notion of an independent occupation. This means that the members look on themselves as self-governing, that they determine their own affairs. Conversely this means that they expect to be free from outside control. They expect that no other occupation exercises control over them, and no outside power, not even the government, has either the rights or the capacities to tell dentists how they should do their work.

By contrast some of the other people in this area of work are organized in very different fashion. The dental technician is what his name denotes – a technician. He is the master of a technique, one that others can judge, and for which others can hold him responsible. A technician carries out his duties according to the specifications of others; a professional carries out his duties according to his own judgement, and no higher authority exists to question his judgement. Another contrasting occupation is that of the dental assistant; she is what the name implies – a helper. Her work is specifically what the employing dentist specifies for her. She works directly under the orders of some other worker. She loses no dignity by taking orders – they are at the basis of her work. A glance at the work of the assistant and the technician dramatizes the distinctive nature of a profession.

A profession is not only a self-controlling occupation in its day-to-day operations; it is self-governing in the longer sweep of time. It sets the standards for its recruits; it determines the kind and amount of training they must undertake; it controls the licensing of its members; indirectly it controls the numbers in the profession. In the course of time a profession may become highly homogeneous – it may recruit itself largely from one sex, or race, or language group or religious group.

Many of these features of a profession are commonplace. Nonetheless it is useful to remind oneself of the nature of a profession when one enters into discussion of the ways of reorganizing such a service as dentistry.

## THE ENTERPRISE

A dental practice is an enterprise, a going concern. It requires initiative to keep it going; in this sense it differs from those kinds of organizations that exist in perpetuity, such as government departments and law courts. An enterprise comes into existence because of the efforts of someone; it survives only so long as someone tends it and directs it. Enterprises are hazardous ventures; without continuous attention they wither and die.

The major objective of such an enterprise is to provide a livelihood for the dentist. It is unrealistic to assume that dental offices exist first and foremost to provide dental services for the public. The enterprise represents the way the den-

tist organizes his time, energy, and skills for his livelihood. It is also a way of making his skills available on a continuing basis for clients who may wish to use them. The established enterprise provides a daily round of life for the dentist. In its well-developed form it provides a yearly and weekly round of life for him.

As the head of an enterprise the dentist brings into play a set of skills which comprise much more than his strictly professional skills. Over and above the latter there are skills of the following sorts: attracting clients to the office, satisfying those clients, bringing clients back regularly, securing new clients through the efforts of existing clients, delegating work to subordinates, co-ordinating the work of subordinates, collaborating with colleagues whose technical skills supplement his own, safeguarding the legal and financial aspects of his practice, and so on.

It should be clear that the same professional service may be performed within widely different enterprises. The enterprise may comprise only the dentist himself, or it may involve him working with colleagues. It may make use of subordinate workers to whom the dentist delegates some part of his professional and entrepreneurial tasks; or it may involve him in subordinating himself to other functionaries, such as army officers, health officials, hospital authorities, or governmental officials. The range of enterprises depends not so much on the nature of the professional service as on the ingenuity of the entrepreneur in devising alternative ways of making services available for a clientele.

## THE CLIENTELE

A dental practice necessitates a clientele. The clientele is drawn from that part of the population which needs the service. One should add that the members of the clientele not only *need* but *want* the service; they are usually prepared to make an effort to secure the service.

A clientele is in a sense the property of the dentist. The members are *his* patients. In the usual course of affairs he has a lifelong claim on them; at the very least, if they refrain from returning to him, his practice is in jeopardy. He can transfer them to another dentist temporarily, and in the usual course of events can expect them to be returned as *his* patients.

In the ordinary course of events the clients are under the orders of the professional. He gives them orders and/or advice, as well as providing them with his technical services. Unlike the customer, who is always right, the client is always dependent on the judgement of the professional.

Usually the relation of the professional to the client is of a mutual and voluntary nature. The client seeks out the dentist, and defers to his judgement. The dentist accepts the client, and takes responsibility for his dental welfare. Professional and client, each to the other, are bound by this set of mutual obligations.

It is, of course, possible to envisage other ways in which professional and patient might be organized. Persons who do not wish the service may be persuaded or forced to accept it; persons who dislike a particular practitioner may be constrained to go to him; dentists who dislike particular persons or particular cases may be constrained to accept, advise, and treat them.

The above three items – the profession, the enterprise, and the clientele – form the necessary framework for a sociological analysis of dental practice. Of these three, the *profession* is the most highly formalized. It has a long history. On the other hand, there are changes going on within the profession. It is developing various types of specialized services, and recruiting new and different types of candidates. The forms of *enterprise*, by contrast, show much more variability. Some are hallowed by tradition; others are the product of ingenuity and rationality. The forms of the enterprise may change drastically without much corresponding change in the profession. The *clientele* is the more nebulous of these three phenomena. Nonetheless it calls attention to the fact that there is a definite form of organization among dental patients. At any one point in time they are tied in distinctive manner to a practitioner. The clientele, the dentist with his professional training, and the enterprise he directs are the interwoven elements in a dental practice.

These are the sociological elements with which any plan for dental services must contend. In a sense they are the elements out of which any plan must be contrived. Contrariwise they are the resistant sorts of structures which may conflict with ill-advised plans for dental care.

## THE SAMPLE

The factual materials of this study were derived from interviews with 216 Canadian dentists selected from 7 cities. The dentists were distributed across Canada as follows:

| | |
|---|---|
| Maritimes | 35 |
| Quebec | 11 |
| Ontario | 138 |
| Prairies | 32 |

The selection of dentists for interview was dictated by the need to observe the full range of types of practice rather than to secure representative samples from all regions of the country. Our objective was to study dentists in large metropolitan communities, those possessing medical schools, and thereafter to move farther afield, to smaller and more remote communities. Presumably the latter would display a lower standard of living, lower incomes, less of a demand for dental services and particularly for the services of specialists in dentistry. It was our hope to interview the full range of dentists, those with the most lucrative specialized practices in the largest communities, and those with the most general practices in the least prosperous communities. Our sample of seven communities was designed to cover this range of practices.

In the smallest communities (three) studied the survey included all dentists in practice in the community. For medium-sized communities (three) every second dentist listed was contacted. For the large metropolitan community, the sample drawn was a little more complex. Sub-samples were selected from each of the main areas in which dentists have congregated. In each area of the metropolis one-half of the specialists were contacted. The general practitioners of dentistry in each area were classified according to age group. Thereafter a random sample of one in ten was selected. The metropolitan sample provides coverage for both specialists and general practitioners; incidentally it provides information on the stages of dentists' careers, and on the distinctive areas of the community.

Dentistry in Canada is almost overwhelmingly a masculine occupation. Our sample included six women dentists, all practising in one of the large metropolitan communities. There are, of course, many women in dentistry, but they are to be found as assistants, hygienists, receptionists, etc., rather than as professionals *per se*.

In our sample we attempted to cover the full range of specialties emerging within dentistry; orthodontia, oral surgery, paedodontia, periodontia, endodontia, crown and bridge work, prosthetics, and anaesthesia. Most of the specialists in our sample are concentrated in the two major metropolitan areas. In five smaller communities only two full-time and two part-time specialists were found in a total of 65 dentists. In the largest community studied approximately 20 per cent of all dentists were specialists, either part-time or full-time. The most numerous of the specialists were the orthodontists, followed in turn by the oral surgeons, periodontists, and paedodontists. These four specialties represent the formally recognized types; for all the others specialization was of a partial nature. In all, the specialists, of all sorts, totalled 61, somewhat less than one-third of the total sample of the study.

In selecting the members of the sample it was hoped to have appropriate representation of the total age-span of dentists. It seemed desirable, however, not to use date of birth in selecting members, but rather to deal with year of graduation. The major features of the dental career relate to years in practice, rather than chronological age. The numbers of dentists in each of selected time periods is as follows:

| | *Specialists* | *General Practitioners* |
|---|---|---|
| Graduated pre–1929 | 6 | 25 |
| " 1929–38 | 8 | 19 |
| " 1939–45 | 13 | 34 |
| " 1946–51 | 12 | 28 |
| " 1952–56 | 15 | 22 |
| " 1957–61 | 7 | 27 |

Apparently specialization has become more marked in recent years, though the very recent graduates have not yet embarked on specialized careers.

Information gained regarding place of birth of the dentists indicates that they are overwhelmingly of Canadian birth. Of the 216 dentists interviewed, 190 were Canadian-born. Among the remaining 26 there were 9 American-born, 2 from the United Kingdom, 10 from other parts of Europe, and 5 from other parts of the world.

An effort was made to discover the place of birth of the fathers of those born in Canada. Of those 190 dentists, 106 had Canadian-born fathers, 18 had fathers born in the United Kingdom, 51 had fathers born in other parts of Europe, one father was born in the United States of America, and the remaining 14 had fathers born elsewhere. The sample is comprised very largely of Canadian-born members; approximately one-half are Canadian-born of Canadian fathers.

Regarding religious affiliation, the largest number, 113, were of the Protestant faith. The Jewish group numbered 48 and the Roman Catholics numbered 37. There were 18 dentists claiming some "other" religious designation.

This is the sample – its geographical location, age and sex composition, its technical specialization, and its religious and ethnic composition. The following chapters outline the way in which these people have organized their practices.

Any sample of this sort represents only one moment in time. A decade earlier or a decade later the composition might display substantial variations from the above. A study of the latter sort would indicate changes through time and perhaps permit some predictions of future trends and their consequences.

CHAPTER II

# SPECIALIZATION IN DENTISTRY

Dentistry is a specialized occupation. It is sharply distinguishable from the other healing occupations. The line between it and the others, however, is an arbitrary one; the exact point at which dental tissue ends and medical tissue begins is far from precise. Nevertheless a sufficiently clear division has developed over the years so that both patients and dentists have a common notion as to what falls in the area of "dental services". Doctors, dentists, and patients respect this line without much friction or misunderstanding.

On closer scrutiny it appears that dental services are becoming differentiated. In this regard dentistry is coming to resemble medicine, law, teaching, and other fields of work. There is a marked tendency for the professions to develop in the direction of increased specialization. The roots of specialization are twofold. By limiting practice to a narrowly specialized field the practitioner becomes more efficient and presumably can provide more of that service in the same period of time. One would assume, as a result of this, that services rendered by a qualified specialist would be less expensive than those provided by the less skilled general practitioner. Since this is not the case it is appropriate to note the other root of specialization.

Specialization is a way of escaping from the competition of one's colleagues. By carving out a narrower field of work one, in effect, limits himself to the narrow field. Since it is easier to achieve control over the smaller group of colleagues than over the larger general set, it is possible for the specialists to charge more for their services than would a general practitioner who required more time to provide such a service than does the specialist.

If one follows the first line of reasoning one would expect to find specialization in dentistry occurring in those areas where dentists are in shortest supply. The second argument would lead one to expect specialization to occur where the ratio of dentists to population is high.

TABLE 1

RATIOS OF DENTISTS TO POPULATION, AND RATIOS OF SPECIALISTS TO DENTISTS, BY PROVINCES, 1961.

| Province | Population per Dentist | Number of Dentists | Number of Full-time Specialists | Specialists per Hundred Dentists |
|---|---|---|---|---|
| Newfoundland | 10,929 | 42 | 0 | – |
| Prince Edward Island | 3,323 | 31 | 0 | – |
| Nova Scotia | 3,689 | 196 | 5 | 2.5 |
| New Brunswick | 5,000 | 120 | 1 | 1 |
| Quebec | 3,679 | 1,388 | 38 | 3 |
| Ontario | 2,473 | 2,513 | 116 | 4.6 |
| Manitoba | 3,143 | 286 | 13 | 4.5 |
| Saskatchewan | 4,643 | 196 | 2 | 1 |
| Alberta | 2,977 | 431 | 17 | 4 |
| British Columbia | 2,426 | 662 | 27 | 4 |
| | | 5,865 | 219 | 3.6 |

The above table indicates the numbers of dentists and of specialists by province in Canada, and the ratios of dentists to population and of specialists to dentists. It is abundantly clear that the fewer dentists there are per thousand population the fewer specialists there are among the dentists. And the more dentists per thousand population the higher the proportion of specialists.

The pattern is very clear. Four provinces, British Columbia, Alberta, Manitoba, and Ontario, have relatively high ratios of dentists to population, and in these cases approximately 4 per cent of dentists specialize. Quebec and Nova Scotia have lower ratios of dentists to population and specialization is less marked. Saskatchewan and New Brunswick have very low ratios and in those provinces specialization is almost negligible.

Within provinces the same pattern obtains. In the largest metropolis studied the ratio of specialists to dentists is almost double the ratio for the remainder of the province.

The data on certified specialization do not reflect the full extent of specialization. In Canada there are four recognized dental specialties – oral surgery, orthodontia, periodontia and paedodontia. Although most of the specialists in these four fields are certified, by no means all are. Moreover, some dentists specialize in each of four other fields – endodontia, anaesthesia, prosthetics, and crown and bridge work. In the major metropolis studied there were almost half as many uncertified and unrecognized specialists as there were specialists recognized officially by the Canadian Dental Association.

On the basis of these considerations one would assume that the total number of dentists attempting some form of specialized practice would be around the 300 mark, as compared to 219 who are officially certified.

