

THE GENERAL PRACTITIONER'S POTENTIAL FOR RESEARCH  
IN BRITISH COLUMBIA

by

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## ABSTRACT

The study was designed to explore the proposition that conduct of and participation in research by general practitioners in British Columbia would be both desirable and feasible. Desirability was defined in terms of benefits for knowledge, for the medical practice, and for society at large. Feasibility was defined in terms of being acceptable for the general practitioner, for the patient, for the practice, and for the requirements of research.

To answer specific questions related to desirability and feasibility of research by general practitioners, information was obtained from the literature, from a questionnaire survey of the total general practitioner population of British Columbia, and from a random sample of patients in practices selected at random from respondents to the questionnaire to general practitioners.

In the survey of general practitioners, 2,344 questionnaires were mailed. Of the 563 (24%) which were returned, 508 were available for analysis. Five were returned by the post-office undelivered, seven were too late for analysis, and forty-three were returned with information indicating that the respondent was not in general practice. Forty-eight respondents were anonymous, and the remainder identified themselves. The response of general practitioners represented a variety of geographic locations, ages, types of practice, and medical schools. Members of the College of Family Physicians of Canada had a response rate of 39%.

In the survey of patients, 15 out of 20 general practitioners who were contacted agreed to submit questionnaires to their patients. Of the patients surveyed, approximately 90% completed the questionnaires. Most were regular patients of the doctors, and represented a full range of ages, and both sexes.

General practitioners and their patients agreed that research by general practitioners was desirable, and suggested many areas suitable for research. The benefits of research to the general practitioners, patients, and society were considered to be incentives, encouraging research activity. Important among the benefits were the discovery of new knowledge and the contribution to the academic base of general practice.

The feasibility of research was explored in terms of the conditions required for its conduct. Attitudes were receptive to the concept of research, as many of the general practitioners had previously been involved in projects. Major deterrents were heavy workload and lack of time, for the general practitioners, and in their practices the high overhead and pressure of work on the staff were problems. Training for research was variable, with some general practitioners having none and a few having much training. Inadequacy of the usual office records was recognized, so that research would usually require special methods. General practitioners had little awareness of resources available for help, advice or financing, but most were aware of the need for such resources. Patients were willing to cooperate in studies. They suggested that the cost of research should be borne primarily by governments, and to a lesser extent by foundations and the public.

Recommendations were made for the support of research, to help overcome the problems which decrease its feasibility. There should be encouragement of training in research methods, at both undergraduate and postgraduate levels. This would include presentation of research findings to scientific meetings of medical societies, and visits to and from eminent research workers in general practice. Some assistance should be given to the general practitioners, such as help in developing office records for research or payment for time spent on research. Resources for help in planning studies and processing results

should be readily available, including both consultant advice and the provision of grants.

Conclusions from the study were that research by general practitioners in British Columbia is desirable, and that it is feasible but has several major deterrent factors which can inhibit research activity. Because of these factors, the great potential for research in British Columbia is still far from being realized.

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## INTRODUCTION

There are too many unanswered questions in all aspects of the general practitioner's work. This lack was well-described by Mc Whinney<sup>1</sup> when he left private general practice to become the first professor of family medicine at the University of Western Ontario. There are gaps in the knowledge of the presentation and diagnosis of disease, and of the natural history of disease. There are discussions about the best system of providing health care within a practice or a community<sup>2,3</sup>, and there are changes of policy for reasons which often seem more political than medical.

Graduates from medical schools and hospital training programs in the past have had most of their experience with patients and teachers in institutions, and relatively little with patients and doctors in community practice. Since 1968, family practice training programs have been available in Canada to give students and graduates a community practice experience which would be more relevant to their eventual work. At first the emphasis was on practical training to prepare graduates for dealing with problems they would face in practice. The need for research applied to the problems in general practice has been recognized only after teaching programs have been stabilized. There has also been an expectation that the new discipline of Family Medicine must justify its existence by development of a broad base of research. Research in general practice is not the laboratory or institutional type of research, but covers a wide range of interests in practical problems - clinical, therapeutic, operational, epidemiological, and educational.

Why should there be so many gaps in knowledge, considering the great progress in medical knowledge over the last few decades? One major factor is that almost all research has been done by specialists or in institutions, and very little by general practitioners.

Although it may seem logical that research should be done by specialists to provide the most credible results, there are several reasons that this approach is inadequate. Specialists, in general, are dealing with selected groups of patients in specific categories, usually referred by general practitioners because their problems are difficult to manage. General practitioners also see the same problems but at an earlier stage, when the presenting signs and symptoms may be different or absent, the diagnosis may be more difficult, and the methods and results of treatment may be different. While specialists have access to patients only for limited times and conditions, the general practitioner may have access from the presymptomatic stage through longterm followup. The specialist may be limited by his expertise in one field, whereas the general practitioner can be involved in all areas.

The specialist, in general, treats individual patients, but the general practitioner can treat all members of a family, whether separately or in a group. Studies such as those by White<sup>4</sup>, the author<sup>5</sup>, and Metcalfe<sup>6</sup>, have shown that 90% or more of problems can be managed by general practitioners, and that most of these problems do not require the use of complicated tests or hospitalization. The combination of access to patients of all ages and both sexes, for care of conditions in all categories up to the level of their abilities, and the long-term care from pre-conception to old age provide general practitioners with opportunities for research which are not matched in any other setting.

With such opportunities, it would be reasonable to expect that general practitioners would be doing a much larger proportion of medical research than they do. One reason for the lack seems to be the feeling, among general practitioners as well as specialists, educators, and granting agencies, that general practitioners should not do research, but should confine their

activities to the provision of care based on the findings of the experts. This feeling may be a result of a perception of the general practitioner as being incapable because of inadequate training in research methods, lack of time, or lack of facilities, perhaps all a result of lack of interest. In spite of such negative factors, there has been increasing activity in research by general practitioners, and increasing pressure on departments of family practice in the medical schools to become more involved in both conduct and teaching of research<sup>7</sup>. Teaching of research methods during the training for general practice would be expected to increase the capabilities and the research activity of graduates who enter private practice, to provide a continuing source of information from the community experience.

Because of the conflicting views of the need for research by general practitioners and their capabilities to do it, there is still considerable doubt about the role of the general practitioner in research.

This study was conducted to explore the issues of desirability and feasibility of research by general practitioners in British Columbia. Desirability was defined in terms of benefits for knowledge, for the medical practice and for society at large. Feasibility was defined in terms of being acceptable for the general practitioner, for the patient, for the practice, and for the requirements of research.

Review of the literature provided partial answers to these issues. To obtain more information, related to British Columbia, a survey was conducted in 1978, by questionnaires mailed to all general practitioners in the province. A survey was then conducted on a sample of patients of the responding doctors, to obtain their opinions related to the desirability and feasibility of research by general practitioners.

Results of the surveys were analyzed, and related to information from the literature and to acknowledged limitations of the study.

The findings from the study led to recommendations to be considered in future planning by medical organizations, medical schools, and governments. Areas and topics for further study were suggested, to fill some of the gaps identified during the study.

## CHAPTER 1

### REVIEW OF THE LITERATURE

The literature was reviewed for "research by general practitioners", and organized under headings that would relate to the layout of the thesis text. For this reason, the following format was used:

#### Sources of references (1.1):

- Medlars II
- "New Reading for General Practitioners"
- Other sources

#### References related to desirability of research by general practitioners:

- Is it beneficial to knowledge? (1.2)
- Is it beneficial for the practice?
- Is it beneficial for society?

#### References related to feasibility of research by general practitioners:

- Is it acceptable for the general practitioners? (1.3)
- Is it acceptable for the patient?
- Is it acceptable for the practice?
- Is it scientifically valid?

#### 1.1. Sources of references

##### 1.1.1. Medlars II.

A search of the medical literature included in Index Medicus from 1972 to 1978 was conducted, using the key words "research", "family practice", and "general practice". A total of 63 citations was listed, an average of about 10 per year (Table 1.1.). An increasing trend was seen in the numbers cited from the United States of America publications, and a decreasing trend in citations from British journals. There were very few citations from other



countries, including Canada. These numbers might reflect the bias of the Index Medicus, based in the United States, rather than the actual output of studies by general practitioners.

Table 1.1 Distribution of citations from Medlars II search, by country of publication			
Country	1972-74	1975	1976-78
U.S.A.	4	7	19
U.K.	14	6	4
Canada	1	2	0
Australia	0	1	1
India	1	1	0
New Zealand	1	0	0
Scandinavia	0	0	1
Total	21	17	25

#### 1.1.2. New Reading for General Practitioners<sup>8</sup>.

The Royal College of General Practitioners has kept the best record of research studies in general practice, starting with a list of publications from 1960 to 1968. A second list was produced, of publications from 1969 to 1973. These occasional lists have developed into a quarterly cumulative list, containing references from all areas of the world, and also listing English summaries of some articles in foreign language journals.

The listing for the nine months, January to September 1977, was used as the latest available list at the time of the literature search. It was examined to count the number of references and to see which journals were publishing general practice research reports or articles. There were 202 citations, 6 of which were books or pamphlets and 196 were journal articles. A total of 47 journals was listed, with the top four publishing 100 articles (Appendix 1). At least ten countries were represented (Table 1.2) and there

were two international journals (Appendix 1).

Table 1.2	
Distribution of journals cited in "New Reading for General Practitioners", (January to September, 1977), by country of publication	
Country	Number of journals
United Kingdom	22
United States of America	5
Australia	2
Canada	2
Scandinavia	2
Netherlands	1
New Zealand	1
Singapore	1
South Africa	1
Unknown	10
Total	47

There was a wide range of topics, but the predominant interest was in clinical subjects and the delivery of care. Topics were listed in the publication according to areas of similar content, and grouped by the author in broader categories (Table 1.3).

#### 1.1.3. Other sources.

References were obtained from the author's contacts from 1960-78 as a member and chairman of research committees of the College of Family Physicians of Canada (provincial and national) and the World Organization of National Colleges and Academies of General/Family Practice (WONCA), all of which have contributed to a personal library. Others have been collected in the course of the Nuffield Foundation Travelling Fellowship in 1965, and subsequent continuing contacts with general practitioners involved in research in Britain, Australia, New Zealand, and Israel.

Table 1.3	
Topics of publications on general practice research, as listed in "New Reading for General Practitioners", January to September, 1977	
Topic area	Number of citations
Clinical	72
Delivery of care	36
Community medicine	29
Drug trials	21
Medical education	19
Patient attitudes	11
Geriatrics	3
Epidemiology	3
Social work	3
Quality of care	2
Computer	1
Research	1
Alcohol	1
Total	202

## 1.2. References related to desirability of research by general practitioners

This section examined the question whether there was any advantage to be gained when a general practitioner attempted to do research while simultaneously carrying on a practice.

Would his studies be of sufficient calibre to make a worthwhile contribution to the body of medical knowledge? (1.2.1) Would his studies in any way contribute to the efficiency of his practice, or might they prove detrimental? (1.2.2) Would society as a whole derive any benefit from the contributions that general practitioners produce? (1.2.3)

### 1.2.1. Is research by general practitioners beneficial to knowledge?

A pioneer in general practice research, William Pickles of England, published in 1939 a book that was destined to become a classic in general practice research circles, "Epidemiology in Country Practice"<sup>9</sup>. Pickles represents the self-motivated individual following his own bent and making an unsolicited contribution to medical knowledge. By 1952, as noted by Crombie and Pinsent<sup>10</sup>, the need for research in general practice had been recognized to the extent that the Foundation Council of the Royal College of General Practitioners in Britain set up a research committee<sup>10</sup>. In 1957, in Canada, the British Columbia Chapter of the board of directors of the College of General Practice of Canada also recognized the need and acted upon it, voting to establish a research committee<sup>11</sup>.

The general practitioners were not alone in their recognition of a need for the development of research in their field. Urging for such research had come from a diversity of other fields. An economist, Kalton<sup>12</sup>, in 1968 in Britain, described the contribution of research to the study of morbidity and pointed out the suitability of general practice to longitudinal morbidity studies. Like Pickles, he considered the continuity of care by general practitioners a major conducive factor. A pediatrician, Berwick<sup>13</sup>, lauded the practice-based research done by the Long Beach Group in California as "topical" and "conceptually sound", and cited three simple requirements for the general practice researcher - an inquiring spirit, a good record system, and a willingness to call in consultants. To Finkel<sup>14</sup>, in an editorial in 1978 describing some recent original observations in industry, the general practitioner was a spark to ever-broadening medical knowledge; he, like Berwick, pointed out the necessity for the general practitioner to call in specialist colleagues on definitive studies.

While the need and opportunity for observations from solo general

practitioners were recognized, the different requirements for groups research were described by Dalton<sup>15</sup> in a 1973 British journal article: "The large schemes, such as the Royal College of General Practitioners' study into the long-term effects of oral contraceptives, call for methodical form-fillers, obediently completing specially-designed forms, and forwarding the particulars for further processing. The personal involvement is so small that there is really no reason why every practitioner should not participate. The ultimate results promise to be a valuable addition to medical knowledge."

Pickles<sup>9</sup>, pointing out the unique position of the general practitioner for research, had quoted Mackenzie to the effect that the general practitioner alone could follow the progress of disease from its earliest onset to its ultimate end, be it in the individual patient or in a spreading epidemic. Stuart-Harris<sup>16</sup>, observing in 1977 that one of the first decisions made by the Royal College of General Practitioners had been to study the incidence and prevalence of infectious diseases, noted that under its encouragement work had gone forward on a number of studies in relation to problems of specific diseases, studies of drug therapy, and studies in operational research on problems of organization or the delivery of primary care. Stuart-Harris urged that academics in general practice follow the lead of the Royal College and provide the stimulus to encourage worthwhile studies in research among general practitioners.

In Canada, between 1950 and 1970, only fifteen studies by general practitioners were listed in the Index Medicus. Livingston<sup>17</sup> noted a tendency for university-oriented general practitioners to do this work and appealed to practice-oriented general practitioners to make a contribution lest the full picture of general medical practice, particularly the country practice, be distorted.

### 1.2.2. Is research by general practitioners beneficial for the practice?

In the opinion of Mackenzie<sup>18</sup>, patients would be better served if more work were done on the early recognition of disease, rather than on the study of disease after it has killed its victim. He was a strong advocate in 1919 for improvements in medical training, education and practice, to direct attention to the detection and cure of disease in the early stages.

Potential benefit to the practice was described by Eimerl and Laidlaw<sup>19</sup> in a guide to research in general practice published in 1969 in Britain by the Royal College of General Practitioners. For them, the family doctor who had mastered the self-discipline required to carry through research would achieve better standards of care through improved efficiency/ and broadened interests. This concept of improvement in the delivery of care through the effect on the individual general practitioner of his doing research work into his own practice was echoed by the World Health Organization's Expert Committee on General Practice<sup>20</sup>. They believed that the general practitioner who does active research becomes more broad-minded, more knowledgeable and experienced, and consequently more able to provide better service to his patients.

In the United States of America in 1975, Wood et al<sup>22</sup> described the use of demographic and morbidity data in the evaluation of health care delivery. They foresaw that, in the future, audit of delivery of care could be made through the use of the daily work sheet, providing access to individual patient problems and evaluation of patient care. In Canada in 1975, Collyer<sup>22</sup> demonstrated the practical use of such studies in the evaluation of quality of care. His one-year study of the work done in his own practice provided a basis for comparison with other practices, which would, in time, provide a broader consensus and lead to a realistic measurement of skills.

The expected benefit to patients in the practice was well-expressed by

Garson<sup>23</sup>: "The very reason for our research work must be to examine what we are doing to, with, and for our patients in order to change our patterns of practice when good research work so dictates." Studies of prescribing patterns in the Saskatoon Community Clinic<sup>24</sup> led to the development of a Clinic Formulary, and the economy of bulk purchasing, which enabled the clinic to add a pharmacist to the group. Other measures for improving health care effected by this group through their research, related to (1) adverse effects on people in ambulatory care, (2) updated drug profiles of long-term patients, and (3) prescribing profiles of doctors.

The general practitioners in Vancouver, British Columbia, surveyed by Warner<sup>25</sup> in 1975, were asked "How important is doing research to personal satisfaction with your practice?" Of 91 respondents, 40% thought that it was very important, and 45% important; there was however no indication in the report whether these respondents had been involved in research themselves.

### 1.2.3. Is research by general practitioners beneficial for society?

At a symposium in health care research held at the University of British Columbia in 1975, Rice<sup>26</sup>, executive director of the College of Family Physicians of Canada, stated that the social factors that influence society establish trends that should be critically examined. At the same symposium, Doll<sup>27</sup>, a British epidemiologist, described such a trend in the shift in emphasis of medical care from the prevention and relief of suffering and the reduction of mortality to such problems as the rate of world population growth, with consequent research emphasis on the control of fertility by safe and socially acceptable means. He also described a shift from the study of the immediate benefits of a procedure advanced by research to the broader view of the total effect of an intervention, which may have social side-effects as counterproductive as the medical side-effects of drugs. Doll maintained that the present emphasis of research should be for provision of medical care in a way that is

available and acceptable to all who need it.

In a committee report on the field of work of the family doctor in Britain, Gillie<sup>28</sup> had recommended in 1963 that research should be a normal activity for family doctors, especially in the natural history and epidemiology of diseases. She had further recommended the conduct of operational research at two levels, in the doctor's practice and in the wider field of the National Health Service as a whole. In a major report on Health Care in Canada Robertson<sup>29</sup> in 1972 assessed the focus of community research, citing research facilities and personnel as the greatest need. In his opinions, the general practitioners in active research were the links needed between advances and developments wherever they were occurring and local conditions. Verby<sup>30</sup>, in Minnesota, in 1973, maintained that society would be best served if the general population, general practitioners and other health professionals, could be re-educated to concentrate on methods for creatively solving family health problems. He pointed to the family in the community as the unit for study. He also stressed the need for research in effective and efficient health and disease care delivery, rather than "the biomedical electron microscope type of research." A Canadian surgeon, Robertson<sup>31</sup>, suggested in 1974 that the work in evaluation of health care to society could start with the general practitioner - here the data have been collected and stored, and here lie sufficient data for planning and assessment. He considered measurement to be the weakest factor in the progress of research.

### 1.3. References related to feasibility of research by general practitioners

This section enquired into the conditions, educational, attitudinal, and physical, under which research has been carried out in general practice, and sought to determine whether it is practical for a general practitioner to do research and carry on a normal practice.



Would the general practitioner find it possible to blend the two areas of work and interest? Would the patient be willing to accept any changes in doctor-patient relationship that might develop as a direct result of the doctor's research work? Would the practice as a whole, whether solo or group, be able to accommodate a doctor engaged in active research? Would the capabilities for conduct of research be adequate, considering both the ability of the general practitioner and the availability of resources?

1.3.1. Would conditions imposed on the general practitioner by the demands of a research project be acceptable in the opinion of the general practitioner?

The number of published reports of research studies in general practice has increased rapidly since Livingston's observations in 1972. This may be taken as an indication that at least for some general practitioners, whether alone or in multi-observer groups, research is feasible. The literature records research activity at all levels of organization from the individual to the national level.

An early example of individual research in Canada was carried out in the isolated Pemberton valley of British Columbia on thyroid deficiency by Keith<sup>32</sup>. Another relatively early example was Postuk's morbidity recording<sup>33</sup>, an 8 year record of the group in which he worked in Duncan, British Columbia, followed by a broader survey in which 54 general practitioners contributed details of patient contacts for up to 50 days<sup>34</sup>. Collyer<sup>35</sup> in 1969 obtained approximately a 50% response from the membership of the College of Family Physicians of Canada to his survey by means of postcards of the recent incidence of influenza. Interest in contributing to future surveys was indicated by 90% of respondents.

At the community level studies have been proven feasible. Garson and his fellows in the Saskatoon Community Clinic completed studies on such relevant topics as social problems of the hospitalized elderly<sup>36</sup>, the significance

of routine electrocardiograms<sup>37</sup>, and the checkup centre as part of an ongoing medical practice<sup>38</sup>.

At the provincial level, an example of proven feasibility was seen in the Perinatal Morbidity Study in Nova Scotia, conducted from 1972-75 by Hebb et al<sup>39</sup>, which involved about half the general practitioners in the province. A second example was an influenza surveillance study conducted in several provinces, beginning in 1976; the recorder for this study in British Columbia, Hoogewerf<sup>40</sup>, received 120 replies to his first request soliciting 50 volunteers.

Studies have also proven feasible at the national level. In both Britain and Holland, continuous recording of morbidity has been carried out for over ten years, with data from over 50 practitioners being collected and processed centrally. In Britain, total morbidity was recorded<sup>41</sup>, using the diagnostic index (see 1.3.3). In Holland, Sentinel Stations<sup>42</sup> reported on specific conditions of current interest, usually ten or twelve in each one-year recording period. In Australia, as well, another major project in morbidity recording was carried out, using copies of prescription forms to record patient encounters in a sample of practices throughout Australia. Results have been published in a series of reports in the Medical Journal of Australia<sup>43</sup>, and the Australian Family Physician<sup>44</sup>.

Conducive to such studies has been the availability of help. The College of Family Physicians of Canada provided central coordination for the influenza surveillance<sup>40</sup>. Help has been available from such units as the Birmingham Research Unit<sup>45</sup> and the Netherlands Institute of General Practitioners<sup>46</sup>. These functioned as advisory services, with the potential of providing help in processing data.

