

# THE MEDICAL SOCIETY OF NOVA SCOTIA

NOVA SCOTIA DIVISION OF THE CANADIAN MEDICAL ASSOCIATION

## MEMBERS OF EXECUTIVE COMMITTEE

### OFFICERS

<i>President</i> .....	J. A. George
<i>President-Elect</i> .....	D. B. O'Brien
<i>Immediate Past President</i> .....	J. A. Myrden
<i>Chairman Executive Committee</i> .....	J. F. Hamm
<i>Vice-Chairman Executive</i> .....	M. A. Smith
<i>Treasurer</i> .....	G. C. Pace
<i>Honorary Secretary</i> .....	T. J. McKeough
<i>Executive Secretary</i> .....	D. D. Peacocke
<i>Manager, Economics Dept.</i> .....	A. A. Schellinck

### STUDENT REPRESENTATIVES

Mr. L. Hicks	Mr. R. Miller
Mr. M. Vail	

### BRANCH SOCIETY REPRESENTATIVES

<i>Antigonish-Guysborough</i> .....	J. E. Howard
<i>Cape Breton</i> .....	P. D. Jackson, J. B. Tompkins
<i>Colchester-East Hants</i> .....	D. A. MacFadyen
<i>Cumberland</i> .....	G. A. Lawrence
<i>Dartmouth</i> .....	R. W. Beazley
<i>Eastern Shore</i> .....	J. C. Acres
<i>Halifax</i> .....	C. H. Reardon, J. H. Quigley, D. K. Murray
<i>Lunenburg-Queens</i> .....	N. G. Glen
<i>Pictou County</i> .....	W. A. MacQuarrie
<i>Shelburne</i> .....	A. S. Robbins
<i>Valley</i> .....	D. L. Davison
<i>Western</i> .....	C. R. Wyman

### OBSERVERS

<i>Representative to C. M. A. Board of Directors</i> .....	W. F. Mason
<i>Chairman Public Relations Committee</i> .....	K. P. Smith
<i>Editor</i> .....	A. J. Buhr
<i>Representative to Provincial Medical Board</i> .....	G. W. Turner
<i>Medical Director M.M.C. Inc.</i> .....	A. W. Titus
<i>General Manager M.M.C. Inc.</i> .....	S. P. Brannan
<i>Nova Scotia Representatives to C.M.A. Councils</i> .....	(listed below)

### CONSULTANTS

C. J. W. Beckwith
John Sansom
P. F. O'Brien

### NOVA SCOTIA REPRESENTATIVES TO C.M.A. COUNCILS

<i>Community Health</i> .....	A. C. Walkes
<i>Economics</i> .....	G. C. Pace
<i>Medical Education</i> .....	S. G. B. Fullerton
<i>Membership Services</i> .....	G. A. Sapp
<i>Medical Services</i> .....	H. J. Bland

### STANDING COMMITTEE

#### Chairman

<i>Annual Meetings</i> .....	President
<i>Archives</i> .....	R. F. Hand
<i>By-Laws</i> .....	J. H. Quigley
<i>Cancer</i> .....	R. M. Cunningham
<i>Child Health</i> .....	M. E. Churchill
<i>Discipline</i> .....	President
<i>Drug &amp; Alcohol Abuse</i> .....	C. W. Bugden
<i>Editorial Board (Editor)</i> .....	A. J. Buhr
<i>Ethics</i> .....	R. S. Murphy
<i>Finance (Treas.)</i> .....	D. B. O'Brien
<i>Hospitals</i> .....	J. P. Curry
<i>Legislation</i> .....	R. S. Murphy
<i>M.M.C./M.S. Joint</i> .....	J. A. Myrden
<i>Maternal and Perinatal Health</i> .....	P. W. S. Watts
<i>Mediation</i> .....	President
<i>Medical Education</i> .....	A. Prossin
<i>Medical-Religious Liaison</i> .....	C. F. Brennan
<i>Membership Services</i> .....	C. D. Vair
<i>Nutrition</i> .....	C. N. Williams
<i>Occupational Medicine</i> .....	D. S. Reid
<i>Pharmacy</i> .....	A. D. MacKeen
<i>President's Liaison</i> .....	President
<i>Public Health</i> .....	
<i>Public Relations</i> .....	K. P. Smith
<i>Rehabilitation</i> .....	A. H. Shears
<i>Traffic Crash</i> .....	D. P. Petrie
<i>W. C. B. Liaison</i> .....	A. H. Shears

### BRANCH SOCIETIES

#### President

#### Secretary

<i>Antigonish-Guysborough</i> .....	K. S. Hoque	M. G. P. Murphy
<i>Cape Breton</i> .....	A. C. Walkes	B. S. Ignacio
<i>Colchester-East Hants</i> .....	J. G. M. Murray	H. R. L. Martenstyn
<i>Cumberland</i> .....	A. Elmik	S. Ali
<i>Dartmouth</i> .....	R. W. Beazley	D. M. Andrews
<i>Eastern Shore</i> .....	P. B. Jardine	J. C. Acres
<i>Halifax</i> .....	D. K. Murray	M. G. Shaw
<i>Lunenburg-Queens</i> .....	E. T. Kent	A. Steeves
<i>Pictou County</i> .....	D. S. Reid	E. B. Skinner
<i>Shelburne</i> .....	F. Markus	J. U. MacWilliam
<i>Valley</i> .....	J. J. Quinlan	P. E. Kinsman
<i>Western</i> .....	A. F. Weir	G. K. Kini

### SECTIONS

<i>Anaesthesia</i> .....	W. A. P. Thompson	D. K. Rushton
<i>General Practice</i> .....	J. A. McPhail	M. A. Smith
<i>Internal Medicine</i> .....	A. J. MacLeod	L. P. M. Heffernan
<i>Obstetrics and Gynaecology</i> .....	C. Maley	R. H. Lea
<i>Ophthalmology and Otolaryngology</i> .....	D. B. O'Brien	E. V. Rafuse
<i>Paediatrics</i> .....	B. D. Grover	R. S. Grant
<i>Pathology</i> .....	H. Tremblett	K. Aterman
<i>Psychiatry</i> .....	H. K. Hall	H. P. Poulos
<i>Radiology</i> .....	W. F. Mason	
<i>Residents in Training</i> .....	J. M. O'Brien	
<i>Salaried Physicians</i> .....	A. W. Titus	J. R. Cameron
<i>Surgery</i> .....	J. J. Quinlan	S. Anand
<i>Urology</i> .....	F. G. Mack	W. A. Ernst

# THE NOVA SCOTIA MEDICAL BULLETIN

## EDITORIAL BOARD

Editor-in-Chief DR. A. J. BUHR

### Members

DR. M. E. BURNSTEIN  
DR. B. O'BRIEN  
DR. J. H. HALDANE  
DR. M. GORELICK  
DR. P. C. GORDON  
DR. S. M. A. NAQVI

DR. S. V. ANAND  
DR. J. C. VIBERT  
DR. J. P. WELCH  
DR. A. S. MACDONALD  
MISS A. M. MADDOX  
MR. J. SANSOM

Managing Editor  
MR. D. D. PEACOCKE

Editorial Assistant  
MRS. T. CLAHANE

---

## TOO MUCH MEDICINE

Oliver Wendell Holmes once wrote that if all the drugs in the Pharmacopeia were thrown into the ocean, the human race would be none the worse, but it would be mighty bad for the fish. Since Holmes' day we've got a lot more drugs and a lot less fish. The situation has deteriorated.