Of those appearing in this survey, 61, the distribution among specialties is as follows:

| | |
|---|---|
| Oral surgeons | 11 |
| Orthodontists | 28 |
| Periodontists | 7 |
| Paedodontists | 4 |
| Crown and bridge | 6 |
| Prosthetics | 3 |
| Endodontists | 1 |
| Anaesthetists | 1 |
| | 61 |

Dentistry has embarked in an impressive number of specialized directions, even though the percentage of the total is relatively small. In assessing this development three points are noteworthy. In some cases, such as anaesthesia and endodontia, the dentist is making use of distinctive techniques; this sets him off from his colleagues in a technical sense. In the case of paedodontia, the specialist is dealing with an age grade, rather than a technically distinct type of case. In the majority of the cases of specialties, e. g., orthodontia and crown and bridge work, the dentist is providing what almost amounts to a cosmetic service, for a relatively well-to-do type of client.

The consequences of technical specialization, as far as income is concerned, will be discussed after a consideration of specialization in office organization.

CHAPTER III

# OFFICE ORGANIZATION

Not all of the dentists interviewed restrict themselves to a single office. Seventeen of the total of 216, about one in 12, utilize two separate offices. A few of these move from one community to another, one or more days per month. A small number find it desirable to isolate their charity cases from their more affluent clients, and use a second office for the latter. However, the largest single factor responsible for the two-office arrangement is the appreciation, by specialists, that it is easier for the specialist to go near the patient than for the patient to come long distances to the dentist.

As might be expected, most of the two-office arrangements are in the larger cities, the areas where specialization likewise flourishes. Fourteen of the 17 are located in one major metropolitan area.

Although dentistry, like medicine, is considered an independent profession a substantial proportion of all dentists work in conjunction with other dental practitioners. Of the total of all dentists surveyed some 61, approximately 30 per cent, were engaged in something other than totally independent practice.

*Main Forms of Enterprise Among Dental Practitioners*

| | |
|---|---|
| Solo practitioners | 155 |
| Shared space | 14 |
| Shared space and facilities | 36 |
| Shared space, facilities, and patients | 11 |
| Total | 216 |

The forms of enterprise here are many and varied. Three can be clearly distinguished. One of these is group practice, an arrangement by which space, auxiliaries, patients, and income are shared by the practitioners. Group practice would include hospital and other clinics, husband-wife teams, father-son arrangements, and other forms of partnerships. Of our sample, 11 dentists were so organized. Notably all were located in the large metropolis. The largest category of shared practice comprises the dentists who share their space and their auxiliary help; of these there were 36. A third category is composed of dentists who share only facilities, such as a common waiting room; 14 dentists fall into this category.

The numbers involved in shared arrangements are too small to permit cross classification along other lines of analysis. Two conclusions deserve emphasis: to a very large extent dentists still retain their individual autonomy – the vast majority, 70 per cent, are entirely independent. By contrast, only 5 per cent indulge in a merged style of practice; the main forms of collective practice have to do with sharing auxiliaries – one in six of the dentists sampled found it expedient to organize his office around shared personnel.

There seems some tendency for group practices to yield a higher income than do solo practices, but the relationship is complicated by variations in the number of chairs used, and number of assistants employed. The distribution of dentists by number of chairs utilized was as follows:

**TABLE 2**

DENTISTS CLASSIFIED BY GEOGRAPHIC REGION AND NUMBER OF CHAIRS UTILIZED

| Region | Number of Chairs | | | | | Total |
|---|---|---|---|---|---|---|
| | One | Two | Three | Four | Unknown | |
| Maritimes | 11 | 23 | 1 | 0 | 0 | 35 |
| Central | 65 | 69 | 14 | 0 | 1 | 149 |
| Prairies | 3 | 23 | 4 | 1 | 1 | 32 |
| Total | 79 | 115 | 19 | 1 | 2 | 216 |

In our sample the majority of the dentists, 53 per cent, operated two chairs. Those using a single chair comprised less than 40 per cent of the total. Approximately 10 per cent of all dentists used three chairs, and at least one energetic practitioner used four. These variations in number of chairs indicate highly different ways of conducting a practice.

The pattern varied widely in different sections of the country. In general, wherever the ratio of dentists to population was high the number of chairs per dentist was low. On the other hand, where the ratio of dentists to population is low as in Western Canada, the number using two or more chairs was high; in these areas approximately two-thirds used two chairs, while one dentist in six used three or more chairs. In these same areas those with one chair made up only 10 per cent of the total. By contrast, in one community sampled in Ontario almost 50 per cent of the dentists operated a single chair.

The vast majority of the dentists, as shown by the table below, made use of some auxiliary personnel in their offices. One dentist in ten worked completely alone; the others made use of auxiliaries to a greater or lesser degree. In some offices the dentist employed four or more auxiliaries to help run his affairs; in other cases the dentist shared an auxiliary with a colleague. One-fifth of all the dentists surveyed had two or more auxiliary personnel. The great majority, 70 per cent, employed something fewer than two such workers.

**TABLE 3**

DENTISTS CLASSIFIED BY GEOGRAPHICAL AREA AND NUMBER OF AUXILIARIES EMPLOYED

| Region | Number of Assistants | | | | Total |
|---|---|---|---|---|---|
| | None | 0 – 1.9 | 2 – 3.9 | 4+ | |
| Maritimes | 2 | 29 | 4 | 0 | 35 |
| Central | 20 | 93 | 33 | 3 | 149 |
| Prairies | 0 | 28 | 4 | 0 | 32 |
| Total | 22 | 150 | 41 | 3 | 216 |

The distribution of such personnel, by geographical area, was far from uniform. The most highly specialized of the auxiliaries, the dental hygienists, have all concentrated in the two metropolitan communities, those boasting medical schools.

The areas of high ratios of dentists to population tended to have fewer of the auxiliary personnel, while in areas of low ratios all dentists used such personnel. It will be recalled that these latter areas had a high proportion of dentists using two or more chairs. In general one can say that the dentists using more than one chair also tended to employ auxiliary personnel. Both of these arrangements seemed to arise in areas where dentists were in conspicuously short supply.

CHAPTER IV

# INCOME AND TYPES OF PRACTICE

The variations in types of practice among the dentists in our sample are paralleled by variations in size of income. This chapter presents data of this sort.

In studies of professional groups there are difficulties inherent in discussing income, and field workers usually encounter resistance to detailed inquiries of of this order. The dentists surveyed were highly co-operative. A very large number prepared themselves for the interview by producing recent income tax data. Overall, the subjects interviewed provided highly dependable information, regarding both gross income and net income.

On the other hand, approximately one dentist in seven abstained from answering questions of this order. In some cases, the age difference of dentist and interviewer made such discussion embarrassing. In other cases, those where the dentist felt he had not succeeded in his career, a similar hesitation arose. We have no way of estimating whether those abstaining were distributed evenly through the income range, or bunched at the top and bottom levels: we have no grounds, however, for assuming the latter to be the case.

On balance our dentists report net incomes with a median average of roughly $14,000 per year. Information on averages is of little significance here because the range of incomes is imposingly wide. A considerable number of the dentists earned less than $10,000 per year – approximately one in six fall in this range. On the other hand there were more who exceeded the $20,000 net income range – slightly fewer than one-fourth of all dentists reporting their incomes fell in this higher range, and over 10 per cent of the total reported net incomes of $25,000 and more.

There are some substantial variations in income from area to area. The high incomes seem to be concentrated largely in the central region of Canada and are conspicuously lacking in the Maritime region. Paradoxically, there is, likewise a high proportion of the very low incomes in the central region. The Prairie region stands midway between the other two regions in its income pattern.

**TABLE 4**

NET INCOMES OF GENERAL PRACTITIONERS AND SPECIALISTS BY GEOGRAPHIC REGION

| Area | Under $10,000 | $10,000 to 14,999 | $15,000 to 19,999 | $20,000 to 24,999 | $25,000 and more | Unknown |
|---|---|---|---|---|---|---|
| *General Practitioners* | | | | | | |
| Maritimes ..... | 3 | 9 | 6 | 1 | 3 | 7 |
| Central ..... | 17 | 41 | 19 | 6 | – | 10 |
| Prairies ..... | 6 | 3 | 5 | 5 | 1 | 10 |
| Total G.P.'s: ..... | 26 | 53 | 30 | 12 | 4 | 27 |
| *Specialists* | | | | | | |
| Maritimes ..... | 1 | 1 | – | 1 | – | 1 |
| Central ..... | 5 | 8 | 10 | 10 | 16 | 4 |
| Prairies ..... | – | 1 | – | – | – | 1 |
| Total Specialists: . | 6 | 10 | 10 | 11 | 16 | 6 |

It is instructive to compare the incomes of all dentists with those of dentists who are formally and exclusively engaged in specialized practice. Of the 61 who specialize, 43 are exclusively specialists. One-third of those reporting income earn net incomes of over $25,000, while 60 per cent earn over $20,000. Two-thirds of general practitioners earn less than $15,000 per year. It is the specialist group which accounts for the higher salary ranges – of all dentists earning over $25,000 a year, four out of five are specialists.

**TABLE 5**

DENTISTS CLASSIFIED BY NET INCOME AND NUMBER OF CHAIRS UTILIZED

| Net Income | Number of Chairs | | | |
|---|---|---|---|---|
| | 1 | 2 | 3+ | Unknown |
| $ | | | | |
| Under 10,000 ..... | 20 | 10 | 2 | |
| 10,000 to 14,999 ..... | 25 | 42 | 1 | |
| 15,000 to 19,999 ..... | 12 | 24 | 4 | |
| 20,000 to 24,999 ..... | 5 | 14 | 4 | |
| 25,000 and over ..... | 5 | 9 | 5 | 1 |
| Unknown ..... | 12 | 16 | 4 | 1 |
| Total ..... | 79 | 115 | 20 | 2 |

The distribution of income reflects not only the pattern of specialization but also the utilization of chairs. As may be noted in the above table, the low income dentists are predominantly the men using one chair. Of these one-chair dentists approximately one-third have incomes under $10,000 per year, and two-thirds have

incomes under $15,000; the remainder are spread over the higher income group. By contrast, of those with three chairs, 80 per cent have incomes over $15,000. The dentists using two chairs fall between these two; in their case approximately half are earning $15,000 or less and one-half earn over $15,000 per year.

On the other hand, there are some single-chair dentists earning very high incomes – five of them have net incomes over $25,000 per year – but in general the income of the high earning dentist reflects his ability to organize his work around several chairs.

The use of several chairs implies a greater use of auxiliary personnel. It is instructive to relate the income of the dentists to his use of such auxiliaries. As indicated earlier, there were some dentists who practised without assistants – approximately 10 per cent of the sample. Of those reporting their incomes, all fell in the two lower income categories – less than $15,000 net income per year.

**TABLE 6**

DENTISTS CLASSIFIED BY NET INCOME AND UTILIZATION OF AUXILIARY PERSONNEL

| Net Income | Number of Assistants | | | |
|---|---|---|---|---|
| | 0 | 0 – 1.9 | 2 – 3.9 | 4+ |
| $ | | | | |
| Under 10,000 | 9 | 22 | 1 | 0 |
| 10,000 – 14,999 | 7 | 52 | 8 | 1 |
| 15,000 – 19,999 | 0 | 27 | 13 | – |
| 20,000 – 24,999 | 0 | 16 | 6 | 1 |
| 25,000 and over | 0 | 10 | 9 | 1 |
| Unknown | 6 | 23 | 4 | – |
| Total | 22 | 150 | 41 | 3 |

On the other hand, there is an unmistakable relationship between high incomes and the use of several auxiliaries – the use of more than two auxiliaries is associated with larger incomes. Of the 32 dentists earning less than $10,000 per year, only one has more than two auxiliaries; of those earning $15,000 to $20,000, the proportion is 33 per cent; of those earning over $25,000, 50 per cent use more than two auxiliaries. Auxiliaries, from this analysis, do much more than pay their own way; their use is clearly associated with the amount of net income of the dentist.

It would be useful to know the degree to which differences in amount of income are associated with the length of work-day of the dentist and the number of weeks worked per year. The following table provides data on the length of the work-year.

**TABLE 7**

DENTISTS CLASSIFIED ACCORDING TO NET INCOME AND WEEKS WORKED PER YEAR

| Net Income per Year | Fewer than 35 weeks | 35 – 39 weeks | 40 – 44 weeks | 45 – 47 weeks | 48 – 49 weeks | 50 – 52 weeks |
|---|---|---|---|---|---|---|
| $ | | | | | | |
| Less than 10,000 ..... | – | – | 3 | 6 | 17 | 6 |
| 10,000 – 14,999 ..... | – | 1 | 3 | 11 | 40 | 13 |
| 15,000 – 19,999 ..... | – | – | 6 | 13 | 20 | 1 |
| 20,000 – 24,999 ..... | – | 1 | 3 | 7 | 9 | 3 |
| 25,000 and over ..... | – | – | 2 | 9 | 6 | 3 |
| Income unknown ..... | – | 1 | 3 | 5 | 16 | 8 |
| Total (216) ..... | – | 3 | 20 | 51 | 108 | 34 |

A few of the dentists work fewer than 40 weeks per year. At the other extreme there are dentists who take no, or almost no, holidays. One dentist in six works from 50–52 weeks per year. The model work-year is 48–49 weeks. Exactly one-half of all dentists interviewed fall into this two-week span – they take either three or four weeks off for holidays each year. Approximately one-forth of all dentists work from 45–47 weeks per year and roughly 10 per cent work from 40–44 weeks per year.

From the table there emerges an interesting relationship between the number of weeks worked per year and the resulting income. The high earners tend to work a shorter work-year than do the low income group. Thus for those earning less than $15,000, 75 per cent work more than 47 weeks per year while 25 per cent work that number of weeks or less. On the other hand, for those earning over $20,000 per year there are equal numbers working the longer and the shorter work-year. In our sample, there are apparently a set of practices which the dentist tries to keep going over well-nigh the whole year at an income level substantially below that of his colleagues who have organized a shorter work-year.