The use of computers for data storage and analysis has been one of the inevitable steps in progress. Shires<sup>47</sup>, in Halifax, Nova Scotia, has written

a book on computer technology for the health sciences, based partly on work done in the Division of Family Practice at Dalhousie University. McQuitty<sup>48</sup>, in Calgary, Alberta, developed a comprehensive program for recording patients registered, morbidity, and treatment, using encounter forms from patient contacts as the source of data. Such methods, although technologically feasible, have proven costly because of the need for extra clerical assistance and for the cost of computer storage and analysis. On a smaller scale, packaged programs, such as the Statistical Package for the Social Sciences<sup>49</sup>, are available for the use of individuals with small or large projects, and are reasonably easy to use.

1.3.2. Would conditions imposed on the patient by the demands of a research project be acceptable in the opinion of the patient and the general practitioner?

The College of Family Physicians of Canada, in its Research News Page<sup>50</sup>, printed as a guide to research workers the text of the Declaration of Helsinki for protecting the rights of patients. (Appendix 2) The expectation was that any research activity by general practitioners would observe the principles set forth in the declaration.

Of major concern to the patient is the maintenance of confidentiality. In a report from the Awards and Ethical Committee of the Royal College of General Practitioners, Donovan et al<sup>51</sup> made a number of recommendations about confidentiality in practice, including one to the Research Committee to the effect that the patient's right to privacy and anonymity must be guarded.

Crombie<sup>52</sup> dealt specifically with the problem of confidentiality in research, and stated that even stricter measures must be taken to maintain confidentiality in the handling of data for research because, as opposed to purely clinical records, the patient may not stand to benefit from the disclosure. He distinguished<sup>h</sup> between primary records, from which the patient can be identified, and secondary records, from which the patient can not be

identified, except by reference to the primary file. Such reference would be necessary only when additions were to be made from time to time or where information had to be checked or matched with other files.

Problems of confidentiality might be magnified or multiplied by use of the computer, with access to data banks and the possibility of record linkage. Crombie suggested that data processing staff might be asked to sign an explicit declaration or undertaking to maintain confidentiality.

1.3.3. Would conditions imposed on the practice by the demands of a research project be acceptable to the medical and non-medical staff, in the opinion of the general practitioner?

The low output of research studies by general practitioners in Canada (Livingston<sup>17, 53</sup>) suggests that problems existed that discouraged production and publication.

One inhibiting condition might be the lack of space, especially if a research assistant needs to be accommodated in a small office. A solo general practitioner, Dr. Ian Watson, solved this problem by using the corridor in a small surgery attached to his home, to file the returns from his Epidemic Observation Unit. General practitioners had sent reports of diseases being studied, using a form included in each issue of the Journal of the Royal College of General Practitioners. In 1972, the 100th notification form was celebrated in an editorial<sup>54</sup> as this pioneer effort had shown both the capability of one general practitioner to build and maintain a unique epidemiological reporting service, and also the compatibility of the system with the routines of the reporting practices. At the other end of the spectrum, Hope-Simpson in the town of Cirencester was financed by government grants, to provide space for a virus laboratory, attached to his surgery. Among his studies he made original observations on the nature of herpes zoster<sup>55,56</sup>.

A greater inhibiting condition might be the cost of a study, especially

if partners in a group must provide support in time and resources. Falk<sup>57</sup> noted that a lone general practitioner might regard a small research project as a hobby and write off the expense, but the larger projects would need financial help. The inhibiting factor that would then arise would be the careful and time-consuming preparation of applications for grants, an effort that might prove futile as it might be difficult to convince granting agencies that general practitioners were capable of doing worthwhile research. He suggested that general practitioners who become involved in research should sometimes be compensated by grants, to allow for the time lost from their usual work. He saw the tendency of granting agencies to give priority to university departments with salaried personnel as a formidable inhibiting factor to research by general practitioners in private practice.

Recording methods normally in use in practice will usually be inadequate for research purposes. Special recording was necessary as an addition to normal routines, as reported in the major prospective study on "the pill", done by Kay<sup>58</sup> in Britain, which involved very careful recording of details about subjects and controls and a long-term follow-up. At the start in 1968, 1400 general practitioners and 46,000 patients were participating. In spite of the amount of recording needed, the dropout rate was very low, as about 28,000 of the original patients remained in the study 7 years later.

The literature shows that recording methods are available if the practice is willing to adapt to them. Recording methods for use by individuals have been well-developed by the Royal College of General Practitioners. The best-known and most widely-used is the Diagnostic Index, developed in Britain by Eimerl<sup>59</sup>. Called the E-book at first, it evolved into the Disease Index and then into the Diagnostic Index, which is a better term for its function of recording problems at the highest level of certainty (e.g., "abdominal pain" rather than "possible cholecystitis"). The Diagnostic Index is now used

in countries other than Britain, for example in Australia<sup>60</sup>, New Zealand<sup>61</sup>, Canada<sup>5, 62</sup>, and the United States<sup>63,64</sup>. It provides a basis for comparison among practices and among countries, is cheap, simple, computer-compatible, and does not require any drastic change in office equipment or routine.

Simpler recording methods have been developed, as ways of recording a specified list of conditions of interest. Walford<sup>65</sup>, in Britain, used a format similar to the Diagnostic Index for recording the names and ages of people with conditions of current interest such as hypertension, diabetes, or taking "the pill". This register provides access to records, for review or research, for all diagnoses included. Using the Diagnostic Index in a similar approach, Elford<sup>63</sup>, in Alberta, devised a chronic illness register for use as a diagnostic list and also as a mechanism for recall of patients for follow-up visits, illustrating the use of the Index as a practice management tool.

Once effective recording methods are introduced, the practice may be faced with additional clerical tasks, for example, the necessity for careful identification of the patient. The general use of nicknames or a second Christian name would be confusing, as would the recording of age (which will be advancing steadily) instead of date of birth. Advice for development of an age-sex register came from Pinsent<sup>67</sup>, in Britain, who suggested the use of the first three letters of the surname and the first initial of the first name, along with the date of birth in order, day-month-year. Other factors that provide more exact identification are sex, marital status, social status, and occupation. Eimerl and Laidlaw<sup>19</sup> added the suggestion that the surname be entered in capitals, to avoid confusion in names such as James Thomas. Farley et al<sup>68</sup> used the same data, adding the census tract in which the patient lived. Points of difference, such as the month-day-year sequence for date of birth in the United States, as opposed to Pinsent's day-month-year use in

Britain, would need to be clarified.

Evidence exists in the literature to indicate that such adaptations in recording methods have proven acceptable to the practice. An editorial<sup>69</sup> published in Britain noted the increasing acceptance of the age-sex register as a recording tool. Goodman<sup>70</sup> wrote that the use of the age-sex register had extended from its research applications to becoming an essential instrument in monitoring health care in general practice. He had determined that of 320 practices that had begun to use the cards developed by the Birmingham Research Unit by 1971, about half were using the register for checking on immunization and cytology and about a third for general health checks and research. The Birmingham Research Unit had estimated that the number of practices with age-sex registers had more than doubled to at least 850 between 1971 and 1977.

The financial cost of developing such a register should not be prohibitive. Sloan et al<sup>71</sup> estimated the cost of developing a register from scratch, for a practice of 10,000 patients, at 217 pounds sterling, less a proportion for expenses against income tax, which would leave the doctors paying about 150 pounds.

1.3.4. Would the general practitioner and the practice setting provide conditions compatible with valid scientific research, in the opinion of the general practitioner?

In 1976, White<sup>72</sup>, a world-renowned epidemiologist, described primary care research as a long-neglected frontier and stated that medicine at a basic biological and psychological level urgently needed the observational powers of the general practitioner. He named three requirements for the effective execution of general practice research - classification, terms and denominator.

Over the past two decades, the first of these requirements, classification, has been tackled. Finding the International Classification of Diseases too unwieldy for use by general practitioners, the College of General Practitioners of Canada created its own version of a classification more relevant to the problems seen in practice<sup>73</sup>. The original version of 1959 was followed by a revision in 1963<sup>74</sup>. Various modifications were made by individuals, and a similar classification more appropriate for use in Canada was developed by Tarrant and Westbury<sup>75</sup>. From these beginnings it became apparent that international agreement was needed, to provide valid comparisons between countries. As chairman of the classification committee of the World Organization of National Colleges, Academies, and Academic Associations of General Practitioners/Family Physicians (WONCA), Westbury worked with delegates from other countries to develop a mutually agreeable classification. This appeared in 1975 as the International Classification of Health Problems in Primary Care (ICHPPC)<sup>76</sup>. After widespread use in practice, and consultation with the World Health Organization (WHO), a revision was published in 1979<sup>77</sup> with WHO approval.

White's second requirement, for terms, has been met in part by the development of glossaries to define terms used in the classification and in other aspects of practice. An early start was made by the Royal College of General Practitioners which published the second edition of its General Practice Glossary in 1973<sup>78</sup>. This work has been followed by the Classification Committee of WONCA, which has taken on the task of compiling a glossary as a companion to ICHPPC<sup>79</sup>.

A great deal of work has been done on White's third requirement, the denominator. Most attempts to provide a denominator, i.e., to define patient populations so that incidence and prevalence of disease could be calculated, have consisted of maintaining a list of the patients considered to be related



a practice. Pinsent<sup>80</sup> suggested that where a practice list is impossible to maintain, a suitable denominator could be the number of consultations or the number of female patients seen. The list of patients "at risk" has usually been kept in an age/sex register, to provide a profile of the recording practice. Eimerl and Laidlaw<sup>81</sup> pointed out that under the National Health Service in Britain the number of patients on each doctor's list is known, enabling doctors to calculate the age and sex distribution of patients in their practice, thereby readily obtaining a profile of the practice which, when maintained, would allow an accurate census to be taken of the practice at any time. Falk<sup>82</sup> questioned the accuracy of this profile, observing several discrepancies - patients who move would often fail to register with a new doctor until the need arose, while there was no incentive for the previous doctor to remove names from his list and thereby reduce his capitation payments; when a transfer of records was requested, there was often considerable administrative delay; some patients who were listed might attend the general practitioner only for minor ailments, but go to another doctor for other problems.

Attempts in other countries to develop a reliable denominator have focussed mainly on the age/sex register. Various methods have been described by Garson<sup>83</sup>, including use of the census list by Bentsen<sup>84</sup>, registration by intent<sup>85,86,87</sup>, de facto registration<sup>88</sup>, episodes of illness as demonstrated by Kilpatrick<sup>89</sup>, and the medicare ratio used in Garson's study<sup>83</sup>. The number of methods used has helped to stimulate debate and further attempts to develop simple and consistent methods of estimating the practice population.

Boyle<sup>90</sup> proposed the use of the family unit as one factor which could increase the accuracy of a register. The population at risk was based on all members of families in which at least one member had visited the practice within the previous two years.

A somewhat obvious requirement for scientific credibility is access to a reference library. Westbury<sup>91</sup>, aware of the need for access to reference material not listed in the Index Medicus, convinced the College of Family Physicians of Canada to set up the Canadian Library of Family Medicine at the University of Western Ontario in 1970. It provides a bibliographic service to general practitioners, available by mail. It has also taken on the job of producing the Family Medicine Literature Index (FAMLI)<sup>92</sup>, similar in format to the Index Medicus, but limited to the literature relevant to family practice. This publication was produced for WONCA as an international guide to the literature. Other bibliographies have been published by the library of the Royal College of General Practitioners<sup>8</sup>, the Royal Australian College of General Practitioners<sup>93</sup>, and the College of Family Physicians of Canada<sup>94</sup>. The British publication was comprehensive, including all relevant countries, whereas the Australian and Canadian lists were national.

Research became feasible for more general practitioners as support was shown by concerned medical bodies and government agencies. Advisory services have been provided by colleges of general practice, such as the Royal College of General Practitioners<sup>45</sup>, and the British Columbia Chapter of the College of Family Physicians of Canada which collaborated with the University of British Columbia to form a Family Practice Research Unit<sup>95</sup> in 1978. Workshops for training general practitioners in the basic techniques of research have been presented by the College of Family Physicians of Canada on a national level - at Muskoka, Ontario, in 1970<sup>96</sup>; at Banff, Alberta, in 1971<sup>97</sup>; and at Chester, Nova Scotia, in 1972<sup>98</sup>. Provincial chapters of the College of Family Physicians of Canada have held workshops, such as those in British Columbia in 1974<sup>99</sup>, and in Saskatchewan in 1971<sup>100</sup>. A Health Care Evaluation Seminar was held in Victoria, British Columbia in 1975<sup>101</sup>, co-sponsored by the College of Family Physicians of Canada and the Research Programs

Directorate of the Department of Health and Welfare. The involvement of family practice residents in research projects was described by Geyman<sup>102</sup> in Seattle, Washington, in 1977. Hodgkin<sup>103</sup> examined the educational implications of a major study of morbidity in Virginia and concluded that the analysis of survey material related to the facts of practice enriched and encouraged research attitudes in the residents of the family practice teaching program.

Acceptance by the scientific community is implied when an application for a grant succeeds. Although difficult to get, financial support has been obtained from the federal government<sup>5,42,39</sup>, provincial governments<sup>22,40</sup>, and university<sup>34</sup>. High-level financial support has been provided in Britain by the Nuffield Provincial Hospitals Trust<sup>104</sup>, which responded to the need and provided funds for the establishment of the General Practice Research Unit in Birmingham in 1960. Three years later, longer-term support was provided by the Ministry of Health. A Task Force on the cost of health service in Canada in 1970<sup>105</sup> revealed the need for research into the delivery of medical services and reported that "More public funds must be spent on medical care research now if the escalating costs of medical services are to be controlled without adverse effects on the quality of these services."

Important though not financial support has come from the establishment of international organizations, which bring together general practitioners and consultants in a scientifically stimulating environment. WONCA formed a Standing Committee on Research in 1974<sup>106</sup>, to develop the potential for international projects by advice and communication. The North American Primary Care Research Group<sup>107</sup>, started in 1972 as a grass-roots organization of interested family physicians who saw the need for working together to develop a research movement, holds annual scientific meetings at which papers are presented by general practitioners and family practice residents. In

Europe, international cooperation through the years has helped to develop a European General Practice Research Workshop<sup>108</sup>, in which participants from eleven countries have met to discuss and plan combined projects.

### Summary of Chapter I

The literature has shown much evidence of an increasing interest in research over the past two decades. After a long period of relatively isolated work by individuals, there was more group activity and there were more supporting structures. There were many indications that research in and into general practice was desirable, for physicians, for practices, and for society. Many of the studies and reports indicated that such research was feasible, because (1) it was done, (2) it was apparently acceptable to the general practitioners, the patients, and to the practices, and (3) research methods and support have been developed especially for this field of work.

Most of the references listed were from outside British Columbia. It was the intent of this present study to determine whether general practitioners and their patients in British Columbia would be likely to support increasing research activities in future.

## CHAPTER 2

### DEFINITION OF THE PROBLEM

The study was designed to explore the proposition that conduct of and participation in research by general practitioners in British Columbia would be both desirable and feasible.

#### 2.1. Desirability

The issue of desirability was explored among general practitioners and their patients by seeking answers to the following questions:

2.1.1. Would research by the general practitioner be beneficial to knowledge in the view of general practitioners and their patients?

It was assumed that such research would be considered as beneficial to knowledge if there were perceived gaps in knowledge which could be filled best by research activity of the general practitioner. Such perceptions would be more convincing evidence if they were shared by general practitioners without an interest in research, as well as by those with an interest. Further support would be given by similar perceptions by persons who were not general practitioners, but who were in a position to make relevant statements.

2.1.2. Would research by the general practitioner be beneficial to the practice in the view of general practitioners and their patients?

It was considered that such research would be beneficial to the practice if it could be shown that it would lead to improvements in patient care. There could also be benefit for the general practitioners, or the office staff, of adding interest to the normal routine of practice and increasing job satisfaction. Potential benefits in improved office management and better medical records might be additional benefits of research activity. Such benefits must not be counterbalanced by interference with the normal care of patients.

2.1.3. Would research by the general practitioner be beneficial to society in the view of general practitioners and their patients?

It was considered that such research would be beneficial to society if it could be seen that improvements would result in education, political decisions, the system of care, or the cost-benefit ratio. There could be benefit from improved medical education and education of the public. Perhaps the greatest benefit could be in the relevance of political decisions, if research findings were used, in improving the health care system. Changes to the system of care might also result from acceptance of research findings by medical bodies or by individual practitioners. There could also be economic benefits, for example in studies of the decision-making process, which could help to reduce the amount of investigation or consultation required. Apart from benefit to the individual from reduction in time, inconvenience, or anxiety, there could be benefit to society in reduction of the cost of the health care system.

## 2.2. Feasibility

The issue of feasibility was explored among general practitioners and their patients by seeking answers to the following questions, which were intended to assess the ability of general practitioners to do research, as well as the acceptability of research activity to the patients, the practice, and the practitioners:

2.2.1. Could conditions imposed by research activity be acceptable for the general practitioner?

It was considered that conditions would be acceptable if it could be shown that the general practitioner had a record of participation in previous projects in the same practice setting. Formal training in research methods would be important, it being likely that very few would learn on their own to

be capable of originating and conducting studies. However, willingness to start or participate in a group or collaborative project would suggest that capability would develop to the necessary level if help or guidance were available.

The availability of consultation in planning a study would make conditions more acceptable, as would the availability of facilities for developing a project and for processing the results.

2.2.2. Could the conditions imposed by research activity be acceptable for the patient?

Minimizing risks and costs to the patient has been one of the primary concerns and must be considered in any project as one of the essential aspects of planning. Protection would include several factors: safety from side effects of any treatment used, and awareness of symptoms or signs which might indicate problems; preservation of confidentiality; and protection from possible harmful effects of questions or information included in the study.

The question of cost would have to be considered, primarily out of pocket expenses, but also time and inconvenience.

Finally, but perhaps most important, the possibility of a research project interfering with the usual care of the patient would have to be considered.

2.2.3. Could the conditions imposed by research activity be acceptable for the practice?

The imposition of a research project on a busy office could cause some problems, so that it would be important to consider the factors which might be most affected. Time required of office staff could be more than they could manage willingly. Space could be a problem, especially if an extra person is brought in as a research assistant. Recording methods would likely be different from the usual routine, and might not be easily understood. If any extra cost

were involved, it could cause some stress in the practice. Identification of patients for a study must be precise, and would often require more documentation than the usual routine.

2.2.4. Could the general practitioner and the practice setting provide conditions compatible with valid scientific research?

The amount of training in research methods required by the general practitioner would depend on the needs of any project undertaken. Such training could include participation in previous studies, and attendance at training workshops.

Recording methods might require some extra work in the office, such as particular care in identification of individuals, selection of patients suitable for a project, or communication with patients in a study. The ability of a practice to adjust to these requirements would need to be considered.

The possible need for assistance would have to be considered, both for advice in planning and for technical details. Access to computer facilities might often be needed, along with the help of programming and data entry. There could also be a need for help in writing reports and preparing them for publication. The availability of such resources would be important, as would the knowledge of the general practitioner of where to go for needed advice or assistance.

## Summary of Chapter II

This study was designed to assess the potential of the general practitioner in British Columbia to conduct or participate in research, by surveying general practitioners and their patients. Questions in the survey included some statements of fact, and some expressions of opinion. Measurement of individual opinion was subjective and could be expressed numerically



only as group responses.

Strongly supportive responses in all of the study questions would suggest that there is a perceived need for research and that the conditions for undertaking research are good. Strongly negative responses would suggest the opposite. Responses between the two extremes might suggest a reasonable degree of support for the proposition that research is desirable, and indicate some of the problems to be overcome in planning for research, in order for it to be feasible.

## CHAPTER 3

### METHOD

To answer the questions about desirability and feasibility of research by general practitioners, information was obtained from the literature, from a questionnaire survey of the total general practitioner population of British Columbia, and from a random sample of patients.

#### 3.1. Strategy

General practitioners were surveyed, to determine their: opinions about the value of research, perceptions of incentives and deterrents to research, ideas about appropriate topics for research, willingness to become involved in research projects, and awareness of ethical problems in research. Information was also obtained about age, year and university of graduation, years in practice, previous training and experience related to research, and membership in the College of Family Physicians of Canada.

Patients were surveyed to determine their: willingness to become involved with their doctors in research, knowledge about research, ideas for appropriate topics for research, and suggestions for financing research. Information was also obtained about age, sex, and details related to the visit to the doctor.

#### 3.2. The populations surveyed

To obtain a reasonable number of responses, it was considered necessary to survey all general practitioners in British Columbia. From those who responded, a random sample was selected to obtain opinions from their patients.

##### 3.2.1. General practitioners.

All general practitioners in British Columbia were surveyed. Names and addresses of general practitioners were obtained from two sources:

- (a) UBC list, compiled by the Division of Health Services Research and Development at the University of British Columbia, from data supplied by the College of Physicians and Surgeons of British Columbia (CP&S) and the British Columbia Medical Services Commission (MSC). Details include name, address, postal code, medical school attended, year of graduation, and MSC identification number (which is not always unique, as when members of a group use the same billing number). Data are stored in the university computer system and are revised monthly according to reports received from both agencies.

