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THE NOVA SCOTIA MEDICAL JOURNAL

The Role of the Physician in the Changing Health Care System

This issue of the *Journal* contains articles discussing the implementation of or the need for new programs in the health care system of Nova Scotia. All are interesting articles in themselves, and also have something in common. The issues they bring forward would seem to suggest that our part in planning and implementing new programs in this Province leaves much to be desired. They include a home-care program, the emergency services of the Province, and programs to promote both fitness and healthy body weights. Also advocated is a new treatment method for myocardial infarction using thrombolysis. All deserve our positive support and discussion. However, they raise concern about the physician's lack of input in a situation where physicians are still held responsible for the health-care system.

Frank White's paper *The Epidemiology of Weight: Implications for Atlantic Canada* suggests an increased need to promote fitness and healthy body weights. The former Health Minister, Joel Matheson, addressed this recently by announcing a life-style education program for the Province using, among other methods, health educators attached to health units. No one can fault the intent of the program, and it is surely needed and welcomed. However, some consideration regarding the physician's role in influencing life style could have been made.

Does the Minister not realize that every physician in this Province does life-style counselling? Any program should recognize this fact and work with the reality rather than outside it. Support for and cooperation with the educational efforts of physicians might have a greater impact than the proposed separate educational effort. At least some effort toward cooperative pilot projects might help decide which educational program would be more effective.

The article *The Coordinated Home Care Program for Nova Scotia* is another example that leaves us outside looking in. None of the authors of this paper happens to be a physician but it is published here for information that we, as physicians, should have and unfortunately may not get in any other way. It may be true that we tend to magnify our own importance in the lives of our patients. However, coordination of the medical aspects of home care requires more than the addendum to the whole plan entitled *Role of the Family Physician.* The law still makes physicians ultimately responsible for the care and treatment given the patient, whether at home or in any other location. This document states that we will be "an active and critical participant". (Well, thank you very much!) We might not manage the health care system, but physicians still manage patients. If the home care program intends to change the model of health care provision, it is difficult not to be critical and even insulted.

And once again the self-serving, greedy doctor is left to remind their administrators that we expect to be paid for our "assessments", "consultations", "handling", "written status report", "communicating patient information", and "liaison work". This is another reminder that the fee for service system does not lend itself to education or comprehensive programs.

The excellent paper *Thrombolysis and Myocardial Infarction* by Chandler and Henderson gives us much needed information, but does not answer some underlying questions. Will a physician be free to choose the best treatment or will budgetary restrictions imposed by the administrators insist that we choose the cheapest treatment rather than the best? The cost differences between the two treatment methods advocated in this paper once again shows how important it is for physicians to have a role in budgetary considerations — a role that is lacking in many hospitals in this Province.

The article *Scoring to Measure Trauma Care: How Does Nova Scotia Compare?* by Milne and Dauphinee, again makes a case concerning an effective emergency medical services system. Those two authors seek to "Provide evidence needed to convince health care administrators that prehospital care is inadequate in Nova Scotia". While evidence is necessary, one is left to hope for suitable cooperation and consultation.

The Right Reverend G. Russell Hatton of the Royal Commission on Health Care has said, "Developing a comprehensive plan to manage health care resources is imperative". As we discuss new programs and health care needs, let us hope that the physicians of Nova Scotia play a more significant part in that comprehensive management plan.

J.F. O'C.

Suicide Patterns in Halifax County (Nova Scotia) and Some General Observations

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A study of suicidal behaviour in Halifax County was carried out from 1976 to 1986 inclusive, using data from the medical examiner, Statistics Canada, hospital records and, where possible, from relatives. A careful review of the process of certification of suicide suggested that this was unbiased. The possibility of errors in the process is reviewed. The annual suicide rate — approximately 12 per 100,000 — has not increased during the past eleven years, and it is particularly noteworthy that there has been no increase in the adolescent group. A study of the group who attempted suicide with apparently lethal intent and who survived is described. There is a strong impression from the review of hundreds of cases of suicide that almost all were not preventable, contrary to the peculiar optimism frequently expressed in the literature. This optimism appears based on the fallacious and simplistic idea that most suicides are due to depressive illness which could respond to treatment. Notwithstanding the massive increase in the suicide literature, the basic motivation is still not clearly understood.

The Halifax County Suicide Project conducts the only ongoing research in suicide in Atlantic Canada, with monitoring of statistics of suicidal behaviour and comparisons with data from elsewhere, primarily in Canada. The scope of suicide is vast, and we had limited facilities for collecting and computerizing data. However, a very good rapport with the medical examiner allowed examination in detail of the accuracy of local suicide statistics. The senior author was a member of the Canadian Task Force on Suicide and so had familiarity with the Canadian scene.

Because of very limited resources, we chose to concentrate on certain aspects of suicide: 1) an examination of how deaths from suicide were declared and how the data are entered on official suicide statistical reports; 2) the examination of statistical trends to check rate changes in Halifax County, particularly in adolescents; 3) an examination of suicide attempts to assess lethality of intent and a comparison of attempts with high lethality with other attempts; 4) the assessment of preventability by review of individual cases and an evaluation of the current state of suicide prevention; and 5) the significance of diagnosis with particular reference to depression and personality disorder in the etiology of suicide.

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LITERATURE REVIEW

Suicide in Canada (Task Force Report) describes problems in data collection and certification of suicide and recommends that each province work toward the development of a classification system so that sound and consistent results can be obtained and accurate comparisons made between different areas.[1] This report also describes errors that can be made by biased coroners.

Detailed data from Metropolitan Toronto, available from publications by the Chief Coroner's office and written communications, revealed an interesting and serious error that was corrected recently after six years of work.[2] Statistics Canada figures frequently included information from death certificates which showed the cause of death as accidental or undetermined. These were not amended to link up with the coroner's updated data based on more information — for example, results from the toxicology laboratory — causing errors of up to 20%. The chief clerk suggested that this problem also might occur elsewhere in Canada.

Pfeffer[3], Eisenberg[4], Minde[5], and many others have described data indicating an alarming increase in the suicide rate of adolescents and a concern that this will continue. Eisenberg[4] uses data from 1950 to 1979, and Pfeffer[3] also uses data that are not updated. In addition, using the cohort-specific rate hypothesis, Eisenberg was even more concerned about the "ominous expectation that suicide rates will be higher in the decades ahead for today's adolescents and young adults as they grow older".[4]

There is an extensive and contradictory literature on the classification of suicide attempts and their relationship to suicide. Much of the literature speaks of attempts as one group, which is contrary to clinical experience. Data from Katschnig *et al* clearly designates at least two groups with very different prognoses and designated one group as "failed suicides cluster", where suicide was intended.[6] This corresponds closely to our group of "attempts with lethal intent".

The increasing literature on suicide prevention is massive, covering aspects of social determinants, biological factors, risk assessment, help lines, etc. It is over-optimistic and often impractical. However, the

literature on case specific prevention by post-mortem assessment of each suicide is almost non-existent, presumably because of the danger of admitting error and, thereby, inviting criticism or legal suit.

Murphy stressed the extreme difficulty in predicting a relatively rare event like suicide when compared with a large number of people who have suicidal ideation, which is a major factor in the difficulty of risk assessment.[7]

Roy[8] and Sainsbury[9] are prominent among the many writers who, even in the most recent literature, still talk of suicide as largely preventable, stressing the logic that since most occur in depressive illness, which is a treatable condition, suicide should be preventable. However, many writers are skeptical about this kind of reasoning. Hirsch has stressed that the clinician's outlook, as distinguished from the researcher's, is more pessimistic.[10]

Hirsch, in an assessment of volunteer-staffed suicide prevention centres, noted that there is a very cautious attitude about suicide prevention and that it is generally accepted that such centres are very useful for certain kinds of crisis intervention, but no evidence that such centres lower the suicide rate.[11]

The three major studies by Barraclough *et al*[12], Dorpat[13], and Robins *et al*[14], are the most quoted in the literature and frequently used to discuss the psychiatric diagnosis of persons who die by suicide. The studies are at least 20 to 30 years old and are outdated with regard to diagnostic criteria used. Subdivisions of depression are insufficiently categorized, and the term "personality disorder" or any equivalent term is not mentioned in Robins' book.

Seager wisely noted that "a diagnosis of depressive disorder (in suicide) begs more questions than the issue of diagnoses in psychiatry.[15] It can almost be taken for granted that someone who commits suicide must feel at the end of their resources, that life has nothing to offer, and that all is hopeless and black". Friedman[16] and Clements[17], along with many others, stressed that borderline and other personality disorders with depression increase the presence of suicidal drive. Seager stated that personaliy disorders, neuroses, or secondary types of affective disorders show a rate of up to 20-fold greater than the general population.[15]

Any literature review in the field of suicide quickly reveals that there is a time lag between current data and publication time. This is often several years and constitutes a problem at times which is serious enough to render the publication invalid.

The data concerning murder/suicide are well summarized by Robins.[18]

METHOD

A. Suicides

Demographic data were obtained from Statistics Canada for the period 1976-1986. Other data were obtained from the Chief Medical Examiner for Nova Scotia. It became clear during the study that the numbers from the Medical Examiner did not agree with those of Statistics Canada because the Medical Examiner classifies cases by place of occurrence and not by place of residence. There was a lesser number of cases of death by suicide by residents of Halifax County living elsewhere. Thus, we were able to obtain information in addition to demographic data from the vast majority, but not all, of cases of residents of Halifax County who died by suicide.

In approximately half the cases, further information was available from hospital data; and in one-quarter, further data were available from relatives, with particular emphasis on the exact sequence of events leading to suicide and past history of psychiatric illness. An attempt was made to contact all relatives, but most would not agree to an interview. A small number of suicide notes and several tapes made before death were available to us and were reviewed in detail.

The criteria for the designation of suicide was reviewed with the Medical Examiner, who uses the Operational Criteria for the Determination of Suicide (OCDS).[19] The sequence of how data on suicides eventually reached Statistics Canada was reviewed, in an attempt to find possible sources of errors — from decision-making to actual statistical tables.

A method to evaluate current trends from suicide statistics was used to assess the data from Halifax County. The number of suicides each year was taken to be a variant in a Poisson process, where the mean value was a rate per 100,000 people. The logarithm of this mean value was taken to be a piecewise-linear and continuous function of time. Using data available from Statistics Canada from 1953 to 1986, one can assess, by this technique, when significant rate changes have occurred (Figure 1). The same type of graph for teenage suicide is used in Figure 2.

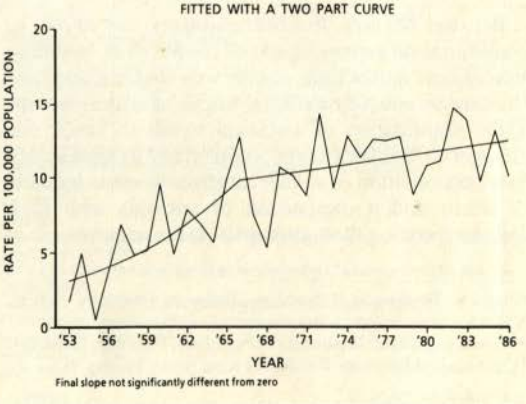

Fig. 1 Halifax County Suicides, 1953-1986, Total Population

A review of data on suicides which occurred from 1984 to 1986, inclusive, was done to assess case specific prevention. In 59 cases, of a total of 86, it was considered that there were sufficient data to warrant an opinion regarding preventability. The criteria used for assessment of the work of professional personnel involved with the suicide were those that might be used in a quality assurance committee of a hospital — was there any negligence or poor judgment that might have contributed to the suicide? For relatives, the criterion was: did the relatives behave appropriately and adequately? It was recognized that these were very rough tools to measure a complex problem.

There were insufficient details to make accurate diagnoses according to the Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition (DSM III). Some interesting impressions are described later.

B. Suicide Attempts

Data on attempted suicide in Halifax County have been collected since 1976, but only data from 1979 to 1984 from the emergency rooms of major general hospitals were considered accurate enough to be computerized. Approximate data only are available for other years during which emergency room records were reviewed case by case. (The Research Team was dismayed to find that cases were not computerized by the designation, "suicide attempt.")

For the years 1980, 1981, and 1984 (randomly selected), attempts which might even possibly have any serious intent were selected and studied by the Team with all available data from charts and from the patients — if admitted to hospital — to determine lethality of intent. A clinical decision by three team members was made using the following criteria: 1) the seriousness of the attempt; 2) the patient's clearly stated intent that he wished to die; and 3) behaviour confirming a desire to die. Two independent judges applied Beck's Suicide Intent Scale retrospectively to the hospital records and verbatim accounts. The inter-rater reliability for the S.I.S. was very high (r = .92), and scores on the S.I.S. were significantly correlated with our clinical ratings of lethality (r = .80).

RESULTS

A. Suicides

Table I shows the number of suicides in Halifax County from 1976 to 1986. The population of Halifax County has increased fairly uniformly from 278,531 in 1976 to 306,418 in 1986. The overall rate was approximately 12 per 100,000.

Table II shows the number of suicides in the age 15 to 19 group from 1976 to 1986. The population of this group declined from 27,965 in 1976 to 23,005 in 1986. There was also no increase in the number of suicides in the 20-24 age group. (Many include the years 15-24 to describe the suicide rate in adolescents.)

TABLE I

HALIFAX COUNTY SUICIDES
1976 - 1986

YEAR	NUMBER	POPULATION HALIFAX COUNTY
1976	35	278,531
1977	35	288,450
1978	36	282,369
1979	25	284,287
1980	31	286,206
1981	32	288,126
1982	43	291,784
1983	41	295,443
1984	29	299,101
1985	40	302,760
1986	31	306,418

TABLE II

HALIFAX COUNTY SUICIDES
AGE 15 - 19
1976 - 1986

YEAR	NUMBER	POPULATION HALIFAX COUNTY
1976	5	27,965
1977	4	27,965
1978	1	27,965
1979	2	27,965
1980	2	27,965
1981	3	27,965
1982	4	26,973
1983	1	25,981
1984	3	24,989
1985	1	23,997
1986	4	23,005

Figure 1 shows rates from Statistics Canada from 1953 to 1986, using a Poisson process to assess significance of rate changes. There has been a significant increase in rates between 1953 and 1966 but no significant change since then.

Figure 2 shows a similar graph for the 15 to 19 age group fitted with a single curve. The slope is not significantly different from zero, which means that there is no rate change.

Figure 3 shows the method of suicide in the period 1981 to 1985, with a total of 169 cases. The largest

number was by shooting, with overdose, hanging, and carbon monoxide following in that order.

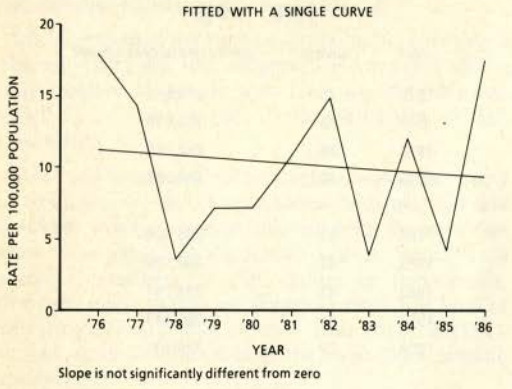

Fig. 2 Halifax County Suicides, Ages 15-19, 1976-1986, Both Sexes

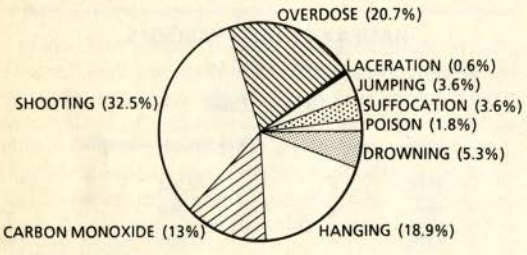

Fig. 3 Halifax County Suicides, 1981-1985, By Method

In the period under study, there was one murder committed by a patient who failed to commit suicide with two attempts. (There was another case in Halifax County in 1987 and one in Hants County in 1988. These invariably aroused intense interest in both the media and general public.)