**TABLE 8**

DENTISTS CLASSIFIED ACCORDING TO NET INCOME AND HOURS WORKED PER WEEK

| Net Income per Year | Fewer than 24 hrs./wk. | 25 – 34 hours | 35 – 39 hours | 40 – 44 hours | 45 – 54 hours | Over 55 hrs. |
|---|---|---|---|---|---|---|
| $ | | | | | | |
| Less than 10,000 ..... | 1 | 5 | 8 | 11 | 6 | 1 |
| 10,000 – 14,999 ..... | 1 | 6 | 11 | 27 | 16 | 7 |
| 15,000 – 19,999 ..... | 1 | 7 | 9 | 13 | 10 | – |
| 20,000 – 24,999 ..... | – | 4 | 6 | 4 | 8 | 1 |
| 25,000 and over ..... | – | 3 | 5 | 2 | 8 | 2 |
| Income unknown ..... | 2 | 8 | 7 | 13 | 3 | – |
| Total (216) ..... | 5 | 33 | 46 | 70 | 51 | 11 |

Inspection of hours worked per week indicates that there is a wide range of work-weeks for the dentists in our sample. About one-third work a conventional work-week of 40–44 hours. At the extremes, 5 per cent work over 55 hours per week and approximately 20 per cent fewer than 35 hours per week. Analysis of the length of work-week casts light on variations in income. What the data reveal is that those earning lower incomes – less than $15,000 per year – tend largely to work the model work-week, while the larger earners, over $20,000 per year, either work relatively long weeks or relatively short weeks. In other words, some of the large incomes seem due to long days at the chair, while others seem due to a form of work organization that permits relatively short work-days.

It is often assumed that the period of peak income for a dentist is relatively short – that he arrives at his income peak early, and tends to taper off relatively early in life. The sheer rigour of the work is assumed to reduce his income inexorably by the time he has been in practice for two decades. The following table provides data on this matter.

**TABLE 9**

DENTISTS CLASSIFIED ACCORDING TO NET INCOME AND YEAR OF GRADUATION

| | Less than $10,000 | $10,000 to 14,999 | $15,000 to 19,999 | $20,000 to 24,999 | $25,000 and more | Unknown |
|---|---|---|---|---|---|---|
| Pre–1929 ..... | 8 | 10 | 2 | 1 | 2 | 8 |
| 1929–38 ..... | 2 | 8 | 7 | 4 | 3 | 3 |
| 1939–45 ..... | 5 | 11 | 13 | 8 | 5 | 5 |
| 1946–51 ..... | 6 | 12 | 11 | 5 | 4 | 2 |
| 1952–56 ..... | 3 | 14 | 5 | 4 | 5 | 6 |
| 1957–61 ..... | 8 | 13 | 2 | 2 | – | 9 |

The data on income regarding the dentists interviewed fail to bear out this assumption. By comparing those with incomes under $15,000 per year with those over $15,000 per year a pattern becomes clear, one showing a distinctive income cycle.

| *Date of Graduation* | *Income Under $15,000* | *Income Over $15,000* | *Total* |
|---|---|---|---|
| Pre-1929 | 18 | 5 | 23 |
| 1929–38 | 10 | 14 | 24 |
| 1939–45 | 16 | 26 | 42 |
| 1946–51 | 18 | 20 | 38 |
| 1952–56 | 17 | 14 | 31 |
| 1957–61 | 21 | 4 | 25 |

The periods chosen were selected to correspond to significant periods in economic history – the pre-1929 era, the depression, the war years, the post-war expansion, plus the past decade divided into two halves.

By analysing the four recent periods (1939–1961) it would appear that each group of dentists is earning progressively more than his younger colleagues. From this it would appear that it takes something like two decades for a dentist to reach his peak income. Moreover, during the third decade of his career the dentist's income declines very slightly. On the other hand the income of those in their fourth decade of practice (in this case those who have been in practice over 33 years) does fall substantially below those of their younger colleagues. Here again, though, it is clear that there are differences in different types of practices. Among these older dentists (pre-1929 graduates) some are still earning over $25,000 per year.

This chapter has presented a picture of the variability in net income of dentists, and indicates factors associated with such variability. The variability in gross income is of the same order. For the dentists' sampled, net income was approximately 50 per cent of gross income.

In summary it would appear that the very high incomes are found among the specialists, who incidentally are highly concentrated in the larger urban areas. It would appear also that dentists reach their peak incomes, whether that peak is high or low, relatively early in their careers, and remain there for a substantial span of time.

In earning these incomes, dentists seem to have developed a uniform work-year. Exactly one-half of them work either 48 or 49 weeks. The length of the work-week is much more variable – dentists are relatively evenly spread over work-weeks which range from 35 to 55 hours.

The most significant factors relating to income, apart from specialization, are those of office organization having to do with number of chairs and number of auxiliaries. The dentists who earn the most money, and presumably do the most dentistry, are those who can organize an office utilizing several chairs and several assistants.

## LOW INCOMES AND HIGH INCOMES

This section attempts to explore the variation in income among dentists, by comparing the dentists at the two poles of the income distribution. As indicated earlier, of the 183 dentists reporting their earnings there were 32 with incomes below $10,000 per year and 20 with incomes over $25,000 per year. To a considerable degree the incomes mirror the quantities of services the two groups provide.

### The Low Earners

The low income group mainly comprises general practitioners, 29 of the 32. Of the three specialists, all of whom are orthodontists, one has practically retired and the other two have barely started to practise. Hence number of years in practice is an adequate interpretation of the low income of these three men.

The general practitioners (29) show a very wide age range. About a third have been in practice over 30 years, a third 5 years or less, and a third from 6 to 29 years.

The equal numbers in each of these classes is a fortuitous coincidence, in so far that in the total group of general practitioners there are relatively few in the old and young categories. Of all dentists in the central category, in practice 6 to 29 years, one dentist in ten earns less than $10,000 a year. Of both the older dentists and the younger approximately one-third are in this low income category. Therefore to some degree one can attribute low incomes either to the fact that the dentist is starting a practice or is tapering off his practice. However, the fact that very low incomes are spread over the whole age range implies that the age element is relatively inconsequential.

As noted in the preceding chapter there is some variability of income associated with the regional distribution of dentists. However, these very low incomes are widely scattered geographically. Neither geographical region nor size of community seems to yield any significant correlation with the distribution of low incomes.

An inspection of specific cases suggests that certain personality types predominate in the low income group. Thus, of the younger men, those in practice five years or less, one has dedicated his life to education and preventive dentistry, and aspires to an income no higher than $10,000 per year. In this case he is self-selected to this income category. One is associated with his dentist father, who retains 60 per cent of the net income of their joint practice. Given a more generous partner arrangement he would be in a higher income category. Of the others, two are energetic dentists practising in the approved fashion with a well-appointed office in a promising neighbourhood. Each employs a full-time assistant. One of these men is of Chinese extraction and the other is of Negro background. In their cases their small practices seem directly traceable to their racial backgrounds.

The other dentists among this young group could be labelled "misfits". They identify themselves as "near failures", seing themselves as meek, withdrawn types who are unable to inspire confidence in their patients. Each lacks in a conspicuous degree the drive and extroverted enthusiasm which seems characteristic of the general run of successful practitioners in the dental profession.

When attention is turned to the older and middle-aged practitioners among the low-income group, something of the same configuration of personality types comes into focus. Among these 19 dentists there are some saint-like characters (who are devoted to public service rather than financial success) and some downright failures. There are others who share some features of both; they would have liked to be more successful but some part of their style of life stood in the way of a wholehearted and single-minded devotion to their professional careers.

The "saintly" category is small. It comprises only three members, and two of these are women dentists. These practitioners do not view their work primarily as a means to making money. Preventive dentistry rates high with them, but this kind of educational work for patients is not easily fitted into a fee schedule. Moreover, each of these performs a substantial amount of charity work, and seems unconcerned about the fact that there will be no payment forthcoming. All have decided that it is unnecessary to earn over $10,000 per year. The man works long days and takes short holidays; the women work short days and take long holidays.

All of these dentists have a sense of devotion to their patients, and a comparable sense of dedication to the interests of their profession. They take active roles in the work of their professional associations.

There are twice as many "failures" as "saints" in this income class. The "failures" span a wide age range, from 10 to 45 years in practice. The oldest had at one time been a successful dentist but turned alcoholic. His practice borders on the illegal; he works in conjunction with a dental laboratory which deals directly with clients. Another older dentist has been practising with a semi-rural clientele in an area of declining population. He has not discovered how to replace his drifting clients, and his practice has progressively diminished.

The youngest of these men is a self-acknowledged failure. He has a vaguely illegal type of practice, and concedes that he lacks the kind of personality that can fit into a community setting and establish and maintain social contacts conducive to building a practice.

The other three practise dentistry in a desultory fashion, earning around $6,000 per year. They use no assistants in their practices and show little interest in their work or their profession as such. From their interviews they give the impression that they merely scraped through in school.

All six of the above have the air of defeated men.

The in-between group numbers ten members. These all give the impression of being plodders. Most give the impression they belong to an earlier generation. Characteristically they work a long year taking very little in the way of vacations. Moreover, they manage to put in long hours each day. However, the long work-day is not necessarily a "full day"; on the average they see from 12 to 15 patients per day.

Most of these men have attempted to develop an up-to-date practice. Six of them make use of an assistant. Five of them operate two chairs, and one divides his time between two offices. One had been in a higher income category and gives evidence of climbing to such a level again.

In general these are a set of genial, pleasant men, with no obvious handicaps. What they seem to lack is a kind of aggressive drive, which seems characteristic of the men who forge ahead in dentistry. It would be incorrect to attribute the relative failure of these men to unredeemed bad luck. They practise in relatively promising areas of their communities. It is not the case that they have been marooned in declining sections of their sites, or are restricted to a low socio-economic segment of the population.

In summary, we have here a set of dentists who fall to the bottom of the scale of earnings. They are not a small group; they number 31 of the 183 dentists for whom we secured reliable income data. Hence more than one in six of practising dentists is providing a relatively modest quantity of dental services.

The group is markedly heterogeneous. One is nearing retirement. Four are at the begining of their careers. Four are dedicated saints, who have forsaken the

lure of income for non-monetary professional rewards. Two are disadvantaged racially; they belong to a racial group too small to provide a substantial clientele. Nine are uninspired plodders who seem unlikely to manage successful practices. Finally, there are 11 men who can legitimately be labelled misfits or failures. All in all it would seem that there is a substantial unsuccessful fringe to the field of dentistry, a fringe comprising 10 to 15 per cent of the total in practice.

### The High Earners

The highly successful dentists – those earning over $25,000 net income per year – are a smaller group. They number 20, slightly more than 10 per cent of the total. Within the group there is a wide income range. One-half of them earn from $25,000 to $35,000 per year. The other 10 are scattered in substantially higher income ranges.

These 20 dentists are scattered widely with regard to age. A couple have been in practice over 30 years. For them the aging process has not involved loss of earning power. On the other hand, 5 of them have been in practice between 4 and 8 years. For them the high incomes are not the result of steady accumulation of a loyal clientele – their financial careers have been meteoric.

Unlike the low income earners these dentists are all big city practitioners. With one exception they practise in a metropolis. The large metropolis provides the conditions essential for advanced specialization – patients who demand distinctive services and colleagues willing to refer patients who require such services. On the other hand not all of these high income earners are involved in specialty work. Four are restricted to general practice, and only 13 consider themselves to be exclusively specialists.

It may be worth noting that not all specialties are represented in the group of high earners. Of the 13 certified specialists in the group 8 practise orthodontia and 5 oral surgery. The latter are the highest earners of all. Indeed one-half of all oral surgeons are found in the over $25,000 income category.

It should not be assumed that these high earners are striving in unremitting fashion to maximize their earnings. There is much evidence that this is not the case. Some set time aside for teaching, others for charitable services. Some prefer to reserve enough time for leisurely pursuits, and they work moderately short workweeks and indulge in substantial holidays. Some deliberately restrict their income at a given level, rather than move into the next higher income tax bracket.

The main features that distinguish this group of practitioners from the general run of their colleagues are three. They depend on a referral system; enough of their colleagues are able and willing to refer difficult cases to keep a steady clientele passing through the specialists' offices. They are able to make use of a higher scale of fees, because in general they can concentrate on providing services for an upper socio-economic class of patients. And finally they are more highly organized. (One claims to be the fastest dentist in the metropolis.) They make use of auxiliary staff, but they do this in an efficient fashion. Many are keenly aware of the potentialities deriving from efficient office operations.

The success of these men does not necessarily bring them prestige in the eyes and voices of their colleagues. Some are accused of running "extraction factories", rather than practising good dentistry. They tend to be viewed as "outside the profession", practitioners who are "different". In the eyes of the interviewers they are different largely in that they are outgoing types of personalities, displaying a great deal of self-confidence.

This group of practitioners is worthy of note for two reasons. They indicate something of the upper limit of services that dentists are able to provide, given certain optimum conditions of practice. They also indicate that such achievements do not necessarily earn the respect and admiration of one's colleagues in one's profession.

The two groups of practitioners considered in this chapter represent roughly one-third of all the dentists surveyed. They have been analysed here chiefly in terms of their patterns of earnings. Two concluding comments deserve emphasizing.

First, any occupational group, when exposed to study, will display an unsuccessful fringe. Some are misfits who were poorly selected. Some have run into hazards different from the general run of hazards in an occupation. Some have deliberately chosen goals which differ from those of their colleagues. In effect, therefore, the numerical strength of an occupation is something less than the actual membership figures. Hence is planning to provide a professional service the planners need to contemplate a safety factor of one-tenth or perhaps one-eighth to compensate for the fringe of the profession.