It's pretty hard to conceive of any human condition that doesn't have a drug to counteract it. We can foil nature no matter what she does. We can depress the myocardium and the brain, the very heart and soul of the patient. We can aspirate the effusion from a damaged or worn out knee and inject an anti-inflammatory agent so the patient can continue painlessly injuring the knee. Of course we say that the wise doctor works with nature, not against it. But what medication works with nature? All our pills and injections are anti something: antacid, analgesic, anticholinergic, anti-depressant, antibiotic, anti-inflammatory, antispasmodic, anti-tussive, antiseptic, antipyretic.

Our patients have come to expect treatment for every inconvenience — even bereavement necessitates a tranquillizer or hypnotic; a cold requires antibiotics or a decongestant or an expectorant (are there such things?); a headache demands relief, sometimes even by "hypo." The physician, trained deep down to be of service, is apt to comply with all these demands. If he refuses he is considered not cautious or prudent, but rather cold and indifferent or even lazy.

It makes one wonder how much all this phenomenon has to do with the recent development of the non medical use of drugs, the so-called "drug culture". If parents use tranquillizers and sleeping pills and doctors condone and advise it, why shouldn't young people solve their problems with drugs too?

Well, in spite of all this, we have a lot to be proud of — everyone has to agree modern medicine produces miracles very often. But almost everyone has to agree too that today in Nova Scotia we have overdone it. We are an insecure society, with no faith, no self reliance, frightened of every ache and pain and tension and discomfort.

It occurs to me that one of the troubles is that we have too many doctors. If we had less doctors we'd have less prescriptions. The doctor population in my area has trebled in the last 20 years and the population has increased only a little. We have pathologists and radiologists and F.R.C.S.'s and F.R.C.P.'s and all sorts of specialists and family doctors — and all this in a little town that doesn't even have a sewage treatment plant but pours its raw sewage into the Salmon River and the Bay of Fundy. The people are no more satisfied about their doctors' availability than when doctors were scarce. Nor are the people any healthier; very few reach 150 like the folks we read about in the National Geographic.

Sometimes I wonder who is paying the bill. Are we Nova Scotians generating this wealth for drugs and medical services?

Nobody else seems to know or care so perhaps we in the medical profession had better take a stand. Improvement in health and happiness is not going to come from more doctors and more drugs, or even more research and more knowledge. It's going to come from being better, tougher people who will be physically fit and not abuse food and drugs and alcohol and tobacco. And right now in Nova Scotia we'd be better off with less doctors and less medicine. So maybe we'd better stop importing doctors and slow down on training doctors. Or maybe we should follow the Chinese plan and let our doctors take off every second or third year to grow parsnips or work at the town dump.

J. C. Vibert, M.D.  
Truro, N.S.

□



# TOO MANY DOCTORS?

## *Dr. J. Fraser Nicholson\* Talks to the Bulletin*

"Speculation in government circles that Canada may have enough or even too many doctors is in my opinion correct. But statements on the management and dispersal of medical manpower should be greeted with some reservations," according to Dr. J. Fraser Nicholson, Assistant Dean of Medicine at Dalhousie University.

"I think the 16 Canadian medical schools are now supplying this country with enough graduate doctors," Dr. Nicholson told the Bulletin. But he added a cautionary rider: "We're supplying enough and we'll have enough only if we don't lose them. And one way we'll lose them is if we start pushing them around. If governments start telling physicians where they can or have to practise, then they'll start looking elsewhere to pursue their careers."

But Dr. Nicholson is not opposed to more subtle means of providing physician services in areas of need which may be unattractive to the average doctor because of geographic and social isolation factors. For instance, community health centres with a true community base involving group practices under a quasi-free enterprise system, Dr. Nicholson feels, would be one way to up the availability of professional medical services.

"Most modern M.D.'s do not thrive in isolation and give their best efforts and work more happily in groups," he said.

He said, "A community health centre does not have to be a government controlled operation. I would be opposed to setting up a great number of community health centres in the same way, for instance, that mental health centres have been set up in many places. I suspect that in government directed health centres productivity might be low but could be much higher in a centre where the doctors are freely involved on a group basis with strong community participation and support."

He cautioned, too, that arguments for government operated community health centres based on geographical isolation factors are "something of a red herring when they are applied to Nova Scotia."

The assistant dean pointed out that Nova Scotia's situation is hardly analogous to that of the North West Territories where vast distances and special needs probably qualify the area for a system of centres and services under direct government control. A somewhat more selective approach would be needed here, he said.

"There are a few relatively isolated areas in Nova Scotia which community-spurred, physician controlled centres could help." He cited the Isaac's Harbor centre as an

example of an attempt to meet health care needs from within the community with a minimum of government assistance.

The Maitland, Noel Shore area, he said, was a prime example of a district which might benefit substantially through a community-oriented group practice. "The doctor there," he said, "has to run his tail off for many miles in every direction."

But what about inducements toward medical services in "isolated" areas? What about selective subsidized medical training on request of a student who would then commit himself to, say a two year stint in an area requiring the services of a doctor?

"Well," Dr. Nicholson replied, "that's one way of attempting to solve the problem. But it's been tried elsewhere and it doesn't seem to have worked overly well. Doctors don't seem to be too happy with it, and patients object to the rapid turnover when the period of 'service' is over and the doctor moves on.

"At any rate, the day will probably come — a lot sooner than many of us think — when all medical training will be 'subsidized'; that is, every student accepted for medical school will go through at government expense.

"Right now, of course, medical students do incur some pretty substantial debts — as high as \$15,000 on graduation in some instances. But when you consider a doctor's earning power today that's not as bad as it looks — and the banks love this kind of client."

If government sponsored medical education for all successful applicants is not too far away, doesn't it follow that the next step could well be a blanket salary system for all physicians?

"I'm not personally opposed to salaries because, quite frankly, so little of my income comes from MSI. But that's a personal opinion. A doctor who earns his entire living through MSI would probably have quite a different point of view. The big problem is how to build incentive and productivity into a salary system."

Salaries — a spectre for some — tend to crop up in discussions on the overall cost of health services, even though capital and publicly funded support-manpower costs are by far the greatest contributors to budget demands. But, to a certain extent, the phenomenon of people using available medical services for minor ailments which, in pre-MSI days, responded equally well to family home care does contribute to costs.

However, Dr. Nicholson noted: "Every system of pre-paid medicine has had elements of over-demand and over-servicing, even the private plans before medicare."

\*Assistant Dean of Medicine, Dalhousie University, Halifax, N.S.