For this study, the most recent edition of the list (18 February, 1978) was used for mailing questionnaires in March. There were two sections: an "active register" contained 2,180 names of physicians considered to be active general practitioners because of billing to medicare over an arbitrary amount in one year (e.g., \$15,000 in 1978); an "inactive register" contained 242 names of physicians who billed less than the arbitrary amount.

- (b) BCMA list, compiled by the British Columbia Medical Association from its membership roll, which includes the majority of physicians in British Columbia. It is divided into two sections, for which addressograph plates are kept separately. One section consists of those who have specialist qualifications. The other section consists of those who do not, and this section is used to provide the list of general practitioners. The list is revised once a year, with renewal of membership in the BCMA, the latest revision in November, 1977, including 2,121 as general practitioners. Details include name, address, and postal code.

For this study, the addressograph plates for the section of general practitioners were used on 7 March, 1978, to address the

envelopes in which the questionnaires were to be enclosed.

When the two lists were compared for concordance, it was found that each list contained some names which the other did not have. The total number of individuals in the combined list was 2,612, compared with 2,422 in the UBC list, and 2,121 in the BCMA list. However, only 1,931 appeared on both lists.

The number included in both the UBC Active list and the BCMA list was 1,802. This was considered to be the most active group of general practitioners. The number included in both the MSC Inactive list and the BCMA list was 129. General practitioners included in the UBC list but not in the BCMA mailing list were divided into Active (378) and Inactive (113). An additional 190 physicians were in the BCMA list but not in the UBC list.

All those included in either list of general practitioners were included in the survey population, except the 268 who were excluded for reasons given in Appendix 3. Names were eliminated from the mailing lists because of details which indicated that they were not functioning as general practitioners. The most common reasons for exclusion were specialist status, working in public health, retirement, or working for an agency or institution. In cases of doubt, or if reasons were not apparent from the information on record, the names were left in, even when it was known that the individuals were not working as general practitioners.

Depending on their status on the BCMA and the UBC lists, the general practitioners surveyed were divided into 5 categories:

- 1- BCMA mailing list + UBC Active list
- 2- BCMA mailing list only
- 3- UBC Active list only
- 4- BCMA mailing list + UBC Inactive list
- 5- UBC Inactive list only

Table 3.1 shows the distribution of the 2,344 general practitioners in the

population surveyed, according to BCMA district and category on the mailing lists.

Table 3.1

General practitioner population in British Columbia,  
as listed in survey of 17-23 March, 1978

District of BCMA	Category of general practitioners					Total
	-1-	-2-	-3-	-4-	-5-	
1 Victoria	213	-	33	14	9	269
2 Upper Island	161	-	32	5	5	203
3 Vancouver City	360	14	100	26	21	521
4 North Burrard	122	5	27	10	7	171
5 Burnaby	69	2	6	3	4	84
6 New Westminster	190	1	24	10	15	240
7 Fraser Valley	142	-	18	5	3	168
8 Richmond - Delta	79	2	14	-	4	99
9 Prince Rupert	49	1	16	8	1	75
10 North Okanagan	78	-	22	2	1	103
11 Cariboo	66	-	14	1	1	82
12 Peace River	22	1	6	-	-	29
13 South Okanagan	150	-	17	1	2	170
14 West Kootenays	49	-	18	2	1	70
15 East Kootenays	52	-	6	-	2	60
Totals	1802	26	353	87	76	2344

### 3.2.2. Patients

To gain access to patients to be surveyed, a 5% random sample was selected by a computer program from the 506 general practitioners who had returned their completed questionnaires. Of the 22 numbers selected by the computer, 2 were anonymous, leaving an identifiable sample of 20. These were sent a letter (Appendix 4) asking them to present a short questionnaire to all of their patients on a weekday to be chosen at random.

Of the 20 who were asked to help in the survey, 13 agreed, 4 said they would not (2 were about to go on "sabbatical"), and 3 did not reply to a second request. Replacements, next on the list from the same BCMA districts, were selected for the 4 who declined and provided 3 more who agreed to participate. One of these did not follow through by returning any completed questionnaires, but the other 2 and the first 13 who had agreed all cooperated, providing a total 15 (75%) of the target of 20 practices. All were in Category 1 in the mailing list except for one (B) who was in Category 4.

The general practitioners who participated (Table 3.2) represented 9 of the 15 BCMA districts, with 1,849 (78.9%) of the doctors on the mailing list. The 9 districts had provided 391 (77.3%) of the 506 responses included in the population sampled.

G.P. Id.	Place and year of graduation	BCMA District	Questionnaires requested
A	UBC '75	10	20
B	UWO '74	9	20
C	U of A '62	4	35
D	UBC '63	8	40
E	India '54	3	5
F	UBC '66	3	60
G	Manitoba '51	3	40
H	London '58	3	40
I	UBC '64	3	30
J	McGill '76	4	30
K	UWO '75	1	30
L	Ireland '57	3	30
M	London '55	6	35
N	Netherlands '61	7	35
O	UBC '72	2	40

### 3.3. Data Collection Instruments

#### 3.3.1. General practitioner questionnaire.

The questionnaire was designed to provide answers to the questions about the desirability and feasibility of research by general practitioners. To develop questions most likely to provide answers to the study topic, two sources of advice were consulted. First, the literature review helped to identify relevant areas of enquiry, especially considering the application in British Columbia of work which had been done elsewhere. Second, a variety of individuals was interviewed, because of their special knowledge related to the aspects of research, of society's needs, or of general practice outlined in Chapter 2. Interviews followed the format shown in Appendix 5 and most took thirty minutes or more. Individuals consulted are listed in Appendix 5, but their replies are confidential.

The questionnaire evolved through a series of drafts ending with the final draft as shown in Appendix 6. Each draft was prepared with the study questions as a framework, then presented to colleagues for criticism of content, format, comprehensiveness, and clarity.

The matter of desirability was explored by asking the general practitioners a series of questions regarding the potential benefits resulting from research activity, for knowledge, the practice, and society:

Could research by general practitioners be beneficial for knowledge?

Do you think that research in family/general practice can provide knowledge which would otherwise not be available? (Q1)

List three specific topics which you have thought about studying, or which you consider to have high priority. (Q2)

How important are the following factors in encouraging participation in research projects? (a) contribution to knowledge (b) curiosity.

(Q 7.1, 7.2)

Could research by general practitioners be beneficial for the practice of medicine?

In your opinion, what effect might participation in research have on the following factors? (a) income (b) leisure time (c) office management (d) office records (e) patient care (f) patient records (g) patient satisfaction (h) your satisfaction with work. (Q 5.4 to 5.10, 5.13)

How important are the following factors in encouraging participation in research projects? (a) to add interest to practice (b) to co-operate with partner(s) (c) to improve office management (d) to improve patient care. (Q 7.3 to 7.6)

Could research by general practitioners be beneficial for society?

In your opinion, what effect might participation in research have on the following factors? (a) cost of care (b) education - medical (c) education - public (d) political decisions (e) the health care system (Q 5.1 to 5.3, 5.11, 5.12)

How important are the following factors in encouraging participation in research projects? (a) to improve the health care system (b) to provide an academic base for family practice/general practice.

(Q 7.7, 7.8)

The matter of feasibility was explored by asking the general practitioners a series of questions related to the acceptability of research activity to general practitioners, to their patients, and to their practices (considering the conditions which could result from the general practitioners' involvement in research), and also questions regarding the quality of the research which could be done in the general practice setting:

Could the conditions imposed by research activity be acceptable for



the general practitioner?

How important are the following factors in discouraging participation in research projects? (a) heavy workload (b) inadequate training (c) lack of awareness of potential (d) lack of interest (e) lack of time (f) not convinced of its value (Q 6.5, 6.7 to 6.11)

How much interest would you have in the following types of research activity, assuming that planning is rational and that projects would be compatible with your practice? (a) clinical studies (b) economic studies (c) epidemiological studies (d) drug studies - new drug trials (e) ongoing evaluation of treatment (f) evaluation of medical education (g) group studies, with a central recorder to arrange details (h) individual studies of your practice (i) laboratory studies (j) setting up practice records to allow easier participation in research (k) time and motion studies (l) workload studies. (Q 8, 8.1 to 8.12)

Are you now involved in or actively planning a research project?  
(Q 9)

Could the conditions imposed by research activity be acceptable for the patient?

How important are the following factors in discouraging participation in research projects? Cost to patients in (a) time (b) travel (c) discomfort. (Q 6.1 to 6.3)

Have you or any of your patients experienced a breach of confidentiality in a research project? (Q 11b)

How important do you think it is to obtain informed consent from patients, if you are engaged in the following activities?

(a) a diagnostic or therapeutic procedure to be used is not the customary procedure (b) a patient is asked to complete a questionnaire

for a research study (c) a patient is interviewed for a research project (d) clinical trials (e) providing incidence data from patient records (f) reporting specific diagnoses, with patients anonymous (g) reporting specific diagnoses, with names of patients (h) using a placebo in treatment. (Q 11.5 to 11.12)

Could the conditions imposed by research activity be acceptable for the practice?

How important are the following factors in discouraging participation in research projects? (a) high office overhead (b) office staff too busy (c) partners not cooperative (d) space in office inadequate. (Q 6.6, 6.12, 6.13, 6.15)

Could the conditions for research be scientifically acceptable?

During your education, what was your exposure to the following subjects? (a) statistics - in medical school, interneship, residency (b) epidemiology - in medical school, interneship, residency (c) methodology - in medical school, interneship, residency (d) national workshops on research (e) provincial workshops on research (f) national health grant seminar. (Q 3)

Have you taken part in any of the following projects in British Columbia, or studies elsewhere? (a) Study of content of practice (Postuk, 1965) (b) 'flu' survey, 1969 (College of Family Physicians) (c) survey on nutrition (Schwartz, 1974) (d) influenza surveillance (1976-78) (e) prevalence of multiple sclerosis (Vernier 1977) (f) drug trials. (Q 4)

How important are the following factors in discouraging participation in research projects? (a) record system unsuitable. (Q 6.14)

If you were planning to do a research project, would you need any of the following resources? (a) advice on feasibility (b) advice on

planning (c) consultation with expert (d) financial help (e) help  
in processing results (f) help in writing report (g) technical help  
(h) secretarial help (i) special facilities. (Q 10)

Have you taken part in any research projects? (Q 11a)

Additional questions related to the doctor's training, experience, type of practice, and age. Provision was made for the respondent to remain anonymous, simply by cutting off the identifying MSC number on a corner of the form.

Questions were worded as much as possible so that respondents would not be steered to the "best" answer. Choices were listed in chronological or alphabetical order, to avoid placing some at the top or bottom of a list which might have biased the responses.

The format was designed to be attractive to the busy general practitioner, and relatively easy to follow. One objective was to limit the questions to those which could be included on one sheet of paper, even though it was printed on both sides with the print reduced in size. Good quality paper of pleasant colour was chosen. Type faces were chosen to provide variety and emphasis, with a plain lettraset heading, IBM script for the questions, and letter gothic type for the responses.

### 3.3.2 Patient questionnaire.

To develop questions which would allow patients to express their interest, concerns, and degree of support for research in general practice, areas considered to be important were the possible effects on medical care, cost, confidentiality, and willingness to cooperate.

Several drafts were developed, each being presented to colleagues who had had the experience of being patients, for criticism of content, format, comprehensiveness, and clarity. The final draft appears in Appendix 7.

Instructions to the patients, at the top of the page, included an assur-

assurance of confidentiality. Information was obtained about age and sex, whether the respondent was visiting or was bringing someone else to the doctor, and whether this was the regular doctor.

An opinion on the desirability of research was sought by asking:

Do you think that it is a good idea for general practitioners to be involved in research studies related to their work? (Q 6)

What topics do you think are most in need of study by general practitioners? (Q 7)

An opinion on the feasibility of research was sought by asking:

Would you be willing to help your doctor to do research studies, by cooperating in important details, such as: (a) allowing her/him to provide information from your medical records (without giving your name)? (b) keeping a diary about details of your health?

(c) returning at monthly intervals for checkups (e.g., blood pressure check)? (d) allowing a blood sample to be taken for testing? (Q 8)

Have you ever donated blood to the Red Cross? (Q 9)

For the support of research, which of the following do you think should provide money? (a) the government - federal, provincial, or local (b) private foundations (e.g., Vancouver, Kellogg, or Rockefeller Foundations) (c) the public (through donations or bequests) (d) the doctors. (Q 10)

Questions were chosen with the objectives of keeping the total number reasonably small and answering mainly by checking. Question 9 was intended to find out whether those who indicated cooperation in Question 8 had demonstrated willingness to donate blood.

Format was intended to be of a pleasant appearance, with heading and instructions in script, questions in letter gothic type. Paper was yellow (goldenrod) and high quality.

### 3.4. Data Collection Procedure

#### 3.4.1. Survey of general practitioners

Questionnaires to general practitioners were prepared for mailing so as to maximize response rate. Envelopes were white, and large enough (27x19 cm.) to hold the questionnaire folded once, an unstamped return-addressed envelope, and a covering letter. Special-issue stamps were used, rather than a postal meter. The covering letter (Appendix 8) explained the purpose of the survey and asked for cooperation from the general practitioner.

The questionnaires were mailed in batches, from Friday, 17 March, to Thursday, 23 March 1978, to the 2,344 general practitioners in the groups shown on page 34.

No reminders were sent out, and no further questionnaires except for one which was sent on request. It was expected that anyone with enough interest in research to answer would either answer promptly or save the questionnaire until a convenient time, so that the fact of answering might be one measure of interest.

#### 3.4.2. Survey of patients

To each of the 16 general practitioners who agreed to participate in the study, a package was sent during July or August, 1978, containing:

- a letter to the physician (Appendix 9.1)
- instructions for administering the questionnaire (Appendix 9.2)
- the number of questionnaires requested by the physician
- small envelopes in which patients were asked to seal their completed questionnaires
- a large stamped and addressed envelope for returning all questionnaires (used and unused)

If the returns were delayed more than seemed reasonable, a reminder was sent, asking about the physician's progress and intentions.

### 3.5. Analysis of Results

3.5.1. Questionnaires returned from the survey of general practitioners were separated into two groups; one included those who were in fact not general practitioners, and the other included those who were general practitioners. The first group of questionnaires was analyzed by hand, to show the reasons that they were not general practitioners. The second group, except for the 7 which arrived too late, were coded and entered on fortran sheets by a research assistant. Computer cards were punched and verified by the computer service, and then processed by computer methods, using the SPSS:7 program on the IBM 360 computer at the University of British Columbia. Frequencies were obtained for all variables which related to the responders and their responses. Responses were arranged in relation to the research questions as described in section 3.3.1, to show the weight of opinion or extent of experience for each item in the questionnaire. Comments of the responders were recorded and assessed individually.

3.5.2. Results from the survey of patients were coded and transferred to punch cards by a research assistant. They were processed by computer methods, using the SPSS:7 program on the CDC computer at the University of Calgary. Frequencies were obtained for all variables related to the patients and their responses, and these were correlated with the physician responses in relation to the study questions.

### 3.6. Limitations of the Study

An attempt was made to recognize limitations and sources of bias, and to avoid them or to take them into account in evaluating results. The major limitations were described in relation to the stages of the study.

#### 3.6.1. Limitations imposed by the strategy

General practitioners. Response to mail questionnaires can be low,

especially for those which contain as many questions as were in the survey of general practitioners. The topic of research was not expected to be of wide general interest, so that a relatively low response was expected. An assumption was made that any response would indicate at least a minimum level of interest, and that the time and cost for follow-up questionnaires and phone calls were not justified. Therefore, the respondents would be a biased group, more likely to support the concept of research than would the non-responders. Their responses would be referable only to the responding group, and not generalizable to all general practitioners surveyed.

Patients. The survey of patients, based on a random sample of general practitioners, would also be biased towards a positive response for two reasons. First, the sample was chosen from those general practitioners who had responded to the first survey, and not from the general practitioner population as a whole. Second, it is quite possible that the 15 practitioners who agreed to the survey of patients would somehow have influenced their patients' attitudes.

### 3.6.2. Limitations imposed by the sample selection

General practitioners. Selection bias might occur in development of the list of general practitioners. Apart from the obvious errors of inclusion of some listed as specialists, there were less obvious errors which were noted by chance rather than by the method of exclusion. Examples of these chance observations were:

- one listed as an MSC active general practitioner who had been out of practice for 18 months
- at least two listed as inactive general practitioners who were known to be hospital administrators, but who were not identified as such on the mailing lists
- at least three listed as inactive general practitioners who were in

fact retired.

It is quite likely that there should be other exclusions, so that the true count of general practitioners would be lower than the number shown in the corrected lists. There could also be errors of omission, but these would be relatively few, as there was a regular monthly addition of new registrants in the British Columbia College of Physicians and Surgeons to make the list current. Most new additions to the list are in June and July, so that those in February would be relatively few.

Some may have been out of practice for other reasons, although still listed with home addresses and maintaining membership in both the BCMA and the CP&S.

Specialist status could not always be considered an accurate criterion for decision about general practice activity, as some certified specialists were in fact providing general practice services, while some listed as general practitioners were in fact providing only specialist services. Clerical error could also place individuals in the wrong categories.

The highest response rate was expected from the group of 1,802 physicians who were included in both the BCMA list and the MSC list of active general practitioners.

Patients. Selection bias could also occur with the patient sample, as it was restricted to those who were currently attending the doctor, thereby eliminating individuals who might be healthy or who might stay away from the doctor for other reasons. The number and type of practices selected might have reflected excessive numbers of certain age groups, ethnic groups, or social classes. These errors should have been minimized by the process of random selection which was used.



### 3.6.3. Limitations of the questionnaires

General practitioners. Content of the questionnaires to general practitioners was limited by the expected limit of tolerance of the respondents, so that the number of questions was kept to the minimum needed to answer the study questions. An attempt was made to encourage acceptance of the questionnaire by development of an attractive and concise format.

Instrument bias was a major possibility in the questionnaire, so that great care was taken to avoid leading questions which would be likely to steer the replies in the direction favored by the surveyor. To compensate for the limited number of alternatives in some of the questions, an opportunity was given to add other alternatives.

Patients. Possible selection bias might occur because the sample was too small or was not representative of all patients, or of all the populations, but the trend indicated would likely be a reasonable reflection of opinions in the population most concerned. Attempts by the office staff to help patients with their answers could also add bias in providing "acceptable" opinions, and variation in instructions by office staff might affect the answers. To minimize the effect of office staff, as well as possible reluctance to have answers seen by the doctor or the staff, patients were supplied with envelopes in which to seal their completed questionnaires.

### 3.6.4. Limitations of the survey

General practitioners. One major limitation was expected to be the normal reluctance to complete questionnaires from any source, so that attempts were made to encourage the recipients to respond. The covering letter described briefly the purposes and potential value of the survey. To increase the acceptability of the study, the return envelope was pre-addressed to the office of the British Columbia Chapter of the College of Family Physicians of Canada, and to the attention of the author. For economy, no stamp was included

on the return envelope, so that some potential respondents might have refused to contribute.

The lack of follow-up questionnaires or reminders was expected to reduce the response rate, but this result was considered to be acceptable as one measure of the degree of interest.

The timing of the survey was not likely to affect the response, except that the mailing of questionnaires was done just before the Easter holiday. However, the greatest response was received in the week after Easter.

Patients. The lack of cooperation from 25% of the practices randomly selected for the survey of patients would have some effect on the response, and limit the generalizations which could be made. The possibility of selection bias was considered, and office staff were asked to submit questionnaires to all patients in the session selected. They were also asked to report the number of patients seen who did not complete the questionnaire.

Conduct of the survey during the summer might have contributed to non-response, although instructions provided for a delay until the next appropriate session.

### 3.6.5. Limitations of the analysis

To avoid selection of only those answers which might support the views of the investigator, the frequencies of all items were reported. However, only selected cross-tabulations could be presented because of the large number of possibilities, so that bias might affect the selection.

The possibility of error in entry of data was present, and was avoided by random check and by specific review of results which did not seem reasonable.

### Summary

The method used to study the question of desirability and feasibility of research by general practitioners in British Columbia involved several

steps, the first of which was to decide on the strategy. The primary approach was to the general practitioners, with the point of view of patients to be considered as well, in an exploration of opinions and experience related to the study questions. The advice of authorities in related fields was sought during preparation of the questionnaires to be used, and great care was taken to make the questions relevant to the topic and acceptable to the respondents. The mail survey was to a relatively large number of physicians so that only one mailing was done. From the respondents, 15 (from a random selection) presented a questionnaire to a random selection of their patients. Analysis of data included computer processing, to provide frequencies for all variables and some cross-tabulations. Limitations of the study were considered, to be taken into account in the evaluation of results.

## CHAPTER 4

### RESULTS

Results of analysis of the questionnaires returned by general practitioners and patients were arranged according to response rates, characteristics of the respondents, and the content of replies to the study questions.