The misfits may conceivably be the rearguard of the profession, those who have not kept up with outside influences affecting the dental profession. By contrast the high earners represent the forefront of dentistry. These men have adapted their practices to the conditions of urban life. They have devised ways of providing a substantial quota of services per year, through specialization of service or ingenuity of office organization.

It should come as no surprise that neither of these categories rates highly in the eyes of the rest of the profession. The latter may have sympathy for the unfortunate fringe, but they view with disparagement the high earning innovators. In this they resemble other professions. No profession is unreservedly devoted to the welfare of the larger society; and all professions tend to become concerned with their own welfare. The innovators in a profession may be the inner enemies of the rest of the profession.

CHAPTER V

# AUXILIARY PERSONNEL

Among the dentists surveyed, 194, approximately 90 per cent of the total, employ at least one part-time assistant in their offices. The assistants perform auxiliaries duties for the dentist; these fall into four main categories. *Secretarial work* involves telephone answering, bookkeeping, the arranging of appointments, greeting patients, etc. *Chairside assisting* involves mixing materials for the dentist, preparing and sterilizing instruments, seating patients, and generally assisting the dentist in very elementary technical tasks. The area generally handled only by *dental hygienists* comprises teeth cleaning, applying topical fluorides, and formal dental education. Finally, some assistants perform *laboratory work*, usually within the setting of the dentist's office.

With the exception of some part-time assistants doing only laboratory work, and some secretarial help in the military situation, all such auxiliaries in our sample were female.

Where a dentist employed only a single assistant (excluding a trained laboratory man), whether part-time or full-time, her work always included the secretarial aspect, while she might or might not also engage in chairside work as well. Where there was more than one assistant employed in an office there generally tended to be a division of labour, one concentrating on chairside work and the other on secretarial tasks. In larger offices with more than two assistants there was an even further division of labour, and refinements were introduced such as business managers, receptionists, bookkeepers, etc.

Only in a few special cases, those involving an exceptionally able girl (well-trained either in the office or through formal education), was an assistant who was not licensed as a hygienist permitted to perform the specific tasks allocated to hygienists. In such cases the assistant was generally well-known in professional circles, working as an unlicensed hygienist but with the implicit sanction of the professional body. Only very occasionally did an ordinary assistant doing secretarial and/or chairside work also undertake even the most elementary prosthetic procedures. In a few instances, instead of sending all his prosthetic work out to a dental laboratory or doing it himself, a dentist employed a laboratory technician, usually on a part-time basis. This technician would generally work in the dentist's own laboratory installed in his office.

Assistants were found in various work combinations. Some were employed full-time or part-time for only one dentist in solo practice. Others were shared between two or more dentists with solo practices, or by men who shared some facilities as well as personnel. In such cases the assistant was allocated to each dentist for specific working hours. Still others were found in group practices, working as the employee of several dentists in common, and performing specialized tasks for whichever dentist might require their services at the time. Both solo and group practitioners employed a wide variety of combinations of full-time and part-time assistants.

For statistical purposes, each part-time assistant has been considered the equivalent of one-half a full-time assistant; in group practices, each dentist has been allocated an equal share of the auxiliaries employed. Hence, in a 4-dentist group practice, with 7 full-time assistants being used in common, each dentist is considered to have 1¾ assistants.

In our sample, 22, or just over 10 per cent, employ no auxiliary personnel. One hundred and fifty (69 per cent) employ fewer than two assistants. Forty-one (19 per cent) employ from 2 to 3.9 assistants, and 3 (1 per cent) have 4 or more assistants. Dentists working without any assistants are widely scattered across all the regions sampled, with the exception of the western. By far the greatest proportion of dentists in each community employed some assistants, but fewer than 1.9. In general the dentists employing 2 or more assistants are to be found in metropolitan areas and particularly those boasting dental schools.

In considering the dentists in terms of age, of those who began their practices before 1929, 23 per cent now employ no assistants. Of the younger dentists fewer practise with no assistants. The percentage with no assistants ranges between 6 per cent and 8 per cent in the graduating periods of 1929–38, 1939–45, 1946–51, and 1957–61, while the 1952–56 graduates have 14 per cent in this category. (It may be of interest to note that half the hygienists in our sample are employed by dentists graduating in the six-year period from 1939–45.)

Table 10 presents information on the number of assistants, and dentists' incomes; it shows the financial advantage to a dentist of hiring auxiliary personnel. All those whose incomes are known and who use no *assistants* earn less than $15,000 net income per year; 56 per cent of them earn less than $10,000. In the category of "Up to 1.9 Assistants" are found the bulk of the dentists; for them the largest percentage of known incomes is clustered around the national average income – $10,000 to $14,999. However, the range extends through the higher income categories; 21 per cent, 13 per cent and 9 per cent of known incomes respectively fall in the highest income brackets. In the case of dentists employing "2–3.9 Assistants", the bulk of known incomes (35 per cent) has moved up to the $15,000 – $19,999 level. (Only 3 per cent of this group make under $10,000.) At all levels it seems to be the case that more auxiliaries provide a larger net income for the dentist.

Turning to the assistants themselves, questions were asked of the dentists as to the assistants' education, salaries and services performed. The 216 dentists interviewed employed a total of 233 auxiliaries, excluding hygienists.

## TABLE 10

DENTISTS CLASSIFIED ACCORDING TO INCOME AND NUMBER OF ASSISTANTS

| | Full-time Hygienist | Part-time Hygienist | No Assistants | Up to 1.9 Assistants | 2–3.9 Assistants | 4 Assistants or more |
|---|---|---|---|---|---|---|
| Net Income | | | | | | |
| less than $10,000 per year ... | 0 | 1 | 9 | 22 | 1 | 0 |
| $10,000 – $14,999 ..... | 0 | 3 | 7 | 52 | 8 | 1 |
| $15,000 – $19,999 ..... | 4 | 3 | 0 | 27 | 13 | 0 |
| $20,000 – $24,999 ..... | 0 | 2 | 0 | 16 | 6 | 1 |
| $25,000 and over ..... | 0 | 1 | 0 | 10 | 9 | 1 |
| Unknown income ..... | 0 | 0 | 6 | 23 | 4 | 0 |
| Total ..... | 4 | 10 | 22 | 150 | 41 | 3 |

Note: Hygienists included in number of assistants in right-hand columns.

Concerning education, 42 per cent of the assistants had left school between the beginning of grade 12 and the completion of grade 13. Thirty-two per cent had left between grade 9 and grade 11, and 1 per cent had only elementary schooling. Six per cent (15) were Registered Nurses and two had attended university; the education of 18 per cent was unknown. In addition to their academic schooling, 15 assistants had taken a course for dental assistants, and 8 had attended a business school.

Considering assistants' education by area, the large metropolitan area has 41 per cent of assistants with known education having grade 9 to 11, 46 per cent between grade 12 and 13, and 11 per cent Registered Nurses. Of the balance, two attended only elementary school, and one had university training. By comparison, assistants in four other cities had relatively high education. In one of these, all assistants had attended high school, and 15 (75 per cent) had passed grade 12 or 13.

These figures contrast with those of the Maritimes. There the bulk of the assistants had from one to three years of high schooling. On the other hand two were R.N.'s, one had university training, while one had only elementary school education.

Ten of the 15 assistants who had taken assistants' courses were located in the large metropolitan centre; of the rest all but one were in the western regions. (The dental association has set up an assistant's course there.) A similar concentration of those with business courses can be noted.

The dentists were queried about their office expenses for a year; "employees' salaries" was one category in the questionnaire. The replies of all those having only one full-time assistant were extracted and compiled to give a picture of assistants' salaries. One hundred and three assistants were found in this category. Of these, incomes were unknown for 28. Three others were the wives of dentists; for them no salary was reported.

The annual incomes of assistants were classified in six $300 categories, from $2,000 and under to $3,200 and over. The largest number in any category, 20, earn between $2,600 and $2,899. At the extremes, 6 earn under $2,000 and 13 earn over $3,200. The other intermediate groups include 13, 12 and 8 assistants making $2,000–$2,299, $2,300–$2,599, and $2,900–$3,199.

The highest salaries were paid in the central region. In the large metropolis the bulk (32 per cent of the 46 known incomes) was in the $2,600–$2,899 category, but 15 per cent and 24 per cent were in the 2 higher categories respectively. Only 28 per cent made under $2,600. The other central areas ranked slightly lower.

The figures available for the other communities were few, but they indicate a generally lower income. The western areas showed assistants' salaries substantially lower than those indicated above. It may be recalled that these were the areas of high levels of schooling for assistants. For the Maritimes the numbers in this category are too few to justify any statistical comment.

The same sample of dentists (those with one full-time assistant) was investigated to see if there was any correlation between the assistants' education and the dentist's income, style of practice, etc.

In terms of the dentist's income, the assistant's education did not appear significant. Almost exactly equal proportions of the girls within the grade 9–11, grade 12–13, and R.N. classes worked for dentists in each income category. Excluding assistants working for dentists of unknown incomes, 18 per cent (15 out of 82) are employed by men making over $20,000 a year. However, on considering the seven who have taken assistants' courses, six of their employers make less than $20,000 a year, and the seventh employer is of an unknown income. Of the five who have taken business courses, three work for dentists making less than $10,000, one for a man in the $10,000–$14,999 group, and one in the $20,000–$24,999 bracket.

There seems no correlation whatever between assistants' education (from grade 9 through grade 13 and nursing) and dentists' incomes; on balance those assistants with specific technical training work for dentists in somewhat lower income categories.

The same conclusions appear in comparing the assistants' formal training with the average number of appointments the dentist handled per day. The same proportions of girls were in each appointment category regardless of formal academic and technical training. The number of hours worked a week and weeks a year were also not significantly related to the assistant's education.

Both from the analysis of the data and the opinions volunteered or implied by several dentists, academic education is relatively insignificant in the assistant's effectiveness in the office. Many dentists indicated this by being quite uncertain of their assistants' education. "I don't know – must be high school." "I never thought to ask her." Several times the dentist asked his assistant for the information; and if she wasn't there, many dentists would not even hazard a guess. Assistants' courses were not frowned upon, but most dentists placed more emphasis on the importance of informal education by the dentist in the office, the general attitude of the assistant to her work, and her manner with patients.

It seems that the effectiveness of the assistant lies largely in her being accustomed to the particular way each dentist carries on his practice, and that these skills can be gained only through experience in the office. What the assistant learns this way is quite important. Many dentists rely heavily on their assistants for office organization, and a serious dilemma develops when such an assistant is ill or otherwise unavailable.

In general, one can say of assistants that they likely have left school between grade 11 and 13, have had no further academic or technical training and have "picked up" all their qualifications in a type of apprenticeship situation.

## NUMBER OF APPOINTMENTS PER DAY AND AUXILIARY PERSONNEL

Does the higher income of dentists employing auxiliaries indicate that they perform more dentistry? An effort was made to determine the relation between the amount of dentistry a practitioner accomplished and the number of auxiliaries he employed. It is not easy to assess accurately how much dentistry a practitioner produces in an average day; the number of patients seen per day was used as a rough guide. It should be noted that a patient who has several fillings or 2 hours of crown and bridge work is being equated with the simplest recall patient by this measure. However, in the over-all picture such anomalies probably tend to cancel each other in so far as the effectiveness of auxiliary personnel in accomplishing more dentistry is concerned.

The dentists were classified in six groups: those with no assistants; with one part-time assistant; with one full-time assistant; with more than one but less than 2 full-time assistants; with 2 to 4 full-time assistants; with 4 or more full-time assistants. General practitioners were separated from specialists; part-time specialists were included with specialists.

To estimate the average number of appointments per day, the number of appointments on the day prior to the interview was noted, along with the dentist's estimate of his "average day". These two figures usually corresponded closely. The dentists were placed in 6 daily appointment categories: 10 and under, 11–15, 16–20, 21–25, 26 and over, and unknown. (Six dentists provided neither their previous day's total nor any estimate of an average number of patients per day.)

### General Practitioners and Auxiliaries

Of the 155 G.P.'s in the sample, 54 per cent had one full-time assistant, 12 per cent had no assistants, 7 per cent had one part-time assistant, 15 per cent had 1–1.9 full-time assistants, and 12 per cent had 2–3.9 full-time assistants or the equivalent. None had 4 or more full-time assistants.

Of the 19 with no assistants, 17 replied to the question. Seven were in the "Under 11" and 6 in the "11–15" appointment categories respectively. The largest cluster was around the 10 to 11 appointment category.

Nine of the 10 with one part-time assistant replied, 5 being in the "11–15" category, with two below it and two above it. The mode here is 11–15 appointments; the over-all number of appointments had slightly increased with this assistance.

Eighty-three G.P.'s had one full-time assistant. Only 7 were in the "Under 11" appointment group, but 37 and 30 were in the "11–15" and "16–20" groups. Thus 67, or 81 per cent, saw between 11 and 20 patients per day; there was a clustering of dentists with 15–17 appointments a day. Further, the distribution streched out to the "21–25" and "26 and over" categories with 6 and 3 dentists respectively.

The category of "1–1.9 full-time assistants" is a mixed one with many combinations of personnel. Most dentists here had one full-time assistant plus one part-time girl shared with another, or several other dentist(s). Two dentists each with

part-time assistants were also included here. Of the 23 dentists in the group there is a wide spread in numbers of daily appointments, but the mode (8) is in the "11–15" grouping. Five see under 11 per day, and 5, 4 and one see 16–20, 21–25, and over 25 respectively. The number of appointments does not seem to have increased with the added assistants.