Dr. Nicholson also holds some fairly basic views on physician immigration to Canada.

"Quite frankly, Canada and the United States have been soaking up the medical graduates of other countries which need them more than we do. This applies particularly to the developing countries. I'm of the school which believes that because we've been able to absorb many thousands of foreign doctors, we've ripped off the countries which produced them.

"Now, I'd hate to see the government close off physician immigration entirely because many doctors coming to Canada have good, legitimate reasons for the move and we do need some of the special skills and services they can provide. The immigration department could consider letting M.D.'s immigrate to Canada at an appropriate ratio to the numbers of other categories from that country."

Dr. Nicholson is past president of the Provincial Medical Board, Nova Scotia's standards, licensing and medical disciplinary body. Recently, the PMB established a two year period of in-province training for immigrant physicians.

"There is a growing demand across the country for more preparation for practice here if you've been trained elsewhere. In Nova Scotia, the recent ruling requires one year in a rotating internship and one year in a defined area of practice. Or, alternatively, two years in family practice training."

Quite apart from the medical implications, one reason for the ruling involves life styles and social climate.

"A physician who has been trained in another country has been trained to practise medicine there, and under circumstances and conditions which may differ greatly from the Canadian social and professional climate. The process of acculturation is important, too. We've seen instances where an immigrant physician has met the one year training requirement here and has demonstrated all the skills required but, because he or she has grown up in a different social environment, still has difficulty practising medicine. A lot of adapting has to be done when you move from one culture to another. The two-year ruling should help."

What about the public's understanding of the PMB's role in handling complaints?

Dr. Nicholson said the board has not engaged in a public education program to acquaint patients with the means of bringing complaints to official notice. "But we are receiving a greater volume of complaints than we did in the past."

Why?

"One reason is that the public does not hold doctors in the kind of awe that they used to — and I think that's a very good thing. After all, doctors are human, too. Then, of course, we moderns all think we can do things better than the experts in a field foreign to us. All you have to do is read the newspapers to confirm that. Naturally, that and

greater public awareness will substantially affect referrals to the board."

And the board takes queries and complaints seriously. "If we feel it warranted, we'll call a doctor in to have a talk with him and this generally has a very salutary effect if doctor-patient communications have broken down."

The board is also empowered to conduct formal investigations depending on the nature of the complaint and, in extreme cases, to suspend or discontinue a doctor's licence.

Finally, is the faculty of medicine moving to co-ordinate health delivery services in the Halifax-Dartmouth metropolitan area?

According to Dr. Nicholson, one area of concern at the university is that "We could have *too* much to say in this matter."

He added: "There's been criticism that we're a closed shop, that we have too much influence. We're aware of this and as a result our faculty members are leaning over backwards to see that there is appropriate representation in those areas where we do make the decisions.

"I can say that the dissatisfaction general practitioners voice about being unable to get hospital beds is fairly well justified, but we have to look at the situation that prevails.

"Take the Victoria General, for example. It's a three-purpose hospital. First, it's the regional referral centre for specialty services. Secondly, it's the primary training hospital for Dalhousie in the region — a role which it shares with hospitals like the Grace, the Infirmary, the Saint John General and others.

"Thirdly, it's been called on to supply emergency services for the entire metro area, and this last function has strained it almost to the limit. Because the hospital is handling so many emergencies, it's extremely difficult to get admissions for things like elective investigations. Now, the investigation may be important, but it's not urgent, and when your overloaded with, say, myocardial infarctions and surgical emergencies and haven't got the room for a non-emergent admission.

"The Infirmary is also loaded to the gunwales. Its natural catchment area is the metropolitan district. Hopefully, the new Dartmouth hospital should help to ease the load."

What Dr. Nicholson would like to see is a facility for out-patients who have to remain in the area for test results and follow-ups. "Right now, in-patients have priority where investigations are concerned. So, if a doctor can get a patient admitted to a high price bed which the patient doesn't really need, the investigation will be carried out fairly quickly. But that bed *is* needed for emergent cases. I think it would be possible to design an out-patient investigative department with accommodation facilities which would improve the system. This should be part of a major ambulant care facility that is badly needed, not only by the community — but by the medical school." □



# Professional Responsibility — Myth or Reality?

D. B. O'Brien,\* M.D.,

Halifax, N.S.

*Dr. O'Brien spoke to the question at a lay seminar at Kings College recently.*

It's an interesting title for this series. But there's one question I'd like to raise — and then attempt to answer.

What do we mean by professional responsibility, and what are the definitions of myth and reality?

Responsibility in any field — in life, for that matter — is both an imposed and acquired quality. Hopefully, it's the responsive element in each of us which allows us to relate our actions to the overall good of our immediate community and to that of society as a whole. It is triggered in part by instruction and in part by experience.

The terms "myth" and "reality" don't lend themselves to such a simple definition. The fact is that one man's "myth" can just as easily be another's "reality", and vice versa.

Alright. So how do we define professional responsibility in medicine? And how do we decide whether it's a matter of myth or reality in current terms?

First of all, there is a mystique about medicine which springs from the extremely intimate and personal relationship between a doctor and his or her patient. It has very little to do with what some assume to be the almost unmanageably complex educational requirements physicians have to meet. Training and the development of skills are, of course, vital. But the fact remains that the final responsibility in the application of those skills must be addressed to the welfare of the patient in an atmosphere of mutual trust and in the strictest confidence.

This is the first step in medical responsibility. Furthermore, it is not a myth. It is reality.

And then, of course, the aberrant factors start creeping in.

To what extent can a physician exercise professional responsibility toward a patient who does not follow a prescribed regimen of care? Doctors are not magicians. Responsibility is a two way street. If a patient does not exercise responsibility toward himself, then the physician's application of professional responsibility is worth very little.

In cases like this, people — the patients themselves at times — tend to say the physician did not exercise his or her full professional responsibility. In a sense, they're right — even though the next logical step in professional responsibility would have been a swift kick to the equally logical part of the patient's anatomy. We have laws against that — sometimes unfortunately I think.

But that is a one-to-one situation.

How about the broader field of the profession and the public?

Let's put this into a Nova Scotia context and keep it there.

First of all, it might interest you to know that the preamble to the charter of The Medical Society of Nova Scotia demands that the society and its members commit themselves to working toward the betterment of health care and the prevention of sickness for and in all Nova Scotians. I'll admit to a bias in this matter, but I'd like to affirm that to the extent that a voluntary organization with limited funds and absolutely no jurisdictional authority can achieve anything in this broad field, the Medical Society has done a pretty good job over the years.

Just let me underline this: The primary function of the Medical Society as established in its charter is to promote the health and welfare of all Nova Scotians. The society is not simply a club in which a group of professionals share common opinions and smile politely at each other.

The society and its members, collectively and individually, have, for instance, put a lot of productive effort into systems planning and the actual delivery of health care in this province. And to be blunt about it, *we have also fought every move which threatened to transform the patient into a unit on an assembly line rather than a human being in need of help.*

The society has hammered at inflationary trends, particularly as they affect the family, because these trends have a naturally adverse effect on the health and welfare of Nova Scotians.