#### 4.1. Response

##### 4.1.1. Survey of general practitioners.

From the 2,344 questionnaires which were mailed, 563 (24.0%) were returned. Of these, 508 (21.7%) could be used for analysis. The other 55 (2.3%) included 7 which were too late for analysis, 5 which were returned as undelivered, and 43 which were returned with information indicating that the respondent was not in general practice. (Appendix 10)

Response rates according to category on the mailing list are shown in Table 4.1. Of the 508 usable responses, 482 (94.9%) were on the UBC Active list (categories 1 and 3). Of these, 447 (92.7%) were also on the BCMA list, so that 88% of the usable response was from category 1, with 1,802 physicians on both UBC and BCMA lists. An additional 24 responses from this group (1.3%) indicated that the physicians were not in general practice. Late returns from 6 increased the total response to 477 (26.5%) in category 1, with a usable response of 447 (24.8% of 1,802.)

From the remaining 542 questionnaires mailed to the other 4 categories of physicians, there were 72 replies (13.3%), 52 of which were usable (9.6%). One was too late, and 19 (3.5%) stated that the physician was not in general practice.

There were 48 anonymous replies, but most of these could be placed in one of the groups in the mailing list because of colour-coding or answers in the questionnaires, leaving 9 which could not be placed.

Table 4.1  
Response rates of physicians, related to category on mailing lists

Category of physician		Numbers on lists				Q's came back not opened	Numbers returned							
		Total	Excluded	Included			Responses							
							Total		Not G.P.'s		Late returns	Usable returns		
				No.	%		No.	%	No.	%		No.	%	
1.	BCMA mailing list + UBC Active list	1802	0	1802	100.0	1	478	26.5	24	11.3	6	447	24.8	
2.	BCMA mailing list only	190	164	26	13.7	-	8	30.8	4	15.4	-	4	15.4	
3.	UBC Active list only	378	25	353	93.4	-	37	10.5	1	0.3	1	35	9.9	
4.	BCMA mailing list + UBC Inactive list	129	42	87	67.4	1	25	32.2	14	16.1	-	10	11.5	
5.	UBC Inactive list only	113	37	76	67.3	3	6	3.9	-	-	-	3	3.9	
6.	Anonymous returns, unidentifiable	-	-	-	-	-	9		-		-	9		
Totals		2612	268	2344	89.7	5	563	24.0	43	1.8	7	508	22.0	

Response rates according to BCMA district are shown in Table 4.2

Responses were received from all districts, the rates ranging from 7.1% to 30.5% of the general practitioners surveyed, with an overall response rate of 23.8%. There were 558 responses from physicians, not including the 5 which were undeliverable. After subtracting the 43 who replied that they were not in general practice and the 7 usable replies which were too late, there were 508 replies available for analysis at the cut-off time of 100 days after mailing the questionnaire. These gave an overall response rate of 21.7%, with a range from 7.1% to 27.9%.

Table 4.2  
Response to general practitioner questionnaire  
by District of BCMA, 1978

District of BCMA	Number surveyed		Total replies		Usable replies	
	Number	%	Number	%	Number	%
1 Capitol region	269	11.5	79	29.4	75	27.9
2 Upper Island	203	8.7	45	22.2	40	19.7
3 Vancouver city	521	22.2	127	24.4	115	22.1
4 North Burrard	171	7.3	30	17.5	26	15.2
5 Burnaby	84	3.6	6	7.1	6	7.1
6 New Westminster	240	10.2	57	21.7	46	19.2
7 Fraser Valley	168	7.2	36	21.4	32	19.0
8 Richmond - Delta	99	4.2	22	22.2	19	19.2
9 Prince Rupert	75	3.2	19	25.3	18	24.0
10 North Okanagan	103	4.4	22	21.4	20	19.4
11 Cariboo	82	3.5	25	30.5	21	25.6
12 Peace River	29	1.2	8	27.6	8	27.6
13 South Okanagan	170	7.3	37	21.8	35	20.6
14 West Kootenays	70	3.0	17	24.3	15	21.4
15 East Kootenays	60	2.6	17	28.3	16	26.7
16 Anonymous	-		16		16	
Totals	2344	100.1	558	23.8	508	21.7

There were 16 anonymous replies which could not be assigned to any BCMA district. The other 32 anonymous replies could be located in a district either by the postal code or by identification on the envelope or questionnaire.

#### 4.1.2. Survey of patients.

From the 16 general practitioners who had agreed to submit a questionnaire to their patients, returns were received from 15. These provided a 75% response rate from the 20 practices or replacements randomly selected. The response from patients varied from 5 to 30, with an average of 20.3 patients per practice (Table 4.3). Ten physicians reported the number of visiting patients who had not completed a questionnaire.

Table 4.3				
Response rate of patients to questionnaire according to BCMA district of general practitioner				
G.P.	BCMA Dist.	# of Q's completed	Patients seen	Response rate
A	10	6	20	30%
B	9	12	13	92.3%
C	4	25	25	100.0%
D	8	21	*	N/A
E	3	5	5	100.0%
F	3	26	*	N/A
G	3	30	31	96.8%
H	3	24	*	N/A
I	3	14	14	100.0%
J	4	28	*	N/A
K	1	18	19	94.7%
L	3	28	*	N/A
M	6	25	28	89.3%
N	7	17	22	77.3%
O	2	24	26	92.3%
Anon.	-	1	*	N/A
Totals		304	330	

\* = not reported

In these practices, 149 out of 176 patients co-operated, a response rate of 84.7%. If the one practice in which 14 out of 20 patients did not complete the questionnaire could be ignored, the response rate in the other 9 would have been 143/156, 91.7%. In the five practices where non-responders were not reported, the average number of patients responding was 25.4, whereas the average in the other 10 practices was 17.6 patients.

## 4.2. Characteristics of respondents

### 4.2.1. Survey of general practitioners.

Age was reported by 97.2% of respondents, with 42.7% under 35 years, 28.0% 36-44 years, 17.7% 45-54 years, and 8.9% over 54 years. The median age was 37 years. (Table 4.4)

Table 4.4  
Age groups  
of 508 general practitioners  
responding to survey

Age group	Number	Percent
Under 35	217	42.7
35-44	142	28.0
45-54	90	17.7
55 and over	45	8.9
Not stated	14	2.8

Year of graduation ranged from 1935 to 1977, with 7.4% graduating before 1950, 21.1% from 1950 to 1959, 31.3% from 1960 to 1969, and 38.1% since 1969. The median year of graduation was 1966. (Table 4.5)



Table 4.5		
Year of graduation in medicine		
Years	Number	Percent
1935-39	4	0.8
1940-44	13	2.6
1945-49	20	4.0
1950-54	46	9.1
1955-59	61	12.0
1960-64	61	12.0
1965-69	98	19.3
1970-74	146	28.7
1975 +	48	9.4
No reply	11	2.2
Totals	508	100.1

The school of graduation for 138 (27.2%) of the respondents was the University of British Columbia. 45 (8.9%) had graduated from the University of Alberta, and 163 (32.1%) from twelve other Canadian medical schools. 100 (19.7%) were from the United Kingdom. The remaining 42 (8.3%) who replied had graduated in the United States of America, the Antipodes, or a country in continental Europe, Asia, or Africa (Appendix 11).

The length of time in practice ranged from less than 1 year to 42 years, with up to 35 years in the same practice. The median length of time in practice was 10 years, with 6 years in the same practice. 120 (23.6%) had been in the same practice for over 10 years (Table 4.6).

Practice size varied from 1 to 40 practitioners, including specialists. The largest group included 22 general practitioners. 153 (30.1%) of respondents were in solo practice, 72 (14.2%) were in two-physician practices, and 168 (33.1%) in groups with 3 to 5 general practitioners (Table 4.7).

Table 4.6  
Length of time in practice  
for 508 general practitioners responding to survey

Years in practice	Total time		In present practice	
	Number	Percent	Number	Percent
1 year or less	27	5.3	64	12.6
2-5 years	130	26.7	173	34.1
6-10 years	120	23.6	102	20.0
11-15 years	58	11.6	45	8.9
16-20 years	76	15.1	46	9.2
21-25 years	37	7.3	13	2.6
26-30 years	26	5.2	10	2.0
31-35 years	9	1.8	6	1.2
36-40 years	4	0.8	-	-
42 years	1	0.2	-	-
No reply	20	3.9	49	9.6

Table 4.7					
Size of practice of 508 physicians answering questionnaire					
Total physicians			General practitioners		
Number in practice	Number of practices	%	Number in practice	Number of practices	%
1	153	30.1	1	153	30.1
2	70	13.8	2	72	14.2
3	59	11.6	3	60	11.8
4	56	11.0	4	61	12.0
5	46	9.1	5	47	9.3
6-10	64	12.6	6-10	67	13.2
11-15	12	2.4	11-15	8	1.6
16-20	8	1.6	16-20	3	0.6
30	3	0.6	22	2	0.4
40	2	0.4			
No reply	35	6.9	No reply	35	6.9

Membership in the College of Family Physicians of Canada, as listed in the current register at the British Columbia Chapter office, was maintained by 165 (32.5%) of respondents (Table 4.8), of which 95 (57%) were certificants. This response by 165 members represented 39% of the 423 current membership.

Table 4.8  
Distribution of respondents by Membership in  
College of Family Practitioners of Canada

Status	Member		Non-member		Previous member		Unable to identify	
	No.	%	No.	%	No.	%	No.	%
Member	165	32.5	288	56.7	9	1.8	46	9.1
Certificant	95	18.7	366	72.0	1	0.2	46	9.1

Summary of general practitioner response. Response to the survey came from a wide variety of practitioners, representing all age groups, all areas in British Columbia, many different medical schools, urban and rural practices, and solo and group practices. A better-than-average response came from members of the College of Family Physicians of Canada. Most were willing to be identified, as fewer than 10% chose to remain anonymous.

#### 4.2.2. Characteristics of patients surveyed, and their general practitioners.

Age was reported by 99.0% of patients responding, with 22.4% under 25 years, 39.5% in the 25-44 year range, 23.4% in the 45-64 year range, and 13.8% over 64 years. (Table 4.9)

Table 4.9 Age groups of patients surveyed		
Age group	No.	%
Under 25	68	22.4
25-54	120	39.5
45-64	71	23.4
65 and over	42	13.8
No reply	3	1.0
Total	304	100.1

Sex distribution was predominantly female (68.8%), with a female/male ratio of 2.38/1. (Table 4.10)

Table 4.10 Sex of patients surveyed		
Sex	No.	%
Female	209	68.8
Male	88	28.9
Not specified	7	2.3
Total	304	100.0

The reason for visiting the doctor, as reported by all but one patient, was for a consultation for him/herself (85.2%) while 14.5% were there only to bring someone else. Another 14 patients (4.6%) who were there on their own behalf also brought someone else. Of the respondents 85.9% considered them-

selves as regular patients, while 13.2% did not. (Table 4.11)

Table 4.11						
Reason for visit, for patients surveyed						
Reason given	Yes		No		No reply	
	No.	%	No.	%	No.	%
Visiting for self	259	85.2	44	14.5	1	0.3
Bringing another	58	19.1	227	74.7	19	6.3
Regular patient	261	85.9	40	13.2	3	1.0

The practices in which the patient surveys were conducted included 10 urban, 2 rural, and 3 in rural-urban areas. Three of the general practitioners were in solo practice, two in groups of 3, eight in groups of 4, and one in a group of 10. One, in practice for one year, was doing locums which is substituting for other physicians.

Age-groups of the physicians participating in the patient survey included 5 under the age of 35, 6 in the 35-44 year range, 3 in the 45-54 year range, and one over the age of 54. (Table 4.12)

Table 4.12					
Age groups of participating general practitioners					
Age group	G.P. survey		Patient survey		
	No.	%	No.	%	
Under 35	217	42.7	5	33.3	
35-44	142	28.0	6	40.0	
45-54	90	17.7	3	20.0	
55 and over	45	8.9	1	6.7	
Not stated	14	2.8			

Of the 15 participating general practitioners, 9 were members of the

College of Family Physicians of Canada, and 6 were certificants. These 9 represented 90% of the 10 who received requests. Among non-college members there were 12 requests resulting in 6 participants (50%).

Summary of patient response. A random sample of general practitioners agreed to submit the survey questionnaire to a random sample of their patients, and 15 returned the completed questionnaires. The sample of physicians represented all age groups, urban-rural settings, solo and group practices, and both members and non-members of the College of Family Physicians of Canada. Patients cooperated well in providing demographic data as well as answers to the survey questions. All adult age groups were represented, and the female/male ratio was 2.38/1. Most were regular patients, visiting for their own problems, but some were bringing others as patients.

### 4.3. Responses to questions in the survey

Replies to the questions are shown in frequency tables arranged in the order of the subquestions of the thesis, as outlined in Chapter 3, rather than in the order in which they appear in the questionnaires.

4.3.1. Opinions about the desirability of research activity by general practitioners were shown by replies in the questionnaires to general practitioners and to patients.

#### Could research by general practitioners be beneficial for knowledge?

In response to question 1, asking whether research in general practice could provide new knowledge which would otherwise not be available, 89.2% of general practitioners said "yes" and 5.7% said "no". (Table 4.13)

Table 4.13		
"Do you think that research in family/general practice can provide new knowledge which would otherwise not be available?"		
Reply	Number	Percent
Yes	453	89.2
No	29	5.7
Questionable	3	0.6
No reply	23	4.5
Total	508	100.0

To a similar question, asking if it is a good idea for general practitioners to be involved in research studies related to their work, 93.1% of patients said "yes" and 3.3% said "no". (Table 4.14)

Table 4.14		
"Do you think that it is a good idea for general practitioners to be involved in research studies related to their work?"		
Reply	Number	Percent
Yes	283	93.1
No	10	3.3
Doubtful	1	0.3
No reply	10	3.3
Total	304	100.0

In response to the request for specific suggestions about topics considered for study, or having a high priority (Question 2), a total of 896 topics or areas were given by 347 (68.3%) of the general practitioners, and 192 were given by 120 (39.5%) of the patients. The suggestions most frequently given by general practitioners were treatments of various kinds (39), nutrition (37), hypertension (36), nervous and mental disease (35), preventive medicine (35), and delivery of care (28). Most frequent suggestions by patients were cancer (27), heart disease (17), nervous and mental disease (17), nutrition (14), and preventive medicine (12). These and other replies are listed in Appendix 12.

Three or more topics were suggested by each of 231 (45.5%) of the general practitioners, while 76 (15.0%) suggested 2 each, and 40 (7.9%) suggested one. A maximum of three topics per respondent could be analyzed, so that eleven suggestions were not included. Of the 120 patients with suggestions, 19 (6.2%) had three, 53 (17.4%) had 2, and 48 (15.8%) had one. (Table 4.15)



Table 4.15  
Number of topics suggested as suitable for research  
by general practitioners and patients

Number of topics per respondent	G.P. Respondents		Total # of topics		Patient Respondents		Total # of topics	
	No.	%	No.	%	No.	%	No.	%
1	40	7.9	40	4.5	48	15.8	48	22.7
2	76	15.0	152	17.0	53	17.4	106	50.2
3	221	43.5	663	74.0	19	6.2	57	27.0
4	9	1.8	36	4.0	-		-	
5	1	0.2	5	0.5	-		-	
0	161	31.7	-		184	60.5	-	
Total response	347	68.3	896	100.0	120	39.5	211	99.9

Incentives to participate in research included curiosity and the contribution to knowledge (Questions 7.1, 7.2). General practitioners rated the contribution to knowledge as a very important (47.2%) or important (42.1%) incentive, while 8.1% thought it was not important. Curiosity was said to be very important by 42.5%, important by 45.7%, and not important by 8.9% (Table 4.16).

Table 4.16  
"How important are the following factors in encouraging  
participation in research projects?"

FACTOR	Rating by 508 general practitioners							
	Very important		Important		Not important		No reply	
	No.	%	No.	%	No.	%	No.	%
Contribution to knowledge	240	47.2	214	42.1	41	8.1	13	2.6
Curiosity	216	42.5	232	45.7	45	8.9	15	3.0

Could research by general practitioners be beneficial for the practice?

Sections of the general practitioner's questionnaire related to this question dealt with expected effects on the practice, for better or worse, resulting from conduct of or participation in research by the general practitioner.

Factors which might be improved were thought to be physician satisfaction (69.3%), patient records (68.7%), patient care (68.5%), and office records (62.2%). Some thought that these factors would be worse (2.2%, 2.8%, 1.2%, and 9.3% respectively), and some thought that they would remain the same (23.8%, 23.8%, 25.6%, and 23.6% respectively). (Questions 5.13, 5.7, 5.8, and 5.9)

The greatest adverse effect was expected to be on leisure time, with 62.6% thinking it would be worse, 23.0% the same, and 10% better. The effect on income was expected to be worse by 48.6%, the same by 39.4%, and better by 7.5%. (Questions 5.5 and 5.4)

Office management could be better as a result of research activity according to 41.3%, while 36.6% said it could be the same, and 16.1% thought it could be worse. (Question 5.6)

Patient satisfaction was expected to improve by 40.7%, to remain the same by 47.0%, and to become worse by 4.9%. (Question 5.10) (Table 4.17)

Other factors related to the practice which could encourage participation in research were also rated by the general practitioners. Improving patient care was rated as very important by 46.3%, important by 42.1%, and unimportant by 8.7%. Adding interest to the practice was a very important incentive to 39.8%, important to 48.8%, and not important to 8.1%. (Questions 7.6 and 7.3)

The least incentive was to cooperate with partners, 43.5% thinking it was not important, 36.0% important, and 8.3% very important. Improving office

management was rated as very important by 16.5%, important by 41.1%, and not important by 36.2%. (Questions 7.5 and 7.4). (Table 4.18)

Table 4.17

Factors in the practice which might be affected  
by participation of the general practitioners in research

Factor	Effect							
	Better		Same		Worse		No reply	
	No.	%	No.	%	No.	%	No.	%
Income	38	7.5	200	39.4	247	48.6	23	4.5
Leisure time	51	10.0	117	23.0	318	62.6	22	4.3
Office management	201	41.3	186	36.6	82	16.1	30	5.9
Office records	316	62.2	120	23.6	47	9.3	25	4.9
Patient care	348	68.5	130	25.6	6	1.2	24	4.7
Patient records	349	68.7	121	23.8	14	2.8	24	4.7
Patient satisfaction	207	40.7	239	47.0	25	4.9	37	7.3
Physician satisfaction	352	69.3	121	23.8	11	2.2	24	4.7

Table 4.18

"How important are the following factors in encouraging  
participation in research projects?"

Factor	Rating by 508 general practitioners							
	Very important		Important		Not important		No reply	
	No.	%	No.	%	No.	%	No.	%
Add interest to practice	202	39.8	248	48.8	41	8.1	17	3.3
Cooperate with partners	42	8.3	183	36.0	221	43.5	62	12.2
To improve office management	84	16.5	209	41.1	184	36.2	31	6.1
To improve patient care	235	46.3	214	42.1	44	8.7	15	3.0

Could research by general practitioners be beneficial for society?

Sections of the general practitioner's questionnaire related to this question considered the broader changes which might involve individual patients, but also society as a whole.

Participation in research by general practitioners could have beneficial effects on medical education, according to 85.0% of respondents, while 10.0% said it would be the same, and 0.6% worse. Public education could also improve, according to 72.8%, with 21.5% saying it would remain the same and 1.2% worse. (Questions 5.2 and 5.3)

Benefit to the health care system could be seen by 58.7%, while 32.5% thought it would be unchanged and 2.2% worse. The effect on political decisions was rated as better by 38.6%, worse by 5.1%, and the same by 47.2%. (Questions 5.12 and 5.11)

Reduction in the cost of care was seen as a potential benefit by 43.3% but 19.7% thought the cost would be greater, and 28.7% thought it would remain the same. (Question 5.1) (Table 4.19)

Table 4.19

"In your opinion, what effect might participation in research have on the following factors?"

Factor	Rating by 508 general practitioners							
	Better		Same		Worse		No reply	
	No.	%	No.	%	No.	%	No.	%
Cost of care	220	43.3	146	28.7	100	19.7	42	8.3
Medical education	432	85.0	51	10.0	3	0.6	22	4.3
Public education	370	72.8	109	21.5	6	1.2	23	4.5
Political decisions	196	38.6	240	47.2	26	5.1	46	9.1
The health care system	298	58.7	165	32.5	11	2.2	34	6.7

Incentives to participate in research activity for the benefit of society were seen as important. To improve the health care system was rated as very important by 37.2%, important by 43.5%, and not important by 14.4%.

(Questions 7.7)

To provide an academic base for family practice/general practice was very important for 39.2%, important for 40.9%, and not important for 15.9%.

(Question 7.8) (Table 4.20)

Table 4.20

"How important are the following factors in encouraging participation in research projects?"

FACTOR	Rating by 508 general practitioners							
	Very important		Important		Not important		No reply	
	No.	%	No.	%	No.	%	No.	%
To improve the health care system	189	37.2	221	43.5	73	14.4	25	4.9
To provide an academic base for general practice	199	39.2	208	40.9	81	15.9	20	3.0

Crosstabulations showed that the importance of research to provision of an academic base was rated most highly by those who had been in practice for the longest time. It was considered very important by 60.0% of respondents who had been in practice for 26-30 years, and by 53.9% of those in practice for over 30 years. (Table 4.21)

Among those who could be identified as members of the College of Family Physicians of Canada, 47.1% thought it was very important to provide an academic base for general/family practice, compared with 39.7% of non-college members with that opinion. However, 37.9% of college members said it was important, compared with 41.9% of non-members. It was not important to 15.0% of college members, 18.4% of non-members.