Of the 59 cases assessed for preventability, two revealed questionable judgment on the part of the physician which may have been a significant factor in the suicide. One suicide may have been related to the unavailability of a hospital bed. The remaining 56 cases were judged to be non-preventable using the standards described above.

In over half the cases, there was evidence of significant depression but often insufficient data to warrant a diagnosis of major affective disorder. In this group and in the remaining cases, there was often evidence of long-standing personality problems and recent serious stressors. Alcoholism was frequent, at times with obvious accompanying depression. Various types of "atypical" depression were common.

B. Suicide Attempts

In the three-year period 1979 to 1981, there was an average of 750 suicide attempts per year seen at the four hospitals in Halifax County with emergency rooms. This is approximately the same as in 1971.[20]

The total number of attempts seen between 1980 and 1984 at the Victoria General Hospital, where most data were available, was 1676. Figure 4 shows the percent of Victoria General Hospital attempts by age groups. Two groups — 20-29 and 30-39 — constituted 63 percent of the total. As expected, the average age is younger than in the suicide group. Only 4.2% of the total attempt group consisted of more than one contact (the highest number was one person with four attempts.) The sex distribution was surprising — 54% female and 46% male (a ratio of 1.2-1). In 1971, in a previous study, a ratio of 1.5-1 occurred.[20] Most studies of attempts show a much higher ratio of female to male. There was no obvious reason for these results.

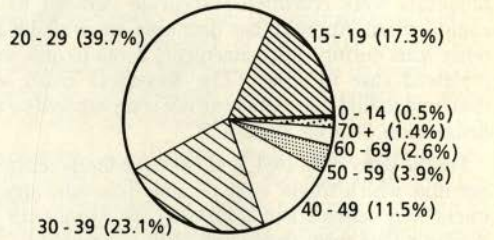

Fig. 4 V.G. Suicide Attempts, 1980-1984, By Age

Patients under the age of 16 go to the Izaak Walton Killam Hospital for Children. There has been no increase in suicide attempts in this group.

In the years of study — 1980, 1981, and 1984 — there were a total of 66 attempts with lethal intent compared to 85 deaths by suicide. Figure 5 shows the method of attempt in this group and is quite different from Figure 3 and also from attempts as a whole. Overdose is by far the commonest method — approximately 70% compared with 21% of suicides. Obviously, the suicide group used more violent and, presumably, more lethal methods. Possible explanations are reviewed in the Discussion. Figure 6 compares the sex distribution, showing a slightly higher percentage of females in the lethal intent group compared with the suicide group.

Detailed description of events just prior to intended death revealed interesting data, often not picked up by the inexperienced resident or medical student. Some patients arranged a suitable atmosphere for their demise by well planned methods. Others acted very impulsively and were, themselves, not clear about their exact intentions. Frequently, the patients themselves and their relatives were greatly surprised by the behaviour.

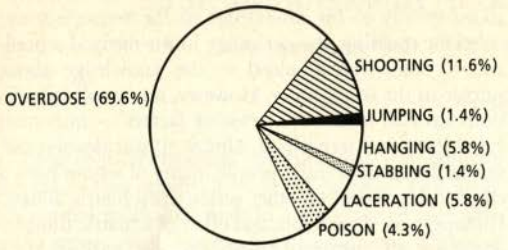

Fig. 5 V.G. Suicide Attempts, 1980, 1981, 1984, Probably Lethal and Lethal Intent by Method

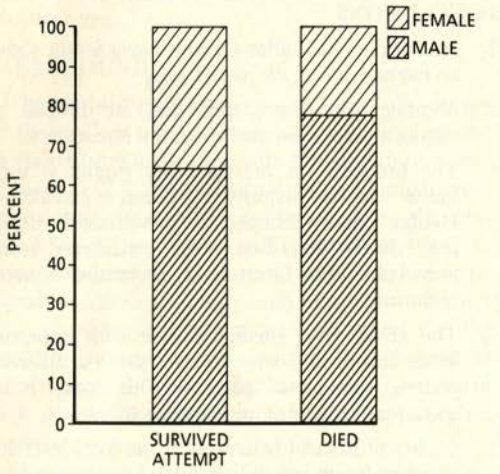

Fig. 6 Halifax County Suicides, 1980, 1981, 1984, Probably Lethal and Lethal Intent

Some patients changed their minds a fraction of a second before certain death — for example, movement of a gun aimed at the left chest so that the bullet missed the heart and went through the shoulder area. Several patients changed their minds after a lethally intended suicide attempt which caused severe pain or distress — for example, jumping into freezing North Atlantic water in mid-winter or while suffering from severe vomiting and vertigo after a large ASA overdose.

There were very few suicide notes and tapes. Both notes and tapes were surprisingly mundane, repetitive, and seemed to be devoid of intense feelings. The notes frequently forgave one or more significant persons for any problems they had caused and strongly praised these persons. Sometimes the notes also acted as a Last Will and Testament. Only one note showed intense hatred and bitterness.

DISCUSSION

It is frequently noted in the literature, probably correctly, that suicide is under-diagnosed. In Halifax County, autopsies are performed on most but not all suspected suicides. This is left to the discretion of the medical examiner — either one of the assistants or chief examiner. The Chief Medical Examiner reviews the data in all cases of suspected suicide, and it is our impression there are no biases either in over-diagnosis or under-diagnosis of suicide. However, in Nova Scotia outside of Halifax County, the autopsies are performed by various clinical pathologists, and it is not possible for the Chief Medical Examiner to review the data in the same way. Therefore, the results are not considered as reliable. We are currently expanding our work to include all Nova Scotia, and discussions are underway with the Chief Medical Examiner in an attempt to improve the reliability throughout this Province.

The data from Halifax County and Metropolitan Toronto illustrate that errors can occur even in a highly developed country like Canada. One tends to assume that "official" statistics appearing in printed tables are correct, and comparisons made between countries may be unwarranted. Data from Halifax County show no recent increase in suicide rates in either adults or adolescents during the period studied. There is no reason, in the area studied, for the alarmist attitude that the suicide rate is currently rising.

The lack of literature on assessment of case specific prevention may be the major reason that erroneous statements about prevention go largely unchallenged. A more detailed assessment of prevention in Halifax County suicides is now underway. Two types of assessment of professional care will be attempted: 1) was an acceptable standard of care provided? 2) was optimal care provided? It is expected that this method will give more useful data on preventability than that described above.

It is our impression that experienced clinicians who deal with large numbers of suicidal patients are very cautious when they talk of suicide prevention, both in terms of the concept and of clinical reality.

During the study, the following were noted as significant items in rendering prevention very difficult:

1. It has been frequently implied that since *depression* is a very common precursor to suicide, prevention should be possible since depression is often treatable. However, as noted, "depression" is a complex term that can be used in different ways, notwithstanding the attempt to be "scientific" in the latest psychiatric classification. Some cases are known to be refractory to drug treatment, other cases are complicated by lack of compliance, and, at times, external stress — difficult to control — may be an important factor. The combination of personality disorder and depression may render treatment very difficult.

2. *Impulsivity.* Impulsive suicide, exceedingly difficult to prevent, occurred not uncommonly.

3. *Communication of Intent.* Assuming that the literature is correct in estimating that most victims of suicide communicate their intent, there still must be a significant number who do not. It appears that more than half of the victims do visit their family doctors in the six-month period prior to suicide. However, they frequently have somatic complaints and no clear symptoms relating to depression; and it would be unrealistic to expect that a careful mental status examination would be done on all or even most of such patients. It is certainly appropriate to teach physicians that most patients do seek help prior to suicide. However, it would be unrealistic to expect that this will significantly decrease the number of suicides.
4. *Refusal to Accept Help.* Many patients are known by relatives and/or their doctor to have a high suicide risk, but there is nothing one can do about it if help is refused, except commitment to hospital which is often not feasible nor desirable.
5. Although it is known that patients who are allowed out on pass when they are improving, or soon after discharge, constitute a relatively high risk, it is still extremely difficult to assess which patients have a very high risk and should be watched more carefully. Over-zealous watching can be destructive.

The increase of risk near discharge from hospital seems to be associated with the fear of returning to the routines of life, with usually greatly increased responsibility and to the circumstances that were related to the onset of the illness. Perhaps the manner in which people handle stress, including depressive illness, and the difference in the readiness with which they develop hopelessness — which is part of their personality — is more important than the diagnosis by itself.

Within the group of suicide attempts with lethal intent, there seems to be a continuum ranging from a very probable intent to die to a full intent, and includes some who go to extreme lengths to ensure that they will die. At one end of the continuum is the patient with apparent lethal intent who commits a serious suicide attempt and yet seems to have a slight hope he might be rescued and who acts in such a way that this rescue is at least a possibility. At the other end is the patient who jumps from a very high bridge, shoots himself through the chest or head, or makes multiple attempts, the combination of which should absolutely ensure that death will occur.

The increased proportion of women in this group compared with successful suicides is difficult to explain. It may be related to the fact that women tend to use overdoses even when their attempt is of lethal intent, and therapy is much more likely to be successful in overdoses than in most other types of serious attempts.

The review of hundreds of cases of suicide and suicide attempts during the 11-year period of the study, the 35 years of clinical experience of the senior author, and the massive literature — rapidly increasing on all fronts — added greatly to the knowledge of the research team, aided the teaching of suicidology in the medical school, and to some extent added to the knowledge about suicide in the community. However, an overall impression was had of an "x" factor or factors — unknown variables not yet recognized. Almost all suicides occur in very unhappy and futile people, many of whom have a clinical depression or other serious psychiatric illness. Unhappiness, depression, and other psychiatric illnesses occur in all cultures. Hopefully, we will in time understand more about the other variables which determine how these lead to suicide in some and not in others.

CONCLUSIONS

1. Suicide rates in Halifax County, Nova Scotia, show no increase during the past 11 years.
2. Accurate basic demographic data are difficult to obtain, and constant quality control is necessary.
3. The literature on preventability studies is very sparse. The vast majority of a group of suicides in Halifax County, assessed for preventability using the criteria described, were considered non-preventable. The literature on prevention is over-optimistic.
4. The group who attempt suicide with apparent lethal intent, and who survive, show a different pattern from actual suicides. This group is of special interest and requires further study.
5. Studies of suicidal behaviour at the local level are necessary for understanding of local patterns and for accurate local and national statistics. □

ACKNOWLEDGEMENT

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Thrombolysis in Acute Myocardial Infarction

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There is overwhelming evidence that thrombolytic therapy, when applied to selected patients with acute myocardial infarction, leads to a reduction in mortality and a preservation of left ventricular function. There are two thrombolytic drugs available in Canada: streptokinase and tissue-type plasminogen activator. Both have been shown to be effective, despite this there has been, until recently, relatively little use of this therapy in the Maritime area.

BACKGROUND

The establishment of Coronary Care Units in the 1960s resulted in a significant reduction in the mortality from acute myocardial infarction to a level of about 12-15%, primarily through the elimination of deaths from ventricular fibrillation. Over the next decade, efforts were made with a variety of agents to reduce myocardial infarct size but these had little impact on the disturbingly high mortality rate. After years of debate, it is now generally accepted that the cause of acute Q-wave myocardial infarction is intracoronary thrombus formation, usually associated with plaque disruption of a significant arterial stenosis.

Intravenous streptokinase was first used in the setting of acute myocardial infarction in the 1950s. Indeed, the first randomized trial of streptokinase therapy in myocardial infarction was published in 1959. Despite this, the use of thrombolytic agents became widespread only following the landmark publication by DeWood and colleagues affirming the importance of thrombi as a cause of acute Q-wave myocardial infarction.[1] Subsequently, work with intracoronary streptokinase in many Cardiac Catheterization Laboratories demonstrated angiographically thrombus dissolution and opening of completely occluded coronary arteries. Intracoronary streptokinase therapy is impractical for widespread use and accordingly attention turned again to the intravenous administration of thrombolytic agents.

In 1985 Yussef *et al* published a careful analysis of twenty-four randomized studies of intravenous streptokinase and urokinase in patients with acute myocardial infarction.[2] Their analysis suggested that when the results of these trials were pooled, there was a 25% reduction in in-hospital mortality in patients who were treated with these agents. Their analysis of these studies lead to the planning of very large scale trials which have greatly influenced present thinking about thrombolytic therapy.

THE GISSI AND ISIS II TRIALS

The GISSI study was conducted entirely in Italy in the Coronary Care Units of 176 cooperating hospitals.[3] About 31,000 patients were screened and 11,806 were randomly allocated to intravenous streptokinase therapy and conventional medical therapy, or to conventional medical therapy alone. Although this was a randomized trial, it was not double-blind or placebo controlled. The mortality reduction for all patients treated within twelve hours of the onset of symptoms was from 13% to 10.7%, ($p = 0.0002$) a decrease of 22%. For those patients who commenced treatment within one hour of the onset of symptoms, the mortality reduction was from 15.4% to 8.2%, a decrease of 45%. The treatment, 1.5 million units of streptokinase infused over one hour, appeared to be efficacious for patients presenting within six hours but beyond this there appeared to be little benefit and possibly some harm. Most of the benefit was conferred in patients with first anterior infarctions or first multiple location (inferoapical or inferolateral) infarctions. There appeared to be no benefit, in terms of mortality, in patients with inferior infarction or with second infarction. The results of the GISSI trial were extremely influential, for example in the thrombolysis in myocardial infarction (TIMI) trial phase II, it was felt unethical to include a placebo treatment arm.

The ISIS II trial was similarly a very large trial enrolling some 17,189 patients who were randomized to receive either streptokinase, aspirin, both streptokinase and aspirin, or placebo.[4] For those patients who received neither streptokinase nor aspirin the mortality was 12.4%; for those patients who received aspirin only the mortality was 10.4%; for those who received streptokinase only, 9.97%; and for those patients who received both aspirin and streptokinase 7.6%. This trial confirmed the results of the GISSI trial and documented for the first time the importance of aspirin treatment, either alone or in combination with streptokinase, in the acute stages of myocardial

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infarction. An interesting finding in this trial was that, unlike the GISSI trial, there did appear to be a small but definite benefit from the use of streptokinase in those patients treated 5-24 hours following the start of symptoms.

The results of these two very large trials show unequivocally that streptokinase and especially the combination of streptokinase and aspirin reduce mortality by between 20% and 40% in selected patients with acute myocardial infarction. It should be pointed out that 1.5 million units of streptokinase costs approximately $300.00 and the cost of one aspirin tablet per day is negligible. Accordingly these therapies are inexpensive and cost effective.

Until recently there was little information on the long term fate of patients who have received intravenous thrombolytic therapy. There was suggestive evidence from some intracoronary streptokinase trials that there was indeed long lasting benefit conferred upon patients. The results of the long term (12 months) follow-up of the patients in the GISSI study are now available.[5] They show that the initial reduction of in-hospital mortality is sustained over the next year. This is true for the entire streptokinase group and also for the group with the best results, that is those treated within one hour of the development of symptoms. It is important to note that in this particular study very few patients went on to coronary angiography and even fewer to coronary angioplasty or bypass surgery.