"Organized" medicine in the province has addressed itself to environmental problems, to the hitherto outdated and inadequate forms of compensation for industrial accident victims and their families, to the battered child syndrome, to drug abuse, to the staggering highway accident toll, to the provision of direct medical services where they were needed, to student scholarships, to confidential venereal disease referral programs, to patient complaints . . . and to countless other questions, many of which have no direct medical implications.

Now that doesn't make all doctors saints, and it doesn't make the Medical Society a kind of push-button heaven. The truth of the matter is, our resources are limited and physicians are human.

Maybe we'd better tackle the question of human imperfection right now.

\*President-Elect, The Medical Society of Nova Scotia.



I think I'd better begin by dispelling one of the myths which seems to be so fondly held by so many people.

When we hear of a physician conducting himself in an unprofessional manner or of abusing the privileges afforded him through his medical licence, the immediate public response seems to be, "The Medical Society should take away his licence."

The Medical Society can't take away his licence. It didn't give it to him in the first place.

Apart from the Department of the Attorney General, there is one agency in the province with the authority to discipline physicians. That is the Provincial Medical Board, established by government separate and distinct from the Medical Society . . . which is as it should be. *This* is the Board which reviews credentials, grants licences, investigates problems, and which also has the authority to suspend, limit or remove a doctor's licence.

I think you should also note that the regulations under the provincial Medical Act quite clearly state that anybody can bring a complaint to this Board which is then obliged to investigate it and to take whatever action the results of such an investigation indicate. So we're not talking about a closed shop. Any individual here tonight has the same right of complaint to the Board as, for instance, the Medical Society, a corporation, or any professional association.

Incidentally, one of the most common complaints from patients covers crowded waiting rooms and delayed appointments.

Doctors, given the chance, would probably echo that complaint.

By and large, the problem is this. A doctor could carefully book his time so that he saw only a limited number of patients by appointment daily. Unfortunately, the demand for his or her services is such that if this were done, some patients might be denied care. On top of that, sickness and injury do not respect timetables or appointment books. Decisions on priorities often have to be made at the last minute.

Take as a simple example the case of a doctor whose day is full, but carefully booked. A traffic accident may suddenly demand that he provide emergency care at the local hospital and, possibly, commit himself to a couple of emergency operations. When he returns to the office — where his patients are still waiting — he is confronted by a couple of unscheduled visits demanding immediate attention. The net result: priority decisions have to be made and office appointments are delayed.

However, making these priority decisions is part of the doctor's professional responsibility.

There are other important factors which affect a doctor's ability to provide initial and continuing medical care.

Today we are seeing a rapid increase in what is known as the utilization rate — that is, the number of patients using physician services. At the same time, medical technology is

accelerating, forcing many physicians not only to specialize but also to sub-specialize. And there is an ever increasing administrative and planning demand on doctors, not only in their offices and clinics but also in the broader field of community and provincial health care planning and implementation. To meet their professional responsibility, doctors have to keep up in all these fields. Not to do so would be a denial of that responsibility.

Finally, I'd like to say something about physicians' incomes. Perhaps this will help to answer the question which is invariably put at functions like this.

A doctor's income is directly related to the amount of work he does. This holds particularly true under our medicare scheme which, in fact, insures 85 percent of that income.

Take the case of Doctor X. He is the sole physician in a given community. If Doctor Y then comes in to provide essentially the same services as Dr. X, the odds are very good that both their individual incomes will be substantially less than Dr. X's original income. They won't be half that income, obviously, because Dr. Y's presence alone will probably generate an increase in the gross utilization rate in that community. However, it is equally important to note that the gross expenditure for physicians' services in that community will *not double*.

I mention this only because prevalent lay opinion seems to have it that new physicians hanging out their shingles in Nova Scotia are taking the first step in becoming millionaires.

Those who do well financially only do so because they are working incredibly long hours *meeting their professional responsibility*. Even if their gross income is relatively high, most of them have overhead expenses which range between 30 and 40 percent of that income and all of them are in the 50 percent tax bracket without the so-called shelters afforded others; so one helluva pile of that money goes right back into the public purse.

Would a blanket system of salaried physicians be any better? It's doubtful. Because then we'd be encouraging doctors to demand the same 40-hour week, figure benefits, paid holidays, etc. that most other sections of the community have come to expect. We would also require more fulltime medical manpower to cover off on increasing demands under these conditions — and that will cost more money.

Would the ethic of professional responsibility be better served in this situation?

I don't honestly know. But something would be lost. Perhaps it would be the mystique of independence and self-reliance; perhaps it would be the element of a *personal* commitment to public service *personally* arrived at.

Now, I don't want to sound like a right wing dinosaur but these are important elements in the make-up of a doctor. If we take them away, we'd better make darned sure they are replaced by something of value.



I'd like to make one final comment before answering your questions. Like you, doctors are human. They have their physical and psychological limitations. Many of them work under extreme pressure, to the detriment of their health and of their family relationships. More often than not, they are under attack from one section of the community or the other — and sometimes deservedly. But they all have a commitment to service and to life; that's why they are doctors.

Again admitting my bias, I'd say that individually and collectively they work pretty hard at meeting that indefinable quality called professional responsibility. □

#### CORRECTION & APOLOGY

We owe Halifax Police Chief G. O. Robinson an apology. A typographical error in the February Bulletin indicated that "Chief Robinson has continued to reject the concern . . . etc." To our knowledge the Chief has never been known to "reject" the concerns of any group or individual. Quite the contrary. In fact, he is ever willing to *reflect* public concern — which is exactly what we should have said. Sorry, Chief.

## What Is Your Diagnosis?

B.St. J. Brown,\* M.D.

Halifax, N.S.

This 3 year old boy developed sudden onset of limping on the left side. There was no trauma witnessed. Minimal swelling and local tenderness and increased heat were noted over the lower third of the left tibia; he refused to bear his full weight on the limb. Radiographs were obtained (Fig. 1); the diagnosis was made and was confirmed by radiographs three weeks later (Fig. 2).



Figure 1

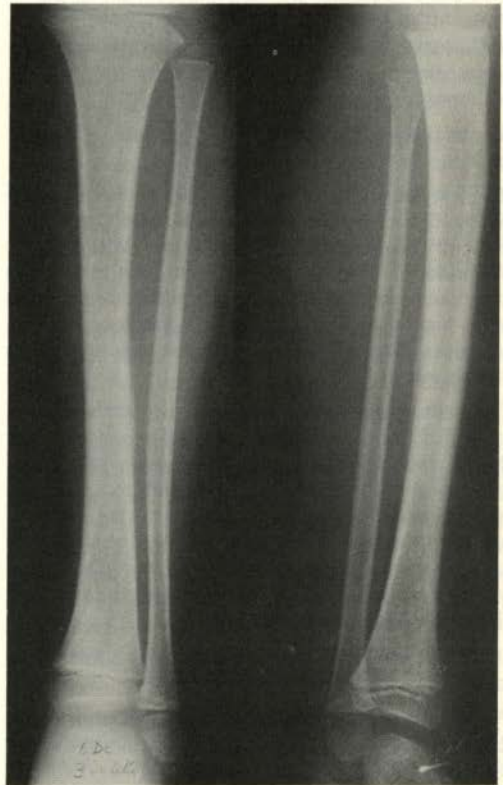


Figure 2

\*Dept. of Radiology, I.W.K. Hospital and Dalhousie University.