Table 4.21  
Importance of academic base as a reason for research

Length of time in practice	Rating by general practitioners							
	Very important		Important		Not important		Total number of G.P.'s	% of Total
	No.	%	No.	%	No.	%		
1-5 years	63	41.2	61	39.9	29	18.9	153	32.5
6-10 years	41	35.3	59	50.9	16	13.8	116	24.6
11-15 years	20	35.7	23	41.1	13	23.2	56	11.9
16-20 years	34	47.2	28	38.9	10	13.9	72	15.3
21-25 years	13	36.1	16	44.4	7	19.4	36	7.6
26-30 years	15	60.0	8	32.0	2	8.0	25	5.3
31 + years	7	53.9	4	30.8	2	15.4	13	2.8
Totals	193	41.0	199	42.3	79	16.8	471	100.0
No reply							37	

4.3.2. Opinions about the feasibility of research by general practitioners were related to the conditions imposed by the research process, with its requirements for time, space, and money, as well as the abilities of the general practitioner and his colleagues and staff in the office, and the cooperation of patients, expressed as responses to the questions to general practitioners and to patients.

Could the conditions imposed by research activity be acceptable for the general practitioners?

Questions were related to the degree of interest in research and to the factors which would make it difficult for the general practitioner to do research.

Major deterrents were heavy workload and lack of time. The heavy workload was a very important factor to 59.6%, important to 31.5%, and not important to 5.5% of those returning the questionnaires, while 3.3% did not

reply. Lack of time was considered very important by 58.7%, important by 30.3%, and not important by 7.7%. (Questions 6.5 and 6.10)

Other deterrent factors were considered important, but less so than the two mentioned above. Inadequate training was very important for 28.5%, important for 46.5%, and not important for 20.5%. Lack of awareness of potential was very important to 23.0%, important to 49.0%, and not important to 23.4%. Lack of interest was considered very important by 26.8%, important by 39.4%, and not important by 28.3%. (Questions 6.7, 6.8, and 6.9)

The factor rated as least important as a deterrent was "not being convinced of the value of research", which was very important to 16.5%, important to 34.6%, and not important to 42.9% of those who answered. (Question 6.11) (Table 4.22)

Table 4.22

Factors considered by 508 general practitioners  
to discourage their participation in research projects

Deterrent factors	Rating							
	Very important		Important		Not important		No reply	
	No.	%	No.	%	No.	%	No.	%
Heavy workload	303	59.6	160	31.5	28	5.5	17	3.3
Inadequate training	145	28.5	236	46.5	104	20.5	23	4.5
Lack of awareness of potential	117	23.0	249	49.0	119	23.4	23	4.5
Lack of interest	136	26.8	200	39.4	144	28.3	28	5.5
Lack of time	298	58.7	154	30.3	39	7.7	17	3.3
Not convinced of its value	84	16.5	176	34.6	218	42.9	30	5.9

Of those who found that the heavy workload was a major deterrent, there was some variation among BCMA districts. In no district was there a strong feeling that the workload was not a deterrent, and in all but one there were

more than half who stated that the workload was a very important deterrent. In all but two districts, over 90% (a range from 90.6% to 95.0%) of those who answered the question, rated workload as an important or very important deterrent. In those two districts, the ratings were 78.9% and 80.0%.

(Appendix 13)

Interest in possible research projects was shown by many of the respondents, (Appendix 14). The most favourable responses were in the area of clinical studies, in which 83.3% were interested or very interested, and in the on-going evaluation of treatment with 81.1% interested. The least interest was shown in laboratory studies (34.6%), time and motion studies (43.1%), drug studies (50.2%), and economic studies (51.4%).

Between the top and bottom groups, several areas of research activity were indicated by over 60% of respondents as "very interested" or "interested" - evaluation of medical education (64.4%), individual studies (63.6%), and epidemiological studies (61.9%). Three other research areas received less than 60% expression of interest - workload studies (56.5%), setting up practice records (55.9%), and group studies (53.3%).

To test the uniformity of response among practices of various sizes, crosstabulations were done on several of the research types listed in Appendix 14. There was a relatively uniform response for each type from different sizes of practice. A typical example (Table 4.23) shows the degree of interest in workload studies. The greatest interest was expressed by physicians in smaller practice groups, with 64.3% in groups of 2-5 practitioners interested or very interested, and 61.5% in groups of 6-10. In larger practice groups there was less interest, with a low of 37.5% in groups of 11-15, and 50% in groups over 15 practitioners. The solo practitioners were lowest in the "very interested" category at 13%, but second-highest in the "interested" category at 45.2%.



Table 4.23

Interest in workload studies related to size of practice

Number of G.P.'s in the practice	Degree of interest						Total	% of Total
	Very interested		Interested		Not interested			
	No.	%	No.	%	No.	%		
1	19	13.0	66	45.2	61	41.8	146	32.3
2 - 5	37	16.3	109	48.0	81	35.7	227	50.2
6 - 10	14	21.5	26	40.0	25	38.5	65	14.4
11 - 15	2	25.0	1	12.5	5	62.5	8	1.8
over 15	1	16.7	2	33.3	3	50.0	6	1.3
Total	73	16.2	204	45.1	175	38.7	452	100.0
No reply							56	

Could the conditions imposed by research activity be acceptable for the Patient?

The general practitioners surveyed thought that demands on patients could be deterrent factors, discouraging participation in research. The costs in time, travel, and discomfort for the patient were rated as very important by 23.8%, 20.3%, and 23.6% respectively, important by 43.9%, 43.9%, and 41.4% and not important by 26.6%, 29.3%, and 28.3%. (Table 4.24)

Patients seemed to be less concerned about the cost factors, in their replies to specific questions about willingness to cooperate in research studies. As an example of cost in time, 87.8% were willing to keep a diary with details of health, while 7.9% were not. At a cost in both time and travel, 88.2% were willing to return at monthly intervals for checkups, while 8.6% were not. At the cost of some discomfort, 89.5% were willing to allow a blood sample to be taken, while 7.6% were not. (Table 4.25)

Table 4.24

"How important are the following factors in discouraging participation in research projects?"

Deterrent factors	Rating by general practitioners							
	Very important		Important		Not important		No reply	
	No.	%	No.	%	No.	%	No.	%
Cost to patient - time	121	23.8	223	43.9	135	26.6	29	5.7
Cost to patient - travel	103	20.3	223	43.9	149	29.3	33	6.5
Cost to patient - discomfort	120	23.6	209	41.4	144	28.3	35	6.9
Ethical problems	92	18.1	201	39.6	189	37.2	26	5.1

Table 4.25

Patient response to question #8 - "Would you be willing to help your doctor to do research studies, by cooperating in important details?"

"Important details"	Yes		No		No reply	
	No.	%	No.	%	No.	%
Allowing information to be taken from your medical records, without your name	279	91.8	18	5.9	7	2.3
Keeping a diary about details of your health	267	87.8	24	7.9	13	4.3
Returning at monthly intervals for checkups (e.g., blood pressure checks)	268	88.2	26	8.6	10	3.3
Allowing a blood sample to be taken for testing	272	89.5	23	7.6	9	3.0

As a check on the question about willingness to allow a blood sample to be taken, patients were asked about donations of blood to the Red Cross. Compared with 272 who were willing to have blood tests done, 88 (28.9%) had donated blood. Several others noted that there were medical contraindications to donation.

Ethical problems were seen as very important deterrent factors by 18.1% of general practitioners, and important factors by 39.6%, while 37.2% thought they were not important. Experience of a breach in confidentiality was reported by 13 physicians (2.6%), but details provided were inadequate for evaluating the details of reports. (Question 6.4) (Table 4.26)

Table 4.26		
"Have you or any of your patients experienced a breach of confidentiality in a research project?"		
Response	Number	Percent
Yes	13	2.6
No	170	33.5
No reply	325	64.0
Total	508	100.1

Informed consent was considered by general practitioners to be most important for new procedures and for clinical trials. For new diagnostic or therapeutic procedures, 84.4% thought it was very important, 8.3% important, and 2.4% not important. For clinical trials, 78.7% considered it very important, 13.8% important, and 2.6% not important. (Questions 11.5 and 11.8) There was less concern about use of a placebo, in which 51.4% thought that informed consent was very important, 22.6% important, and 17.5% not important. (Appendix 15) (Question 11.12)

General practitioners were concerned also about reporting specific

diagnoses, with names of patients included. Informed consent was very important to 73.4%, important to 16.3%, and not important to 4.9%. (Question 11.11)

There was less concern about patient questionnaires or interviews. For a questionnaire, consent was considered very important by 50.4% of physicians, important by 33.7%, and not important by 11.4%. For interviews, it was considered very important by 52.6%, important by 33.7%, and unimportant by 9.1%. (Questions 11.6 and 11.7)

Providing incidence data from patients was thought to require informed consent by some general practitioners, with 20.7% considering it very important, 23.2% important, and 50.2% not important. The least concern was expressed about specific diagnoses, with patients anonymous, for which 14.2% thought consent was very important, 11.4% important, and 68.9% not important. (Questions 11.9 and 11.10) Patients seemed to be even less concerned about these factors, with 91.8% willing and 5.9% unwilling to have information provided from medical records without using names. (Table 4.25)

Could the conditions imposed by research activity be acceptable for the practice?

Even if the conditions for the general practitioner and for his patients might be acceptable, conditions within the practice might be incompatible with any extra activity required by a research project. The greatest deterrents were considered to be the high office overhead and the office staff being too busy. (Question 6.6) High overhead was thought to be very important by 49.6%, important by 33.5%, and not important by 13.0%. The office staff being too busy was rated as very important by 37.2%, important by 41.5%, and not important by 16.1%. (Question 6.12)

Cooperation of partners was not important for 46.1% of physicians, important for 28.9%, and very important for 11.2%. Lack of space in the office

was not important to 39.4%, important to 34.3%, and very important to 19.7%. (Questions 6.13 and 6.15) (Table 4.27)

Table 4.27

"How important are the following factors in discouraging participation in research projects?"

Deterrent factors	Rating by general practitioner							
	Very important		Important		Not important		No reply	
	No.	%	No.	%	No.	%	No.	%
High office overhead	252	49.6	170	33.5	66	13.0	20	3.9
Office staff too busy	189	37.2	211	41.5	82	16.1	26	5.1
Partners not cooperative	57	11.2	147	28.9	234	46.1	70	13.8
Space inadequate	100	19.7	174	34.3	200	39.4	34	6.7

Could the conditions for the conduct of research be scientifically acceptable?

Conditions considered were the training of the general practitioner in research methods, experience in research projects, suitability of the record system in the office, and the need for resources to help with research.

Training in research methods was reported separately for statistics, epidemiology, and methodology. Few of the 508 respondents indicated that they had received much training at any level, the highest rating being for epidemiology in medical school, for which 15.7% had received much, 76.6% had received some, and 5.1% had received no training. Some had received training in epidemiology during internship, with 1.0% having much training, 26.4% some, and 64.4% none. During residency, 1.4% had received much, 15.6% some, and 50.8% none. Apart from medical training, whether before or after such experience, 4.5% reported much training in epidemiology, 15.0% had some, and 39.4% none. (Questions 3.5 to 3.8) (Table 4.28)

Table 4.28  
Formal training in epidemiology, according to memory of 508 respondents

Place of training	Amount estimated							
	Much		Some		None		No reply	
	No.	%	No.	%	No.	%	No.	%
Medical school	80	15.7	389	76.6	26	5.1	13	2.6
Interneship	5	1.0	134	26.4	327	64.4	42	8.3
Residency	7	1.4	79	15.6	258	50.8	164	32.3
Other	23	4.5	76	15.0	200	39.4	209	41.1

The science of statistics was taught to most medical students, with 6.1% reporting much, 66.7% some, and 24.4% no training. During interneship, 0.8% had much, 15.9% some, and 75.8% no training. Similarly, during residency 1.6% received much, 13.2% some, and 56.3% no training in statistics. Outside of the medical training, 9.1% had received much training in statistics, 18.9% some, and 37.6% none. (Table 4.29) (Questions 3.1 to 3.4)

Table 4.29  
Formal training in statistics, according to memory of 508 respondents

Place of training	Amount estimated							
	Much		Some		None		No reply	
	No.	%	No.	%	No.	%	No.	%
Medical school	31	6.1	339	66.7	124	24.4	14	2.8
Interneship	4	0.8	81	15.9	385	75.8	38	7.5
Residency	8	1.6	67	13.2	286	56.3	147	28.9
Other	46	9.1	96	18.9	191	37.6	175	34.4

Training in methodology received lower scores than epidemiology or statistics. Much training was received in medical school by 7.1%, some by 49.2%, and none by 37.4%. During internship, 2.4% had much, 20.7% some, and 65.2% no training. In residency, 3.7% had much, 12.2% some, and 50.4% no training. Apart from medical training, 6.7% reported much, 11.6% some, and 40.2% no training in methodology. (Questions 3.9 to 3.12) (Table 4.30)

Table 4.30  
Formal training in methodology, according to memory of 508 respondents

Place of training	Amount estimated							
	Much		Some		None		No reply	
	No.	%	No.	%	No.	%	No.	%
Medical school	36	7.1	250	49.2	190	37.4	32	6.3
Internship	12	2.4	105	20.7	331	65.2	60	11.8
Residency	19	3.7	62	12.2	256	50.4	171	33.7
Other	34	6.7	59	11.6	204	40.2	211	41.5

In all three of these areas - epidemiology, statistics, and methodology - most of those who had had no training at any one level indicated some training at another level. Those who had had no training at any level were a much smaller number than the figures in the tables would suggest.

Combining the reports of training at different levels, it was seen that some had received no formal training at any of the levels. Not including those who had not answered the questions, there were 61 (12.0%) with no training in statistics, 12 (2.4%) with no training in epidemiology, and 145 (28.5%) with no training in methodology at any level.

For those who had received some training in research methods during residency, the type of residency was listed (Table 4.31). The residency in Family Practice was the most frequent (8.1%), but the majority of residencies

was in other specialties (20.6%), particularly in medicine and surgery.

Table 4.31  
Residency training reported by the 508 respondents

	First residency specified		Second residency specified	
	Number	Percent	Number	Percent
Family practice	41	8.1	1	0.2
Medicine	37	7.3	1	0.2
Surgery	21	4.1	9	1.8
Pediatrics	12	2.4	1	0.2
Obstetrics and gynecology	11	2.2	2	0.4
Anesthesia	7	1.4	4	0.8
Psychiatry	1	0.2	1	0.2
Orthopedics	0	0	3	0.6
Other	16	3.1	3	0.6
Total	146	28.7	25	4.9

Another level of training which was available to general practitioners in British Columbia was the series of workshops on research methods, sponsored by the College of Family Physicians of Canada. A total of 66 workshops were attended by 53 of the respondents, 11 of whom had been to 2 workshops each, and one of whom had been to 3.

Some experience in research projects was reported in both general and specific terms. To the general question (Q 11-a) "Have you taken part in any research projects?", 225 (44.3%) said yes, 259 (51.0%) said no, and 24 (4.7%) did not reply.

To the more specific question (Q 4) about previous studies, there had been participants in all studies listed, amounting to 476 involvements. Thirty-six (7.1%) had contributed to the 1965 study of the content of practice.



Twenty-three (4.5%) had responded to the 'flu survey in 1969, forty (7.9%) to the survey on nutrition in 1974, and 129 (25.4%) to the multiple sclerosis study in 1977. Forty-eight (9.4%) reported in the influenza surveillance during 1976-78. Drug trials were included by 72 (14.2%), other group studies by 40 (7.9%), and personal studies by 88 (17.3%). (Table 4.32). Of those who mentioned personal studies, six were refresher courses rather than research projects.

Table 4.32		
Participation in previous research studies		
Research study	Number	Percent
Study of content of practice (Postuk, 1965)	36	7.1
<sup>u</sup> Flu survey, 1969 (College of Family Physicians)	23	4.5
Survey on nutrition (Schwartz, 1974)	40	7.9
Influenza surveillance (1976-78)	48	9.4
Prevalence of multiple sclerosis (Vernier, 1977)	129	25.4
Drug trials	72	14.2
Other group studies	40	7.9
<sup>o</sup> Personal studies	88	17.3

The suitability of the office record system was considered to be a very important deterrent factor by 19.7% of the respondents, important by 37.4%, and not important by 35.4%, (Question 6.14). The need for help (Question 10) was seen in all phases of planning a research project, especially advice on planning, which was specified by 75.6%, and help in processing results, needed by 75.8%. Advice on feasibility was needed by 70.7%, financial help and technical help both by 62.4%, and other expert consultation by 53.3%. The least need for help was seen for writing a report, for which 31.3% did not need

help and 52.6% did. Secretarial help was needed by 58.5%, and not needed by 24.0%. There was relatively little need for special facilities, as indicated by 19.3% of respondents. For most of the perceived needs, the source of help was not apparent, being known to only 20.5% of respondents in the category in which the sources were best known, ranging down to 5.7% in the least-known category. (Appendix 16)

Among needs, financial help was listed by 62.4% of general practitioners, but only 12.8% knew where to get such help. The patients, who were asked where money for research should come from, saw the government as the major source, as indicated by 93.4%. Private foundations were chosen by 60.2%, and the public by 51.3%. A minority of 15.8% thought that it should be provided by the doctors. (Table 4.33)

Table 4.33						
Patient response to question #10: "For the support of research, which of the following do you think should provide money?"						
Source of funds	Yes		No		No reply	
	No.	%	No.	%	No.	%
The government (federal, provincial, or local)	284	93.4	11	3.6	9	3.0
Private foundations (e.g., Vancouver, Kellogg, or Rockefeller Foundations)	183	60.2	41	13.5	80	26.3
The public (through donations or bequests)	156	51.3	57	18.8	91	29.9
The doctors	48	15.8	131	43.1	125	41.1

#### Summary of questionnaire surveys (4.2 - 4.2.1. and 4.2.2.).

The idea of general practitioners being involved in research was supported by both the general practitioners and the patients surveyed. The desirability of research was seen by both general practitioners and patients,

who suggested many areas suitable for research. The benefits of research to the general practitioners, patients, and society were considered to be incentives, encouraging research activity. Important among the benefits, were the discovery of new knowledge and the contribution to the academic base of general practice.

The feasibility of research was explored by questions which revealed a variety of training and experience among general practitioners. Collectively, they had been involved in many research projects. They showed an awareness of the problems which might discourage research activity. A need was expressed for help in the conduct of studies, both in advice and in finance.

Patients were willing to cooperate in studies, and felt that the doctors should be given financial support, mainly by governments.

## CHAPTER 5

### DISCUSSION

#### 5.1. Response

The population of general practitioners, when determined from the standard mailing lists, exceeded the actual number of physicians who were providing general practice service to patients. The first step - the elimination of 268 names from the combined list of 2,612 - represented a 10.3% error but still left some who were very likely to be inappropriate. As examples, there were some physicians who had previously been in general practice but who were now known to be in full-time administration; some who were listed with the psychiatric institutions, and were likely to be providing psychiatric services; some who were in full-time post-graduate work. To these were added the 43 who responded with specific details, stating that they were not in general practice, including some who had never been in general practice. Five were returned as undeliverable. Assuming that others who were not in general practice did not bother to respond, the error would be even greater than the known error of  $\frac{(268 + 43 + 5)}{2612} = 12.1\%$ .

For practical purposes in sending out questionnaires to general practitioners, the UBC Active list appeared to provide the best value for the cost of mailing, as 482 of the 508 replies used (94.9%) were in this list. However, such a limitation in this study would have eliminated one teacher of family medicine and several formerly active general practitioners, respondents who were included in the UBC Inactive list. The inaccuracies in the mailing lists might be mainly of academic interest, except for the probability that the UBC lists would be used to provide data on manpower, and to affect policy which might limit placement of new physicians. Using the UBC Active list only,

25 were excluded before the mailing and 25 were excluded because of their responses. This error of 2.3% (50/2180) was a minimum, and could have been much greater in fact.

The opportunity to remain anonymous was taken by 48 of the respondents, providing 9.4% of the replies analyzed. Apart from the answers to the questions, most of the demographic data were available from these replies, partly from area codes on return envelopes, and partly from some on which the doctor's name was stamped on the envelope. The combination of postmark, year and school of graduation, and the UBC register could often be used to identify an individual. It seems that anonymity is hard to achieve, and care must be taken to preserve it when requested.

For the purposes of this study, the main problems arising from the large mailing list were the cost (in time and money) of sending questionnaires, and the slightly lower response rates based on the higher numbers in the denominators. The overall response of 24% was good for a survey of this type where it was anticipated that the level of interest would be relatively low and where the time required to complete the questionnaire was relatively long. The response came from a representative group, considering location and type of practice, year and school of graduation, and practice experience. The best response was from members of the College of Family Physicians of Canada, who provided at least 32.5% of the response, representing 39% of the membership of the British Columbia Chapter of the College. This good response might have reflected greater interest on the part of college members, or greater commitment to contribute to studies of this type. It might also have been because the questionnaires were mailed from and returned to the college office in Vancouver, or because the investigator had been an active college member in the previous two decades.