Previous to the publication of these long term results, it was felt by some that reinfarction and sudden death in the patients who had received thrombolytic therapy would outweigh the initial benefits. While there is indeed a slight excess of reinfarction in patients who receive thrombolytic therapy, the numbers are small and it does not translate into excess mortality during late follow-up. This is an important piece of information as it shows that these drugs can be used safely and efficiently in hospitals that do not have Cardiac Catheterization Laboratories and in areas of the world where access to Catheterization Laboratories and cardiac surgery is restricted.

TISSUE-TYPE PLASMINOGEN ACTIVATOR (rt-PA)

This naturally occurring protein can now be manufactured in pharmacological quantities. It is, at the moment, very expensive but its cost is expected to fall over the next several years. It has many advantages over streptokinase, including lack of antigenicity, a very short half life and there can be no resistance due to previous antibody formation. It is also relatively clot specific and causes less of a generalized lytic state when compared with streptokinase. It does not cause nausea and vomiting or hypotension, as streptokinase frequently does. Because antibodies are not formed following rt-PA administration, it can be used more than once in an individual patient. The most important advantage of rt-PA over streptokinase is that it produces a higher coronary artery patency rate when assessed angiographically.[6] Therefore, if it is accepted that the demonstrated reduction in mortality and infarct size due to thrombolytic therapy is because of recanalization, rt-PA is clearly the preferred drug.

There has now been extensive experience with this agent throughout the world. A recent large trial revealed a 26% reduction in mortality when compared with placebo.[7] Although rt-PA definitely produces a higher recanalization rate than streptokinase, whether or not this translates into improved survival remains to be demonstrated.

THE ROLE OF ANGIOPLASTY FOLLOWING INFARCTION

Two medium size trials have examined the role of emergency angiography and emergency transluminal coronary angioplasty following thrombolytic therapy. One trial, conducted in the United States in 386 patients, showed that emergency angiography and angioplasty commencing 90 minutes after TPA was infused, did not convey any benefit and indeed there was an excess mortality in those patients who underwent immediate angioplasty compared with those who underwent angioplasty 10 days later.[8] A second study performed in Europe came to very similar conclusions, there again being an excess morbidity and mortality in the group randomly assigned to emergency angioplasty following thrombolytic therapy.[9] Our present understanding is that emergency angiography and certainly emergency angioplasty are not required following thrombolytic therapy. However, it may well be appropriate for patients to undergo coronary angiography on a delayed basis and angioplasty if indicated in a further selected group.

PRESENT RECOMMENDATIONS

Those patients presenting with an apparent evolving Q-wave myocardial infarction who have had unremitting symptoms for less than 4-6 hours and who have no contraindication to thrombolytic therapy, should be treated. In general terms, these patients should be suitable for coronary angioplasty or coronary artery bypass surgery should that prove necessary and they should be less than 75 years old.

Patients with obvious contraindications e.g. recent surgery, a history of G.I. bleeding, symptomatic peptic ulcer disease or known allergy to the thrombolytic agent, should be excluded. Other exclusion criteria are trauma or prolonged cardiopulmonary resuscitation, previous cerebrovascular accident, uncontrolled hypertension, etc. We recommend that patients receive either 1.5 million units of intravenous streptokinase administered over one hour or an infusion of 100 mg of tissue-type plasminogen activator over three or four hours. Patients should also be commenced on aspirin at the earliest opportunity.

The exact role and relative importance of intravenous heparin following thrombolytic therapy is unknown. Clinical trials are currently underway to determine whether heparinization is important. Very aggressive heparinization regimens appear to cause excessive bleeding and certainly it is widely believed that many of the bleeding complications attributed to thrombolytic therapy are in fact due to concomitant heparinization. Accordingly, we are conservative with our heparinization regimens e.g. 10 units/kg/hr × 48-72 hours with no loading bolus dose. Following thrombolysis we recommend therapy with a beta blocking agent and with aspirin. We do not place patients on oral anti-coagulants. It is not known whether long acting nitrates or calcium channel blocking agents should be given routinely to these patients. However, they are certainly indicated should post infarction angina occur.

Following thrombolytic therapy and the institution of regular medical therapy, the patient should be allowed to recover and ambulate normally. A predischarge exercise test seems sensible and will hopefully detect those patients with important residual coronary narrowings who may have the potential for reinfarction. If the patient's convalescence is otherwise uncomplicated a full exercise test at six weeks is recommended. If the patient's clinical course and exercise tests are satisfactory continued medical therapy appears in order.

If, however, the patient develops post infarction angina or the exercise tests are unsatisfactory, coronary angiography should be performed with a view to coronary angioplasty or coronary artery bypass surgery. Until arrangements for angiography can be made, post infarction angina requires full and vigorous therapy usually with beta blockers, long acting nitrates or intravenous nitroglycerin and calcium channel blocking agents.

THE FUTURE

The evidence for the routine use of thrombolytic drugs in selected patients with acute myocardial infarction is overwhelming. There will be no more placebo controlled trials to examine this further. There are, however, several large trials, either in progress or in the planning stages, which will examine further aspects of this therapy. They include the GISSI II trial which is currently randomizing patients to therapy with rt-PA plus aspirin or streptokinase plus aspirin. The thrombolysis in myocardial infarction (TIMI) phase II trial is currently underway in the United States and is further examining the role of interval angioplasty at two different times versus no angioplasty in patients treated with tissue plasminogen activator. Preliminary results, released in abstract form only, indicate no added benefit from a strategy of routine angioplasty following thrombolysis. The ISIS III trial is also planned to compare rt-PA, streptokinase and APSAC. There is considerable interest being shown in the modified streptokinase drug, APSAC (anisoylated plasminogen streptokinase activator complex) which is simple to use and in one published study produced a very significant reduction in mortality.[10] APSAC, unlike other agents, can be given as a slow intravenous injection, which is an obvious advantage and seems to have relatively few side effects.

COMPLICATIONS OF THROMBOLYTIC DRUG THERAPY

The most important complication of these drugs is bleeding. Usually this is at venipuncture sites and of no clinical importance. Sometimes nose bleeds or mouth bleeding occurs. This is of nuisance value only but if the blood is swallowed and then vomited it mimics a GI bleed. True GI bleeding requires vigorous therapy with discontinuation of the thrombolytic drug, reversal of heparin and volume replacement with blood if necessary. The most dreaded bleeding complication is intracranial hemorrhage which occurs in 0.1 to 0.4% of cases. Although very rare, unfortunately it is frequently fatal.

Arrhythmias following thrombolytic therapy are common. Ventricular premature beats and accelerated idioventricular rhythm are seen most frequently. Observation is usually all that is necessary but the usual antiarrhythmic agents can be used for ventricular tachycardia.

In general, patients treated with thrombolytic drugs require standard Coronary Unit care. No extra monitoring is required. Arterial punctures or lines and CVP lines should be avoided.

SUMMARY

There is incontrovertible evidence that thrombo-

lytic drugs can reduce the mortality associated with acute myocardial infarction very significantly when given to selected patients. Large scale trials have demonstrated that these agents can be used safely in the community hospital setting and they have further demonstrated that access to Cardiac Catheterization Laboratories are not a prerequisite for their use. The majority of patients presenting with acute myocardial infarction in the Maritime area are seen in community hospitals and they frequently present much earlier than at the larger regional or tertiary care hospitals. Therefore, the greatest benefit from thrombolysis will be potentially possible in these patients. As a consequence, it is mandatory that all physicians who care for patients with acute myocardial infarction are conversant with the use of these drugs and are prepared to use them in appropriate patients. □

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Scoring to Measure Trauma Care

HOW DOES NOVA SCOTIA COMPARE?

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An Emergency Medical Services System (EMSS) provides the personnel, facilities and equipment to effectively coordinate and deliver health care services in emergency conditions.[4] Various categories of critically ill and injured patients have been identified who require EMSS response if their prognosis is to improve (eg. major trauma, burns, spinal cord injuries). While these groups have been identified as high risk, it is felt that, with time, all critical medical emergencies would receive better care, more efficient handling and would benefit from sound EMSS planning and operation. Each EMSS plan has a detailed explanation of protocols for patients who come into the system. As well, each EMSS has detailed components which must be included to produce an effective system.[7]

Trauma is the leading cause of death in persons 1-44 years of age and accounts for the greatest loss of productivity of any other illness.[9] Further advances in prevention and therapy are required if morbidity and mortality are to decrease. A major component of EMSS research is the development of injury severity scales of proven reliability and validity in order to describe and quantify injury severity.[7] Improved characterization of injury severity is required for the appropriate allocation of resources, for prediction of outcome and for evaluation of the quality and quantity of emergency medical care in differing facilities or systems, or in the same facility over time.[5]

INJURY SEVERITY SCORES (ISS): EVALUATION OF EMERGENCY CARE

Numerous attempts have been made to develop injury severity scales based on anatomic diagnosis. One early effort based on anatomic disruptions was the Abbreviated Injury Scale (AIS), developed by the American Medical Association (AMA) Committee on Medical Aspects of Automotive Safety.[6] AIS was designed to rate and compare injuries in automotive crashes, and it was based on subjective assignments of severity made by physicians on the Committee. It defines five body regions (general, head and neck, chest, abdomen, extremities), and it scores injuries according to apparent severity (0 = no injury; 1 = minor; 2 = moderate; 3 = serious, but not life-threatening; 4 = severe, life threatening; 5 = critical, survival uncertain; and 6 = survival unlikely). It was designed as a retrospective score requiring hospital record review and is used primarily for statistical analysis. It does not quantitate multisystem injury and bears a non-linear relationship to survival; it requires adequate data collection, a high autopsy rate and a cooperative coroner[8]; and it has largely been supplanted by the ISS.

In 1974 Baker *et al* described a method for comparing death rates of groups of injured patients using hospital and medical examiner date.[1] Injuries were categorized according to the Abbreviated Injury Score (AIS)[6] and the ISS was defined as the sum of squares of the highest AIS grade in each of the three most affected areas.[1] Use of the ISS dramatically increased correlation between severity of injury and mortality.[2] As well, the ISS provides a key to evaluating the EMSS: it identifies those who are sick enough to be adversely affected by poor care, but not those so sick that they will not survive even with optimum care. Retrospective analysis is probably its biggest advantage; the ISS can easily be computed for research purposes and could be added to the chart itself.

There are problems with the ISS. First, it assigns a static value to a dynamic phenomenon, eg. a tension pneumothorax (score 4) can be converted to a minor chest wall injury (score 1) in a few minutes. Second, the scale is discontinuous; certain scores are impossible to attain. Third, a single critical injury with survival uncertain appears less serious than three serious but non-life-threatening injuries. Fourth, central nervous system injuries are more clearly related to outcome than extremity injuries. Finally, the scale is imprecise and the assignment of scores is subjective. When scores are assigned retrospectively, in a non-blinded fashion by a receiver who wishes to prove a point, a large element of observer bias may be introduced.[8]

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In 1981 West described an autopsy method for evaluating trauma care which records ISS, patient age, time interval from hospital arrival to death, whether an operation was performed and cause of death.[10] This system has widespread applicability as it is inexpensive, can be rapidly performed and utilizes data that are a matter of public record. If the data show deficiencies in the current system of emergency care then corrective measures can be taken and the system re-evaluated. The benefits of an organized approach such as this to trauma care would be obvious.

In 1986 Bota and Cox utilized the AIS-80/ISS method to evaluate trauma care of motor vehicle accident victims in Northeastern Ontario and determined that improving trauma care in the Sudbury region has a great potential for decreasing preadmission mortality.[3] In particular, they analyzed the response time of emergency personnel, prehospital management, cause of death and whether the death was preventable. As well, types of injury were identified which respond to specific therapeutic interventions and would prove beneficial if performed in the prehospital setting (eg. hemorrhage and airway dysfunction).

A study of prehospital MVA mortality in Nova Scotia was attempted as a direct comparison with the Sudbury study by the author. However, it was determined that the autopsies did not represent an unbiased sampling of fatalities. While it is important to gather data of prehospital mortality in Nova Scotia, the most logical source of information, MVA autopsy results, is inadequate. In Nova Scotia autopsies are performed for predominantly legal reasons and are unsuited for retrospective, random study of prehospital care. To properly evaluate prehospital care using West's autopsy method, at least 80-85% of trauma facilities should be autopsied.[10] The final result is that there is no effective medical record system to allow review of the problem of trauma. Hence, we do not know the magnitude of the problem nor the effectiveness of the system that handles it.

We have no way to evaluate what we have nor how it needs to be improved. This is a reflection of the relative indifference which the Government and medical profession hold towards the subject of EMSS in Nova Scotia. What is needed is a system to reliably identify trauma victims Province wide. Importantly, by decreasing morbidity and mortality health costs should also decrease because of changes in patient care patterns, especially in-hospital days and rehabilitative medical programs.

CONCLUSION

While it is obvious from the above discussion that scoring trauma patients is desirable there is still considerable debate as to which system(s) to implement. West's autopsy method of evaluating quality of care has great value in the retrospective analysis of trauma mortality as long as care is taken to avoid observer bias. Scoring of patients by this method would allow a statistical analysis of the quality and adequacy of prehospital care. Roy has recently suggested prospective data collection with the formation of some form of trauma registry.[8] This would allow objective outcome measurements to be made and ease sampling for quality of care review. The development of sophisticated microcomputer hardware and software has made the technical aspects of data collection easier but, there would still be a heavy requirement in terms of manpower to keep the information up to date.

At the present time there is no systematic approach to Emergency Medicine in Nova Scotia. The data generated in Nova Scotia are inadequate to convince politicians of the need to implement an effective EMSS. While it is obvious that an effective EMSS decreases morbidity and mortality, Emergency Medicine in Nova Scotia has traditionally not received the attention it deserves.[4] The adoption of an autopsy-based AIS-80/ISS scoring system will provide evidence needed to convince both health care administrators and the public that prehospital care is inadequate in Nova Scotia and that a systematic approach to emergency medicine will help deliver the best possible care. □

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The Epidemiology of Weight — Implications for Atlantic Canada

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Data from the Canada Fitness Survey (1981) were recently analyzed and revealed a higher prevalence of overweight in Atlantic Canada than found in all other regions of Canada. (Tables 1 and 2).[1] Most notably, individuals (age range 20-69) with a Body Mass Index over 27, a level generally associated with adverse health outcomes in adult populations, were found to comprise a large proportion of the provincial population (males 38.5%, females 27.6%) when compared with Canadians as a whole (males 33.2%, females 20.5%). These findings are consistent with other indicators of poor health status in this region.

TABLE I
CUMULATIVE PERCENT AT DIFFERENT LEVELS OF BMI IN MEN FOR EACH REGION OF CANADA (CANADA FITNESS SURVEY)

BMI	Atlantic (n=636)	Quebec (n=1981)	Ontario (n=2633)	Prairies (n=1284)	B.C. (n=854)	Canada (n=7388)
25+	63.4	54.3	58.6	54.5	51.0	56.3
26+	48.4	42.3	44.8	42.2	38.7	43.3
27+	38.5	32.6	34.5	31.3	29.5	33.2
28+	29.1	21.8	25.8	22.8	20.8	23.9
29+	19.8	15.8	19.1	14.5	13.4	16.8

TABLE II
CUMULATIVE PERCENT AT DIFFERENT LEVELS OF BMI IN WOMEN FOR EACH REGION OF CANADA (CANADA FITNESS SURVEY)

BMI	Atlantic (n=630)	Quebec (n=2022)	Ontario (n=2686)	Prairies (n=1232)	B.C. (n=832)	Canada (n=7402)
25+	42.3	36.7	35.3	31.8	27.2	34.8
26+	35.0	28.9	27.0	25.2	22.5	27.4
27+	27.6	19.2	20.7	20.2	18.1	20.5
28+	21.7	14.5	15.9	16.2	13.3	15.6
29+	17.5	11.5	11.9	12.8	8.8	12.1

ASSOCIATIONS WITH ADVERSE HEALTH EFFECTS

Most population studies on the relationship between weight and adverse health effects have focussed on cardiovascular disease, the best of which are prospective studies which followed particular groups of people characterised by their weight levels in relation to eventual disease outcome.