(Please turn to page 76 for answers) □



# Trends in Hospital Utilization in Nova Scotia

## 1967 - 1972

P. C. Gordon,\* B.Sc., M.D., C.M., D.P.H., C.R.C.P.(C),  
K. L. M. Weldon,\*\* B.Sc., M.Sc., Ph.D.  
and L. MacLean,\*\*\* B.A., B.Ed., M.A.

Halifax, N.S.

In a previous paper<sup>1</sup> we described a data base which could be used to routinely monitor the hospital system in Nova Scotia. This was derived from the records of the Nova Scotia Hospital Insurance Commission (N.S.H.I.C.). For planning purposes it is obviously important to have a clear picture of the trends over time in hospital utilization and in particular to be aware of changes in the direction of trends from 1967 to 1972, a period from two years prior to the introduction of Medical Care Insurance (M.S.I.) to four years thereafter.

The results described refer only to Nova Scotians hospitalized in Nova Scotia and are limited to adults and children (newborns are excluded). "Separations" refer to all adults and children "discharged" from hospitals, alive or dead, during the year and include persons admitted and discharged more than once. The major surgical procedure carried out while the patient is in hospital is coded and recorded in the N.S.H.I.C. records. Thus, separations for surgical procedures include only *one* procedure per separation during the year.

### RESULTS

#### A. Overall Trends (Tables I and II, and Figure 1)

These show the major trends in hospital utilization in Nova Scotia over the years 1967-72. While the overall hospital separation rates increased from 1967 to 1968, the rate of increase accelerated after the introduction of medical care insurance (M.S.I.) in April 1969, and was even more pronounced in the first full year of M.S.I., 1970, after which the rate of increase declined. In the last two years, the separation rate appears to be reaching a plateau, at about 170 per 1,000 population.

This increase in the separation rate over the years (from 150.9 in 1967 to 168.3 in 1972, an increase of 11.5%) is almost entirely accounted for by the increase in the separation rate for patients who underwent a surgical procedure during their stay in hospital. During 1967-72, the rate for separations not including a surgical procedure

(hereafter referred to as non-surgical procedures) increased from 85.8 to 88.4, an increase of only 3.0%, while the rate for separations including a surgical procedure increased from 65.1 to 79.9, an increase of 22.7% (Figure 1).

Over these same years the average length of stay declined by 7.2% for all separations and by 6.8% for surgical procedures, to reach 10.3 days and 10.9 days, respectively.

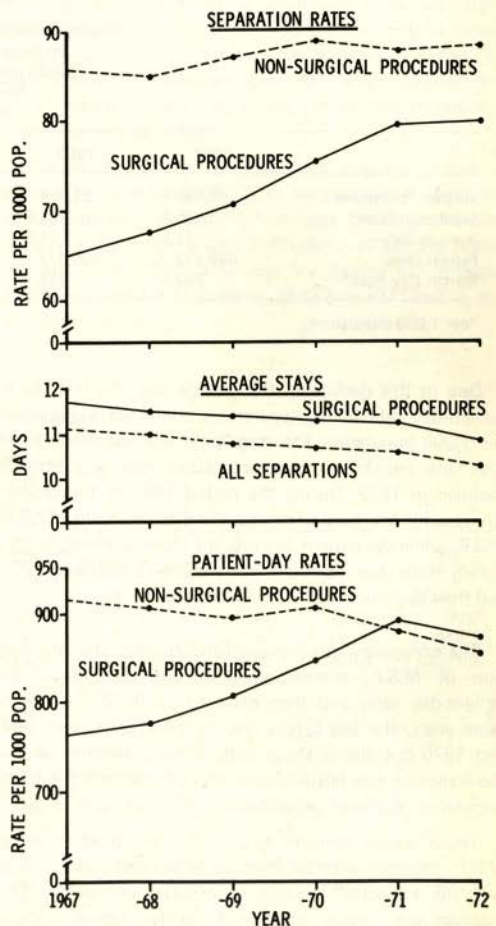


FIGURE 1

Trends in Separation Rates, Average Stay and Patient-Day Rates Nova Scotia 1967-72

\*Professor and Department Head, Department of Preventive Medicine, Faculty of Medicine, Dalhousie University.

\*\*Assistant Professor, Department of Preventive Medicine, Faculty of Medicine, Dalhousie University.

\*\*\*Lecturer, Department of Preventive Medicine, Dalhousie University.

This study was supported in part by a grant from the Nova Scotia Council of Health, and by National Health Grant No. 603-22-12.



**TABLE I**  
**Hospital Separations, Utilization Data**  
**Adults and Children Only**  
**Nova Scotia**  
**1967-72**

	1967	1968	1969	1970	1971	1972
Separations	114,654	117,051	122,275	128,646	131,968	133,544
Separation Rate*	150.9	153.5	157.9	164.5	167.3	168.3
Average Stay (Days)	11.1	11.0	10.8	10.7	10.6	10.3
Patient Days	1,277,575	1,289,924	1,315,231	1,372,189	1,398,318	1,369,183
Patient Day Rate*	1,681.0	1,680.7	1,698.3	1,754.7	1,772.1	1,724.9
Beds/1,000 pop.**	6.14	6.13	6.28	6.33	6.28	6.24
Occupancy Rate*** (%)	75.0	75.1	74.4	75.9	77.3	75.7

\*per 1,000 population

\*\*Includes beds set up in all public hospitals (excluding bassinets), plus a proportion of the beds in Camp Hill Hospital based on the proportion of patient days charged to the N.S.H.I.C. by year. Source — annual Reports of N.S.H.I.C.

\*\*\*  $\frac{\text{Patient Days}}{365 \times \text{No. of Hospital Beds}} \times 100$

**TABLE II**  
**Hospital Separations, Utilization Data**  
**for Surgical Procedures**  
**Adults and Children Only**  
**Nova Scotia**  
**1967-72**

	1967	1968	1969	1970	1971	1972
Surgical Procedures	49,448	51,824	54,767	58,844	62,535	63,448
Separation Rate*	65.1	67.5	70.7	75.3	79.3	79.9
Average Stay	11.7	11.5	11.4	11.3	11.2	10.9
Patient Days	580,173	595,373	623,346	662,401	702,881	691,643
Patient Day Rate*	763.4	775.7	804.9	847.1	890.8	871.3

\*per 1,000 population

Due to this decline in the average stay, the increase in patient-day rate for all separations combined (separations per 1,000 population X average stay) was less pronounced than the increase in the separation rate and actually declined in 1972. During the period 1967-72 the patient-day rate for non-surgical procedures declined from 917.6 to 853.6, while the patient-day rate for those receiving surgery during their stay increased from 763.4 to 890.8 in 1971, and then declined to 871.3 in 1972 (Figure 1).