In choosing the sample of patients to survey, the computer provided a

5% random sample of physicians from the 506 responses available at that time. Although 22 names were selected, 2 were rejected because they were anonymous. From the remaining 20, and replacements, the resulting 75% response rate was considered to be good, and to provide a fair representation of the views of patients. In retrospect, it would have been better to find replacements for the 2 anonymous responses, rather than to reject them. Those who agreed to the direct request for help in the survey of patients provided a good example of the potential of general practitioners, and their willingness to cooperate without any tangible reward. This level of cooperation, in a small study, is similar to that found in larger group studies, such as those by Postuk<sup>34</sup>, Garson<sup>83</sup>, and the Influenza Surveillance Working Party of the College of Family Physicians of Canada<sup>40</sup>. However, acceptance would rarely be automatic but would depend on relevance of the request to the general practitioner's perception of needs, and on the practicality of the study within the office setting.

Cooperation by those who agreed to submit the questionnaire to patients was generally good. Comments which accompanied the returns indicated interest and support, except for one general practitioner who found that the patients were not cooperative. The high response rate in all other practices suggested that attitudes of the office personnel could be responsible for acceptance by patients. The response might have been improved if there had been a personal contact, such as by telephone or visit, but this was impractical. The next best alternative was to make the mail presentation as appealing as possible, and the imposition on the physician's time within reasonable limits. In the five practices where the total number of patients seen in the day was not reported, the average number of questionnaires returned (25.4%) was well above the average number in the other ten practices (17.6%), so that it is likely that the response was nearly complete.

## 5.2. Characteristics of the Respondents

The responding group of general practitioners would be biased, because the first requirement of the survey was for the respondent to have enough interest in research to complete the questionnaire. However, this biased sample did represent a full spectrum of the range in all characteristics which were recorded. Age groups corresponded well with the year of graduation from medical school, and a wide variety of medical schools was represented. Length of time in practice, as well as in the same practice, covered the full range of practice experience. Size of practice also varied, and there were respondents from multi-specialty groups as well as from solo practice and from general practitioner groups of various sizes. There was a relatively large response from members of the College of Family Physicians of Canada, who might reasonably be expected to have more interest in research than non-members would have.

Although the results do not necessarily represent the views of all general practitioners in British Columbia, they do indicate substantial support for research from a wide variety of general practitioners.

The patients, although selected by random methods, would also be a biased group because of their selection from the group of general practitioners who responded. However, all adult age groups were represented, and a variety of locations, from metropolitan Vancouver to small rural districts. The female/male ratio of the respondents was greater than the 3/2 ratio which is often seen in studies of office practice. A large number of patients indicated that they regarded the general practitioners as their regular doctors. This suggested that practices were relatively stable and that patients were willing to cooperate with their own doctors when asked. The sample of patients was probably smaller than would be ideal, but the responses to most questions provided a convincing weight of opinion.

### 5.3. Responses to Questions in the Survey

Most questions were answered by over 90% of the respondents. Most of the exceptions were related to training for research, suggestions for topics, and the need for resources.

#### 5.3.1. Opinions about the desirability of research activity by general practitioners.

##### Could research by general practitioners be beneficial for knowledge?

In response to the general questions about research by general practitioners being beneficial for knowledge, there was an almost unanimous agreement by general practitioners that it could provide new knowledge which would not otherwise be available, and that this possibility gave incentive to take part in projects. Patients surveyed expressed a supporting opinion by 93% that general practitioners should be involved in research related to their work. While the first step of the British Columbia Chapter of the College of Family Physicians, in 1957, had been simply to develop a research committee without any clear direction<sup>11</sup>, this survey of general practitioners in 1978 produced a large number of suggested areas of research, some of which were specific. As incentive, most of the respondents rated curiosity highly and equal to contribution to knowledge.

Responses to the questions related to new knowledge corresponded well with ideas expressed in the survey of literature, and indicated agreement in principle to the involvement of general practitioners. Support from some general practitioners was not surprising, and many more could be added to the examples of Crombie and Pinsent<sup>10</sup>, Pickles<sup>9</sup>, and Livingston<sup>17</sup>. However, the need for information from general practice was seen also by an economist<sup>12</sup>, a pediatrician<sup>13</sup>, and a journal editor<sup>14</sup>, each of whom added weight to the opinions of the general practitioners, and a sociologist, Warner<sup>25</sup>, in his survey of general practitioners in Vancouver, British Columbia.



The first question, asking whether research in general practice could provide new knowledge might be regarded as a motherhood question. However, it was important to establish the agreement on this basic point. The number of topics or areas suggested for study required some thought about priorities. Some of the replies were general but many others were specific and suggested that there had been some previous thought or activity. There were significant differences between patients and doctors in their priorities for research, as well as some agreement. Both groups assigned high priority to topics related to nutrition, nervous and mental disease, and preventive medicine. Patients gave top priority to cancer and heart disease. Cancer was well down the list for general practitioners, but heart disease was quite high and adding hypertension would make it the top choice. Hypertension received only 1 vote from patients, compared with 36 from physicians, and was the best example of divergent views. Other areas in which general practitioner priorities were not shared by patients included infectious diseases, obesity, compliance, economics, hypnosis, epidemiology, sports injuries and alcohol. Some areas in which the patients' suggestions were relatively more numerous were cancer (by 2:1), nutrition, adverse effects of drugs, doctor-patient attitudes, arthritis, and quality of care. Their interest in nutrition is in contrast to their lack of interest in obesity. However, the priorities listed might serve as a guide to predicting patient cooperation in future studies, as well as a guide to potential involvement of general practitioners.

Could research by general practitioners be beneficial for the practice?

Compared with the large majority opinion that research could be beneficial for new knowledge, there was less unanimity in response to questions about benefit to the practice. A smaller majority of about two-thirds of the general practitioners thought that there would be improvements in patient care, patient records, and office records, while very few thought that factors

would be worse. Such improvements might contribute to the expected improvement in physician satisfaction (69%) and to a smaller improvement in patient satisfaction (41%), although the difference in these ratings suggests that improvements would likely be more apparent to the physicians than to the patients.

Patient care was expected to improve by 68% of general practitioners, but 88% still felt that the possibility of such improvement provided important or very important incentive for research. A similar number recognized the incentive to add interest to the practice, which may contribute to the expected improvement in physician satisfaction. These findings correspond with the experience of general practitioners who have done research in their own practices, as learned from personal contact or from reports in the literature. Garson<sup>3</sup> and Collyer<sup>22</sup> described improvement in the provision of care, and opinions were expressed by authorities such as Mackenzie<sup>18</sup>, Eimerl<sup>19</sup>, Wood<sup>21</sup>, and the World Health Organization<sup>20</sup>, that practice would be improved by interest and activity in studying the content and methods of providing care. However, there may be too little appreciation of the possibility of patient care becoming worse, as suggested by only 6 (1.2%) of the respondents. It is too easy to get immersed in the interest and the demands of a research project so that the time and attention needed for patient care might be affected. This risk is especially high in general practice, where there is seldom any provision in the payment system or adjustment of workload to provide the time needed for research.

The possible effect on leisure time was recognized by 63% of respondents, who felt that this would be adversely affected. The effect on working time was also recognized by half of the respondents, who expected that income would drop if research activity were undertaken.

Feelings were equally divided about the question of doing research in

order to cooperate with partners. These feelings are borne out by practice experiences, in which partners or colleagues might participate in research in order to be helpful, but the demands must be within reason and not unduly prolonged. Such cooperation would be reinforced by results that are seen to be of benefit to the practice in any of the ways mentioned.

Could research by general practitioners be beneficial for society?

Potential benefit to society could be seen by most respondents in all of the areas included in the questionnaires. The greatest effect could be on medical education, with public education a close second.

These anticipated effects were likely a major influence on the high rating given to the incentive of providing an academic base for general practice. The need for an academic base was appreciated most by those longest in practice, presumably having had more time in which to become aware of the possibilities of producing new knowledge. This awareness does not necessarily guarantee cooperation in research studies, because of the difficulty in adding new requirements to well-established routines. However, the recognition of the need was equal for members and non-members of the College of Family Physicians of Canada, so that the pleas by Livingston<sup>17</sup> and Stuart-Harris<sup>16</sup> for involvement of practice-based general practitioners could fall on receptive ears in future.

There was relatively little optimism about the impact of general practice research on political decisions, with less than 40% thinking that there would be any benefit. Even this low degree of optimism about the reaction of the political system suggests that some improvement in decisions might be seen, and perhaps another question should have been asked - "Should general practitioner research be encouraged and used as a basis for decisions on policy affecting primary care?"

There was a similar minority opinion that the cost of providing care

would be reduced by the application of research results from general practice. It would seem logical to expect some improvement in costs, if the topics of nutrition, preventive medicine, and health education were to receive more support in studies, as suggested by both patients and doctors. These areas of study could provide better knowledge of ways to maintain good health, so that there would be less need for treatment of illness either in or out of hospital. The implication for health care planning is that it would be wise to provide more resources for prevention of illness, including research, in order to decrease the demand on services for treatment. These ideas would support Doll's<sup>27</sup> emphasis on control of world population growth.

More optimism was shown for the possibility of improvements in the health care system, with almost 60% of general practitioners expecting that improvements would result from participation in research, and 80% rating this as an important incentive for doing research. These views support those of Doll<sup>27</sup>, who advocated research on the provision of medical care, Robertson<sup>31</sup>, who saw the general practitioner's role in evaluation of health care to society, and Rice<sup>26</sup>, who stated that social factors affecting health care should be examined critically. Robertson pointed out the difficulties of measurement, which could be the greatest problem in producing credible results in many of the areas needing study. Planning for the optimum use of health care resources and for setting priorities in new developments would be greatly improved if it was based at least partly on information from research by general practitioners, who provide approximately half of the medical services to society.

#### 5.3.2. Opinions about the feasibility of research by general practitioners.

Could conditions imposed on the general practitioner by research activity be acceptable to the general practitioner?

As reported in the literature, some general practitioners, even in

Canada, have been able to complete projects in spite of the demands of practice. The small number of reports in the Canadian literature from 1950 to 1970, as noted by Livingston<sup>17</sup>, could have been far below the number published, because Index Medicus did not include Canadian Family Physicians in its list of publications. However, during that time even the Canadian Family Physician did not have many studies by general practitioners to publish. Since 1970 there has been an increase in research activity by general practitioners, but the Medlars search from 1972 to 1978 revealed only three studies published in Canadian journals, compared with five listed in 9 months of 1977 in "New Reading for General Practitioners" (Appendix I). The fact remains that some individual general practitioners have found the interest and the time to undertake projects and to publish the results.

Of the respondents to the questionnaire, 88 stated that they had participated in personal studies, but no details about results or publication were requested. Many more had been involved in group studies or surveys. Postuk's morbidity recording was mentioned by 36 respondents, who would represent 2/3 of his recording group of 54 in 1965. If their replies are correct, it would seem that their experience in the survey had stimulated a lasting interest, to give a high response rate in this survey. A similar stimulus might have resulted from some of the other studies in which they had been involved. None of these has appeared to be so demanding as the continuous morbidity recording in Britain<sup>41</sup>, Holland<sup>42</sup>, and Australia<sup>44</sup>, but some of the respondents have used the diagnostic index in their own practices without having the benefit of a central processing service.

Major deterrents to research, heavy workload and lack of time, were not important to only a few of the respondents. This finding corresponds well with experience in practice, where these two factors were most often given as reasons for not getting involved in research. These reasons, to some

extent, might be a socially-acceptable response to which there can be little comeback, in contrast to other reasons (inadequate training, lack of interest, or lack of awareness of potential) which might be reversible by education. The half of the respondents who were not convinced of the value of research by general practitioners might also change their minds some day, as more results from studies are seen to be relevant to their needs. The fact that 43% apparently were convinced of the value of research, or at least accepted the possibility, suggests that many of them might become more active if the other deterrent factors were reduced.

The topics selected most often by the responding general practitioners were clinical, applying to direct patient care. These findings correlated well with the topics volunteered as suitable for study, as listed in Appendix 12. There was relatively less interest in economic studies although over half the respondents did express an interest. Even greater interest might have been expected, because of the prevailing controls by the provincial government on fee increases, and the consequent pressure to work longer and harder.

The high interest level in clinical studies suggested that well-planned group studies related to common problems might be well-received. This was the case with Hebb<sup>39</sup>, in involving half the general practitioners in Nova Scotia, where perinatal morbidity was a frequent concern of most practitioners in the province.

The possibility of getting some enjoyment out of research might encourage more participation, perhaps by regarding research as a hobby. One incentive, not listed in the questionnaire, could be the opportunity to use a computer for analysis of personal studies. Where access to a university computer is available, the SPSS<sup>49</sup> methods could be used. Otherwise, mini-computers for personal use are becoming available at prices within reach, and

they could soon become standard office equipment.

Could conditions imposed on the patient by research activity be acceptable to the patient and the general practitioner?

Although the general practitioners had great concern about time, travel, and discomfort as deterrents to patient participation, the patients were almost all willing to cooperate in studies. This finding coincides with experience in practice, where patients tend to be cooperative when the need for a study is explained to them. It would be less credible if the patient questionnaires had not been confidential, as patients might have provided answers which they thought their doctors wanted. The issue of confidentiality as identified by Donovan<sup>51</sup> and Crombie<sup>52</sup> was important to most general practitioners, who would not identify a patient in studies without obtaining consent. It seems that confidentiality is usually preserved, as there were only 13 reports by general practitioners of a breach in confidentiality. Of those giving details, half were not about patients but were about surveys by medical associations or the university.

Informed consent was considered very important by the general practitioners when patients would be subjected to the risks of new drugs and new procedures, and when patients could be identified. These views supported the principles expressed in the Declaration of Helsinki (Appendix 2).

When patients were anonymous, there was very little concern by patients, but a surprising number of general practitioners thought that informed consent would be necessary. This degree of caution might be a result of experience in practice, where "anonymous" reports can provide enough details to provide positive identification of an individual, especially in a small community. Even in this study, some of the general practitioners who had removed the identifying numbers from their questionnaires could be identified by their responses.

The general practitioners seemed to appreciate the different needs of research, compared with practice, in the use of a placebo. A majority thought that informed consent would be needed if a placebo might be used in a study. In practice, informing the patient about a placebo would probably nullify its effect.

Although no questions were asked about experiences with the computer, the warning raised by Crombie<sup>52</sup> must be heeded. The tremendous amount of information about patients which is being fed into government computers provides great opportunities for misuse. This possibility could influence the cautious physician to reduce the reporting of diagnoses to the minimum level needed to justify payment in the Medicare system. Data supplied for billing purposes is not likely to be adequate for epidemiological or clinical studies.

Responses from patients gave little indication that they had many worries about involvement in research, and it seemed that they accepted the need for it.

Could the conditions imposed on the practice by research activity be acceptable according to the general practitioner?

Space did not seem to be a major problem for most general practitioners, just as Watson<sup>54</sup> and Hope-Simpson<sup>55</sup> managed to find the space needed to carry out their projects. Cost was much more important, with high overhead in the office being given as the major deterrent. There seemed to be a need for more awareness of the prospect of having the government contribute to projects by income tax deduction for the office costs.

Cooperation of partners seemed to be a reasonable expectation, but a much greater problem was the office staff being too busy. Part of the problem with the office staff, perhaps more important but not stated, might be a reluctance



to add a research project to the familiar routines, possibly to the detriment of patient care.

Recording methods in use in the practice were considered to be inadequate by over half the general practitioners responding. There were still over one third who felt that the system was adequate. However, the many examples cited in the literature review indicated that special methods would generally be developed as needed for planned studies or continuing recording systems. The diagnostic index<sup>59</sup> has been used by individuals who wanted to know more details about their practices, as well as by some who kept track in order to contribute to group studies. One aspect of diagnostic recording which is not usually mentioned is the discipline accepted by the physician to arrive at a decision on the diagnosis for each patient, based on the best knowledge available at the time of entry.

The age-sex register<sup>67</sup>, or practice register, has made it possible to calculate rates of incidence and prevalence, allowing comparison among practices. As a basic tool for taking stock, it has been used also for practice management. A fairly small number (14%) of respondents were "very interested" in setting up office records for research participation, but even this number could provide a large nucleus of interest from which to develop a working group.

Could the conditions for the conduct of research be scientifically acceptable?

Training for research did not appear to be a high priority at any level, but at the medical school over 90% of respondents had received much or some training in epidemiology, three-quarters had received training in statistics, and just over half in methodology. Methodology had the highest number (28%) with no training at any level. Looking on the positive side, a large majority of respondents had had some training in research methods, although

the extent of training could not be assessed and could be inadequate for anyone undertaking research. Over 10% had taken advantage of additional training in workshops sponsored by the College of Family Physicians of Canada, directed specifically to the needs and conditions of general practice.

The basic requirements for research, as described by White<sup>72</sup>, have been accepted well by the general practice organizations with a major interest in research, and have been dominant factors in research workshops and in committee activities. The classification of health problems in primary care and the developments of realistic denominators have been the first major priorities, with the definition of terms gaining prominence after the classification was well-established. The survey did not ask opinions about these factors, but did find that a majority (57%) considered that the office record system was inadequate for research. The 35% who did not consider the office record system a deterrent could provide a good nucleus for studies, although some changes in the records would likely be necessary. It would have been appropriate to ask in the survey whether there was a diagnostic index or age-sex register in the practice, and what use was made of them, but the response would likely have been low, and there was a need to limit the number of questions. Perhaps some future studies will find more such registers than were expected.

Support for those general practitioners willing to do research, as advocated by the agencies cited in the literature, was seen as a need by most of the respondents. The general practitioners saw the greatest need for help was in the details of planning and analysis, but also a great need for secretarial and technical assistance, which was about equal to the need for financial assistance. The least need was for special facilities. These perceptions reflect the situation which is often seen, and which is the opposite of the need. Funds can often be obtained more readily for special

equipment than for the personnel to operate it. There seems to be a desire on the part of donors, whether private or government, to see tangible evidence of a grant. However, the greatest need in practice is often for the time and ability of an assistant who can do much of the detailed work. For smaller projects, general practitioners have often prevailed on family members to help, but there are limits to their capacity. The respondents felt most confident (31%) about writing reports, but over half thought that help would be needed, perhaps reflecting the lack of experience in research projects during their medical training.

For all of the perceived needs for help, few of the general practitioner respondents knew where to turn, with one-fifth or fewer indicating that they knew where help was available. The patients had a clear majority, almost unanimous, indicating that financial help should come from governments at all levels. Many (60%) would also expect the private foundations to provide funds for general practice research, and half thought the public should provide funds. Only a few (16%) thought that the doctors should finance their own research. This reaction from patients, who are also voters and taxpayers, should encourage the government to increase its allocation for research, as was recommended by the Task Force in 1970<sup>105</sup>. Ironically, that recommendation was followed by a decline in the money available for research during the 70's.

In spite of the difficulties of obtaining funds, there has been substantial support, as noted in the literature, for many projects. It seems likely that more would have been supported if general practitioners had received more training in the basic research methods which are important in planning projects and grant applications, and if general practitioners, as a group, had established a broad base of credibility. Another important factor has been the emphasis on basic research, maintained by many agencies, whereas

most general practitioners are concerned with research applied to needs seen in the practice.

The surveys of British Columbia general practitioners and their patients have indicated interest and activity in research, in spite of the problems identified. The feasibility of research could be considered as proven by the projects which have been done. The quality of the work may be subject to debate, but it can be expected to improve with increasing support for training and for development of basic methods. The specialized base of literature available from the Canadian Library of Family Medicine<sup>91</sup> and the Family Medicine Literature Index<sup>92</sup> are national projects of benefit to those in British Columbia. Other activities sponsored by the College of Family Physicians of Canada in British Columbia include the research training workshops<sup>99</sup>, formation of a Family Practice Research Unit based at the University of British Columbia, and collaboration with the federal government in a Health Care Evaluation Seminar at Victoria..

The combination of training opportunities for general practitioners, development of a literature base, formation of the Family Practice Research Unit, and the willingness of general practitioners to contribute to group studies in the past, all indicate a climate of increasing acceptance of the challenge for general practice to develop a research base founded on scientific methods.

## CHAPTER 6

## RECOMMENDATIONS

The review of some of the literature related to general practice research, preparation of questionnaires, and the responses to the surveys have combined with ideas collected from contacts with a variety of research workers and from attempts to do research while in practice. Many of the impressions and facts learned in practice have been reinforced by the literature and by the surveys.

Some of the findings have implications for health care planning, both in the distribution and identification of general practitioners, and in the delivery of medical care. The following recommendations include some which arise logically from this study, and some which may be seen as needs which were not dealt with adequately.

1. Mailing lists vs manpower statistics

The many sources of error in the mailing lists, especially that of BCMA, can create false impressions about the number of general practitioners available to provide care to the public. With so much attention being paid to medical manpower, distribution of doctors and access to medical care, it becomes more important to identify the numbers and functions of doctors more clearly. Arbitrary patient/doctor ratios should be adjusted to allow for the age-sex distribution of the patients, the pattern of morbidity, and the need for more doctors and facilities in referral centres.

2. The effect of research on the practice

Assistance should be given to general practitioners who would maintain an age-sex register of patients and who would undertake the recording of their problems by use of a standardized recording system, such as the Diagnostic Index. Assistance could be in the form of small grants to help in the cost of

of equipment and recording or in the provision of a central facility for processing data, which could be coordinated through the Family Practice Research Unit, located at the University of British Columbia. Benefit would accrue to the practice, through more complete information about patients and their problems, and to the body of knowledge about general practice in British Columbia.