The "2–3.9 full-time assistants" category consists largely of dentists with 2 full-time assistants only (11), and a few with one part-time assistant as well. One had 2 full-time and 2 part-time assistants, and one had one full-time and 2 part-time employees. Of these 19, 11 averaged 16–20 patients a day. Six had 11–15, and 2 had over 25. With the addition of a second full-time assistant there appears a slightly increased daily patient-load, making the norm around 17 to 18.

Briefly, the G.P.'s with no assistants averaged between the two lower categories, about 10–12 patients per day. Dentists with one part-time assistant may have slightly more appointments, 50 per cent of the known cases falling between 11 and 15. Dentists with one full-time assistant had a norm of around 15–17, while the figures hardly remained this high for those with "over 1 and below 2" full-time assistants. The "2–4 full-time assistants" group of dentists see more patients; 58 per cent of these handle 16–20 appointments per day.

### Specialists and Auxiliaries

Sixty-one specialists, certified and uncertified, were interviewed. Twenty-two or 36 per cent had between 2 and 3.9 full-time assistants, and 20 or 33 per cent had one full-time assistant. Only 3 (5 per cent) had no assistants, and 2 (3 per cent) had only one part-time assistant.

The percentages of G.P.'s and specialists utilizing the various combinations of auxiliaries differed considerably. Only 27 per cent of the G.P.'s have more than one full-time assistant or the equivalent, while 59 per cent of the specialists have over one full-time assistant. At the other end of the scale, only 8 per cent of the specialists have less than one full-time assistant, while 19 per cent of the G.P.'s are in this category. Two per cent of the specialists have no assistants, and 12 per cent of the G.P.'s work alone. Clearly, the specialists tend to make greater use of auxiliary personnel than do G.P.'s.

The numbers of specialists are small, but they indicate little difference from the G.P.'s in the number of appointments seen per day. There are too few in the lowest categories to make any estimates, though all three specialists using no assistants average fewer than 11 patients per day.

Twenty specialists have one full-time assistant, and 19 gave their previous day's work and/or an estimate of their average. Eleven of the 19, or 58 per cent, average 11–15 appointments a day. Three are in the categories on either side of this, while one averages 21–25, and one, over 25. These men closely resemble the G.P.'s in this regard.

Only 11 specialists have 1–1.9 full-time assistants, but there is nothing to indicate any deviation from the G.P.'s pattern of appointments. Of the 22 specialists with 2–3.9 full-time assistants, 20 replied concerning their appointments.

The mode was 9 (45 per cent ) with 16–20 appointments per day. The two lower appointment categories had one and 5 dentists, the upper two having 2 and 3. Thus, the over-all average was much in line with that of the G.P.'s although there was a wider range in the numbers of dentists across the appointment categories.

Three specialists have four or more assistants, and all three have 11–15 appointments per day.

Briefly, the specialists, as far as their numbers allow any generalization, have about the same number of appointments per day as the G.P.'s in the corresponding auxiliary personnel categories. However, as noted earlier there is a larger proportion of specialists than G.P.'s in the auxiliary personnel categories.

In the wake of such generalizations several reservations are in order. It should first be noted that 7 of the 12 hygienists employed by the dentists in our sample were hired by the specialists, who constitute only 28 per cent of the dentists interviewed. Whether or not the hygienist has her own patients, she works alone rather than as an assistant to the dentist, and hence her contribution does not show up on her employer's "average day", though she is still counted as an assistant. Secondly, specialists in certain areas such as crown and bridge, or periodontics,may require longer appointments with each patient, and considerable dentistry may be accomplished in a day, although only on a small number of patients. Conversely, it may be argued that other specialties such as orthodontics and oral surgery often require much less time than the run of G.P. patients, and this partially cancels out the previous effect. It does, however, suggest why there is such a wide range in numbers of daily appointments within each assistant category in the specialist group.

### The Extreme Cases

Who are the extreme cases in each group, those with unusually large staffs, or those with no assistants at all?

In the G.P. group, 19 had no assistants. Of these, 7 were older men who graduated prior to 1930. Many had never used an assistant, and were not concerned with increasing their volume now. Two graduated since 1960 and had not yet developed their practices to the stage of introducing assistants. The remainder represented a wide spread in the intervening years; these avoided assistants for several reasons. Many felt their practices were too small to warrant an assistant; "It might be all right in a big office". Others had had personality problems with assistants, or had become tired of training assistants only to have them leave to get married. The majority were very independent men who wanted to run their practices without interference by any outsiders. They felt themselves capable of keeping their own books, etc., and wanted to be left quite on their own.

Only three specialists had no assistants. These were two certified orthodontists and one uncertified crown and bridge man – all from the large metropolis. The incomes of two were below $10,000 a year, and the third unknown. One orthodontist had been in practice only a few months and was situated in a new building not completely finished. Both the other men had practised outside Canada. Neither was

concerned about maximum volume and income. One is a recent immigrant from Europe – an extremely individualistic person with strong opinions of his own about dentistry in Canada. He does not have a large patient-load. The other is a very "professional" man, university-oriented and concerned about good quality dentistry. He favours auxiliary personnel, but does not employ an assistant "at present". The men graduated in 1947, 1953 and 1955.

Nineteen G.P.'s have over two full-time assistants or the equivalent. They are generally the more "successful" dentists in terms of their type of office, income, and general attitude towards dentistry. Almost all their offices were elaborate, spacious and luxurious. Plush chairs, wall-to-wall carpets, aquaria, paintings, "piped-in" music, etc., were the norm, although a few of the younger ones had not quite reached this level.

One had an unknown income, but none of the others made under $10,000. Six earned the national average and twelve exceeded it. Their years of graduation ranged from 1927 to 1959. All realized the value of auxiliary personnel for increasing volume, income, or both. Within the group were some of the more business-like men running very busy offices in the suburban areas, concentrating on maximum efficiency and output. Also in the group were some prestige-oriented men with better-established practices, but apparently concerned with the opinion of colleagues and clients about their material surroundings.

Three specialists – 2 certified oral surgeons and one uncertified anaesthetist – have 4 or more full-time auxiliaries. (2 have 4, one has 5.) Each sees 11–15 patients a day. Two have incomes of over $20,000 per year. Each of these specialists is in a field requiring general anaesthesia, so several auxiliaries are necessary by virtue of that alone.

### Dental Hygienists

One recent advance in the development of auxiliary personnel in dentistry has been the introduction of dental hygienists. These are now trained at the University of Toronto and graduate at the conclusion of a two-year dental course. In our survey we have discovered a number of dentists employing these people, and we directed questions concerning this new development towards them and the dentists not making use of them.

Hygienists were found in the employ of 14 dentists, 3 of whom were in a group practice sharing the services of one girl, so that hygienists were actually found in 12 separate situations. (As the head of the group practice was responsible for bringing in the hygienist, and the other dentists only follow his example in making use of her, we shall consider only the head dentist for purposes of analysis.) As there are only 74 hygienists in Canada, our sample included about 16 per cent of them – a relatively high percentage for the 4 per cent sample taken of the Canadian dentist population.

The professional duties of a hygienist have apparently been clearly set out for the dental profession in provinces where hygienists may practise, and their areas of work vary little across the sample. They are engaged almost exclusively

in dental health education, teeth cleaning, applying topical fluorides and taking and developing X-rays. They do very little receptionist or secretarial work, and only occasionally engage in chairside assisting when the regular assistant is occupied elsewhere. Beyond this point, however, the hygienist does not have a very clearly specified professional role. Our sample indicates that her status in the dental office hovers somewhere between the office-trained assistant and the fully trained dentist, but exactly where she stands varies widely depending on the particular office.

Four dentists employ a hygienist full-time, and the remaining 8 offices employ one part-time, usually from one to 2½ days per week. It seems relatively common for 2 or more solo practitioners to share a hygienist when they do not have sufficient work to keep one busy full time. The dentist-hygienist relationship, therefore, when the latter is on a part-time basis, tends to be more that of employer-employee. It is understood that the hygienist will appear on a certain day of the week; all the dentist's patients requiring her services are scheduled for that day. She may have her own appointment book, or the patients to see her are listed separately in the dentist's book; but the patients on whom the hygienist works are always strictly the dentist's patients. Usually one of the dentist's chairs, which he uses himself the rest of the time, is allocated to her while she is in the office. The hygienist is paid a flat salary, and considered a part of the auxiliary personnel to aid the dentist to see more patients in the week. She is one step, but only a very small step, above the assistant in professional ability and income.

When a hygienist works full-time in one office, her status seems to improve. The four dentists with full-time hygienists separate rooms and chairs to the latter. Separate appointment books are kept for dentist and hygienist, and although there is a great deal of overlapping, of course, there is a tendency for the dentist to refer to "her patients" and "my patients" separately. The hygienist is still generally paid a flat salary rather than a commission from her fees, but she becomes more an assistant professional than a mere office employee. Hygienist and dentist tend to work more closely together as colleagues in a team: one hygienist in the sample does preparatory work of the dentist's patients, sometimes fills in as a chairside assistant, and keeps up to date a printed day-sheet of dentist's and hygienist's patients, work done, and fees charged.

In Canada today there is only one hygienist for every 80 dentists. What sorts of dentists have had the interest, initiative and opportunity to employ a hygienist? Nine of the 12 dentists with hygienists were located in the large metropolis and the remaining 3 were in the Maritimes. Considering the men themselves, they represent a wide age-range, having graduated between 1931 and 1956. Seven, or 64 per cent, either teach or have taught at university, while only 22 per cent in the total sample have taught there. Six general practitioners employ hygienists, while 3 certified specialists and 3 uncertified men but with practices limited to one area have hygienists; thus half the dentists with hygienists tended to one specialized area, while only 27 per cent of the total sample specialized.

In net income, 2 dentists were in the $10,000–$14,999 bracket, 7 were in the $15,000–$19,999 group, 2 make between $20,000 and $24,999, and one nets over

$25,000. Almost all were very dynamic practitioners, running busy and up-to-date practices. Their emphases were on serving the most people most proficiently in the least amount of time, and on good professional and business management.

Only 6 per cent of the interviewed sample make any use of dental hygienists. In the light of the recent emphasis placed on the importance of auxiliary personnel to aid the solution to the dental problem in Canada, questions were asked of the remaining 94 per cent about their knowledge of, and attitude towards, these new arrivals in dental personnel. Their attitudes and comments may be divided into three main categories. First are those who are highly in favour of hygienists and said they would like one in their office, or would welcome one if their patient-load increased to warrant it.

Ninty-one dentists, or 46 per cent of the dentists not employing hygienists, were in this category. A few, who had employed hygienists in the past who had later left to marry or have children, would like to regain a hygienist's services. Hygienists were often seen as of great potential assistance in busy practices. "Hygienists can see recall patients, examine X-rays, do scaling, polishing, and cursory minor and exploratory examinations. This saves 2 appointments with the dentist. Besides she can do a better job on these things than I can." "I'd love to get rid of all that cleaning!" "I can see where a hygienist would increase my efficiency so we might even use a third assistant for her." Several had made an attempt to recruit a graduating hygienist from the university. Seven in this group work with no assistants, while 64 have up to 1.9 full-time assistants, and 19 have 2–3.9 full-time assistants.

About 46 per cent of the dentists not employing hygienists (92) felt the idea in theory was "good", fine", etc., but either knew very little about the occupation, or were not at all enthusiastic about the re-organization that would be required in introducing one into their offices. Their attitudes about hygienists were neutral, any positive comments being qualified in their answers. Very typical was the response, "It's definitely a good thing, but not in *our* type of practice". "It's o.k. for a man who wants to work 2 or 3 chairs, but not for me." Most felt that a hygienist might be usable in a large group practice, or in a busy practice with a very ambitious dentist. Again, came the objection, "I think the *idea* is good, but there's a lot of people who want to come and see the *dentist* – not 'Miss Jones'."

A few felt that although the idea of the *occupation* in the abstract was good, it may not work out so well in actual practice. "I doubt very much if they will spend sufficient time at it. It's not a career – just a tentative career. The ones out here didn't stay at it too long." There was also some feeling that hygienists may better be used elsewhere. "I don't think they're being used where they're needed most. Don't use hygienists where you don't need them – in the Medical Arts Building! I think an excellent place for them is Public Health."

About 9 per cent of the dentists without hygienists (19) expressed mainly negative attitudes towards the new occupation. Disregarding the factors of limited space and too small a patient-load, they would not want one in their offices. This 9 per cent is made up of a wide range of practitioners, including both G.P.'s and

specialists. Most of these men employ some office-trained auxiliaries: one has no assistants, 17 have up to 1.9 full-time assistants, and one has over 2.

Their comments ranged under four headings. First was fear of endangering the personal dentist-patient relationship by bringing in a third person. "It's not fair to the patients." "I'd be afraid I might lose the personal contact with the patients." Secondly, some felt the hiring of a hygienist would not be economically sound. "She gets $4–$6 cleaning teeth and does about 10 a day. I pay her $75 a week – and you figure out what the dentist is making!" "What can she do? X-rays? A nurse can do this. 'Prophies' don't pay..." "I talked with a couple of them last week, and they expect to earn 1½ times more for a 'prophy' than we do!"

Some concern was expressed for hygienists carrying their dental work too far. "A hygienist goes into areas where I would be frightened to have her go. The hygienist may miss something." "You are opening the door for bootlegging dentistry!" Finally, some felt the hygienist was an uncomfortable and ineffective midway point between the assistant and dentist. "They should become dentists." "Not worth a d... the way they are currently trained!"