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Twenty-seven prospective studies were included in a preliminary review; only ten were found to provide evidence of an independent effect.[2] Of the studies which reported evidence of a weight effect, this was observed mainly among young to middle age males, and was much less evident at older ages or in females. A number of methodological problems in studying weight were revealed: lack of standard definitions, multiple criteria, variable end points, difficulty or lack of control of confounding variables, and selection bias. Overweight has also been associated with major cardiovascular risk factors, namely hypertension, hypercholesterolemia, and diabetes.[3,4,5,6]

The following generalizations are justifiable at this time: that overweight is consistently associated with hypertension and strongly associated with diabetes; that an association with adverse changes in blood lipids has also been identified; and that if overweight plays a role independent of its association with other risk factors, it is only in specific subgroups, particularly among younger men. It is also clear that the associations with risk factors and disease are stronger at higher levels of overweight.

EPIDEMIOLOGY STUDIES AND THE BODY MASS INDEX

A time honoured contribution to the epidemiology of weight has been the work of the Metropolitan Life Insurance Company, whose tables have been used as a guide to "ideal weight" since the late 1950s.[7] Yet these tables can no longer be viewed as the sole source of information, nor even a reliable landmark when applied to diverse population groups.[8] Problems include their derivation from a self selected sample, varying lengths of follow up based on policy cancellations, death or the end of the study, measurements not standardized and often self reported, "frame size" arbitrary and not based on anthropometric measurements, and the fact that these "standards" have shifted between 1957 and 1983, reflecting a change in the composition of the insured population.

Some of the best and more recently published work has used the Body Mass Index ($BMI = W/H^2$, where W = weight in kilograms and H = height in metres) rather than the Relative Weight approach used by Metropolitan Life. Advantages of the BMI include independence from any particular population, a high

correlation with more direct measures of body fat, and greater simplicity and precision than skinfolds.

RECENT EVIDENCE UTILIZING THE BODY MASS INDEX

The largest prospective study included 1.7 million Norwegian men and women whose weight and height were obtained in the early 1970s.[9] No account was taken of confounding variables. The relationship between BMI and 10-year mortality (all causes combined) is consistently U-shaped in both sexes at younger and middle ages, but this relationship virtually disappears in old age. There is no consistent increase in mortality risk until BMI exceeds 27, in either sex. A similar elevation in risk is observed below a BMI of 23.

Analysis of ten year mortality among middle aged U.S. railroad men, demonstrated no increase in risk with increasing BMI until at least a BMI level of 32, while a similar elevation in risk was apparent in this U shaped relationship at a BMI less than 28. This is a highly selected group, which cannot be generalized to the U.S. population.[10]

Fourteen years follow up among male employees aged 40-59 years, from the Chicago Peoples Gas Company study, revealed lowest overall mortality in the BMI range of 27.4 to 29.2 in both smoker and non-smoker groups.[11] This was found also for cardiovascular-renal and coronary heart disease.

Over eighteen thousand British male civil servants were followed for ten years.[12] In young and middle aged groups increased mortality from all causes occurred among those with a BMI of ≥ 27. Coronary mortality however showed some overall (all ages, 40-69) elevation with a BMI in excess of 24, and this category was also elevated above a BMI of 22.4 among those 40-49 years.

The only prospective Canadian study, in Manitoba, followed World War II fighter pilots.[13] In this selected group, after 26 years a progressive increase across the full range of BMI values was observed among those aged 35 years or more at inception in relation to ischemic heart disease and sudden death. There was no evidence of risk elevation in the lowest BMI category (<22.6), and no point above which an acceleration in risk could be discerned.

Earlier analyses of the Framingham population suggested a weak relationship between weight level and mortality, after controlling for confounding variables.[14] More recent analysis showed an elevated mortality in females with BMI values above 31 and below 21, but in men, mortality was highest for those with a BMI less than 21 and lowest for those with a BMI greater than 31.[15]

Metabolic studies, as previously noted, have revealed an association between weight and cholesterol. However, so far this would appear to hold mainly in younger and middle aged males and females, the relationships disappearing in ages over 49 years.[16] The risk of type II diabetes, although strongly related to body weight, appears to accelerate in American males with a BMI in excess of 27, although in females a notable elevation in risk occurs above 25.[17] An Israeli study of males indicates an increased incidence across a wide spectrum of BMI with no obvious acceleration of risk above or below any given value.[18]

The relationship between body weight and cancer has been less extensively studied than heart disease or its associated factors. In several countries (U.S., Israel and Poland)[19,20,21], the risk of premenopausal breast cancer is inversely related to body mass index, while the reverse is true postmenopausally.

Endometrial cancer is associated with elevations in body mass index, at least among non-estrogen users.[22] There is evidence of a decline in the risk of stomach cancer among Japanese men, with increasing BMI up to 26.3 beyond which increased risk is observed.[23] Colon cancer appears to be directly associated with BMI among older Japanese males, while in younger males the reverse trend is apparent.[23]

It will take many more studies to adequately define the relationship between body weight and morbidity and mortality. For examples, the Honolulu Heart Study and the Paris Prospective Study have provided good evidence that the optimal weight range may be age specific.[24,25] This observation has been supported by a reanalysis of the Metropolitan Life data which showed a linear increase in the BMI associated with lowest mortality with increasing age in both males and females.[26] The Paris Prospective Study also provided data suggesting that both very little and very great change in body weight during life are associated with higher risk of mortality than with moderate weight gain.[25]

CONCLUSION

There is no consistent evidence from population studies of human weight in either sex that morbidity or mortality risk increases until one reaches a BMI of 27. Any lower figure therefore must be carefully qualified with regard to particular clinical circumstance. Even at or above this level, care should be taken not to overstate the degree of risk, nor to suggest that these statistical findings can be applied to individuals without clinical assessment.

At a population level however, it would be fair to conclude that communities with a smaller proportion of members with a BMI in excess of 27 should be at a lower overall morbidity and mortality risk than otherwise similar communities. This observation may be of value in community health status assessment and health promotion activities.

It is relevant therefore to note that Atlantic Canadians exhibit the highest prevalence of overweight among 11 regions in Canada. This observation may explain some of the excess morbidity and mortality in this region, especially from cardiovascular diseases. Body weight and fitness levels are associated, and an increased effort to promote both fitness and healthy body weights in this region would appear to be justified, especially for future generations. □

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Note: A more detailed version of this literature review and discussion, excluding the regional data on BMI prevalence has been published elsewhere.[27]

EMERGENCY MEDICINE COURSE

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DARTMOUTH GENERAL HOSPITAL

APRIL 1, 1989

HOLIDAY INN, DARTMOUTH

Program

0830	---------- CONTINENTAL BREAKFAST ----------
0900	Welcome, Dr. J. Savage, Mayor of Dartmouth
0910	Guest Speaker: Dr. R.F. Scharf, FRCS(C), CRCS(C), S.B.St.J. *Errors in the Emergency Department*
0940	Emergency Cardiology (Chest pain/Arrhythmia) - Dr. N. MacDonald, FRCP(C), Dept. Medicine, D.G.H.
	Thrombolytic Therapy - Dr. Mark A. Henderson, FRCP(C), Assist. Prof. Dept. Medicine, Dal. Staff Cardiologist and Director CCU and Cardiac Catheterization Lab, V.G.H.
1030	---------- NUTRITION BREAK ----------
1100	Acute Neurological Events - Dr. M.J. Scott, FRCP(C), Neurologist
1130	Paediatric Emergencies: Medical - Dr. S. Ewing, FAAP, FRCP(C), Paediatrician Surgical - Dr. D.A. Gillis, FRCS(C), Chief of Surgery, I.W.K., Prof. of Surgery and Paediatrics, Dal.
1230	---------- LUNCH ----------
	Luncheon Speaker: Dr. R.F. Scharf, FRCS(C), CRCS(C), S.B.St.J. *Industrial Accidents*
1400	Legal Matters (ERP as a witness) - Mr. Ross Haynes, BComm, LLB, The Haynes Group of Lawyers
1420	Urological Emergencies - Dr. W. T'ien, FRCS(C), Urologist
1440	Hypothermia - Dr. J. Smith, B.Eng. M.D., Assist. Prof., Dept. Anaesthesiology, Dal.
1500	Diabetes (Ketoacidosis) - Dr. D.C. Knight, FRCP(C), Dept. Medicine, D.G.H.
1530	---------- NUTRITION BREAK ----------
1600	The Red Eye - Dr. V.P. Audain, FRCS(C), Eye Physician & Surgeon
1620	Examination of the Injured Hand - Dr. G.R. Davis, FRCS(C), Plastic Surgeon
1640	Management of the Red Hot Joint - Dr. W. Canham, FRCS(C), Orthopedic Surgeon

For Information, Call 465-8518

The Coordinated Home Care Program for Nova Scotia

Janet Braunstein,* RN, MPH, Robert P. Moody,** B.Com., MPA, and
Hope E. Beanlands,† RN, MN.

Halifax, N.S.

In June 1987, The Report of the Deputy Minister of Health, Housing, Social Services on Coordinated Home Care was released. This report furnished the "blue print" for the Coordinated Home Care Program for Nova Scotia. Several of the main points highlighted in the Report were:

a) the top priority is the coordination of existing services;

b) coordination should be at the provincial level by a distinct and highly visible entity;

c) a single entry point for service at a local level is essential;

d) assessment and service functions should be performed by separate agencies wherever possible; and

e) volunteers are an integral aspect of all Home Care Programs (Report, 1987).

The purpose of this article is to review the present development of the Coordinated Home Care Program in Nova Scotia.

ORGANIZATION

Unique to Nova Scotia is the organizational structure for the Coordinated Home Care Program (CHCP). The Ministers of Community Services, Health and Fitness, Housing, Municipal Affairs, and Senior Citizens Secretariat comprise the Home Care Coordination Agency, and this committee is chaired by the Minister of Community Services. Similarly, the Deputy Ministers' Committee is represented by the Deputy Ministers of Community Services, Health & Fitness, Housing, Municipal Affairs and the Senior Citizens Secretariat, of which the Deputy Minister of Community Services is the chair. The functions of the agency/committee are to develop policy for the CHCP which reflects interdepartmental planning and cooperation for service delivery at the local level.

The Provincial Coordinator for Home Care, the Assistant Provincial Coordinator and the Director of Homemaker Services are located within the Department of Community Services. Seven Regional Coordinators provide information, identify areas of strength and disparity in service and help interpret provincial policy at the local level. The Regional Coordinators are key liaison people and have a strong working relationship with Administrators of Community Services, Homemaker Agencies, Department of Health and Fitness, Victorian Order of Nurses, volunteer agencies, municipal units and all groups interested in Home Care. These Regional Coordinators provide a strong linkage between and among departments. The names of the Regional Coordinators are listed in the appendix.

The Department of Health and Fitness has a new position, (Assistant Director, Community Health Nursing), to assist in the development, implementation and evaluation of the CHCP.

TARGET POPULATION

The target population served by the CHCP is: seniors, disabled, and families at risk. The definition for each target group is as follows:

1. **Seniors:** any person 65 years of age and over who is limited in the activities of normal living which are necessary to maintain the individual's independence, health and well being.

2. **Disabled:** any person who has a prolonged major physical, mental or a combination of physical and mental impairments which at the highest level of functioning, still limits an individual's ability to perform the activities of daily living, which are necessary to maintain the individual's independence, health, well being and participation in community life.

   Major is defined as an impairment that markedly restricts the client's activities of daily living (ability to perform basic functions independently).

   Prolonged is defined as lasting or expected to last at least 12 months.

   Activities of Daily Living are defined as those activities of daily living such as bathing, dressing, eating.*

3. **Families at Risk:** those families who are in danger of breakdown due to their inability to cope with child care responsibilities and require help in order

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**Provincial Coordinator, Home Care Program, Department of Community Services.
†Assistant Director of Nursing Home Care, Community Health Services, Department of Health & Fitness, Province of Nova Scotia.

*Adapted from Department of Community Services, Family Benefits Act, 1977; and Revenue Canada, Taxation Department, Canada.

to gain or regain the status of independent living. Health problems, abuse and neglect or the potential for any of these situations are usually attending characteristics of the family at risk. This target population is primarily aimed toward a Social Services population presently utilizing Social and Family Services.

There will be three levels of care providers within the CHCP. These three providers are:

a) ***Homemakers:*** assist with light housekeeping, shopping, cleaning, cooking, grooming and limited personal care;

b) ***Certified Nursing Assistants*** under the direct supervision of a Community Health Nurse/ Registered Nurse: provide nursing and personal care within the scope of their practice; and

c) ***Community Health Nurse/Registered Nurse:*** provides nursing care, education and consultation.

Services to clients will be at the level of the provider most appropriate for the provision of care. Nursing service will be provided by the Victorian Order of Nurses where branches are located across the Province and by Community Health Nursing, Department of Health and Fitness in areas not served by VON. The one exception is Martha Home Health in Antigonish.

The CHCP is *not* designed to support clients who are discharged early from hospital, to provide twenty-four-hour nursing care or "high tech" care or for ongoing routine visits to the mentally ill patient. The services provided will be non-acute and non-emergent and are aimed at assisting people to remain at home. Such services might include assistance with dressing changes, complicated foot care, preparation of insulin syringes, personal care, and other services that will help clients be maintained at home. This program is *not* an extra mural hospital or a "hospital without walls." A major thrust of this program will be to promote independence, to utilize the resources within communities and families and to utilize the expertise of all members of the team in the provision of care.

The *entry point* to the Coordinated Home Care Program will be through designated Homemaker Agencies located across the Province. This past summer and fall, the Province of Nova Scotia has worked with Municipal Officials to develop Homemaker Agencies in Victoria and Guysborough Counties and in the Towns of Canso and Wolfville, where no agency had existed previously. This will ensure that all people of Nova Scotia have equal access to Homemaker Services. The Cities of Halifax and Dartmouth will have alternative entry points due to the uniqueness of each of their organizations. Referral to the Home Care Program may be made in writing or by calling the Coordinated Home Care number. Family members, friends, Health Care agencies, physicians, nurses, social workers and neighbours may refer clients to the Program. A physician referral is not required. Self referrals are also accepted.

The service provided to clients in the home is based on the comprehensive assessment which identifies the needs of each individual client. Therefore, the Coordinated Home Care Program does not have a list of services that are provided through the Program since each individual client's needs will identify what services will be required. For instance, foot care may be a service provided through the Home Care Program for a client who has diabetes and has limited visual function and is unable to perform the necessary foot care. However, an elderly client who lives within an extended family structure would only be eligible for foot care services within the Coordinated Home Care Program until that care was taught and transferred to the family. This approach encourages each individual to be viewed as a unique client requiring those services needed to remain in the home while fostering independence and participation with the family and community.