### 3. Benefit of research to society in planning for health care

Legislation or policy changes which will affect the provision of care in general practice should be enacted only after appropriate research into the need for change, and should provide for evaluation of results after changes are made. Planning of facilities or services which are intended to provide better health care should include input from the providers and the recipients of care. While the opinions of representatives of each group might be adequate for many questions, some would be better answered by properly-designed and conducted studies.

### 4. Conditions for general practitioners undertaking research

The major deterrents, heavy workload and lack of time, could be relieved by provision for payment for the time of researchers in private general practice. This would be especially important in the case of the principal investigator, who is expected by granting agencies to be paid by an institution for his time, so that the physician in full-time practice will usually find it difficult to be a principal investigator.

### 5. Training for research

Research methods should be taught thoroughly as one of the subject areas in medical schools, and the possibility of requiring a small research project should be considered. Postgraduate training in research methods should be available on a continuing basis, whether as specific courses or as part of the scientific meetings of medical organizations. Family practice residency

programs should include research activity, at least as an elective but preferably as a requirement.

#### 6. Travelling scholars

Encouragement should be given to general practitioners to take courses or sabbaticals to obtain more exposure to research in centres which offer training opportunities. The present support mechanisms through some granting agencies might be available to help, but the levels of support are often too low for a private practitioner, whether general practitioner or specialist, whose income stops when he does. Special consideration should be given for longer absences. One important benefit now available is the British Columbia Education Fund, but the benefits can accumulate for only three years. There should be a capability of accumulating funds for a much longer time, even indefinitely, for the purpose of taking part in a well-organized and recognized training program, meeting a reasonable set of criteria. Such training would not always involve travelling, as the facilities in the Department of Health Care and Epidemiology at the University of British Columbia could provide courses accessible to general practitioners in the lower mainland area, either on a part-time or full-time basis.

Travel should also be supported for bringing outside experts to British Columbia to provide advice and stimulation for general practitioners with an interest in research. Funds now available, such as in the Vancouver Foundation or the British Columbia Medical Research Fund, could be used for this purpose if the priorities are properly determined.

#### 7. Topics for research

While general practitioners should be encouraged to study any researchable question which arouses their curiosity, special incentives should be found for studies in the areas which have been mentioned most by the respondents, both patients and doctors, as being in need of study. These included heart disease,

nutrition, nervous and mental disease, and preventive medicine. Special concerns of patients, such as cancer, should also have priority, as well as the doctors' concerns about the results of various kinds of treatment and about the delivery of health care. The main emphasis in studies should be on the natural history of diseases, especially the early course and the epidemiology.

#### 8. Increasing the awareness of research in general practice

To counteract the deterrent factors identified as important - lack of awareness of potential, lack of interest, and not being convinced of the value of research - there should be greater opportunity and encouragement for general practitioners to present results of their studies at scientific sessions of medical organizations, including the specialty sections.

#### 9. Development of resources to help general practitioners in research activities

There was a surprising lack of awareness among the general practitioners about the resources available to help in the development of research projects. Communication should be improved between the resource centres, mainly the universities, and general practitioners in the community, who may be represented well by the College of Family Physicians with its research committee and the Family Practice Research Unit. Representation on committees would be some help in increasing the awareness of resources, but collaboration on research projects and the joint presentation of results would be the best demonstration of the help available. The experts in the university must be able to accept the possibility of a private general practitioner having inadequate training in research methods and perhaps an impatience to get quick results. The general practitioner must learn the need for scientific rigor in studies, and also the need for those in the university to receive suitable acknowledgement of their help, whether through consultant fees or in published reports.



## 10. Financing

As part of the training process, general practitioners should be given some advice on preparing of applications for grants, and on the references available about granting agencies. Applications from general practitioners would have a better chance of being assessed fairly if the advisory committees which judge the projects had at least one member with experience of research in general practice.

To provide more money for research, the federal government should pay heed to the recommendations of its Task Force in 1970 - to increase the amount of money available for medical care research.

## 11. Further studies

It would be of interest to conduct a review of all research publications by general practitioners in British Columbia. This present study has referred to a number of projects, but many other good projects have not been mentioned, and all of these might serve as good examples of the potential for research by general practitioners.

## 12. Research methods in general practice

It has become apparent that there is a need for a guide to (or manual of) research methods appropriate for a Canadian general practice. Such a guide might properly have been included in this thesis, except for the length and complexity of its preparation. It might be a suitable task for the College of Family Physicians of Canada or its research committee.

## 13. Development of policy

Current policy of most granting agencies is to provide funds only for projects. There is a need to support the development of facilities and personnel, as resources available to general practitioners in private practice, for provision and coordination of consultation and processing.

## CONCLUSION

This study was conducted to explore the issues of desirability and feasibility of research by general practitioners in British Columbia. Desirability was defined in terms of benefits for knowledge, for the medical practice, and for society at large. Feasibility was defined in terms of being acceptable for the general practitioners, for the patient, for the practice, and for the requirements of research.

Review of the literature provided many examples of research by general practitioners in various countries, but relatively few from British Columbia. There seemed to be no doubt of the desirability and feasibility of general practice research, judging from the works done, but there was doubt about the degree of acceptance of research as an activity by the general practitioners of British Columbia.

Surveys were done by questionnaires, to general practitioners and to patients, to determine their attitudes towards research by general practitioners. A good response was obtained from both surveys, and both revealed a strong support for the concept of research as a desirable and appropriate activity. Many suggestions were made about specific areas in which research was needed. As well as the potential benefits in new knowledge, other benefits were seen in improvements in the practice and in patient care, improved medical and public education, and improvements in the health care system. There was less optimism that research by general practitioners would have much influence on political decisions. There was agreement among most general practitioners on the need for research to provide an academic base for general practice.

The feasibility of research was considered in terms of the conditions required for its conduct, with the need for receptive attitudes, appropriate

training and experience, adequate facilities, cooperative patients, and availability of resources for advice, help, and finances. In general, attitudes were receptive to the concept of research, as many of the general practitioners had previously been involved in projects. However, major problems were seen as deterrents, especially the heavy workload and lack of time. Training was variable, a few having had no training in research methods, and some having had much. Space was expected to be a problem for many practices, but even greater problems were the high overhead and pressure of work on the staff, making it difficult for the facilities to accommodate research activity. There was not much awareness among the general practitioners about the resources available for help, advice, or financing but most of them were aware of the need for such resources. The inadequacy of the usual office records for research purposes was recognized, so that special methods appropriate for studies would be needed. Patients were prepared to cooperate in studies, even at the cost of some time and inconvenience. They suggested that the cost of research should be borne primarily by governments, and to a lesser extent by foundations and the public.

In considering all the data, it seems logical to conclude that research by general practitioners in British Columbia is desirable, and would be of benefit to knowledge, to the practice of medicine, and to society as a whole. It seems also that such research is feasible, but that there are numerous factors which are deterrents to research, and which are likely to inhibit much of the activity which may be desirable.

Much of the work noted in the literature and many of the responses to the surveys indicate a great potential for research, but the full potential is far from being realized in British Columbia. Some recommendations have been made which could help the general practitioners in British Columbia to come closer to their full potential for research.

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## APPENDIX 1

List of journals containing reports on research studies by general practitioners, as published by the Royal College of General Practitioners in "New Reading for General Practitioners".  
(Quarterly cumulative list, January to September, 1977)

Title of Journal	Number of citations
Journal of the Royal College of General Practitioners	48
Journal of Family Practice	21
The Practitioner	16
British Medical Journal	15
Journal of International Medical Research	8
Medical Education	7
Medical Care	6
Ugeskrift for læger	6
Australian Family Physician	5
Huisarts en Wetenschap	5
Canadian Family Physician	4
Medical Journal of Australia	4
Clinical Trials Journal	3
General Practice International	3
Health Bulletin	3
New Zealand Medical Journal	3
British Journal of Clinical Practice	2
British Journal of Obstetrics and Gynecology	2
British Journal of Social and Preventive Medicine	2
Current Medical Research and Opinion	2
Irish Medical Journal	2
Singapore Family Physician	2
Sociological Review	2
Update	2
Acta Therapeutica	1
Applied Statistics	1
British Heart Journal	1
British Journal of Addiction	1

## Appendix 1 continued (page 2 of 2)

Title of Journal	Number of citations
British Journal of Psychiatry	1
Canadian Medical Association Journal	1
Clinical Science and Molecular Medicine	1
Community Health	1
Elan	1
Journal of the American Medical Association	1
Journal of Family Planning Doctors	1
Journal of Hygiene	1
Journal of the Irish Medical Association	1
Journal of Medical Ethics	1
Journal of the North of England Faculty	1
Modern Geriatrics	1
Pharmatherapeutica	1
Postgraduate Medical Journal	1
Psychological Medicine	1
Social Science and Medicine	1
South African Medical Journal	1
Southwest England Faculty News	1
Wessex Faculty News	1
Books and pamphlets	6
Total	202

# Declaration Of Helsinki

WILLIAM FALK, MD

**A**LTHOUGH IT may not be considered as hot news, it is quite likely that this important declaration of principles has escaped the attention of many of our members. Adopted by the 18th World Medical Assembly at Helsinki in 1964, it is a set of recommendations guiding doctors in clinical research. It is pertinent to us now because of our increasing interest and activity in family practice research. We must continually remember that the first consideration is for the patient—research comes next in importance. The National Committee on Research, at its meeting in October, adopted these recommendations as a guide in its work. They are printed here in full, as in the World Medical Journal of September, 1964.

## Recommendations Guiding Doctors In Clinical Research

### Introduction

It is the mission of the doctor to safeguard the health of the people. His knowledge and conscience are dedicated to the fulfilment of this mission.

The Declaration of Geneva of The World Medical Association binds the doctor with the words: "The health of my patient will be my first consideration" and the International Code of Medical Ethics which declares that "Any act, or advice which could weaken physical or mental resistance of a human being may be used only in his interest".

Because it is essential that the results of laboratory experiments be applied to human beings to further scientific knowledge and to help suffering humanity, The World Medical Association has prepared the following recommendations as a guide to each doctor in clinical research. It must be stressed that the standards as drafted are only a guide to physicians all over the world. Doctors are not relieved from criminal, civil, and ethical responsibilities under the laws of their own countries.

In the field of clinical research a fundamental distinction must be recognised between clinical research in which the aim is essentially therapeutic for a patient, and the clinical research, the essential object of which is purely scientific and without thera-

peutic value to the person subjected to the research.

### I. Basic Principles

1. Clinical research must conform to the moral and scientific principles and justify medical research and should be based on laboratory and animal experiments or other scientifically established facts.

2. Clinical research should be conducted only by scientifically qualified persons and under the supervision of a qualified medical man.

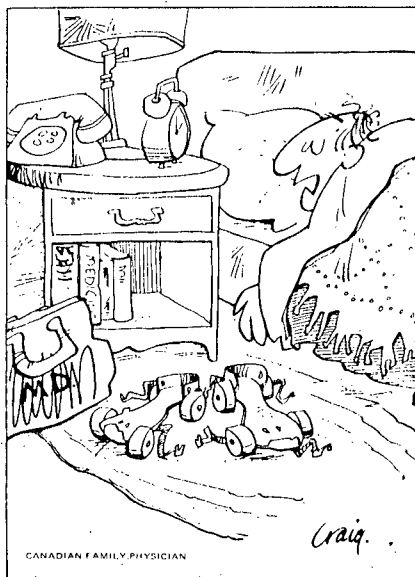
3. Clinical research cannot legitimately be carried out unless the importance of the objective is in proportion to the inherent risk to the subject.

4. Every clinical research project should be preceded by careful assessment of inherent risks in comparison to foreseeable benefits to the subject or to others.

5. Special caution should be exercised by the doctor in performing clinical research in which the personality of the subject is liable to be altered by drugs or experimental procedure.

### II. Clinical Research Combined With Professional Care

1. In the treatment of the sick person, the doctor must be free to use a new therapeutic measure, if in his judgment it offers hope of saving life, re-establishing health, or alleviating suffering.



CANADIAN FAMILY PHYSICIAN

If at all possible, consistent with patient psychology, the doctor should obtain the patient's freely given consent after the patient has been given a full explanation. In case of legal incapacity, consent should also be procured from the legal guardian; in case of physical incapacity the permission of the legal guardian replaces that of the patient.

2. The doctor can combine clinical research with professional care, the objective being the acquisition of new medical knowledge, only to the extent that clinical research is justified by its therapeutic value for the patient.

### III. Non-Therapeutic Clinical Research

1. In the purely scientific application of clinical research carried out on a human being, it is the duty of the doctor to remain the protector of the life and health of that person on whom clinical research is being carried out.

2. The nature, the purpose, and the risk of clinical research must be explained to the subject by the doctor.

3a. Clinical research on a human being cannot be undertaken without his free consent after he has been informed; if he is legally incompetent, the consent of the legal guardian should be procured.

3b. The subject of clinical research should be in such a mental, physical and legal state as to be able to exercise fully his power of choice.

3c. Consent should, as a rule, be obtained in writing. However, the responsibility for clinical research always remains with the research worker; it never falls on the subject even after consent is obtained.

4a. The investigator must respect the right of each individual to safeguard his personal integrity, especially if the subject is in a dependent relationship to the investigator.

4b. At any time during the course of clinical research the subject or his guardian should be free to withdraw permission for research to be continued.

The investigator or the investigating team should discontinue the research if in his or their judgment, it may, if continued, be harmful to the individual.

### CORRECTION

In Dr. H. H. Epstein's article "The Management of Adult Diabetes" (CFP October 1973 p. 69) the first word of line 9, 1st para, should have been "hyperglycemia".

## Appendix 3

Reasons for exclusion from general practitioner mailing list and numbers excluded, according to group on combined list						
STATUS	GROUP*					Total
	1	2	3	4	5	
Specialist	-	74	1	-	-	74
Retired	-	20	3	-	-	23
Public health physician	-	25	4	4	6	39
Interne or resident	-	13	-	-	-	13
Non-resident in B.C.	-	12	-	-	-	12
Previous member	-	5	-	-	-	5
Faculty at U.B.C., specialist	-	5	2	6	2	15
Temporary register	-	3	-	-	-	3
Reasons not clear	-	7	-	2	-	9
Psychiatrist (institutional)	-	3	2	3	5	10
Cancer control agency and research	-	-	2	5	-	7
Children's hospitals	-	-	2	-	-	2
Hospital administration	-	-	1	2	1	4
Workers Compensation Board	-	-	-	2	16	18
Federal government agency	-	-	1	3	5	9
Canadian Armed Forces	-	-	1	3	1	5
Medical Association	-	-	-	1	-	1
Other agencies	-	-	-	3	3	6
Woodlands School	-	-	-	3	1	4
Osteopath	-	-	-	7	-	7
Acupuncture clinic	-	-	-	1	-	1
Hospital department	-	-	6	4	3	11
Occupational medicine	-	-	-	-	6	6
Total	-	164	25	49	49	291

Note: Questionnaires were subsequently mailed to 23 of those excluded, most of whom were working in institutions where some general practitioner care might be needed.

\* Groups:

1. BCMA mailing list + UBC Active list
2. BCMA mailing list only
3. UBC Active list only
4. BCMA mailing list + UBC Inactive list
5. UBC Inactive list only

## INTERVIEW GUIDE (Research potential of G.P.'s)

Introduction:       Comments are confidential, will not be quoted directly  
                      Time is likely to be about half an hour

Desirability:

Beneficial to knowledge

- source of new knowledge
- closer access to information

Beneficial for the practice

- improved medical care
- evaluation methods
- job satisfaction

Beneficial for society

- education
- political decisions
- system of care
- value for money

## APPENDIX 5 (continued)

Feasibility:

Conditions acceptable for the g.p.?

- is he interested?
- is he capable?
- is he willing?
- are facilities available?
- is consultation available?

Conditions acceptable for the patient?

- confidentiality
- medical care
- cost

Conditions acceptable for the practice?

- space
- personnel
- recording methods
- cost
- patient identification

Conditions acceptable for research?

- recording methods
- denominators
- assistance



## APPENDIX 5 (continued)

List of persons consulted during preparation of  
questionnaire for survey of general practitioners,  
and viewpoints

	Consumer Association	Education	Funding agency	General practice	Medical organization	Patient viewpoint	Research
Dr. A.N. Cherkezoff				x	x		
Mrs. J. Curry	x						
Mr. R.H. Davies	x		x			x	
Dr. F. Demanuel		x		x	x		
Dr. J.M. Elwood		x					x
Dr. W.C. Gibson		x					
Dr. P.E. Hoogewerf				x	x		x
Dr. J.A. Hutchinson				x	x		
Dr. N. Kleiber		x				x	
Dr. D.M. Low		x					x
Ms. W. Manning						x	x
Dr. J.H. Milsum		x					x
Mr. P. Nerland		x					
Dr. G. Page		x				x	
Mr. J. Paul					x	x	
Dr. R.K.L. Percival-Smith		x		x			x
Dr. F.N. Rigby				x	x		
Dr. J.M. Robinson		x		x			x
Dr. N. Schwarz		x				x	x
Dr. H.C. Slade		x		x			
Dr. R.D. Spratley		x	x				x
Dr. G. Szasz		x		x			x
Dr. M.C. Vernier		x					x

## APPENDIX 6

## RESEARCH in General Practice/Family Practice

This survey of general/family practitioners in British Columbia is to assess their present levels of interest and experience in research. Your answers will help to show how the resources available to assist researchers in general/family practice can best be used.

<p><b>1. WHAT IS DIFFERENT IN FAMILY/GENERAL PRACTICE?</b> Do you think that research in family/general practice can provide new knowledge which would otherwise not be available? YES( ) NO( )</p>	<p><b>5. PARTICIPATION IN RESEARCH</b> In your opinion, what effect might participation in research have on the following factors? (circle the appropriate x's)</p> <table border="1"> <thead> <tr> <th></th> <th>BETTER</th> <th>SAME</th> <th>WORSE</th> </tr> </thead> <tbody> <tr><td>5.1 Cost of care</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.2 Education -medical</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.3 Education -public</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.4 Income</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.5 Leisure time</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.6 Office management</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.7 Office records</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.8 Patient care</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.9 Patient records</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.10 Patient satisfaction</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.11 Political decisions</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.12 The health care system</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.13 Your satisfaction with work</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>5.14 Other (specify)</td><td>x</td><td>x</td><td>x</td></tr> </tbody> </table>		BETTER	SAME	WORSE	5.1 Cost of care	x	x	x	5.2 Education -medical	x	x	x	5.3 Education -public	x	x	x	5.4 Income	x	x	x	5.5 Leisure time	x	x	x	5.6 Office management	x	x	x	5.7 Office records	x	x	x	5.8 Patient care	x	x	x	5.9 Patient records	x	x	x	5.10 Patient satisfaction	x	x	x	5.11 Political decisions	x	x	x	5.12 The health care system	x	x	x	5.13 Your satisfaction with work	x	x	x	5.14 Other (specify)	x	x	x																																																												
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<p><b>2. LIST THREE SPECIFIC TOPICS</b> which you have thought about studying, or which you consider to have high priority.</p>																																																																																																																									
<p><b>3. TRAINING FOR RESEARCH</b> (a) During your education, what was your exposure to the following subjects? (circle one x on each line)</p> <table border="1"> <thead> <tr> <th></th> <th>MUCH</th> <th>SOME</th> <th>NONE</th> </tr> </thead> <tbody> <tr><td>3.1 Statistics: Medical school</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>3.2 Internship</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>3.3 Residency</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>3.4 Other</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>3.5 Epidemiology: Medical school</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>3.6 Internship</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>3.7 Residency</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>3.8 Other</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>3.9 Methodology: Medical school</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>3.10 Internship</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>3.11 Residency</td><td>x</td><td>x</td><td>x</td></tr> <tr><td>3.12 Other</td><td>x</td><td>x</td><td>x</td></tr> </tbody> </table> <p>(If residency, state type .....)</p> <p>(b) Have you attended any of the following activities sponsored by the College of Family Physicians?</p> <p>3.14 National Workshops on Research YES( ) NO( )</p> <p>3.15 Provincial Workshops on Research YES( ) NO( )</p> <p>3.16 National Health Grant Seminar YES( ) NO( )</p>		MUCH	SOME	NONE	3.1 Statistics: Medical school	x	x	x	3.2 Internship	x	x	x	3.3 Residency	x	x	x	3.4 Other	x	x	x	3.5 Epidemiology: Medical school	x	x	x	3.6 Internship	x	x	x	3.7 Residency	x	x	x	3.8 Other	x	x	x	3.9 Methodology: Medical school	x	x	x	3.10 Internship	x	x	x	3.11 Residency	x	x	x	3.12 Other	x	x	x	<p><b>6. DETERRENTS TO PARTICIPATION IN RESEARCH</b> How important are the following factors in discouraging participation in research projects? (circle one number in each line)</p> <table border="1"> <thead> <tr> <th></th> <th>1 = very important</th> <th>2 = important</th> <th>3 = not important</th> </tr> </thead> <tbody> <tr><td>6.1 Cost to patients - time</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.2 " " " - travel</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.3 " " " - discomfort</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.4 Ethical problems</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.5 Heavy workload</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.6 High office overhead</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.7 Inadequate training</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.8 Lack of awareness of potential</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.9 Lack of interest</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.10 Lack of time</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.11 Not convinced of its value</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.12 Office staff too busy</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.13 Partners not cooperative</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.14 Record system unsuitable</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.15 Space inadequate in office</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>6.16 Other (specify)</td><td>1</td><td>2</td><td>3</td></tr> </tbody> </table>		1 = very important	2 = important	3 = not important	6.1 Cost to patients - time	1	2	3	6.2 " " " - travel	1	2	3	6.3 " " " - discomfort	1	2	3	6.4 Ethical problems	1	2	3	6.5 Heavy workload	1	2	3	6.6 High office overhead	1	2	3	6.7 Inadequate training	1	2	3	6.8 Lack of awareness of potential	1	2	3	6.9 Lack of interest	1	2	3	6.10 Lack of time	1	2	3	6.11 Not convinced of its value	1	2	3	6.12 Office staff too busy	1	2	3	6.13 Partners not cooperative	1	2	3	6.14 Record system unsuitable	1	2	3	6.15 Space inadequate in office	1	2	3	6.16 Other (specify)	1	2	3
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<p><b>4. EXPERIENCE</b> Have you taken part in any of the following projects in B.C., or studies elsewhere? (check those which apply)</p> <p>4.1 Study of content of practice (Postuk, 1965) ( )</p> <p>4.2 'Flu' survey, 1969 (Coll. of Fam. Phys.) ( )</p> <p>4.3 Survey on Nutrition (Schwartz, 1974) ( )</p> <p>4.4 Influenza Surveillance (1976-78) ( )</p> <p>4.5 Prevalence of Multiple Sclerosis (Vernier '77) ( )</p> <p>4.6 Drug trials ( )</p> <p>4.7 Other group studies (specify) ( )</p> <p>4.8 Personal studies (specify) ( )</p>	<p><b>7. INCENTIVES TO DO RESEARCH</b> How important are the following factors in encouraging participation in research projects? (circle one number in each line)</p> <table border="1"> <thead> <tr> <th></th> <th>1 = very important</th> <th>2 = important</th> <th>3 = not important</th> </tr> </thead> <tbody> <tr><td>7.1 Contribution to knowledge</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>7.2 Curiosity</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>7.3 To add interest to practice</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>7.4 To cooperate with partner(s)</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>7.5 To improve office management</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>7.6 To improve patient care</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>7.7 To improve the health care system</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>7.8 To provide an academic base for family practice/general practice</td><td>1</td><td>2</td><td>3</td></tr> <tr><td>7.9 Other (specify)</td><td>1</td><td>2</td><td>3</td></tr> </tbody> </table>		1 = very important	2 = important	3 = not important	7.1 Contribution to knowledge	1	2	3	7.2 Curiosity	1	2	3	7.3 To add interest to practice	1	2	3	7.4 To cooperate with partner(s)	1	2	3	7.5 To improve office management	1	2	3	7.6 To improve patient care	1	2	3	7.7 To improve the health care system	1	2	3	7.8 To provide an academic base for family practice/general practice	1	2	3	7.9 Other (specify)	1	2	3																																																																																
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## APPENDIX 6 (continued)