In general, hygienists are more popular in the larger and more businesslike offices where dentists are concentrating on maximum high quality service for minimum time and money. However, attitudes concerning hygienists could not be clearly correlated with other characteristics such as income or specialization. The value of this part of our exploration lies in indicating how rapidly dentists in Canada are prepared to make the necessary adjustments to accept a new type of dental personnel into their ranks. It presents their arguments pro and con, and roughly indicates the proportion of professionals who have succeeded in procuring such services, those who are still trying to hire them or would accept them, and those who are uninterested or opposed.

CHAPTER VI

# A CLASSIFICATION OF TYPES OF PRACTICE

This study has emphasized the dependence of the organization of dental services on three major elements – the profession as currently evolved, the nature of the enterprise in which each dentist is engaged, and the character of the available clientele.

While each of these is sufficiently variable in itself to give to each dental practice a certain element of uniqueness, the variability falls into a few common patterns. At the risk of over-simplification one can say that there is a small number of clear models of practice and that most of the practices sampled fall rather neatly into five major categories.

The classification of practices largely follows the analytic ideas of the study – indeed three of the types are derived from the elements indicated above. One type of practice reflects a concern with the welfare of the profession as such. A second is focussed largely on the welfare of the enterprise. The third focusses on the welfare of the clientele – in this case a small, selective clientele. The fourth type is an amorphous pattern – it is made up of those practices in which the dentist has been unable to organize it around any of the above models; in this case the dentist is striving to put some order into his affairs while his clients are striving to get dental care from the dentist. The fifth type comprises those cases where, because of anomalies of professional conduct, or client response, or organizing ability, the practice shows little likelihood of surviving, much less thriving.

## PROFESSION-ORIENTED PRACTICES

In these practices the welfare of the profession is the dominant feature. The practice is frequently of a specialized sort, and therefore depends on referrals. Through a referral system the practice is interwoven with a web of similarly placed practices.

These practitioners are likely to find some time for teaching duties and for looking after the affairs of the professional association and its sub-branches. Indeed they are likely to pre-empt most teaching and associational positions.

The details of finances of these practices are likely to be handled by an accountant. The details of office organization are looked after by an assistant who takes on enough of the office responsibility to free the dentist for his own selection of tasks. These practices yield high incomes, though not the very highest in the field.

The offices of this type of dentist are found in the downtown area, usually in the "medical" buildings and close to the university professional schools.

In these practices the number of assistants is limited, seldom exceeding two. Generally speaking, the dental hygienist is rarely found in such offices – indeed these dentists, as the main upholders of the profession, tend to denounce any development that would bring intermediaries between the dentist and his patient.

## ENTERPRISE-ORIENTED PRACTICES

In these practices the emphasis is on the welfare of the enterprise; it seems to take precedence over the welfare of the clientele or of the colleague group. The dominant feature of such practices is the large amount of time and energy devoted to planning and running an efficient and effective enterprise.

In this category there is little time spent on the affairs of the profession. The practitioners usually do not engage in teaching duties in dental schools. Nor do they invest time in holding office in professional associations or organizing programmes for such associations.

These offices are marked by the substantial use of auxiliary personnel. In such offices the dental hygienist finds a place – in many cases she is provided with her own chair and appointment book. A refined division of labour has been established among the other auxiliaries. The allocation of tasks among each has been worked out on a rational basis, and considerable effort is expended in planning and co-ordinating the tasks of each.

The dentist in such cases is an executive or organizer first, and dentist second. The control over the practice and over the personnel is much tighter than in the case of the professionally oriented practices. The auxiliaries play the part of helpers to a much greater degree than in the first category.

These offices tend to be located in the newer suburban areas and particularly in the burgeoning shopping plazas associated therewith.

## CLIENTELE-ORIENTED PRACTICES

This type of practice is primarily oriented to the welfare of the client, largely to a high paying clientele desirous of securing highly skilled services. Such practices are possible where there exists a body of clients who are prepared to pay well for dental services, particularly if these are provided along with a personal sense of solicitude for the patient. The dentists in such offices rank service to clients

above the goal of establishing a highly efficient enterprise, and above striving for the esteem of their colleagues.

In such a practice personal relationships with the client are paramount. Eventually the clients come to think of the practitioner as uniquely qualified to give special personalized service of a quality not obtainable elsewhere. This involvement gives a distinctive bent to the practice, in such a way that both colleague relationships and concern for the practice as an up-to-date enterprise tend to take on a highly reduced importance. The dentists in such practices play a negligible role in teaching, or in the affairs of the dental associations.

Such dentists make relatively little use of auxiliaries. They delegate none of their services to a hygienist; presumably their patients would disapprove of coming to receive delegated services. The auxiliary tends to be a helper, playing a modest role in the background. The assistant is not permitted to initiate or organize activities in the office, but on the other hand must be prepared to help out in any type of task the dentist assigns.

The offices of such dentists are in the downtown section of the city. They are unostentatious in character; in this they contrast sharply with the ornate and handsomely furnished offices found in the suburban areas discussed above. These practices yield very high incomes for the practitioners. These high incomes stem from the higher fees charged to the special class of patients rather than from efficiency of office organization.

## ROUTINE-ORIENTED PRACTICES

These practices comprise a large part of the total for a given area. They are easier to discuss in terms of what they are not, rather than what they are. If one thinks of each of the above three as reflecting a major orientation of the dentist in each case, then we can say that in this fourth type we are dealing with dentists who have been unable to impose a definite form upon their practices. In a sense, the practice has imposed itself on the practitioner. It has imprisoned him in its routine.

These are very busy practices. A substantial proportion of the patients are of the "drop-in" or emergency character. It is therefore not feasible to establish a recall system as used by the three previous types. Nor is it feasible to do much in the way of educating the patient in terms of what he should want in the way of dental services. By and large these dentists are constrained to do what the patient demands rather than advise the patient in what he needs to have done.

The dentists in these offices have neither time nor energy to devote to the professional affairs of their associations. By the same token they play no part in the training of young dentists.

These dentists make little use of auxiliaries. A considerable number use none at all. They attempt neither to organize them as a going concern nor to use them to delegate some fraction of the dental task. The auxiliaries are reduced to the

level of helpers to the dentist. Unlike the other three types these dentists handle their own financial affairs, with perhaps a little assistance from an accountant in preparing Income Tax returns.

The offices of these dentists are found in the downtown part of the city in low income and low rental areas. Their incomes fall in the lower half of the distribution of dental income.

## FRINGE PRACTICES

Two types are included here, those dentists starting or concluding a practice, and those who failed to make the grade. The former are to be expected as part of the life cycle of the professional; the latter reflect the hazards of a profession, but in this case the hazards apply to only a few of the members.

Fringe practices are manned by dentists with a licence to practise dentistry. But they are men who play little or no role in the affairs of the profession, take no part in teaching, have little concern about the members of their clientele, and have no proclivities for organizing an effective enterprise. Formally they are dentists; in substance they are not practitioners.

## CONCLUSION

In concluding this section one may re-emphasize that each of the types of practices represents a blend, as it were, of a dentist, his organizing efforts, and the clientele at his disposal. One might be curious as to how many of the dentists are irrevocably fixed in their present forms, and how many could achieve a different form if different conditions presented themselves.

While classification of this sort is hazardous it is useful to note the distribution of these types. In our sample they are represented as follows:-

| | |
|---|---|
| Profession-oriented | 11 per cent |
| Enterprise-oriented | 12 per cent |
| Clientele-oriented | 32 per cent |
| Routine-oriented | 26 per cent |
| Fringe practices | 19 per cent |

Presumably any plan for dental care would have to take account of, and make use of, the various existent types of dentists, and strive thereafter to maximize the numbers of the types best fitted to practise within a scheme of health services. One might inquire which of the types outlined above could be used to expand and redistribute dental services.

Clearly the last category can be summarily eliminated. Similarly the fourth category seems to offer little hope for expanded services. They have little free

time for expansion and are unprepared to make use of auxiliaries in a more productive fashion. Hence we are driven to contemplate the first three categories.

The first, the "profession-oriented", would seem to offer initial possibilities. These dentists have the distinct advantages by virtue of their teaching appointments and their positions in their professional associations of observing and assessing the needs and potentialities of their field of services. They are men of ability, able to handle much more than the routine tasks of their practices.

On the other hand these men are conservatively oriented. They tend to idealize the past, and to link themselves with the conservative elements in the other healing professions. Moreover, as the custodians of the ethics of the profession, they idealize the dentist-patient relationship and view with alarm the possibility of permitting non-dentists to perform what are now dental tasks.

Hence one might assume that these practitioners will not only hesitate to sponsor new forms of dental care, but will actively strive to maintain the status quo. Because they are the most literate and vocal spokesmen for the profession they would constitute either good allies or equally powerful enemies in any plan for changes in dental services.

By contrast the "enterprise-oriented" dentists, who lack many of the attractive attributes of their "profession-oriented" colleagues, do exhibit certain orientations which could be highly useful. They are willing to break with the past. They are ready to adopt rational procedures of organization as over against traditional patterns. They are willing to experiment. They are prepared to modify the current division of labour, and to permit lesser-trained personnel to perform more complicated services than they now are expected to undertake. They can envisage larger units of practice than now exist, with different proportions of the various sorts of personnel.

The remaining category, the "clientele-oriented" also possesses abilities and skills that are not used to the full at present. Moreover, they are not tied to the official beliefs and the apologia of the profession to the extent that the profession-oriented dentists are. However, because of their close identification with a small set of patients and because they idealize the independence yielded by their profession, it is doubtful that they could become enthusiastic practitioners of a different scheme for providing dental services.

CHAPTER VII

# PROBLEM AREAS

Any planned changes in the provision of dental services will of necessity be directed toward one or more of the three items discussed in the body of this report – the clientele, the enterprise, or profession.

In the course of this study it has been assumed that dental services in Canada are inadequate in quantity and are poorly distributed into the bargain. By using the above frame of reference one can usefully persue queries along three separate lines.

The data on distributions of dentists seem to document the facts of maldistribution. Two thorny questions arise in this connection. The first concerns the mobility of clients. How far are they prepared to travel to secure dental services? Are dental services the sort of things that need to be provided at the local level, as is the case with elementary education? In other words, should the services be envisaged as those of an immobile population with a set of resident practitioners? Or should they be envisaged as provided for mobile clients who are ready, like university students, to travel substantial distances to the practitioner. At the other extreme from the elementary school model would be services like those of neurosurgery which might be available only in the largest metropolitan areas. In this case the clients would necessarily be extremely mobile and the facilities correspondingly localized.

From the data gathered we have relatively little information about the impact of physical distance on the demand for dental services. From other fields the evidence is ambiguous. Canadians seem ready to travel long distances for certain kinds of specialized services. On the other hand they seem to demand progressively that other services, e.g., higher education, be made available at the local level.

The second thorny problem has to do with translating the "need" for dental services into a "demand" for such. This problem is only partly a financial matter. The distinction some of our sample made between high and low dental I.Q.'s is evidence that a person may *need* dental service yet make no effort to secure such services. Dental services are sharply different from medical services in several ways. Whereas medical illness carries the threat of death, dental hazards are seldom lethal. Hence it is difficult for either the client or the practitioners to generate the kinds of anxiety associated with the general run of illnesses. Moreover,

although the need for dental care may be progressive for the client, it is possible to escape the consequences of delay in securing dental services. One can relinquish all of one's teeth with relative impunity; a cancerous lung or a diseased kidney cannot be surrendered without fear and anxiety about the future. Taken together, these two features of the need for dental services would indicate that there is likely to be a serious gap between *need,* as envisaged by the practitioners, and *demand* as excercised by the potential client. On the other hand, there may be at the same time a substantial demand where there is relatively little need for dental services. In so far as dental services become a matter of cosmetic treatment a client may invest heavily in dental services, even though his need for those services is of a modest sort. In this case, too, the gap between the need and the demand is discouragingly wide.

The discussion of matching services and needs involves one in considering the changes taking place within the profession. To begin with, there seems to be a marked tendency for service occupations to cluster in the larger urban centres; the more highly specialized the service the more it tends to concentrate in highly urbanized centres. The results are a progressive decline in the numbers supplying the smaller population centres, and eventually a probable over-concentration in the very large urban centres. Undoubtedly there are powerful pressures brought to bear on dentists to behave in this fashion. One obvious factor is the gap between the culture of the small town and the large metropolis. The city-born and city-bred dentist may find the small town meagre and forbidding. As dentist he may be sufficiently dedicated to his career and profession to ignore the cultural poverty of the small community. On the other hand, as husband and father, he may be unable or unwilling to consign his wife to such a life, or to expose his children to the educational facilities of the small community.

Moreover, the sheer fact of being the sole dental practitioner in an area may, in the course of time, become felt as a burden. Lacking professional colleagues to whom he may go for advice when in difficulty, or for convivial discussion of successful work, the dentist himself may find the small town an unsatisfying place to work, and may drift to the larger centre when the opportunity arises.

In the course of a generation there may occur large changes in the patterns of recruitment into the profession. For a variety of reasons it seems that the urban-born youngster has a pronounced advantage in securing admission to professional schools. Indeed it seems to be becoming increasingly the case that the most highly urbanized parts of the population are developing tastes and qualifications for professional life, but also corresponding distastes for practising in non-urbanized areas. On a competitive basis these cosmopolitan young people may, in the course of time, come to monopolize entry into the profession.

As a net result it is possible that we should envisage two systems of dental practice. One would continue to make use of those present trends which accentuate urban-born practitioners providing progressively specialized skills to urban clients who are developing more extensive demands for dental services. The other system would be manned by graduates from poorer high schools, trained in less demanding

fashion, practising in culturally deprived areas, and offering simple types of dental services to clients who express modest demands for such dental services.