The Deputy Ministers' Report identified that the Community Health Nurse, Department of Health and Fitness, would be the assessor for health needs and the Homemaker Agency Head/contract assessor would be the assessor for the social needs. For the first three to six months of the Coordinated Home Care Program, all clients will have a comprehensive joint assessment conducted by a Community Health Nurse and a Homemaker Agency Assessor. Upon completion of the assessment, identification of client problems and home care goals, the assessors will identify those services within the scope of the Program which are required to maintain the client in the home. The Community Health Nurse Assessor will access the health service. The Homemaker Agency Assessor will access the homemaker services, facilitate housing referrals and access volunteer services.

A case manager will be identified who will be responsible for the *coordination* of the service delivery of the various programs required by clients admitted to the Home Care Program. This will include: 1) ensuring services are being provided to the client; 2) communication with the family physician or referral agency; 3) organization of case conferences between multiple care providers; 4) ensuring that reassessments are undertaken as outlined by the assessment; and 5) discharge clients from the caseload and the program as necessary. The case manager is a

key to the coordination of all the services being provided to that client in the home. Case managers will either be the Community Health Nurse assessor or Homemaker Agency assessor or delegate. All clients will be reassessed every six months to determine the level of service required. It is paramount that the case manager be knowledgeable and accessible to family physicians, volunteers, referral agencies and service providers to assure that the services provided are appropriate.

ROLE OF THE FAMILY PHYSICIAN

The Provision of Health Care Services under the auspices of the Coordinated Home Care Program will be a cooperative effort with a number of health care professionals; C.N.A., R.N. (V.O.N.), Community Health Nurses and the Family Physician. The Family Physician will be an active and critical participant in the provision of health care to persons accepted into the Coordinated Home Care Program. In order to provide optimal care to clients in the Program, it is essential the Family Physician and other health care providers maintain a close and ongoing liaison in relation to the planned intervention for each individual receiving nursing care.

As a part of the assessment process, the Community Health Nurse will consult with the Family Physician for all patients on their case load who require nursing care and are accepted into the Program. In addition, the Family Physician will receive a written notification regarding patients who are accepted to the Program. All significant changes in client care will be undertaken after direct consultation with the attending physician.

Routine written status reports will be provided to the attending physician for long term clients accepted in the Coordinated Home Care Program. It is anticipated the Family Physician will communicate pertinent information to the nurse providing care, either V.O.N. or Community Health Nurse, regarding changes in medication or medical plan of care.

Home visits by the attending physician are anticipated to be an inherent and continuing component of the care provided to patients in the community.

The Coordinated Home Care Program will be phased in on a county by county basis around the Province. It is anticipated that the implementation of the Program will be completed by the end of March, 1989. The Program has been implemented in Colchester and Pictou Counties. Additional counties will be added on a regular basis. The local Home Care telephone number will be publicized when the Program is implemented in each county.

APPENDIX

DEPARTMENT OF COMMUNITY SERVICES

Coordinated Home Care Program — Community Staff

NAME	ADDRESS	PHONE NUMBER	AREA OF RESPONSIBILITY
Robert P. Moody Provincial Coordinator Home Care Program	P.O. Box 696 Halifax, Nova Scotia B3J 2T7	424-4653	
A. Stewart Brown Director Homemaker Services	P.O. Box 696 Halifax, Nova Scotia B3J 2T7	424-4284	
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Ms. Charlett Brine Secretary to Provincial & Assistant Provincial Home Care Coordinator	P.O. Box 696 Halifax, Nova Scotia B3J 2T7	424-4653	
Mrs. Cheryl Roosjen Secretary to Director Homemakers Services	P.O. Box 696 Halifax, Nova Scotia B3J 2T7	424-4284	
Ms. Coleen Chisholm Regional Home Care Coordinator Cape Breton Regional Office Dept. of Community Services	Provincial Bldg., Suite 7 360 Prince Street Sydney, Nova Scotia B1P 5L1	563-3361	All of Cape Breton

Ms. Mary J. McFadden Regional Home Care Coordinator Central Regional Office Dept. of Community Services	P.O. Box 950 58 Willow Street Truro, Nova Scotia B2N 5G7	895-6337	Colchester Co. Cumberland Co.
Ms. Marla Gaudet Regional Home Care Coordinator Halifax Regional Office Dept. of Community Services	Metro One 6061 Young Street Suite 320, Box 8715 Halifax, Nova Scotia B3K 5M4	424-2687	Halifax Co.
Mrs. Nina Clarke Regional Home Care Coordinator North Shore Regional Office Dept. of Community Services	P.O. Box 488 Campbell's Lane New Glasgow, Nova Scotia B2H 5E5	755-5950	Pictou Co. Antigonish Co. Guysborough Co.
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Ms. Mary Ledwell Regional Home Care Coordinator Valley Regional Office Dept. of Community Services	P.O. Box 188 F.W. Robinson Building 374 Main Street Kentville, Nova Scotia B4N 3W7	678-6176	Kings Co Hants Co.
Mr. Louis Comeau Regional Home Care Coordinator Western Regional Office Dept. of Community Services	P.O. Box 460 10 Starrs Road Yarmouth, Nova Scotia B5A 4B4	742-7871	Yarmouth Co. Digby Co. Annapolis Co.

DEPARTMENT OF HEALTH AND FITNESS
Coordinated Home Care Program —Community Health Services Staff

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Ms. Debra Keays, RN, BA, BN Supervisor of Nurses Western Health Unit Dept. of Health & Fitness	P.O. Box 338 Yarmouth, Nova Scotia B5A 4B3	742-7141	Western Health Unit

□

References

Government of Nova Scotia. (1987). *Report of the Deputy Ministers of Health, Housing, Social Services on Coordinated Home Care,* Department of Health, Department of Housing, Department of Social Services, Halifax.

There are people who only wish to know for the sake of knowing: this is base curiosity. Others wish to know in order that they themselves may be known: this is shameful vanity. Then there are those who acquire knowledge in order to re-sell it: their motive is distasteful. But some wish to know in order to edify: this is charity. Others in order to be edified: this is wisdom. Only those who belong to these last two categories do not misuse knowledge, since they only seek to understand in order to do good.

Saint Bernard of Clairvaux (1090-1153)

The First 100 Patients of a Home Health Care Unit

Murray D. Nixon,* MD, CCFP, Perry W. Spencer,** MD, CCFP, and
Deborah A. Northrup,*** RN, BN.

Fredericton, N.B.

The New Brunswick Extra-Mural Hospital (EMH) provides home health care as an alternative to hospitalization. A chart review of the first 100 patients of a newly-opened small town unit was performed to provide demographic and clinical patient data.

The patients were found to satisfy a set of admission criteria, 90% of the patients were admitted and treated by their family doctor and 10% by a surgeon. 42% of the patients were admitted to the EMH directly from their homes while 58% came from hospital. 55% of the patients were over age 65 while 17% were under 15.

ICD-9 Diagnostic Coding revealed that 28% of the patients had diseases of the respiratory system, 20% had metabolic diseases, 18% had diseases of the circulatory system and 12% had neoplasms. Information is provided on the significant components of EMH care for certain major diseases, e.g., diabetes.

Discussion centers on home health care, physician involvement, patient age, diagnostic categories, patient and family acceptance and hospital replacement criteria.

At the time of the review, the majority of the patients had been discharged from the EMH with a length of stay averaging 23 days. They received an average of 15 nursing visits. These 100 patients exhibited significant medical problems which were managed by a variety of treatments, including some usually reserved for traditional hospitals.

> "It was not too long ago that use of the term "home health care" would have been redundant because the customary site for treating the diseased and disabled was the home."[1]

THE EXTRA-MURAL HOSPITAL

The New Brunswick Extra-Mural Hospital (EMH) is a program of home health care. It was established in 1981 under the Public Hospitals Act and currently provides insured services under the Hospital Services Act to 60% of New Brunswick residents. The Extra-Mural Hospital offers professional health care and support services to patients whom their physicians feel would best be treated at home. The patients, 6425 in 1986-87, were admitted, treated and discharged by their regular physician.

The current objectives of the Extra-Mural Hospital are:

1. To provide an alternative to hospital admissions;
2. to facilitate earlier discharge from hospitals; and
3. to provide care at home for persons terminally ill.

There is only one Extra-Mural Hospital in New Brunswick. Local Service Delivery Units are located in various centres of population throughout the province.

Additional Service Delivery Units are established only when specifically approved and financed by the Department of Health and Community Services.

THE ST. STEPHEN UNIT

St. Stephen, New Brunswick, is a town of 5,000 in rural Charlotte County (population 25,000). 14.5% of the population of the County are age 65 or over, with 5.8% age 75 or over.

Twenty doctors practise in Charlotte County, and the Charlotte County Hospital in St. Stephen has 87 beds. Regional referral hospitals in Saint John and Fredericton are 100 miles distant. Five public health nurses serve the County.

The St. Stephen Service Delivery Unit of the Extra-Mural Hospital opened in late November 1987 with the Unit Coordinator (a nurse-manager) and five other full-time nurses covering St. Stephen and a 20 mile radius beyond. One hundred patients were admitted to the St. Stephen Unit during its first three months of operation.

THE REVIEW

A chart review was conducted in late February 1988 (three months after the Unit's opening) to provide data on the first 100 patients.

ADMISSION CRITERIA

The patients satisfied the following requirements for admission:

1. The patient is a New Brunswick resident and entitled to insured hospital services.
2. The patient lives in the area serviced by the St. Stephen Unit.
3. The patient and his/her family are agreeable to receiving home health care.

From the New Brunswick Extra-Mural Hospital.

*Medical Director, The New Brunswick Extra-Mural Hospital, 200 Prospect Street, Fredericton, N.B. E3B 2T8
**Chairman, Medical Advisory Committee, St. Stephen Unit.
***Coordinator, St. Stephen Unit.

4. The patient has an identified medical problem(s) requiring nursing intervention.
5. The medical problem is one that can be safely treated in the home.
6. The particular home is suitable for home care.
7. The medical problem requires active treatment directed towards cure or amelioration of the patient's condition to the extent that a discharge from the Extra-Mural Hospital can be anticipated.
8. The patient is admitted by his/her physician.

Patient Data

Number of Patients 100

Case #1 admitted 11/23/87
Case #100 admitted 2/26/88
Review performed 2/29/88

Sex

Female	57 Patients
Male	43

Age

0-14 years	17 Patients	
15-24	1	
25-34	9	
35-44	4	
45-54	5	
55-64	9	
65-74	21	
75-84	29	55
85+	5	

Admitted From

The Charlotte County Hospital	48 Patients
A Regional Referral Hospital	10
Home	42

EMH Attending Physician

Family Doctor	90 Patients
Surgeon	10

Primary Diagnosis

The primary diagnosis for each patient was categorized by the International Classification of Diseases, ninth revision (ICD 9).

Many patients had multiple diagnoses as well as multiple problems; however only the primary diagnosis was coded.

Disease Classification

I. ***Infectious and Parasitic***

0 Patients

II. ***Neoplasms***

Carcinoma of the Colon		4 Patients
	Lung	2
	Breast	1
	Skin	1
	Bladder	1
	Tongue	1
Lymphoma		1
Multiple Myeloma		1
		12

Twelve patients had cancer. Several recent post operative patients were instructed in the care of their new colostomies. One patient received chemotherapy by bladder irrigations. Several of the patients were in the terminal phase of their disease and received palliative care with an emphasis on symptom, especially pain, control. Two patients died peacefully at home supported by their families, the 24 hour on-call availability of the nurses, and home visits by the family physician.

III. ***Endocrine, Nutritional, Metabolic***

Diabetes 20 Patients

Twenty patients, one-fifth the total, had diabetes. The interrelationship of diet, physical activity, and medications was conveyed in the home setting. The diabetic status of the patients was assessed, monitored and regulated. The patients and their families were taught diet planning and techniques for monitoring blood glucose. They were taught to prevent, recognize and manage hypoglycemia. Under the physician's direction, some patients were started on insulin and taught self administration, while in other cases the improved regulation of the diabetes permitted insulin to be discontinued. Special emphasis was placed on care of the skin and feet. Patients were taught to become self sufficient in their daily diabetic management.

IV. ***Blood***

Hemophilia, 1 Patient

V. ***Mental***

0 Patients

VI. ***Nervous System***

Alzheimers Disease, 1 Patient

VII. ***Circulatory***

Congestive Failure	8 Patients
Post Myocardial Infarction	3
Ischemic Heart Disease	3
CVA	3
Peripheral Vascular Disease	1
	18

Eight patients had congestive heart failure. The nurses assessed the patient's signs and symptoms of failure, and were able to identify and counsel concerning

such contributing factors as diet, and non-compliance with medication; they also administered medication parenterally as ordered.

VIII. ***Respiratory***

Asthma	10 Patients
Pneumonia	8
COPD	7
Acute Bronchitis	1
Croup	1
Cystic Fibrosis	1
	28

Eight adults had pneumonia and six had a primary diagnosis of chronic obstructive pulmonary disease. Respiratory assessments by the nurses included regular chest auscultation. The teaching and monitoring of the use of aerosol treatments frequently took place. On occasion, oxygen therapy was instituted when ordered by the physician. Antibiotic therapy was monitored. One patient received a seven day course of intravenous antibiotics with the use of a heparin lock system.

One patient with Chronic Obstructive Pulmonary Disease, who in the seven months prior to his being admitted to the Extra-Mural Hospital had been out of the active treatment hospital for only seven days, was treated at home for thirty days and then discharged from the Extra-Mural Hospital. When he requires further treatment, he will be readmitted to the local Service Delivery Unit.

Ten children were treated for asthma with an emphasis on patient and family education.

IX. ***Digestive***

Diverticulitis	4 Patients
Colitis	1
Post Cholecystectomy	1
Obstructive Jaundice	1
Amyloidosis	1
	8

X. ***Genitourinary***

Post Hysterectomy	2 Patients
Cystitis	1
	3

XI. ***Complications of Pregnancy, Childbirth and the Puerperium***

Toxemia	1 Patient
Gestational Diabetes	1
Post C. Section	1
	3

A patient with toxemia of pregnancy was maintained at home, with close supervision of her activity, until admission to hospital for delivery. Her blood pressure, urine and general condition were monitored by the nurse who was in a position to note any changes that would indicate immediate hospitalization.

A patient with gestational diabetes was managed at home until she was admitted to hospital for induction of labour.

XII. ***Skin***

Ulcer	4 Patients
Cellulitis	2
	6

XIII. ***Musculoskeletal***

0 Patients

XIV. ***Congenital Anomalies***

0 Patients

XV. ***Perinatal***

0 Patients

XVI. ***Symptoms/Signs/Ill Defined Conditions***

0 Patients

XVII. ***Injury and Poisoning***

0 Patients

Discharges at the Time of the Review

Discharged from the EMH and remained home	44 Patients
Discharged from the EMH and admitted to the Charlotte County Hospital **	18
Discharged from the EMH and admitted to a Regional referral Hospital **	2
Died at home	2
	66 Patients

For the 66 Discharged Patients

Average length of stay in the EMH (range 4-68 days)	23 days
Average Number of Nurse's Visits (range 3-66)	15 visits
Number of Patients with Homemakers Arranged through the EMH	4

DISCUSSION

Home Health Care

"Home health care is a legitimate form of care for some persons at strategic times during the course of their illness. It is that component in the continuum of health care in the community that should be provided

**Patients were discharged from the EMH and readmitted to hospital because of a deteriorating condition, the development of new medical problems, a reduction in family support, or a planned readmission to hospital for further surgery or obstetrical delivery.

when an individual does not need intensive, full-time care or supervision in an institutional setting, yet cannot, without undue efforts, get to such services on an ambulatory basis".[2]

Furthermore, "home health care refers to the prescribed skilled services delivered in the home of a patient who would otherwise need institutional care. Evaluations of this type of care have found better outcomes and lower costs for patients receiving skilled nursing services at home compared to similar patients receiving skilled services in a hospital or nursing home."[3]

The St. Stephen Unit of the New Brunswick Extra-Mural Hospital is developing as such a home care component of the health system. The Extra-Mural Hospital operates on the belief that many conditions and illness can best be handled to the benefit of the patients if the patients are treated in their own homes, supported by their family, friends and normal living environment. The St. Stephen Unit, along with the other ten EMH Units, is developing as a bridge between acute care hospitals and ambulatory care.