## 8. GENERAL INTEREST

How much interest would you have in the following types of research activity, assuming that planning is rational and that projects would be compatible with your practice?

(circle one number on each line) 1 = very interested  
2 = interested  
3 = not interested

- |  |   |   |   |
|--|---|---|---|
| 8.1 Clinical studies   | 1 | 2 | 3 |
| 8.2 Economic studies   | 1 | 2 | 3 |
| 8.3 Epidemiological studies  | 1 | 2 | 3 |
| 8.4 Drug studies - new drug trials   | 1 | 2 | 3 |
| 8.5 Ongoing evaluation of treatment  | 1 | 2 | 3 |
| 8.6 Evaluation of medical education  | 1 | 2 | 3 |
| 8.7 Group studies, with a central recorder to arrange details              | 1 | 2 | 3 |
| 8.8 Individual studies of your practice                                    | 1 | 2 | 3 |
| 8.9 Laboratory studies   | 1 | 2 | 3 |
| 8.10 Setting up practice records to allow easier participation in research | 1 | 2 | 3 |
| 8.11 Time and motion studies   | 1 | 2 | 3 |
| 8.12 Workload studies  | 1 | 2 | 3 |
| 8.13 Other (specify)   | 1 | 2 | 3 |

## 9. SPECIFIC INTEREST

Are you now involved in or actively planning a research project? YES( ) NO( )

## 10. RESOURCES NEEDED

If you were planning to do a research project, would you need any of the following resources? (circle appropriate x's)

	Do you need help?		Do you know where to get help?	
	YES	NO	YES	NO
10.1 Advice on feasibility	x	x	x	x
10.2 Advice on planning	x	x	x	x
10.3 Consultation with expert (specify .....	x	x	x	x
10.4 Financial help	x	x	x	x
10.5 Help in processing results	x	x	x	x
10.6 Help in writing report	x	x	x	x
10.7 Technical help	x	x	x	x
10.8 Secretarial help	x	x	x	x
10.9 Special facilities (specify .....	x	x	x	x
10.10 Other (specify)	x	x	x	x

USE THIS SPACE TO ELABORATE ON YOUR ANSWERS, OR TO ADD FURTHER COMMENTS IF YOU WISH.

## 11. ETHICAL CONSIDERATIONS

(a) Have you taken part in any research projects? YES( ) NO( )

(b) Have you or any of your patients experienced a breach of confidentiality in a research project? If so, please describe below.

(c) How important do you think it is to obtain informed consent from patients, if you are engaged in the following activities?

(circle appropriate numbers) 1 = very important  
2 = important  
3 = not important

- |  |   |   |   |
|--|---|---|---|
| 11.5 A diagnostic or therapeutic procedure to be used is not the customary procedure | 1 | 2 | 3 |
| 11.6 A patient is asked to complete a questionnaire for a research study             | 1 | 2 | 3 |
| 11.7 A patient is interviewed, for a research project                                | 1 | 2 | 3 |
| 11.8 Clinical trials   | 1 | 2 | 3 |
| 11.9 Providing incidence data from patient records                                   | 1 | 2 | 3 |
| 11.10 Reporting specific diagnoses, with patients anonymous                          | 1 | 2 | 3 |
| 11.11 Reporting specific diagnoses, with names of patients                           | 1 | 2 | 3 |
| 11.12 Using a placebo, in treatment  | 1 | 2 | 3 |

## 12. PRACTICE DATA

- 12.1 How long have you been in practice? .....
- 12.2 How long in your present practice? .....
- 12.3 How many doctors are in your practice? ....
- 12.4 How many are family/general practitioners? ....

## 13. PERSONAL DATA

- 13.1 Age group: -35( ) 35-44( ) 45-54( ) 55+( )
- 13.2 Medical school ..... Grad year .....

## 14. IDENTIFICATION

If your address has changed recently, please put your name and new address here.  
If, for any reason, you wish to remain anonymous cut off your identifying M.S.C. number in the lower right corner.

NAME .....

ADDRESS .....

.....

..... Telephone .....

## APPENDIX 7

## ATTITUDES OF PATIENTS TOWARDS RESEARCH IN GENERAL PRACTICE

*Your opinions would be helpful in a study of the desirability and feasibility of research by general practitioners. Your doctor has agreed to let us ask you a few questions, on the understanding that your answers will be confidential and that your participation is voluntary. Do not put your name on this form.*

*This survey is part of a study in the Faculty of Medicine at U.B.C. We hope that it will help to improve health care and education.*

\* \* \* \* \*

*Please indicate your answers by checking the appropriate choices.*

1. Your age: Under 25( ) 25-44( ) 45-64( ) 65 and over( )
2. Your sex: Female( ) Male( )
3. Are you visiting the doctor today for yourself? Yes( ) No( )
4. Have you brought someone else to visit the doctor? Yes( ) No( )
5. Is this your regular doctor? Yes( ) No( )
6. Do you think that it is a good idea for general practitioners to be involved in research studies related to their work? Yes( ) No( )
7. What topics do you think are most in need of study by general practitioners?
8. Would you be willing to help your doctor to do research studies, by cooperating in important details, such as:
  - (a) allowing her/him to provide information from your medical records (without giving your name)? Yes( ) No( )
  - (b) keeping a diary about details of your health? Yes( ) No( )
  - (c) returning at monthly intervals for checkups (e.g., blood pressure check)? Yes( ) No( )
  - (d) allowing a blood sample to be taken for testing? Yes( ) No( )
9. Have you ever donated blood to the Red Cross? Yes( ) No( )
10. For the support of research, which of the following do you think should provide money?
  - (a) The government (federal, provincial, or local) Yes( ) No( )
  - (b) Private foundations (e.g., Vancouver, Kellog, or Rockefeller Foundations) Yes( ) No( )
  - (c) The public (through donations or bequests) Yes( ) No( )
  - (d) The doctors Yes( ) No( )

*Thank you for your help.*

*Please put this form in the envelope, seal it, and return it to the receptionist.*

The General Practitioner's Potential for Research

INSTRUCTIONS FOR ADMINISTERING QUESTIONNAIRES TO PATIENTS

1. On the first ..... on which it can be given, a questionnaire and return envelope are to be given to each patient who visits Dr. .... in the office.
2. Ask patients if they would mind helping in this survey of patient attitudes. If they are uncertain, assure them that their answers will be anonymous, and that they are under no obligation to take part. If they are willing to help, it will be entirely voluntary.
3. Collect the completed questionnaires (in the sealed envelopes) and return them to me in the large, stamped, addressed envelopes.
4. If the day on which the survey was done is different than the one specified above, please state. ....
5. Please note the number of office patients that day who did not complete the form. ....
6. Return this page with the questionnaire, including unused questionnaires.

Many thanks for your cooperation.

## Appendix 10

Responses stating that the physicians were not general practitioners, and reasons given, according to district of the British Columbia Medical Association

Reason for exclusion	BCMA District														Total
	1	2	3	4	6	7	8	9	11	13	14	15			
Doing locums only	-	-	-	-	-	-	-	-	1	-	-	-	1		
Left Canada	-	1	-	-	-	-	-	-	1	-	-	-	2		
No details given	-	-	-	-	-	1	-	-	-	-	-	-	1		
Not in practice	-	-	-	-	-	1	-	-	-	-	-	-	1		
Occupational medicine	-	-	1	1	-	-	-	-	-	-	-	-	2		
Public health	-	-	2	1	-	-	1	-	1	-	-	-	5		
Research	1	-	1	-	-	-	-	-	-	-	-	-	2		
Residency training	-	1	2	-	-	-	1	-	-	-	-	-	4		
Retired general practitioner	1	-	-	-	-	1	-	-	-	-	-	-	2		
Retired, never a G.P.	-	-	1	-	-	-	-	-	-	-	-	-	1		
Specialty:															
Allergy	-	-	1	-	-	-	-	-	-	-	-	-	1		
Anesthesia	-	-	-	-	1	-	-	-	-	1	1	-	3		
Electroencephalography	-	-	1	-	-	-	-	-	-	-	-	-	1		
General surgery	-	-	1	-	-	-	-	-	-	-	-	1	2		
Geriatrics	-	-	-	-	1	-	-	-	-	-	-	-	1		
Obstetrics and Gynecology	-	1	-	-	-	1	-	1	-	-	-	-	3		
Ophthalmology	-	-	1	-	-	-	-	-	-	-	-	-	1		
Orthopedics	-	1	-	-	-	-	-	-	-	-	1	-	2		
Pathology	-	-	-	-	1	-	-	-	-	-	-	-	1		
Pediatrics	-	-	-	-	-	-	-	-	1	1	-	-	2		
Psychiatry	-	-	-	-	2	-	-	-	-	-	-	-	2		
Radiology	-	-	-	-	-	-	1	-	-	-	-	-	1		
Rectal surgery	-	-	-	1	-	-	-	-	-	-	-	-	1		
Workers' Compensation Board	-	-	1	-	-	-	-	-	-	-	-	-	1		
Totals	2	4	12	3	5	4	3	1	4	2	2	1	43		

## Appendix 11

School or country of graduation in medicine  
of 508 general practitioners  
responding to survey

Place of graduation	Number	Percent
Canadian University:		
British Columbia	138	27.2
Alberta	45	8.9
Calgary	3	0.6
Saskatoon	18	3.5
Manitoba	23	4.5
Toronto	35	6.9
Western Ontario	22	4.3
McMaster	5	1.0
Quebec	14	2.8
McGill	26	5.1
Dalhousie	10	2.0
Memorial	3	0.6
Ottawa	3	0.6
Montreal	1	0.2
Country other than Canada:		
United States of America	11	2.2
United Kingdom	100	19.7
Australia and New Zealand	9	1.8
Continental Europe	10	2.0
Other	12	2.4
No reply	17	3.3
Total	508	100.0

## Appendix 12

## Most frequent suggestions for areas needing study by general practitioners

Topic	Suggested by :		Topic	Suggested by :	
	G.P.	Patient		G.P.	Patient
Treatments	39	7	Alcohol	11	1
Nutrition	37	14	Dermatology	11	1
Hypertension	36	1	Respiratory disease	10	3
Nervous & mental dis.	35	17	Allergy	10	2
Preventive medicine	35	12	Peri-natal conditions	10	-
Delivery of care	28	4	Emergencies	9	-
Drugs of choice	22	7	Screening	9	2
Cardio-vascular dis.	22	17	Drug trials	9	-
Pregnancy and delivery	21	3	Immunology	8	-
The aged	21	3	Ear diseases	8	-
Infectious diseases	20	1	Adverse effects, drugs	8	4
Endocrine diseases	19	4	Practice profile	8	-
Obesity	19	1	Dr.-patient attitudes	8	7
Stress	19	3	C.N.S. disease	7	2
Health education	19	5	Urinary problems	7	-
Various specialties	18	1	Medical records	7	1
Family Problems	18	4	Laboratory studies	7	1
Practice management	17	-	Gastro-intestinal	6	1
Compliance	17	1	Abortion	6	-
Birth control	15	3	Musculo-skeletal	6	-
Economics	15	-	Arthritis	6	4
Hypnosis	15	-	Ethnic groups	6	-
Epidemiology	14	-	Quality of care	6	4
Cancer	13	27	Accidents	5	-
Childhood, adolescence	13	3	Adverse, effects, other	5	1
Genital problems	13	1	Occupational problems	5	-
Sports injuries	13	-	Marital problems	5	-
Drug use and abuse	13	1	Hereditary disease	5	-
Back pain	13	1	Chronic diseases	4	1
Demand for care	12	1	Computer use	4	1
Sexual and behavioural problems	11	2	Other	58	13



## Appendix 13

Importance of workload as a deterrent to research								
Rating by general practitioners								
BCMA District	Very Important		Important		Not important		Total	
	No.	%	No.	%	No.	%		
1 Victoria	37	51.4	29	40.3	6	8.3	72	
2 Upper Island	23	62.2	14	37.8	0		37	
3 Vancouver city	68	60.7	37	33.0	7	6.3	112	
4 North Burrard	17	65.4	9	34.6	0		26	
5 Burnaby	5	83.3	1	16.7	0		6	
6 New Westminster	30	66.7	12	26.7	3	6.7	45	
7 Fraser Valley	25	80.6	6	19.4	0		31	
8 Richmond - Delta	13	68.4	5	26.3	1	5.3	10	
9 Prince Rupert	12	66.7	6	33.3	0		18	
10 North Okanagan	13	65.0	6	30.0	1	5.0	20	
11 Cariboo	11	57.9	4	21.1	4	21.1	19	
12 Peace River	5	71.4	2	28.6	0		7	
13 South Okanagan	18	56.3	11	34.4	3	9.4	32	
14 West Kootenays	6	40.0	6	40.0	3	20.0	15	
15 East Kootenays	9	56.3	7	43.8	0		16	
16 Anonymous	11	68.8	5	31.3	0		16	
Total	303	61.7	160	32.6	28	5.7	491	
No reply							17	

## Appendix 14

"How much interest would you have in the following types of research activity, assuming that planning is rational and that projects would be compatible with your practice?"

Type of research activity	Very interested		Interested		Not interested		No reply	
	No.	%	No.	%	No.	%	No.	%
Clinical studies	202	39.8	221	43.5	54	10.6	31	6.1
On-going evaluation of treatment	130	25.6	277	54.5	64	12.6	37	7.3
Evaluation of medical education	103	20.3	224	44.1	143	28.1	38	7.5
Individual studies of your practice	78	15.4	245	48.2	150	29.5	35	6.9
Epidemiological studies	78	15.4	236	46.5	155	30.5	39	7.7
Workload studies	77	15.2	210	41.3	183	36.0	38	7.5
Setting up practice records to allow easier participation in research	70	13.8	214	42.1	185	36.4	39	7.7
Group studies, with a central recorder to arrange details	61	12.0	210	41.3	184	36.2	53	10.4
Economic studies	87	17.1	174	34.3	209	41.1	38	7.5
Drug studies - new drug trials	73	14.4	182	35.8	217	42.7	36	7.1
Time and motion studies	58	11.4	162	31.9	240	47.2	48	9.4
Laboratory studies	31	6.1	145	28.5	287	56.5	45	8.9

Appendix 15

Importance of informed consent by patients, as perceived by 508 responding general practitioners									
Activity	Opinion								
	Very important		Important		Not important		No reply		
	No.	%	No.	%	No.	%	No.	%	
A diagnostic or therapeutic procedure to be used is not the customary procedure	429	84.4	42	8.3	12	2.4	25	4.9	
A patient is asked to complete a questionnaire for a research study	256	50.4	171	33.7	58	11.4	23	4.5	
A patient is interviewed for a research project	267	52.6	171	33.7	46	9.1	24	4.7	
Clinical trials	400	78.7	70	13.8	13	2.6	25	4.9	
Providing incidence data from patient records	105	20.7	118	23.2	255	50.2	30	5.9	
Reporting specific diagnoses, with patients anonymous	72	14.2	58	11.4	350	68.9	28	5.5	
Reporting specific diagnoses, with names of patients	373	73.4	83	16.3	25	4.9	27	5.3	
Using a placebo in treatment	261	51.4	115	22.6	89	17.5	43	8.5	

# Appendix 16

Resources needed for undertaking a research project,  
as perceived by the 508 general practitioners who responded to survey

Resource	Help needed?						Source of help known?					
	Yes		No		No reply		Yes		No		No reply	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Advice on feasibility	359	70.7	73	14.4	76	15.0	89	17.5	287	56.5	132	26.0
Advice on planning	384	75.6	48	9.4	76	15.0	93	18.3	289	56.9	126	24.8
Consultation with expert	271	53.3	71	14.0	166	32.7	104	20.5	202	39.8	202	39.8
Financial help	317	62.4	93	18.3	98	19.3	65	12.8	283	55.7	160	31.5
Help in processing results	385	75.8	47	9.3	76	15.0	92	18.1	291	57.3	125	24.6
Help in writing report	267	52.6	159	31.3	82	16.1	78	15.4	244	48.0	186	36.6
Technical help	317	62.4	91	17.9	100	19.7	72	14.2	247	48.6	189	37.2
Secretarial help	297	58.5	122	24.0	89	17.5	103	20.3	219	43.1	186	36.6
Special facilities	98	19.3	116	22.8	294	57.9	29	5.7	135	26.6	344	67.7

## GLOSSARY

In this study, the following terms are used  
according to these definitions

Denominator: in general practice, describes the practice population, from which incidence and prevalence rates can be calculated.

Family medicine: the body of knowledge relevant to family practice.

Family physician: for the purposes of this study, the same as the general practitioner.

General practice:

- (i) a term used to describe the combination of patients, premises, and staff with which a general practitioner works.
- (ii) a term used to describe the type of work done by general practitioners.

General practitioner: unless there is evidence to the contrary, a physician who is listed as a general practitioner by

- (i) the British Columbia Medical Association, or
- (ii) the combined list of the College of Physicians and Surgeons of British Columbia and the Medical Services Commission

MSC Active physician: one whose billing to the Medical Services Commission exceeds an arbitrary amount (\$15,000 in 1978).

MSC Inactive physician: one whose billing to the Medical Services Commission does not reach an arbitrary amount (\$15,000 in 1978).

Primary care physician: physician of first contact for a problem, without the need for referral from another physician; usually a general practitioner, pediatrician, or internist.

Research: in general practice, research is seldom of the type requiring laboratories or complicated equipment. Areas of relevance are clinical, therapeutic, epidemiological, operational, and educational.

## GLOSSARY (continued)

Abbreviations:

BCMA: British Columbia Medical Association

CFPC: The College of Family Physicians of Canada

CP&S: The College of Physicians and Surgeons of British Columbia

GP: a general practitioner

ICHPPC: International Classification of Health Problems in Primary Care

MSC: Medical Services Commission of British Columbia

NAPCRG: North America Primary Care Research Group

RACGP: Royal Australian College of General Practitioners

RCGP: Royal College of General Practitioners

UBC: University of British Columbia

WCB: Workers Compensation Board

WONCA: World Organization of National Colleges and Academies of General  
Practitioners/Family Physicians and Allied Academic Institutions

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