The problem of providing and distributing dental services raises questions about the *enterprise* of dentistry, and related problems regarding the organization of dental services. The focus of such discussion will hinge on the two questions of specialization and auxiliary services.

The first of these involves a consideration of the range of specialized services required and the proportions of practitioners in each. The trend to specialization is amply documented, and so is the attractiveness and profitability of specialized practice. Much less can be stated categorically about the degree of specialization that can be justified for any specific geographical area or population segment. Some provinces of Canada entirely lack even one specialist; in other sections of the country the specialists comprise a significant fraction of the total. In a rational scheme decisions would be required concerning the total level of specialization to be encouraged, and the distribution of specialists within the various fields thereof. Such discussions will undoubtedly raise questions for the dentists whose careers are affected, because obviously the specialization by any one dentist affects in varying degrees the work of general practitioners round about him.

Still more important is the result of increasing the number and range of dental assistants of various levels. Several possibilities present themselves here:

1. The dentist might conceivably come to be chiefly an administrator, who delegates responsibility for various kinds of services, such as cleaning, extracting, filling, drilling, etc., while retaining for himself the tasks of diagnosis and referral.
2. Alternatively, he might become the chief of service, performing the key services himself, while utilizing the assistance of several helpers, something along the lines of the key surgeon in the operating theatre.
3. Or he might delegate tasks, not as an administrator but rather as a fellow professional, permitting various grades of assistants and hygienists to perform various levels of work, such as cleaning, adjusting, drilling, and filling. In the latter case each level would be responsible for the quality of service it rendered to the client.

In these three cases there might be varying levels of concentration and dispersion of the auxiliary personnel. In case number 2 the dentist would need to have all the auxiliaries in his immediate vicinity, as they would to all interests and purposes be his helpers. In case number 1 the auxiliaries would be under the control and direction of the dentist, but not under his immediate supervision. They would be in his near neighbourhood (for the convenience of patients) but need not share his work space. In case number 3 there would be much looser arrangements; each of the services could be organized on a different physical base, to serve its own population. Some could be geared into schoolroom schedules to accommodate children with respect to both time and place.

The exact division of labour between each of the kinds of auxiliaries would depend in part on the type of organization contemplated. In case number 2, where the

auxiliary is a helper of the dentist, presumably she could be permitted to undertake services which would not be possible if the dentist were not in the immediate neighbourhood to come to the rescue in case of difficulty. If the dentist acts as administrator, case number 1, he could delegate only those tasks which he thought appropriate to the training, since the dentist might not be available if the auxiliary got into difficulties. In case number 3, where presumably the auxiliary would be dependent solely on her own good judgement, it might be considered desirable to limit still further the duties she might undertake.

In trying to envisage such an organization of dentistry, one works under a double handicap. One can try to specify the appropriate training for each type of auxiliary, only if one knows with some assurance where that auxiliary will fit into the larger organization of dental services. On the other hand, the larger view of the form for organizing dentistry can be clarified only when one knows with some assurance which services can be provided by which kind of auxiliary possessing what level of skill and training.

To pursue this further would lead into the studies of recruitment in dentistry, and dental education proper. Presumably such studies can specify what are the limitations on service imposed by current teaching procedures, and what are the available alternatives to current methods of teaching in dentistry.

CHAPTER VIII

# SOME ALTERNATIVE PATTERNS IN THE ORGANIZATION OF DENTAL CARE

## NEW ZEALAND

### The Dental Nurse

The New Zealand State Dental Service was organized as a Division of the Department of Health in 1921. The impetus for such a service came from the New Zealand Dental Association which, since 1905, had been agitating for a government-sponsored large-scale programme to tackle the problem of the "appalling condition of the teeth of the children.... more than 60 per cent of whose permanent teeth were beyond saving".[1]

Originally, the dentists had envisaged a crash programme for the training of large numbers of dentists and for their employment by the State in a School Dental Service. Large costs and recruitment problems made this impractical. So, in 1921, soon after his appointment as the first Director of the N.Z. Dental Service, Mr. Thomas Hunter, a distinguished and respected member of the N.Z. dental profession, presented his plan for the training of *dental nurses* who would staff the school dental clinics about to be established and perform simple, remedial dental procedures. Hunter borrowed the idea for such dental auxiliaries from the American dental hygienist (a training programme launched in the United States in 1913), but he extended it considerably in that his dental nurses were to do extractions and fillings as well as prophylaxis and dental health education.

Hunter presented his proposal to the N.Z. Dental Association at its Annual Meeting in 1921 for its approval. Though not without some objection at the meeting and considerable dissension on the part of some dentists for some time afterwards, the plan was formally approved by the Dental Association. Today, as is evident in the minutes of recent annual meetings of the Dental Association and in various articles in the professional journals and elsewhere, the N.Z. dental nurse is now fully accepted by the dentists in New Zealand as an integral member of the dental health team. As recently as January 1963, the dentists in their annual meeting spoke in glowing terms of the work of the school dental nurses. There is no discussion

[1] *New Zealand Dental Journal*, 1906.

of eliminating her, though there is considerable discussion about limiting her work to even more rigidly defined areas and age groups. There is an evident determination on the part of the New Zealand Dental Association now that the professional work of the dental nurse must not be extended and that there be no extension of the numbers of State-employed dentists. The aim of the profession now is that any extension of the State-supported service be to increase the amount of work done by private practitioners with fees paid by the State.

## Organization of the State Dental Service

The New Zealand Dental Service is divided into two parts:

1. School Dental Clinics.... staffed by dental nurses and some (approximately 100) dentists.
2. Adolescent Service.... work done by private practitioners; fees paid by State.

### *School Dental Clinics*

These service both pre-school (from 2½ years) and primary school children. (Primary school corresponds roughly to our grades 1–8). The service is *voluntary*.

Pre-school children are registered in the clinic upon the request of the parents. Since children may enter kindergarten at the age of three and most of them are in by the age of five, there is no active effort to enlist the pre-school child into the dental service. None who applies for treatment, however, is turned away.

When the child enters school (primer or kindergarten class), the parent registers it with the Dental Service. He then receives regular service (twice yearly) from the dental nurse until he graduates from primary school (our grade 8). Children who have completed the primer classes and entered the higher grades without enrolling for initial treatment are not accepted in a school dental clinic unless they are first made dentally fit at the parents' expense. When the parent enrols the child, he signs a form consenting to whatever treatment is necessary. Thereafter, parents' consent is sought only for extractions. Failure to respond to notice of extraction is taken as tacit consent.

In 1949, the Service operated in 97 per cent of the Primary Schools of New Zealand; 84 per cent of the eligible children were registered with the Service. Only the most remote schools in sparsely settled areas were not serviced by school clinics. Urban as well as rural areas were served and acceptance of the service about equal.

According to the Report of the Department of Health for the year ended March 31, 1962, there were 910 School Dental Nurses, of whom 60 were part-time working in 981 treatment centres. The service is set up in such a way that each nurse has a case-load of 500 children. (New Zealand primary school population, 1962: 425,227.) The nurse's clinic, a building separate from the school but on the school grounds is built and maintained by the Department of Education; equipment, supplies, and nurse's salary is provided by the Department of Health. The nurse is an employee of the Department of Health but is considered a member of the school

staff and subject to the same rules and regulations re deportment, hours of work, etc., as are the teachers.

Most of the clinics are staffed by one nurse working alone. No assistant is provided and it is reported that the nurse prefers to do her own clerical work, thus offering a pleasant respite from her actual dental operative work. A few clinics, in the larger schools, have two nurses on the staff. There are none larger. Where necessary, in order to maintain the roster of 500 children/nurse, children may be required to travel from a neighbouring school to the school at which the clinic is set up. In rural areas, sub-clinics are established and the nurse moves back and forth between them.

For the purpose of the Dental Service, New Zealand is divided into seven districts, each controlled by a senior dental officer who is assisted by a dental nurse inspector. The dental officer is supposed to visit each nurse at least once every three months for on-the-spot inspections to supervise the quality of her work. In actual fact, these inspection visits are much less frequent. The dental nurse inspector visits more frequently, but for the most part the dental nurse is on her own and does her work without on-the-spot supervision.

The dental nurse works only during school hours and the child is excused from class while undergoing treatment. If children consistently refuse or fail to report for treatment, they are dropped from the register and cannot be reinstated until the mouth is once again restored to 100 per cent health at the parents' expense. Likewise, if the child has been referred to a dentist for work which the dental nurse is not qualified to do and if this treatment is not obtained owing to parental neglect, the child can be dropped from the Service.

All treatment performed by private dentists on children referred by the school dental nurse with the exception of orthodontia, is paid for by the State at an agreed schedule of fees. Likewise, children who are enrolled with the Service but who, owing to pressure of case-load cannot be serviced by the dental nurse or State dentist are referred to private dentists, and the fees for such service (at the agreed schedule) is paid by the State. It is a cardinal rule of the School Dental Service that no treatment which can be given at the dental clinic is paid for when the parent chooses to send the child elsewhere. In 1949, 73 per cent of the practising dentists had contracted to provide treatment under the dental benefits system.

The dental nurse has no X-ray equipment. A mouth mirror is her only tool for inspection and determination of defects.[1] She does extractions and fillings (both primary and permanent teeth), cleaning and other prophylaxis, including the application of topical fluorides and dental health education. Surveys done in 1950 report a high quality of work, though the reports of Dr. John Fulton, public health dentist in the United States Children's Bureau, and Dr. Marshall-Day,

[1] Re examination: currently, this is the only point of dissension between the New Zealand Dental Association and the State Service. The N.Z. Dental Association is agitating for a diagnostic service whereby every child is first given a thorough examination by a dentist, then returned to the nurse for treatment. This diagnostic service has been accepted in principle by the Ministry of Health, but machinery for its operation has not been inaugurated (as of 1961).

Dean of Tufts College Dental School, were much more laudatory in this regard than was that of Dr. A.O. Gruebbel of the American Dental Association.

For all intents and purposes, the dental nurse works on children from 3–12 years of age and this includes the children of many dentists!

*Adolescent Service*

This was inaugurated in early 1947 substantially in the form recommended by the Dental Association. Children beyond primary school or those in primary school who cannot be treated by the dental nurses because of heavy case-load of younger children or by the 100 dentists in State clinics, and up to the age of 16 years, are provided for. This means, for all intents and purposes, most children from 12–16 years. Current discussion centres about advancing the coverage age to 18 years. These children are treated by private practitioners, on a fee-for-service basis, with fees paid by the State according to an agreed schedule. There is free choice of dentist and, within some limitations, the dentist is free to decide upon treatment. In 1949, 73 per cent of the private practitioners were registered with the Service. Originally the use of private practitioners was considered an interim step until such time as State-employed dentists could be recruited. Now the profession is urging that this interim arrangement be made permanent.

All treatment, with the exception of orthodontics, is paid for by the State.

Current surveys are underway to ascertain the effectiveness of this Service before the age limit is extended to 18 years as the Dental Association is urging. Indications are that children after they have been discharged from the Service at the end of their 16th year are indifferent to maintaining at their own expense the dental health they have attained at State expense.[1]

**Recruitment and Training of Dental Nurses**

Applicants must be female, over 17 years of age, possess a school certificate (three years of secondary school education) and be in good general health with "sound natural teeth".[2] The latest report (1963) states that there are 400 student nurses in training, compared with 174 in 1948–49. It would appear, then, that the shortage of potential recruits that was critical in the early post-war years is no longer a problem. Since it is a two-year course, this would mean that about 200 students are being graduated annually. There are two classes a year, one entering in March and the second in September.

It is apparent from these more recent figures that the number of school dental nurses being trained and employed is more than keeping pace with the expanding population.

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[1] Leslie, G.H. "The Outlook in Public Health Dentistry in New Zealand and Overseas", *The New Zealand Dental Journal*, Vol. 59, January 1963, p. 24.

[2] Fulton, J.T., *Experiment in Dental Care: Results of New Zealand's Use of School Dental Nurses*, Geneva: W.H.O., 1951, p. 48.

| | *1949* | *1962* |
|---|---|---|
| Total population | 1,834,589 | 2,414,984 |
| Primary school population | 279,419 | 425,227 |
| No. of dental nurses | 451 | 910 |
| No. of trainees | 174 | 400 |
| No. of dentists | 730 | 1,092 |
| Ratio: Dentists/population excluding primary school children | 1/2,130 | 1/1,825 |
| Ratio: School dental nurses/ primary school population | 1/620 | 1/467 |
| Urban: Rural breakdown of total population | | |
| Urban | 60% | 63% |
| Rural | 40% | 36% |

No information as to the geographic, racial backgrounds of the dental nurse trainees was found.

*The Training Course*

The training period for the dental nurse is two calendar years with eight weeks' vacation each year. About 10 per cent of the trainees take longer (2½ to 3 years) to complete the course.

Since the idea for the New Zealand dental nurse came from the American dental hygienist, and since they are the two categories of dental auxiliaries most frequently compared, it is interesting to compare their training programmes.