The occupancy rate increased slightly after the introduction of M.S.I., corresponding to the increase in the patient-day rate, and then declined in 1972. Over these same years, the bed supply also increased slightly in 1969 and 1970 but due to the growth in the population and to the freeze on new hospital construction, the beds per 1,000 population declined somewhat in 1971 and again in 1972.

These trends indicate that with the introduction of M.S.I., together with an increase in the bed supply, there was the expected increase in hospital utilization. This increase was largely accounted for by hospitalizations during which surgical procedures were performed. However, at least on an overall provincial basis, this surge in demand is tending to level off, and the supply of beds appears to be adequate to meet current demands. With the occupancy

rate stabilized at about 75%, it cannot be claimed that the freeze on new hospital construction has forced a levelling of demand. This has been brought about by a decline in the average length of stay together with a levelling off in the number of admissions. Similar trends have occurred in Ontario but in that Province the occupancy rate is over 80%.<sup>2</sup>

If the separation rate remains at the same level in ensuing years and the average stay continues to decline, even fewer beds per 1,000 than currently exist will be required. (Of course, the absolute number of beds required will depend on the actual population). For example, with a reduction in the average stay to 10.0 days (in 1970 the average length of stay in all hospitals in Canada was 10.0 days)<sup>3</sup> and a constant separation rate of about 168 per 1,000 population, the province would require only 5.8 beds per 1,000 overall at an occupancy rate of 80%\* or 5.4 beds per 1,000 at 85% occupancy. Moreover, with the provision of high quality insured alternative facilities (nursing homes, home care programs, etc.) the hospital separations rate as well as the length of stay, might be reduced allowing a further reduction in the required beds per 1,000 population.

$$\frac{*168 \times 10}{365 \times .80} = 5.8 \text{ beds per 1,000}$$



## B. The Regional "Demand" for Hospital Care.

At one point during the deliberations of the Nova Scotia Council of Health, the province was divided into eight regions and it is these regions that were used to develop the model from which this study was derived (Figure 2).

Table III shows the number of hospital separations, the separation rates and patient-day rates by region of residence of the patients for 1972.

Table IV gives the same information as Table III, but for surgical separations only. These tables and Figure 3 reflect

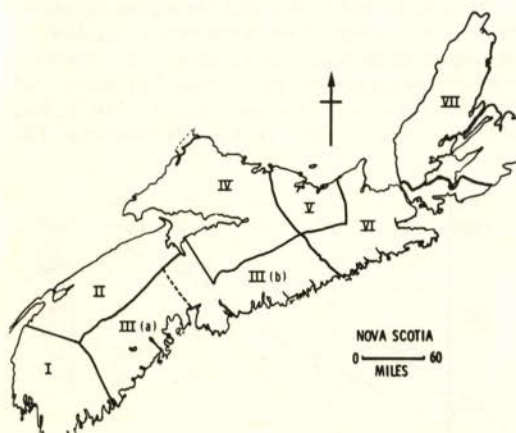


FIGURE 2

The Eight Regions of Nova Scotia Employed for this study

the "demand" for hospital care emanating from each of these regions. A striking feature of both tables is the wide variation among the utilization rates for the different regions. For all separations, the separation rates range from a low of 131.9/1,000 in region III(b) to 214.3/1,000 in region VII. For surgical procedures, the separation rates range from a low of 64.6/1,000 in region I to a high of 87.0 in region VII.

Tables III and IV also record the percentage of separations of a region's residents that are hospitalized in the home region. For all separations, this ranges from 72.0% in region III(a), to 98.0% in region III(b) which contains the major provincial referral hospitals.

Table V compares regional separation rates for surgical separations and non-surgical separations. The correlation between these rates is smaller than one might expect, even when III(b) is excluded as a special region ( $r = .42$ ). The inter-regional differences in separation rates are largely accounted for by the differences for non-surgical separations (Figure 3). (Although, as we mentioned earlier, the over-all provincial *increases* over 1967-72 in separation rates were almost entirely accounted for by the increases in surgical separation rates).

Figures 4, 5 and 6 show the regional trends in patient-day rates for 1967-72, for surgical, non-surgical, and all separations. The patient-day rates for surgical separations rose in all regions after 1968 and in all but one region, fell slightly in 1972. This rate for Region VII increased 23.6% from 849.3 in 1968 to 1049.9 in 1971 but it, too, fell slightly in 1972.

TABLE III  
Regional "Demand" for Hospital Care  
All Separations by Region of Residence  
Adults and Children Only  
Nova Scotia, 1972

	REGION							
	I	II	III(a)	III(b)	IV	V	VI	VII
Separations	7154	14893	8062	37123	15175	9825	8555	32757
% Home Region	84.0	84.0	72.0	98.0	79.0	83.0	77.0	90.0
Separation Rate*	142.2	190.0	155.8	131.9	177.7	212.6	180.4	214.3
Patient Day Rate*	1509.1	1720.7	1501.9	1396.8	1742.8	2174.0	1790.8	2311.3

\*per 1,000 population

TABLE IV  
Regional "Demand" for Hospital Care  
Surgical Procedures by Region of Residence  
Adults and Children Only  
Nova Scotia, 1972

	REGION							
	I	II	III(a)	III(b)	IV	V	VI	VII
Separations	3251	6528	4199	22,518	6135	3592	3919	13,306
% Home Region	81.0	77.0	64.0	99.0	69.0	78.0	71.0	84.0
Separation Rate*	64.6	83.3	81.2	80.0	71.8	77.7	82.7	87.0
Patient Day Rate*	772.8	811.2	787.3	870.5	788.5	829.0	838.0	1,033.9

\*per 1,000 population



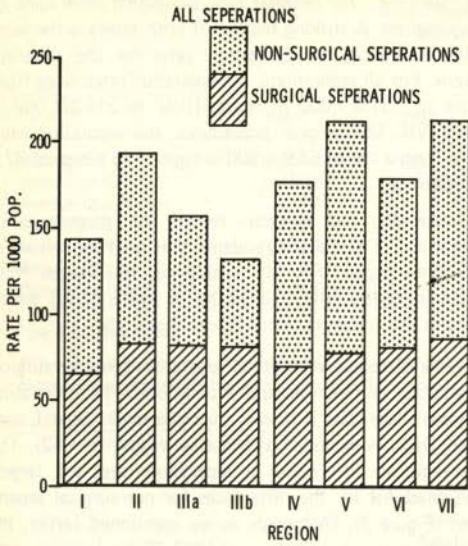


FIGURE 3

Regional "Demand" for Hospital Care Surgical and Non-Surgical Separations Nova Scotia 1972

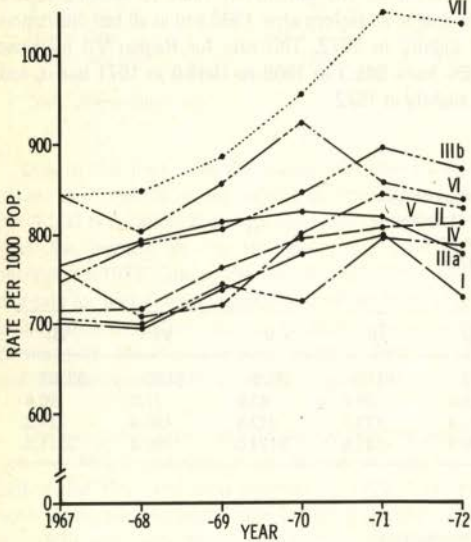


FIGURE 4

Patient-Day Rates for Surgical Procedures by Region of Residence Nova Scotia 1967-72.