"The New Brunswick Extra-Mural Hospital is also based on the idea that patients who receive their medical treatment at home, rather than in an institution, often become more involved with life! In this sense, the home-hospital is part of a nascent trend in Canadian health care to focus more on the whole person — mind, body and spirit — than on one specific ailment."[4]

Physician Involvement

The patient's own physician arranges admission to the Extra-Mural Hospital, prescribes treatment and orders discharge as in the conventional hospital. This physician involvement is important.

"Through training and experience, doctors are able to make major decisions about patient care when other health workers may hesitate or overact. These decisions often relate to the wisdom of staying at home versus transfer to the hospital, evaluation of signs and symptoms and the use of medications."[5]

All St. Stephen area physicians providing primary care have applied for and received Extra-Mural Hospital privileges. They advise on medical policies and procedures through their St. Stephen Unit Medical Advisory Committee.

As local experience with the care of patients through the Extra-Mural Hospital continues, perhaps one will hear comments similar to the following from Auckland, New Zealand, where an extra-mural hospital has been operating for a number of years.

"From the family practitioner's perspective, one person stressed how EMH services had helped him to expand the scope of his practice. He reported that EMH services have allowed him to conduct initial assessment and subsequent management of certain conditions in the home under his direction. He believes EMH services have dramatically reduced the number of medical hospitalizations in his greater than average-sized family practice."[6]

Patient Age

The Extra-Mural Hospital serves all ages but it is not surprising that 55 of the first 100 patients in St. Stephen and 52% of all patients discharged from the Extra-Mural Hospital in 1986-87 were age 65 or older.

It is very evident that institutions alone cannot and should not meet the future needs of the aged in Canada. The Extra-Mural Hospital may be ideally suited to ensure that services for the elderly are part of the mainstream of health care.

Many home health care programs concentrate entirely on the elderly so it is of note that 17 of the first 100 patients in St. Stephen and 9% of patients discharged from the Extra-Mural Hospital in 1986-87 were under age 15.

Diagnostic Categories

"Medical diagnoses are generally indicators of health status. They do not always reflect accurately the extent and type of disability, the nature of the services required, or the duration of the need for care.

Nevertheless, despite the limitations, where diagnoses have been examined in studies of home care, they were found to be related to utilization. In general studies that use the International Classification of Diseases Coding (ICD 9) have usually shown that the diagnostic group comprising circulatory disorders is the most prevalent primary diagnosis, followed by that comprising neoplasms. Other frequent primary diagnostic categories include endocrine disease, musculoskeletal disorders and injuries. A critical dimension of the need for home care is the ability of individuals to perform the normal activities of daily living (ADL). It is often functional status at admission to home care, rather than diagnosis or other characteristics that dictates the service needs of home care patients.

While a patient's diagnosis is, in general, predictive of eventual medical outcome, functional status may be a clearer indicator of current service needs."[1]

A Milwaukee home care program that primarily serves patients discharged from the nursing home or the acute care unit has found the following:

"The major problems identified by the home care nurses are cardiac failure, limitations in mobility and self-care, family difficulties, serious constipation, and medication mismanagement. Average length of stay is 35 days. One fourth of the patients are discharged to the hospital because of an exacerbation of their illnesses. The home care patients are chiefly very sick,

dependent, elderly women with multiple medical and psychosocial problems, maintained at home with the help of family home care services, and, not the least, by their own indomitable will to remain as independent as possible."[7]

And in New York City:

"A 1980 survey done by Blue Cross-Blue Shield of Greater New York found the three leading primary diagnostic categories (following the ICD-9 classification) among all home health care patients were diseases of the circulatory system, neoplasms and diabetes, which together accounted for 51% of the primary diagnoses. An important determinant of home health care appears to be the presence of multiple diagnoses and complicated medical conditions."[2]

In the St. Stephen review, 28% of the patients suffered from respiratory problems, 20% had diabetes, 18% had circulatory problems and 12% had neoplasms. These correspond to the most common ICD-9 diagnostic categories of the 6,425 patients discharged from the Extra-Mural Hospital in 1986-87, with some variation in their frequency. They were:

Circulatory	15.9%
Neoplasms	14 %
Respiratory	13.9%
Endocrine	11.4%

It is interesting to note that the large number of respiratory patients in the St. Stephen and Extra-Mural Hospital series are not always seen in other health care programs.

Hospital Replacement

Currently, the Extra-Mural Hospital attempts to provide an alternative to hospital admissions and to facilitate earlier discharge from medical care institutions.

The Extra-Mural Hospital's impact as a hospital in the home, on bed occupancy in St. Stephen, will be determined by noting changes in local hospital statistics.

Application of The Appropriateness Evaluation Protocol, an instrument developed by Boston University researchers working in consultation with physicians in Massachusetts professional standards review organizations, seems appropriate. It consists of 18 criteria related to either conditions of the patient that require acute hospital care or specific services that require hospitalization. An admission to hospital is considered appropriate if any of the 18 criteria are fulfilled. (Appendix I).[8-9]

When the Appropriateness Evaluation Criteria are applied to the 100 patients treated at home in St. Stephen through the Extra-Mural Hospital, it is apparent that a number of these Extra-Mural Hospital patients would have satisfied the criteria for appropriate admission to a traditional hospital.

Patient and Family Acceptance

The 100 patients in St. Stephen and their families agreed to home health care through the Extra-Mural Hospital, with subsequent high levels of acceptance and appreciation of services. The following is from a letter to the *Saint John Evening Times Globe.*

"With the support and help of the Extra-Mural Hospital nurses we were able to fulfil my mother's last wish, which was to die at home in familiar surroundings and cared for by her family. We knew very little of what this service had to offer and were very nervous and unsure of whether we would be able to carry through this immense undertaking. We are not members of the medical community, just ordinary people, but with the guidance and instruction of the nurses we learned and we coped. Because of their support, the fact that their help and reassurance were only moments away by phone, followed very shortly by their knock on the door, we were able to give to and share with our mother something very special."[10]

CONCLUSION

The first 100 patients of the St. Stephen unit of the New Brunswick Extra-Mural Hospital exhibited significant medical problems which were managed by a variety of treatments, including some usually reserved for traditional hospitals.

The addition to the St. Stephen Unit of physiotherapy, occupational therapy, respiratory therapy and dietary services during the coming year will increase the scope of Extra-Mural Hospital home health care to the area.

The Honorable Jake Epp, Federal Minister of Health and Welfare noted recently in Fredericton that

"community health care is essential and the transition from hospitalization to the home is filled with gaps that should be covered."

Perhaps as the Minister remarked in commenting on extra-mural hospitals,

"this road will take health care into the future."[11]

APPENDIX

THE APPROPRIATENESS EVALUATION PROTOCOL

Patient's Condition

1. Sudden onset of unconsciousness or disorientation.
2. Pulse rate <50 or >140 per minute.
3. Blood pressure systolic <90 or >200 mm Hg or diastolic <60 or >120 mm Hg.
4. Acute loss of sight or hearing.
5. Acute loss of ability to move a body part.
6. Persistent fever with oral temperature ≥100 F for more than five days.

7. Active bleeding.
8. Severe electrolyte or blood gas abnormality.
9. Acute or progressive sensory, motor, circulatory, or respiratory embarrassment.
10. Electrocardiographic evidence of acute ischemia.
11. Wound dehiscence or evisceration.

Intensity of Service

12. Intravenous Medications, fluid replacement, or both.
13. Surgery or special procedure scheduled within 24 hours.
14. Cardiac monitoring or monitoring of vital signs at least every 2 hours.
15. Chemotherapy requiring continuous observation.
16. Treatment in an intensive care unit.
17. Intramuscular antibiotics at least every 8 hours.
18. Intermittant or continuous use of respirator. □

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Vertebral Artery Dissection Following Cervical Chiropractic Manipulation

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A 39-year-old man presented with a pure motor stroke 9 days after cervical chiropractic manipulation. Computerised tomographic scanning showed a pontine infarct. Cerebral angiography showed changes consistent with the diagnosis of bilateral vertebral artery dissection. Dissection of the cervico-cerebral arteries is a recognised complication of cervical chiropractic manipulation.

All medical and surgical procedures are associated with some risk. Discussion of the benefits and unwanted effects of a given procedure is essential if the patient is to give informed consent to undergo treatment. The purpose of this paper is to illustrate that stroke may complicate cervical chiropractic manipulation.

REPORT OF A CASE

A 39-year-old man experienced the sudden onset of dizziness, speech disturbance, and left-sided weakness while hurrying to work on April 15, 1988. He was transferred from his local hospital to Camp Hill Hospital on April 19.

Nine days before the onset of these symptoms he completed a 10-day "course" of chiropractic treatment for a painful, stiff neck which he had had for about 6 weeks. Otherwise, he had been fit and well. There was no past history of migraine, neurological symptoms, cardiovascular disease, hypertension, diabetes, alcohol abuse, or use of tobacco, cocaine, or other sympathomimetic drugs. There was no family history of premature vascular disease. He was taking no medications.

At the time of admission to Camp Hill Hospital, the general medical examination was unremarkable. His systolic blood pressure ranged between 110-140 mm Hg, and the diastolic between 70-80 mm Hg. No cardiac abnormalities were detected, and there were no bruits over the head and neck. Neurological examination showed a left hemiparesis involving face, arm, and leg. No other cranial nerve signs were detected. Speech and language were normal. There were no cerebellar or sensory signs. His neurological deficit was moderately severe; he could not walk, and had no useful function in the left upper extremity, i.e. grade 6 on the Stroke Severity Scale.[1]

The following investigations were normal or negative: haemoglobin, haematocrit, platelet count, ESR, serum proteins, serum protein electrophoresis, VDRL, chest X-ray, X-rays of the cervical spine, and ECG. An echocardiogram showed mild prolapse of the anterior leaflet of the mitral valve.

A computerised tomographic (CT) scan done 6 days after stroke onset was normal. A CT scan done 18 days after stroke onset showed a low-density lesion in the mid-pons on the right side (Fig. 1). The appearances were consistent with the diagnosis of an infarct.

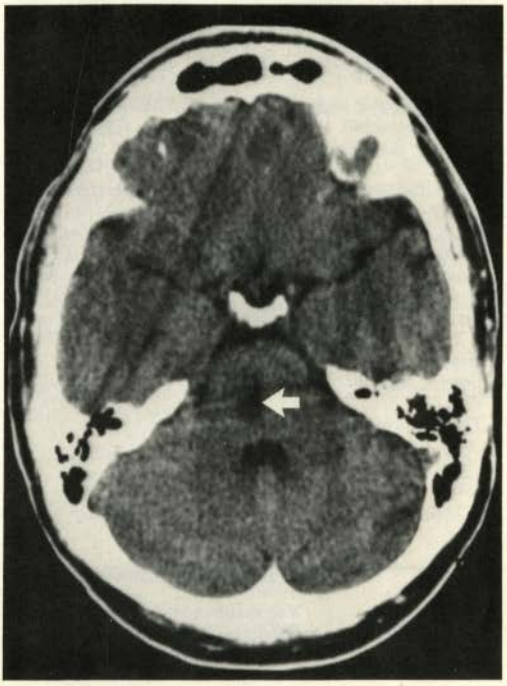

Fig. 1 Unenhanced CT scan showing an infarct (arrow) in the right side of the pons.

Four-vessel cerebral angiography was performed 13 days after stroke onset. The extracranial carotid arteries and the intracranial circulation were normal. Both posterior cerebral arteries filled from the carotid system. The left vertebral artery tapered to an occlusion in the foramen transversarium at the level of C6 (Fig. 2). There

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Doctor Phillips receives support from the W. Garfield Weston Foundation of Toronto, and the Nova Scotia Heart Foundation.

was collateral flow to the distal left vertebral artery via branches of the left occipital artery. The right vertebral artery was irregularly stenosed throughout much of its course in the foramen transversarium (Fig. 3). The distal right vertebral artery and the basilar artery appeared normal. The angiographic appearances were consistent with the diagnosis of bilateral vertebral artery dissection.

During a 16 day stay in hospital he received daily occupational therapy and physiotherapy. At the time of discharge he still had a grade 6 neurological deficit on the Stroke Severity Scale,[1] but his level of functioning had improved. He was able to walk with the assistance of a drop-foot splint and a cane, and opposition movements had begun to return in the left hand.

DISCUSSION

Head and neck trauma is an important cause of cerebral infarction in young adults.[2] Dissections of the cervical and cerebral arteries have been linked with various forms of trauma, including cervical chiropractic manipulation.[3] Dissection occurs when blood tracks between the layers of the arterial wall, often narrowing the true lumen and sometimes causing focal or diffuse dilatation. This process may result in cerebral infarction if there is haemodynamic compromise distal to the dissection, or if embolisation of mural thrombus occurs. Subarachnoid haemorrhage can result from dissection of the intracranial vertebral artery because this type of dissection tends to occur in the subadventitial plane.[4,5]

The incidence of stroke due to dissection of the arteries supplying the brain is unknown. One to three cases per year are reported from large, academic-affiliated hospitals.[3] The growing number of publications reporting a temporal association between cervical chiropractic manipulation and arterial dissections[3,6] — particularly dissection of the vertebral arteries[7,8] — makes it impossible to deny that this form of neck trauma can cause stroke. However, doubts about the strength of the cause-and-effect relationship still exist because dissections are known to occur "spontaneously,"[3,6,9,10] and most cervical chiropractic manipulations are uncomplicated. Arteriopathies such as cystic medial necrosis, fibromuscular hyperplasia, and Marfan's disease are thought to predispose to dissection, but these conditions are present in the minority of cases.[6]

Dissections can occur at any point in the course of the vertebral artery, and are typically bilateral in symptomatic cases. They occur most frequently at the C1-C2 level, but also commonly occur at the C6 level where the artery enters the foramen tranversarium, presumably because the artery is most subject to mechanical stress at these points.[11]

We believe that our patient had bilateral vertebral

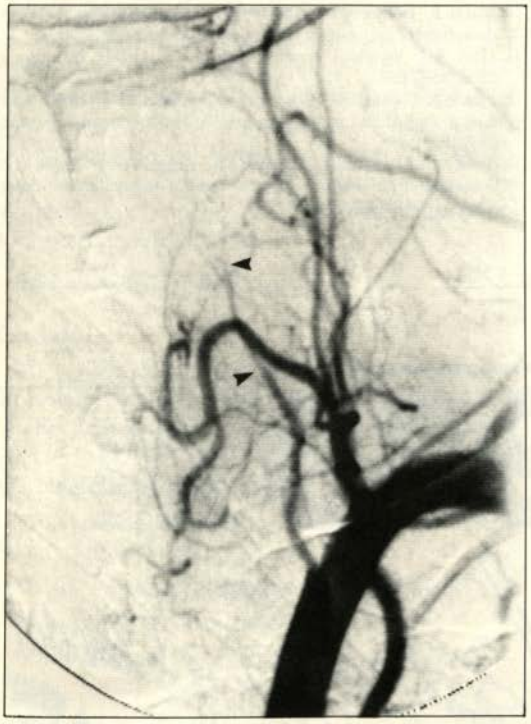

Fig. 2 Cerebral angiogram. Left subclavian injection showing a tapering stenosis (lower arrowhead), and occlusion (upper arrowhead) of the proximal left vertebral artery.