**TABLE 11**

COMPARISON OF TRAINING PROGRAMMES: NEW ZEALAND DENTAL NURSE AND AMERICAN DENTAL HYGIENIST

| | N.Z. Dental Nurse | Amer. Hygienist |
|---|---|---|
| Science subjects (anatomy, phys., etc.) | 352 hrs. | 562 hrs. |
| Clinical work | 987 hrs. | 639 hrs. |
| Social sciences | – | 103 hrs. |
| English (comp. and speech) | – | 119 hrs. |
| Misc. "practical" subjects (poster making, teaching methods, ethics, etc.) | 236 hrs. | 66 hrs. |
| Others | 40 hrs. | 42 hrs. |
| Total number of hours, two-year course | 1,615 hrs. | 1,531 hrs. |
| Lectures: | 23.3% | 41.1% |
| Laboratory | 17.8% | 23.5% |
| Clinic: | 58.8% | 35.5% |

Gruebbel claims that from the beginning the New Zealand Dental Nurse Training Programme has made a deliberate and conscious effort to ensure that the nurse is not encouraged to assume a scientific attitude. She is not permitted, for example, to use the library and there is practically no provision for continuing in-service professional education. This is so that she herself will recognize and see herself as clearly differentiated from the dentist. Only one dental nurse (up to 1949) had attempted to study dentistry, and she failed. This very conscious effort to keep down the professional status of the dental nurse, in actual fact and in her own eyes, was made to reassure the dental profession at the time the service was inaugurated that there was no possibility of dental nurses usurping the dentist's role.

It was for this reason that the Training School was deliberately established away from and completely separate from the University Faculty of Dentistry. There is no connection whatsoever. The Dental Faculty is in Otago University in Dunedin; the Dental Nurse Training School is in Wellington and is operated by the Department of Health. The faculty members, both dentists and dental nurses, are employees of the Department of Health who have been in the Dental Service for many years. A faculty appointment is considered a "grade promotion step" in the Service. There is no integration or interchange between the Dental Faculty at the University and the teaching staff at the Dental Nurse Training School. (The whole set-up as described would be similar to the Ontario Teaching Training Programme in which faculties of Teachers' Colleges have no connection and little intercourse with the University Faculties of the College of Education.)

Student dental nurses are provided with room and board in residence dormitories, and are paid a salary while in training. (In 1950, this salary was £ 177 for the first year and £202 for the second year, which compares with a salary of £300 in the first year after graduation.) Graduates are required to work for three years in any place in New Zealand. (Income tax returns for 1947 show that 24 per cent of the population earned incomes under £300; and 30 per cent incomes of £300–£399.)

### The Dental Nurse at Work

As stated above, each nurse has a patient roster of 500 children. (In 1959, an American Dental Association Survey of Dental Practice shows that the mean number of patients for one dentist with no assistant was 742 per year.) The New Zealand dental nurse with her comparatively low-patient roster and her work confined to simple routine and highly standardized procedures, has plenty of time to "play" with the children and to gain their confidence. In fact her ability to get along with children is considered to be as important a qualification as her technical competence. Thus, it is argued, one of the chief accomplishments of the New Zealand School Dental Service is that it produces at age 12 or 14 a child who has not only a "healthy" mouth, but also a good attitude towards dentists and dental care. The dentists like the programme because they do not have to bother with children and because it provides them with co-operative adolescent patients.

In the Fulton Survey (1950) a random sampling revealed that there was very little difference in terms of acceptance of the service as between rural and urban

areas. (In 7 urban clinics sampled, 79.4 per cent of the eligible children were registered with the Service; in 12 rural clinics sampled, 85.1 per cent of the eligible children were registered with the Service.)

The income of the Dental Nurse (1948) is considerably lower than that for both women teachers in the primary schools and public health nurses:

*1948 salaries:*

| | |
|---|---|
| Dental nurse (after graduation): | £300–£417 |
| Dental nurse inspectors and tutor sisters: | £482–£507 |
| Average salary, female teacher, primary school: | £395 |
| Average salary, female head teacher: | £556 |
| District health nurse: | £350–£435 |
| Public Health nurse inspector: | £535 |

The length of the dental nurse's career is a short one (from five to seven years on the average) since most of them leave to be married. Provision is now made for dental nurses to continue work after marriage (this was formerly not possible).

The school dental nurse is *not* allowed to work in private practice. She can be employed as a dental nurse, only by the State Dental Services. This is in sharp contrast to the American dental hygienist (90 per cent of the 12,500 hygienists in full- or part-time practice in 1958 in the United States were employed in private practice)[1] even though the American hygienist was originally perceived as a member of the public health team.

## Cost of the Service

Most of the figures on costs are outdated and it is difficult to make any valid comparisons in terms of Canadian dollars. In 1948–49 it was estimated that the *cost per child treated* was as follows:

in School Dental Service (including cost of training nurses): £1.8s.11d.
in Adolescent Dental Service: General: £3. 2s. 11d.
Special: £2 . 9s. 10d.

About all one can conclude from these figures is that it costs about twice as much to have a child treated by a private practitioner in the Adolescent Service as to have him treated by the School Dental Nurse. The implications of this conclusion can be misleading, however, because the nurse does only simple restorative procedures while the dentist does more extensive work.

[1] Dunning, James Morse, *Principles of Dental Public Health*, Cambridge: Harvard University Press, 1962, pp. 249 and 384.

In 1948, £203,128 was paid to private dentists by the State for general dental benefits in the Adolescent Service; in 1962, £1,032,513 was paid to private dentists for this Service, or more than five times as much. Even accounting for increase in scale of fees and increase in the adolescent population and an extension of the age (downwards from 14–12 years), this still seems to be a substantial increase.

Looking at it another way, in 1948 the average amount paid to each participating dentist by the State was £400; in 1962 it was £1,200.

In 1948, it cost £420 to train a school dental nurse, whose average tenure of employment was 5–7 years. It cost £750 (£150 for each of 5 years) to train a dentist, of which 60 per cent (£450) was provided by the Government.

### Evaluation of the New Zealand School Dental Nurse

There seems to be a measure of consensus, Dr. Gruebbel notwithstanding, among many dental experts, that the standard of work of the New Zealand dental nurse is very good, and above "par for the course" of many qualified dentists. Dr. J.M.Dunning, Assistant Clinical Professor of Public Health Dentistry at Harvard University says:

> On the other side of the globe another national dental service has produced results of the same magnitude as those reported from Norway. School children of 12–14, cared for by the Dental Service of the New Zealand Department of Health....showed ....a filled-tooth ratio of just over 86 per cent. United States children of similar age in Illinois showed a filled-tooth ratio of just over 50 per cent, and in Massachusetts, of just under 27 per cent.... The New Zealand children had lost 0.29 permanent teeth, whereas the United States children had lost 0.63 and 0.62 teeth per child respectively in Illinois and Massachusetts. Opponents of government dental care for children in the United States must consider very carefully whether the advantages of a laissez-faire economy outweighs *these splendid results in the control of dental caries among children reported from foreign countries.*[1]

and again:

> ...the New Zealand children....had more good fillings in their mouths than any known comparable group of American children of ages 12 to 14.[2]

If, then, the aim of a public health dental programme is to control caries in children, the New Zealand Dental Service is undoubtedly successful. There is some question, though, as to how much "dental consciousness" is carried over into adulthood. Campaigns to fluoridate public water supplies seem to have had even tougher resistance in New Zealand than in Canada.

Scepticism is expressed that young adults, after graduation from the Adolescent State Service at age 16, do not bother to continue with regular dental care. Army recruits during the Second World War had a high denture rate (21 per cent wore full dentures; 24 per cent either full uppers or full lowers), which leads one to ask whether caries control during childhood is any guarantee against losing one's teeth at an

[1] *Ibid.*, p. 495. Underlining mine.

[2] *Ibid.*, p. 387.

early age if continuous care is not maintained. (It should be noted that it was this rather startling discovery that led to the extension of the Service in 1948 to include adolescents up to 16 years.) A more recent survey of army recruits,[1] reported in the New Zealand Dental Journal of April 1959, indicates a very marked improvement with respect to the percentage of recruits wearing dentures.

1952: 18 per cent of the recruits were wearing some form of prosthesis
11 per cent required some form of prosthesis

1954: 24 per cent wore or required some form of prosthesis

1958: 10 per cent wore some form of prosthesis
1.4 per cent required some form of prosthesis

This report also shows that regular treatment from age 3 to 18, by both nurses and dentists, does not reduce the number of decayed teeth; though it does increase considerably the number of preserved teeth. Regular treatment enables the individual to keep his own teeth, even though they may be well filled. This report also showed no difference whatsoever in terms of dental health between those recruits who had been cared for by dental nurses during their primary school years, and those who had been cared for solely by dentists.

The School Dental Service, rather than decreasing the demand for dentists, seems to have increased it. The number of dentists in New Zealand is increasing, both relatively and absolutely, and their incomes are also increasing both relatively and absolutely.

Number of dentists:

1949: 730, 1956: 810, 1962: 1,092.

From 1949–50 to 1955–56:

Income of doctors increased by 22 per cent
Income of lawyers increased by 69 per cent
Income of dentists increased by 59 per cent

By 1956, dentists' incomes were almost on a par with doctors and sheep farmers![2] No doubt much of this increase in income is due to payments received from the State for the Adolescent Service, many of the dentists making more than half their income and some of them almost all of it, from this source.

It is not surprising, therefore, that the dentists are now asking the Government that the "interim arrangement" for the Adolescent Service (i.e., the use of private practitioners, pending the employment of adequate numbers of dentists by the State) be made a permanent arrangement, and that the State forego its intention of developing a salaried dental corps.

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[1] Davies, G.N., "The Dental Condition of Compulsory Military Training Recruits: Third Survey", *The New Zealand Dental Journal*, Vol. 55, April 1959, pp. 77–80.

[2] *New Zealand Dental Journal*, Vol. 56, January 1960, pp. 15–16.

The Faculty of Dentistry at Otago University has recently been provided with new buildings and facilities, and it is now graduating 60 dentists annually (as compared with 36 in 1949). The School Dental Service and its dental nurses, seem to have increased and not decreased the demand for dentists. In 1958 there were 885 dentists in New Zealand: 764 in private practice and 121 (13.7 per cent) employed by the State. Four years later (1962) the total number of dentists had increased by 23.4 per cent to 1,092.

## AUSTRALIA

Public health dentistry or state-sponsored treatment services are not very extensive. Australia, in 1949, was spending only one-seventh of the amount per capita on state dental services that New Zealand was spending. (New Zealand: 16 N.Z. shillings per capita; Australia 2 shillings approximately.) Australia has a limited school dental service with 140 salaried dentists (but no dental nurse) employed, which services about 20 per cent of the total school population. Moreover, the dentist/population ratio in Australia was lower than in New Zealand (1/2,300 Australia as compared with 1/1,850 New Zealand) and was declining, while the New Zealand ratio was increasing.

Formal training programmes for dental auxiliaries are a recent innovation (of the university dental faculties) but these auxiliaries are dental assistants, not hygienists or dental nurses. Though most of the courses being instituted are two-year courses, these auxiliaries are not being trained to work in the mouth at all.

## SOUTHEAST ASIA

Many countries in Southeast Asia, notably Malaya, the Philippines and Ceylon, are emulating New Zealand in the training and utilization of dental nurses. An innovation in Malaya requires these dental nurses to work under the direct supervision of a qualified dentist (as compared with indirect supervision in New Zealand). Thus the Malayan dental nurse would seem to be a cross between the American hygienist and the New Zealand dental nurse. The Malayan experiment is considered interesting, though little has been reported.

## GREAT BRITAIN

The School Dental Service had "fallen on hard times as the result of the enticement to the dental staff that general practice in the National Health Service offers".[1] A 1960 report stated that only 2 per cent of the children leave school dentally fit, and more than 30 per cent of the adults wear dentures.[2] In an effort to

[1] Leslie, G.H., *op. cit.*, p. 19.
[2] *The Lancet*, August 13, 1960, p. 358.

redress this situation, the British Government has launched a new programme for the training of dental nurses modelled along the New Zealand lines. The scope of work of these auxiliaries, however, is to be more limited than that of the New Zealand School dental nurse. She will be permitted to work only on deciduous teeth (fillings, extractions and prophylaxis) and only in association with county dental officers in clinics treating school children. The first group of approximately 60 dental nurse auxiliaries completed its training (two-year course) in October 1962 and no report on their first six months of work was located. The training programme is under the direction of the General Dental Council and financed by the Government through the Ministry of Health. This is considered to be in the nature of a pilot study. Training is given in a new school in the grounds of New Cross General Hospital, London. Dental nurses are paid a salary of £240 in the first year of training, £250 in the second, but they are responsible for their own maintenance. Is is expected that their starting salary will be not less than £500 per annum.

## UNITED STATES

The first group of 27 hygienists was graduated in 1914. It was intended that this new category of auxiliary personnel would be used in preventive dentistry programmes in the schools, and it was for this purpose that the course had been established as a pilot project. Within a few years university courses were established and in 1958 there were 12,500 hygienists employed in the United States (5,500 full-time; 7,000 part-time) – 90 per cent of them in the offices of private practitioners. Fewer than 1,000 were in public health school programmes.

It has been recommended that the correct ratio of dentist/hygienist in a school dental programme is 1:4. At the present time the number of dentists employed in school health programmes is far greater than the number of hygienists.

It has been noted that the crucial difference between the dental hygienist and the New Zealand dental nurse is not the difference in the procedures they are allowed to do, but in the fact that a hygienist is directly supervised by a dentist – she is permitted to work in an office or clinic only when a dentist is physically present; the dental nurse works under the *indirect* supervision of the dentist: she works alone in her surgery and only upon occasional intervals is her work checked by random sampling. The new course of study for the dental nurse in Great Britain is a compromise, in that she will be able to perform more procedures than the hygienist, but only in clinics where a dentist is physically present.

The professional status of the dental hygienist in the United States is much higher than the professional status of the New Zealand dental nurse. Hygienists in the United States through their professional association and magazine are agitating to extend the scope of work they are legally permitted to do. They are working in other countries through the Peace Corps and other such agencies.

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