If one looks at the trends for non-surgical rates (Figure 5) it is noted that regions V, VI, and VII are the only areas showing appreciable net change over 1967-72. The patient day rate increased 14.5% in region V, decreased dramatically by 24.4% in region VI, and decreased 11.8% in region VII.

The compounded effect of these changes is shown in Figure 6 which shows the trends for all separations. Regions V and VII seem to have increased their "lead" over the other regions in patient-day rates, but the indication of the 1972 figure is that this trend may be reversing. Patient-day rates for all separations in Region VI have declined 15.2%, more than any other region. Further analysis has shown that this dramatic decline is largely accounted for by a decrease in the average length of stay.

### C. Regional Referral Patterns to Region III(b)

The previous section described the regional "demand" for hospital care most of which was met or "supplied" by the patients' home region. Of the patients not hospitalized in their home region most are "referred" to Region III(b) and, within this region, the vast majority to the teaching hospitals in Halifax. Table VI shows the percentage of all

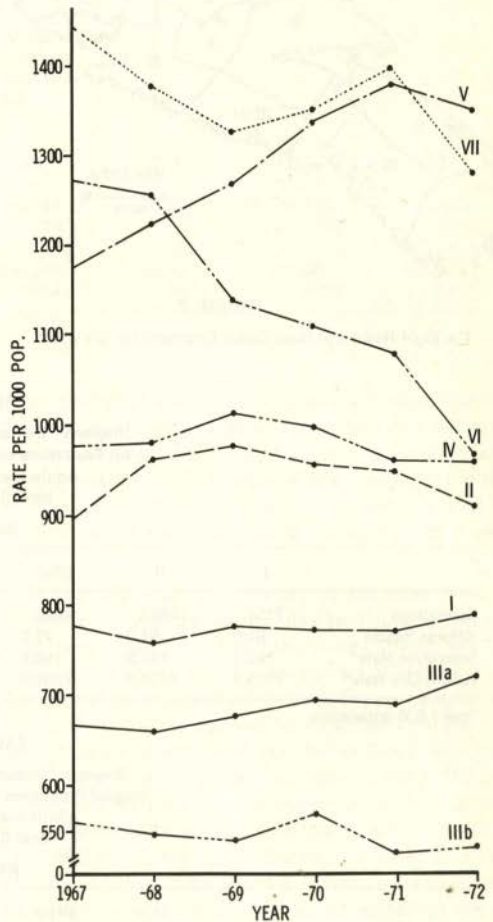


FIGURE 5

Patient-Day Rates for Non-Surgical Separations by Region of Residence Nova Scotia 1967-72

\*\*"referred" includes patients referred by their physician and self-referrals.



**TABLE V**  
**Regional "Demand" for Hospital Care**  
**Surgical and Non-Surgical Separations\***  
**by Region of Residence**  
**Adults and Children Only**  
**Nova Scotia, 1972**

	REGION							
	I	II	III(a)	III(b)	IV	V	VI	VII
Surgical	64.6	83.3	81.2	80.0	71.8	77.7	82.7	87.0
Non-Surgical	77.6	106.6	74.6	51.9	104.8	134.9	97.7	127.0
All Separations	142.2	190.0	155.8	131.9	177.7	212.6	180.4	214.3

\*per 1,000 population

**TABLE VI**  
**All Separations - % Referred to Region III(b)**  
**by Region of Residence**  
**Nova Scotia, 1967-72**

Year	REGION													
	I		II		III(a)		IV		V		VI		VII	
	Separations	Pt. Days	Separations	Pt. Days	Separations	Pt. Days	Separations	Pt. Days	Separations	Pt. Days	Separations	Pt. Days	Separations	Pt. Days
1967	11.0	18.0	14.0	19.0	25.0	37.0	20.0	26.0	11.0	16.0	10.0	14.0	6.0	9.0
1968	10.0	14.0	12.0	18.0	24.0	35.0	19.0	24.0	10.0	14.0	11.0	15.0	6.0	9.0
1969	9.0	14.0	11.0	18.0	23.0	35.0	18.0	25.0	11.0	14.0	9.0	13.0	6.0	9.0
1970	9.0	13.0	12.0	19.0	23.0	35.0	19.0	25.0	11.0	15.0	10.0	14.0	7.0	10.0
1971	10.0	15.0	14.0	22.0	24.0	36.0	19.0	26.0	11.0	15.0	10.0	14.0	8.0	11.0
1972	10.0	16.0	14.0	23.0	25.0	38.0	20.0	27.0	10.0	16.0	11.0	17.0	8.0	13.0

**TABLE VII**  
**Surgical Procedures - % Referred to Region III(b)**  
**by Region of Residence**  
**Nova Scotia, 1967-72**

Year	REGION													
	I		II		III(a)		IV		V		VI		VII	
	Separations	Pt. Days	Separations	Pt. Days	Separations	Pt. Days	Separations	Pt. Days	Separations	Pt. Days	Separations	Pt. Days	Separations	Pt. Days
1967	16.0	20.0	20.0	26.0	33.0	44.0	31.0	38.0	19.0	24.0	17.0	21.0	11.0	15.0
1968	14.0	16.0	19.0	25.0	32.0	42.0	31.0	36.0	20.0	26.0	16.0	22.0	12.0	15.0
1969	13.0	13.0	17.0	24.0	32.0	42.0	30.0	32.0	21.0	24.0	14.0	19.0	11.0	13.0
1970	13.0	15.0	18.0	24.0	30.0	41.0	29.0	32.0	21.0	23.0	14.0	17.0	12.0	16.0
1971	15.0	17.0	22.0	29.0	33.0	45.0	29.0	35.0	22.0	28.0	14.0	20.0	13.0	17.0
1972	14.0	16.0	21.0	32.0	34.0	48.0	30.0	34.0	18.0	25.0	14.0	20.0	14.0	18.0

patients (separations) from each region which were "referred" to the hospitals in Region III(b), by year, and also shows the proportion of the regional patient-days of care provided by hospitals in Region III(b), by year. Table VII shows similar data for surgical procedures separately. For example, in 1967, of all hospitalized patients from region I, 11.0% were referred to region III(b), but of all the patient-days of care provided to patients of this region, 18.0% were provided in Region III(b). This reflects the fact that patients referred to the teaching hospitals (presumably because they have more serious or complicated conditions) stay longer in hospital than those treated in the home region hospitals. Because the patient-days of care provided take into account the length of stay it is this measure of the care supplied in Region III(b) that more accurately reflects

the volume of service provided by the central teaching hospitals to the rest of the province. The trends in the proportions of patient-days from each region provided in region III(b) are illustrated in Figure 7.