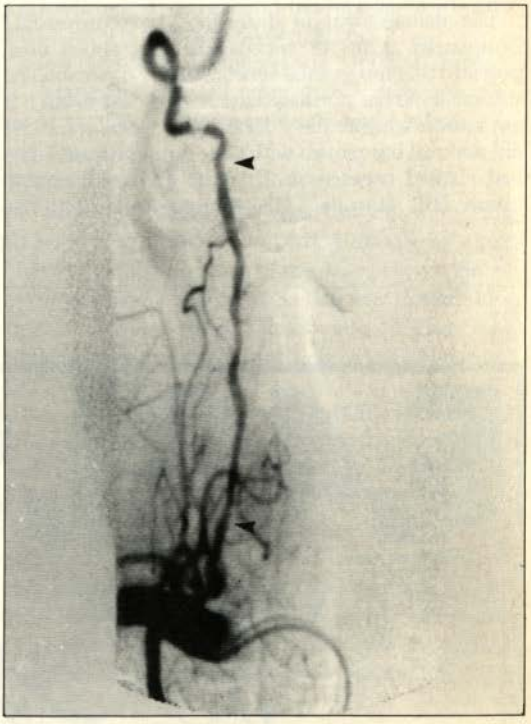

Fig. 3 Cerebral angiogram. Right subclavian injection showing a long, irregular stenosis of the right vertebral artery (arrowheads).

artery dissections induced by cervical chiropractic manipulation, and that the pontine infarct was caused by artery-to-artery embolism.[12] Atypical features were the absence of neck pain at the onset of neurological symptoms, and the 9-day delay between the last chiropractic treatment and the stroke. However, these features do not cast serious doubt on the diagnosis because painless dissections are known to occur, and the interval between trauma and stroke may vary from hours to several days.[6] Arteriographic diagnosis of vertebral artery dissection is presumptive, unless a pseudoaneurysm or double-lumen is demonstrated.[11] However, we have no viable alternative explanation for the angiographic findings in this case.

Echocardiography demonstrated the presence of mitral valve prolapse but an embolus from this source would not produce the persistent, marked, bilateral arteriopathic changes documented here. This serves to illustrate that the diagnosis of cardiogenic cerebral embolism requires more than the mere demonstration of the presence of a potentially emboligenic heart condition. Precise definition of the mechanism of stroke is necessary for rational therapy, and is especially important in young patients and individuals who have mild strokes. Angiography performed early in the course of the illness is a high-yield, low-risk procedure that may significantly alter the management of acute stroke in young adults.[13]

The management of dissections is controversial.[6] Antiplatelet agents or anticoagulants are often used, provided that intracranial vertebral artery dissection and subarachnoid haemorrhage have been excluded, but it is not known whether these drugs influence outcome. We did not treat our patient with these drugs because 4 days had elapsed between stroke onset and admission to Camp Hill Hospital. His neurological deficit had already started to improve, the vertebral artery injury was caused by an avoidable form of trauma, and there was no evidence of an underlying arteriopathy that could predispose to recurrent dissection. □

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Confidentiality: Let's Try Harder!

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". . . . . and that in the practice of my profession I shall at all times, to the utmost degree consistent with public duty, preserve inviolate the confidences of my patients."

Dalhousie graduates will surely all remember, as one key component of that happiest of days: Medical Convocation, the taking of the Hippocratic Oath by the graduating class. Our concern is that we believe that this part of the oath is less meticulously observed than the other parts. Indeed, it is paradoxical that, when the patient being discussed is a physician, confidentiality seems to be ". . . . . a custom more honoured in the breach than the observance" There seems to be an impression in the minds of many physicians that it is "not really a breach of confidence" when the person receiving clinical information, to which he/she is not entitled, is a physician and, often, a colleague of the patient. We do not wish to imply, in any way, that this failure to live up to the highest standards of professional behaviour is unique to Dalhousie or Nova Scotia, and, accordingly, our examples are drawn from a number of institutions. However, since the faculty of the Dalhousie Medical School have to be the role models for many of the future doctors of the Maritime Provinces, we would like to see a much more meticulous attention to confidentiality in respect of all patients, rich or poor, doctor, tinker, tailor or whatever.

Here are some examples:

Example 1

The patient was a senior resident whose immediate supervisor was at a medical dinner; she was recovering in the neurological ward from a subarachnoid haemorrhage. Her "boss" sat opposite his friend, the neurologist, at a medical dinner.

"You know, Jean is at a very interesting stage just at the moment".

"Boss" — cutting in abruptly — "Don't tell me!"

"Why? aren't you interested?"

"Of course I am interested, but I am not entitled."

An atmosphere of coolness between the friends descended. The "boss" turned to two general practitioners sitting at the same table and asked: "What do you think?"

"Well, you are right really, but we are all human".

Example 2

A well known local public figure and a very well known local physician both, apparently, had the same operation for the same cancer in the same hospital on the same day. Forty eight hours later this interesting coincidence was talked about over lunch in the hospital cafeteria.

Example 3

A very popular and able teaching hospital physician had suffered a severe myocardial infarction. His colleagues often would meet the treating cardiologist at lunch. She was meticulous in answering enquiries as to his progress with generalities such as: "He is a bit better", or "He has had a bit of a set back".

A few days later at lunch it was reported, through the "grapevine" of staff other than the cardiologist, that he had had a DC conversion the night before.

Example 4

A nationally famous psychiatrist was a visiting speaker at a Medical School. During his talk he spoke of hearing on the car radio of the death, by suicide, of an eminent member of the Canadian Arts Community whom he had been treating at the time. He gave some comments about the clinical condition of the patient prior to his death.

In our view the oath of confidentiality does not end with the death of the patient. Perhaps archivists would wish to have the CMA give an ethical guideline as to the number of years which must pass before clinical details about a famous person's illnesses may be disclosed. An enquiry to the Canadian Medical Protective Association suggested that they had not had such a query before, but could not see that there was any particular time at which it was proper to make public clinical information, even about the dead.

Example 5

One of us needed to speak to a faculty member present, a clinician in a department dealing with

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many potentially lethal conditions. The clinician was talking to a department Head from another department. The following was overheard, without intentional eavesdropping:

Clinician:

"Oh yes..... and, by the way I have the wife of another member of your department in treatment as well."

Department Head: "Oh, have you? Who is that?"

Clinician: (Mentions her name)

Department Head: "Oh, I sensed there was something wrong there, but didn't know what it was. Don't tell her you told me will you?"

Example 6

A medical student met his friend for lunch. He greeted a fellow student and cheerfully reported that he, the student, that morning had examined one of his fellow-student's neighbours. He thereupon gives the neighbour's name. We understand that recently a member of the housekeeping staff of a hospital in Canada was disciplined because of a breach of confidence regarding a hospital patient who was a neighbour. It happens very easily both without premeditation or intention. How often are we disciplined?

DISCUSSION

Without dragging this article out too long, it should be mentioned that there are many less glaring examples of confidentiality being breached by physicians treating physicians when talking to their concerned colleagues. The motives behind these breaches are certainly not sinister, but they seem to represent a standard given to our doctor-patients lower than that we would give to the average patient.

In addition to these quite deliberate statements, given because of a failure to recognize their impropriety, there is also very frequent disclosure by simple carelessness. This is the common elevator talk or cafeteria talk of persons interested in their work talking to their friends and acquaintances. What needs to be remembered is that elevators and cafeterias are not private places and friends and acquaintances are certainly entitled to share in our enthusiasm for our work, but patients' names are not necessary in such exchanges.

Some medical students at Dalhousie have recently made complaints about the lack of understanding of confidentiality amongst their peers.

We live in an age when the physician is held in less awe and respect, and is less trusted than in past years. Patients have every right to distrust us if they think we will not (save for observance of public duty) respect confidentiality. All we need is to follow a few very simple rules:

1. When we talk interestedly about our patients we need not mention names.
2. When we are treating our professional colleagues, their professionally qualified friends and acquaintances are entitled only to generalities of information, not clinical details. If we tell the patient details about his/her condition then he/she can tell the friends and relatives as little or as much as he/she wishes.
3. If the patient is a well known person even greater care about confidentiality is needed, including after death. Remember that in a Maritime fishing village everyone is "well known".
4. For journal articles and presentations at Grand Rounds or professional conferences it is often advisable, especially if the case is in any way sensational, to alter initials and even change the age by a year or two. Sometimes even the patient's sex can be changed without the clinical message being lost, but identification of the patient becomes virtually impossible.

CONCLUSION

We hope the examples will convince you that we have a problem to tackle. Perhaps we can make a "New Year's Resolution" that 1989 will be "The Year of Confidentiality", and that what we start now will carry on forever. □

ADMISSION TO DALHOUSIE MEDICAL SCHOOL

This report is written to bring you up to date on new developments in the Dalhousie medical programme, and the requirements for admission.

We are now in the third year of a revised clerkship with a combined third and fourth year clerkship. Except for a few growing pains it has gone well and is popular with students and faculty.

The first year class entered a new programme in September that is departmentally based and on a trimester system, with final examinations at the end of each trimester. These students will start the revised second year programme next September.

The new programme has less lecture and contact time with more time for independent study. There is a move to more problem-based learning. There is patient contact in first year and more basic science in fourth year than previously. The programme is basically normal function in first year, abnormal function in second year, with clinical applications in third and fourth years. Examination format and evaluation generally is consistently changing to better identify deficiencies in the students or the programme.

The result of all these changes, we think, is certain to make us "the best damn medical school in the country".

If you have sons, daughters, patients or acquaintances contemplating a medical career we think you should encourage them to apply to Dalhousie. The requirements are as follows:

- a minimum of ten full university credits but a degree is recommended in the field of the student's choice.
- required courses in Biology, General Chemistry, Organic Chemistry, Physics and English.
- a broad academic background is recommended to include courses in the humanities and social sciences.
- writing of the Medical College Admission Test.
- arranging for the submission of three reference letters, two preferably from professors.
- writing a "supplementary information profile form" to tell why they wish to study medicine and what they do when not studying.

Considerable emphasis is placed on the non-academic merits of applicants in selecting the best people for each class. Straight "A" students may be turned down if they appear to be lacking the personal qualities that are considered important by the Admissions Committee.

Because there are approximately three times as many Maritimers applying as we have positions (for 1988 it was 258 for 79 places), students must also be strong academically. We accept very few students who have not achieved 80% or A- in their final premedical year.

If you wish additional information, please call 424-3591 or write for a Faculty of Medicine calendar.

Byron L. Reid, MD, CCFP,
Assistant Dean, Student Affairs,
Faculty of Medicine, Dalhousie University,
Halifax, N.S. B3H 4H7 □

The writings of Raphael Holinshed (died *c.* 1580) were used by Shakespeare as a basis for some of his historical plays. In 1577, Holinshed wrote this about whisky:

> Beying moderately taken, it cutteth fleume, it lighteneth the mynd, it quickeneth the spirits, it cureth the hydropsie, it healeth the stranguary, it pounceth the stone, it repelleth gravel, it puffeth away ventrositie, it kepyth and preserveth the hed from whyrlying, the eyes from dazelying, the tongue from lispying, the mouthe from snafflying, the teethe from chatterying, the throte from rattlying, the weasan from stieflying, the stomach from womblying, the harte from swellyng, the bellie from wirtching, the guts from rumblying, the hands from shivering, the sinoews from shrinking, the veynes from crumplying, the bones from akying, the marrow from soakyng, and truly it is a sovereign liquor if it be ordlie taken.

Current Topics in Community Health

Selected by: Dr. Karim H. Kurji
Department of Community Health & Epidemiology
Dalhousie University, Halifax, N.S.

CANADA'S HEALTH PROMOTION SURVEY: A NOVA SCOTIAN PERSPECTIVE

The Health Promotion Survey was a national telephone survey conducted in 1985, using the random digit dialing method. The target population was the non-institutionalized residents of Canada, fifteen years of age and over, with the exception of residents of the Northwest Territories where a significant percentage of the population are without telephones. The findings of the survey were recently published by Health and Welfare Canada. Their technical report describes the prevalence and distribution of a broad range of health practices including data on attitudes, beliefs, intentions and knowledge related to health. It is anticipated that the report shall prove to be a useful resource for planning health promotion and disease prevention programs. While the report essentially addresses the Canadian perspective, useful insight is provided by the tables on provincial figures.

Nova Scotians rank highest in terms of using seatbelts, with 83.4% reported "always" using seatbelts; the average for all Canadians is 65.5%. A record 95.3% of Nova Scotian drivers always insisted that children with them use seatbelts or carseats; this figure is the highest in Canada. A high proportion (88.4%) of Nova Scotians reported never driving after drinking in the month preceding the survey, the highest figure in Canada.

Only 49.6% of wage-earning Nova Scotians were aware of any safety or accident prevention programs at work; this is the lowest figure across Canada. While it is impossible to distinguish between lack of awareness and lack of programs, there is little difference from the worker's perspective, at least for programs which require active worker participation.

Of all Canadians surveyed, 57% reported having had their blood pressure checked within the six months preceding the survey; the figures for Nova Scotians are similar (56.6%). Men under the age of 45 are the least likely to have had their blood pressure checked within the six months preceding the survey. Of those Nova Scotians who want more health information, 52.6% want information on high blood pressure, ranking second only to Quebec (53.1%). A high proportion (63.8%) of Nova Scotians felt it was important for government to be involved in the hypertension issue.

Nova Scotians rank fourth highest in terms of their smoking status, with 35% of those surveyed being smokers; the corresponding figure for all Canadians being 33.8%. Across Canada, young adults between 25 and 34 smoke more than older Canadians. The proportion of smokers has decreased by 16% in twenty years, more men having quit than women. However, women and men now almost have equal proportions of smokers. While 88.7% of Nova Scotians surveyed felt women should not smoke during pregnancy, this is the lowest figure across Canada. A high proportion (84.7%) of Nova Scotians, as other Canadians, felt that non-smokers should be provided with smoke-free work areas.

Of those Nova Scotians surveyed, 73.5% drink; this figure compares favorably with that across Canada where 81.4% are current drinkers. The proportion of non-drinkers among Nova Scotians is 13%; this figure is second only to P.E.I. In general, there are more drinkers in the western part of the country than the east. Among those who use alcohol, those who live in the West drink more than those in the East. The average number of drinks per week that Nova Scotians have is 6.7 for men and 3.1 for women; the respective averages for Canadians are 7.3 and 2.8.

Nearly one out of every eighteen Canadians used marijuana or hashish in the twelve months preceding the survey. Prevalence of use is highest among the younger age groups. Among those 15 to 25 years of age, 12% have used cannabis, while for the 25-34 group, the proportion decreases to 9%, and is 3% or less for all other age groups. High rates of marijuana and hashish use are found among students (10%) and those looking for work (12%). Fewer than one in one hundred Canadians (0.9%) used cocaine in the twelve months prior to the survey. Unfortunately, no information on Nova Scotians is provided in this section.

Nova Scotians rank third from the bottom in terms of Pap smears done within the past three years, the figures being 65.9% for Nova Scotian women and 72.0% for all Canadian women. However, the provincial figures have not been broken down by age or other characteristics and are therefore difficult to interpret.

Over half (54.0%) of Nova Scotian females had their breasts examined by a doctor or nurse in the twelve months preceding the survey; this figure ranks third from the bottom with the average for all Canadians being 64.5%. Over a third (36.7%) of Nova Scotian

females examine their own breasts once a month, the figure being close to that of all Canadians (37.9%). However, 25.2% of Nova Scotian women never examine their own breasts. Fewer women in the Atlantic Provinces have been shown how to examine their breasts; the figures for Nova Scotians and all Canadians are 67.2% and 74.5% respectively. A greater proportion of those shown how to examine their own breasts do so, with 48.2% of Nova Scotian women shown how to examine their own breasts doing so once a month. As many as 68.2% of Nova Scotian women believe that a woman should examine her breasts once a month.

While no provincial figures have been provided on nutrition, over 66% of Canadians believe they can improve their health by changing their eating habits. About 40% of Canadians feel it is very important for government to deal with nutrition and over 50% of those who want more information chose nutrition as a topic.

Of those Nova Scotians surveyed, 14.9% reported having a disability, 14.0% reported having an activity limitation, and 15.9% reported being in fair or poor health. These figures compare poorly with the rest of Canada, the Province ranking second from the bottom.

In terms of what topics Nova Scotians felt that government should deal with, 79.4% felt it was very important for the government to deal with drug use, 77.8% selected accident prevention on the road, 75.6% selected alcohol use and 73.6% selected child health.

Source: Health and Welfare Canada (1988). Canada's Health Promotion Survey: Technical Report. Eds., Irving Rootman, Reg Warren, Thomas Stephens and Larry Peers. Ottawa: Minister of Supply and Services, Canada.

STRESSING PREVENTIVE MEDICINE

The Quebec Government is examining an idea, based loosely on Health Maintenance Organizations in the United States, for providing health care that stresses more preventive medicine. The OSIS — short for Organisations de soins intégrés de santé — essentially involves the payment of a subsidy to participating hospitals and clinics to serve a predetermined number of clients in their districts. The proposal is expected to reduce costs without compromising accessibility. The expectation is that health-care institutions would be compelled to focus more attention on education, nutrition and ensuring that their clients stayed well.

Source: Peggy Curran, The Gazette Montreal, Wednesday, November 16, 1988. □

BOOK REVIEW

BEYOND BACKACHE — A PERSONAL GUIDE TO BACK AND NECK PAIN RELIEF by Michael Livingstone MD Published by Libra Publishers Inc. California USA 1988 $12.95 US

This 112 page book was written primarily for patients but makes excellent reading for the medical practitioner who sees patients with low back pain (LBP). Dr. Livingstone is a family physician in Richmond B.C. and has seen about 9000 patients with LBP in the course of his career. He has authored 3 books on LBP and his latest book is a gem. The free use of cartoon drawings, his reference to medical history and anecdote not to mention his easy flowing writing style, make this book easily readable in 2 to 3 hours and contains a wealth of good advice.

Although written primarily for the patient with LBP nevertheless the primary care practitioner will benefit particularly from Chapters 4 and 5 by learning the COBRA method (**C**omplete relaxation, **O**n your back, **B**ack side up, the **R**ock, **A**ny other exercise), advocated by Dr. Livingstone and teaching this routine to patients with LBP. The essential feature of this book is that it makes such complete common sense and is eminently practical. The book also goes a long way in debunking the mythology of LBP by pointing out that the vast majority of patients do not require anything more than a few days bedrest then gradual and increasingly active exercise to achieve a full and pain-free recovery over the next 2 months. Very, very few require surgical intervention or specialty referral.

I would recommend that the primary care physician should keep this useful little book on the shelf in the office and make it compulsory reading for their patients with LBP as much part of the therapy as ASA, bedrest and exercise.

Reviewed by:

David B Shires, MD, MPH, FCFP,
Professor,
Department of Family Medicine,
Dalhousie University, Halifax, N.S. □

Correspondence

Editors Note:
The following letter is published at the request of Dr. Henshaw, and is of interest to all physicians in Nova Scotia.

To: Dr. J.D.A. Henshaw, Past President,
The Medical Society of Nova Scotia.

Dear Doug:

Through you, to all members of the Medical Society I wish to extend my most sincere appreciation for the high honor you have bestowed upon me as well as the extent to which you recognized my contributions to your association.

I am still having difficulty really believing that you have chosen to name me an Honorary Member. Judging from the past record of the Society, you certainly do not do this lightly. In response I can only say how proud I am to have served you to the extent that you would act as you have. I thank you from the bottom of my heart. Once again, I thank those who helped me make this possible — my wonderful staff.

The Annual Banquet will be a highlight of my life. It was certainly a night of wonderful surprises ranging from the beautiful painting from the Society along with the more than generous remarks by yourself, quite unexpected praise from the Minister of Health and Fitness, Mr. Joel Matheson, and to top the lot, a totally unexpected "roast" from my long time friend Admiral Bob Falls. What fun you must have had cooking that one up! Thank you Doug very very much. And to think that you were arranging all this at a time when you were in most difficult straits yourself. Mossey, who enjoyed the great evening equally with me, joins me in thanking you too for arranging to have so many of the Peacocke clan in attendance for this memorable event. I am surprised Admiral Falls was not able to arrange an airlift from Edmonton, Claresholm, Red Deer, Ottawa, Penetanguishene, Valleyview, Toronto and London to bring in the rest of our crew.

I leave the Medical Society with mixed emotions. I will miss the excitement, activity and pressure like you wouldn't believe it. It has been my lifestyle for all of my working life. At the same time Mossey and I are looking forward with anticipation and excitement to the long and healthy retirement that you and so many of your colleagues have wished for us.

As I leave, I wish the Society well. The world will continue to be an increasingly difficult place in which to live. New challenges for you will appear with greater frequency. Pursuit of your goal of public service will become more difficult but with leadership like you and your predecessors have provided, your objectives can be achieved.

Good fortune. God bless you all. With kind personal regards,

Sincerely,

D.D. Peacocke,
Executive Director, Retired.

To the Editor:

Living in the area of the province which, I suspect, has the highest lipid levels of any population in Canada (at least 50% of all males over 30 in this area have total cholesterol levels of 6 or higher), I was interested in your October 1988 issue on this subject. However, more questions than answers are forthcoming from this series of articles.

First of all, as for all practical purposes, the decision to intervene depends on the results of a laboratory test, the reliability of the test becomes of paramount importance. If I read the article by Lays and Breckenridge correctly (the biochemical baffelegab being a little difficult for us peasants in the boonies, you understand), clinical laboratories in Nova Scotia showed a range of total cholesterol levels varying from just over 2 to 9 on a sample whose real level was 6.57.

This is rather akin to trying to find Nova Scotia with a navigational instrument that tells you you are somewhere between Greenland and Brazil. It has been my experience that cholesterol levels from our own laboratory (Yarmouth) vary for no apparent reason, by at least 40%. To judge the effectiveness of an intervention which may produce an effect of about 15% (diet) on a parameter which has a random variation of 40% may well require dozens of tests and a whole ivory-tower full of statisticians to give an answer. It is not clear from the article whether the same laboratories consistently produce inaccurate results, or whether another audit would give a completely different set of results, neither is the range of variation in the individual considered. It would seem prudent, before any massive and expensive population intervention is proposed, to ensure that the test for measuring is above reproach; from this paper, in this province it clearly is not.

My second point refers to drug therapy for dyslipidaemia. While a number of drugs have been demonstrated to lower CHD mortality, it is far from certain whether this reduction actually translates to a reduction in total mortality. For two of the commonly mentioned therapeutic agents (nicotinic acid and clofibrate) it definitely does not. Both these agents were, in large

international trials associated with an increase in total deaths. This is referred to in Langille and Lavigne's paper but is not given the emphasis it deserves. In at least one of these trials (clofibrate) the treatment arm was terminated because of a significant increase in total deaths. In other trials mentioned in this paper, it is unclear whether total mortality was actually measured, but it is stated that none of these agents produced a significant fall in total expected mortality. It would seem that if an agent causes a significant decline in CHD deaths, but no decline in total deaths, then it must itself cause *an increase* in deaths from other causes. Bringing up this point to enthusiasts for treatment, drug companies, et al, seems to cause nervous stutterings, a lot of "um-er's" and with persistence, the admission that this is "somewhat disturbing" but if we really are preventing coronary artery disease at the expense of producing, let us say, carcinoma of the colon, we should at least have a better idea about it.

My final point relates to the cost effectiveness of such interventions when they are proposed for whole populations. Often with little evidence. In this instance for example, as far as I am aware, no longterm studies on the effects of intervention on lipid levels have even been done for women and children, yet we are urged to use the same criteria as those for middle aged men with, as Langille and Lavigne state, "atypical demographic characteristics". While thoughts of costs, rationing and allocation of services are uncomfortable topics, especially for physicians from academic environments, it must be pointed out that the costs of intervention in this field are enormous. To screen the entire population at risk (in Nova Scotia) in a meaningful way (3 lipid profiles and 2 GP visits) cost at least 36 million dollars to do it once. Spin off costs (following up abnormalities, etc.) could easily raise that substantially. Given that the Framingham study has demonstrated that about half of all cases of CHD have normal lipid levels, and that those with the worst 10% of commonly known risk factors have only 25% of all the events, that a number of the drugs do not reduce total mortality and the others are suspect, and that while dietary manoeuvre seem harmless this has never been studied in a large scale trial, one may be forgiven for a little scepticism on this subject. Your editorial, while eloquently making the case for a statistical association between LDL levels and CHD, is far less explicit about the effects of modifying LDL levels, and nowhere states that such modification improves longevity. It is perhaps not inappropriate to paraphrase a famous author (whose name I can't remember) "one suspects one is treating a disease about which little is known, with a nostrum which is understood less".

Peter Loveridge, MBBS,
Yarmouth Regional Hospital,
Yarmouth, N.S.

To the Editor:

Responding to Doctor Loveridge's letter regarding the cholesterol issue and continuing his nautical metaphor: he and the contributors to that issue would appear to be in the same boat, although rowing in opposite directions and occasionally being struck by a poorly directed oar.

Doctor Loveridge's first point, although I hesitate to speak for Mr. Keyes and Doctor Breckenbridge would appear to be nothing more than a statement of the intent of the article, that is, that laboratory inaccuracy and imprecision do exist throughout the Province and that physicians should inquire at their clinical laboratories how their methodologies and results relate to reference laboratory results. As Doctor Breckenbridge makes clear in his accompanying article similar results would imply that the Consensus "cut points" could be used with confidence. The wide variation and results personally observed by Doctor Loveridge would appear to be beyond those to be expected from biological variation and would indicate to be expected from biological variation and would indicate a need for such questions to be raised, the implication being that there may be problems with sampling variation or problems with laboratory precision.

A concern for overall mortality as a measure of results of clinical trials was a main thrust of the review of cholesterol medication trials, although we did not examine nicotine acid in this review. We regret that we perhaps needed more "emphasis" on this point, but felt that making the statement "none of these Studies observed a statistically significant reduction in overall (all causes) mortality in the treatment group, and two of the Studies indicated increased mortality in the treatment group", as well as specific references to actual numbers for all cause mortality for gemfibrozil (45 treatment versus 42 controlled), cholestyramine (71 control versus 68 treatment) and clofribate (396 treatment versus 317 controlled) would be sufficient to drive that point home to the attentive reader. Doctor Loveridge's statement that an agent must have **caused** an observed increase in deaths (presumably due to toxic affects) ignores the crucial issue of biological plausibility, which is lacking as indicated by the non-specific nature of the excess deaths in the clofribate group, and the remote possibility of chance playing a role. To be fair however the Study did tend to give clofribate a bad name in some circles.

A second major point of the Trial Review is also seen to have been missed. We state in regard to the trials "one cannot reliably apply the results to women,

other racial groups or men with lower levels of hypercholesterolemia and we also speak of "a lack of generalizability". This would also appear to be "emphatic" enough although it is difficult to be certain.

I would point out to Doctor Loveridge that a large scale trial of diet (among other risk factors) (MRFIT) has been carried out, and though disappointing in its results overall, no harm was observed and a beneficial effect of diet has been indicated by several smaller trials also indicating no deleterious effect.[1]

I agree that the costs of screening are enormous and point out that in the view of many, screening has little to do with a pure population based approach to this risk factor. The Canadian Consensus on Cholesterol agreed that screening should be reserved for those with a high pre-test likelihood (those with a history of ischemic heart disease, those with a family history of hyperlipidemia or early onset of ischemic heart disease and those with hypertension, diabetes, renal failure or obesity) and that more widespread testing should be done "as resources become available". The lack of resources, laboratory variability and lack of professionals trained in dietary counselling are all compelling arguments to forgo testing on a mass basis and to get on with the population based dietary approach. It is my own belief that a high risk and population based approach combined are required to address this issue, but I do recognize the problems involved with the high risk aspects.

Finally, I would ask Doctor Loveridge where he obtained his data on men over 30 in the Yarmouth area and how he concluded that more than 50% of these have cholesterol levels of more than 6 mmol/L. This is certainly a much higher proportion of men above this level than that observed in the Nova Scotia Heart Health Survey where 21% of males 25-64 and 25% of males 65-74 had values over 6.2 mmol/L. While I have not seen that data broken down by region, I would be most surprised if any area of the Province differed that substantially from the overall results of that investigation. If true however this sort of distribution would make for an extremely interesting investigation of local coronary heart disease epidemiology.

Yours sincerely,

Donald B. Langille, MD, MHSc,
Director, Cobequid Health Unit,
Department of Health and Fitness,
Province of Nova Scotia □

References

Lays, F., Breckingridge, C. Nova Scotia Cholesterol Results For Nova Scotia Clinical Labs. The Nova Scotia Medical Journal, 1988 67 (5): 162-3.
Breckingridge, C. Ibid: 159-161.
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OBITUARIES

Dr. G. Stirling MacLean, (47) of Tatamagouche, N.S. died on November 1, 1988. Born in Pictou he received his medical degree from Dalhousie Medical School in 1968 and practised as a prominent family physician in Tatamagouche for the past 16 years. He was a member of The Medical Society of Nova Scotia and The Canadian Medical Association. He is survived by his wife, two sons and a daughter. The *Journal* extends sincere sympathy to his wife and family.

Dr. Allison H. Barss, (68) of Rose Bay, N.S. died on December 1, 1988. Born in Rose Bay he graduated from Dalhousie Medical School in 1944. He served in the Royal Canadian Air Force from 1944 to 1946 and then commenced medical practice in Rose Bay. He was a member of The Medical Society of Nova Scotia and the Canadian Medical Association. He is survived by his wife, two daughters, and five sons. The *Journal* extends sincere sympathy to his family.

Dr. Henry Alexis Myers, (80) of Amherst, N.S. died December 18, 1988. Born in Moncton, he received his medical degree in Edinburgh and served with a medical unit in Scotland during the Second World War. He practised medicine in Amherst from 1945 until his retirement in 1984, and he was a member of The Medical Society of Nova Scotia and the Canadian Medical Association. He is survived by his wife, the former Dora Beeson; a daughter, Lindsay (Mrs. John Murphy), Antigonish; a son, Richard, Kingston; a brother Ralph, Moncton; a sister, Harriet, London, Ont.; five grandchildren. The *Journal* extends sincere sympathy to his wife and family. □

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