With but one exception (Region VII, where it was already very low) the proportion of regional patient-days provided by Region III(b) to other regions declined from 1967 to the advent of M.S.I. in 1969. In other words, there was a general tendency, until the introduction of M.S.I., for the various regions to become less dependent on the Halifax referral hospitals for patient care. After M.S.I. this trend was reversed and Region III(b) supplied an increasing volume of service to the residents of the other regions. In 1972, this upward trend is apparently reverting to its



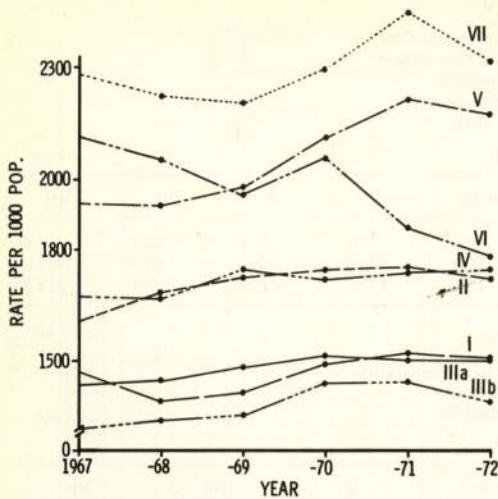


FIGURE 6

Patient-Day Rates for All Separations by Region of Residence Nova Scotia 1967-72

former downward course for surgical procedures only, in Region I, IV and V. For all separations in 1972 the increasing trend to Region III(b) continued. Thus, in general, all regions, in recent years, continue to rely more and more on the Halifax referral hospitals for patient care. It is doubtful that this trend is related solely to the introduction of M.S.I., though the removal of the economic barrier to specialist treatment in the teaching hospitals probably played a major role.

#### D. Home Region and Out-of-Region Trends in Separations from the Major Teaching Hospitals

Table VIII shows the distribution of home region separations among the major teaching hospitals in Region III(b), for 1967-1972. The Victoria General Hospital and the Halifax Infirmary appear to be changing roles regarding the serving of their home region, with the Victoria General increasing its share of separations from 24.0% to 32.4% while the Halifax Infirmary has decreased its share from 37.9% to 28.5%. It should be noted that this decrease for the Infirmary was a decrease in absolute terms from 11,752 separations in 1967 to 10,151 in 1972.

If we now look at the distribution of out-of-region-separations to these same hospitals, (Table IX), the Halifax Infirmary and the I.W. Killam Hospital for Children have increased their share, but only by 2.0% and 2.8% respectively, complementing the decrease of 4.1% for the Victoria General. However, these changes are fairly slight, and the Victoria General still serves about one-half of all out-of-region separations from III(b) hospitals.

Thus the major change in the supply pattern of the teaching hospitals in region III(b) is the emergence of the

Victoria General as the major supplier to the home region, in place of the Halifax Infirmary. The Victoria General's role in serving out-of-region patients has changed little over 1967-72.

Tables X and XI show the trends in surgical separations from the home region and from out-of-region supplied by the major teaching hospitals. Similar trends noted for all separations are observed also for surgical separations. The only new features are that the reversal of roles of the Victoria General and the Halifax Infirmary for home region separations is more pronounced, probably due to the increasing emergency admissions to the Victoria General Hospital over the years, and for out-of-region separations the changes are even slighter. This similarity is not surprising as surgical procedures accounted for 57.5% of home region separations and 64.2% of out-of-region separations in 1967, and these increased to 61.5% and 68.2% respectively in 1972.

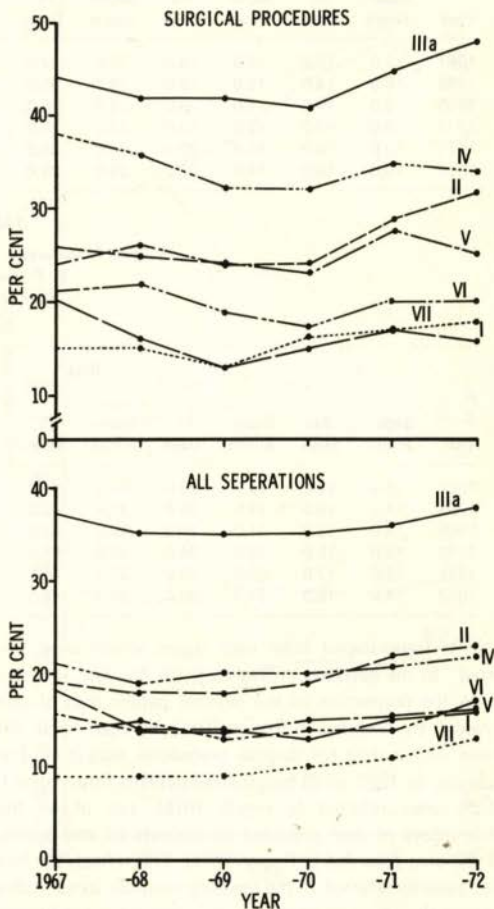


FIGURE 7

Per cent of Patient-Days "Referred" to Region III(b) by Region of Residence



**TABLE VIII**  
**Percent of All Separations from Hospitals in Region III(b)**  
**Patients coming from within Region III(b)**  
**Adults and Children Only**  
**Nova Scotia, 1967-72**

Hospital	Patients From	1967 %	1968 %	1969 %	1970 %	1971 %	1972 %
Victoria General	Home Region	24.0	26.4	26.7	28.6	31.5	32.4
Halifax Infirmary	Home Region	37.9	36.2	35.9	32.5	29.2	28.5
I.W. Killam	Home Region	16.4	16.1	15.5	16.2	16.8	16.5
All Other (- Camp Hill)	Home Region	21.7	21.3	21.9	22.7	22.5	22.6
Total		100.0 (N = 30,980)	100.0 (N = 31,547)	100.0 (N = 31,990)	100.0 (N = 33,899)	100.0 (N = 34,838)	100.0 (N = 35,667)

**TABLE IX**  
**Percent of All Separations from Hospitals in Region III(b)**  
**Patients coming from Out of Region III(b)**  
**Adults and Children Only**  
**Nova Scotia, 1967-72**

Hospital	Patients From	1967 %	1968 %	1969 %	1970 %	1971 %	1972 %
Victoria General	Out of Region	54.1	52.7	51.6	50.6	51.8	50.0
Halifax Infirmary	Out of Region	14.3	15.9	17.2	17.1	16.4	16.3
I.W. Killam	Out of Region	19.9	20.1	19.2	21.0	22.2	22.7
All Other (- Camp Hill)	Out of Region	11.7	11.3	12.0	11.2	9.6	11.0
Total		100.0 (N = 8,432)	100.0 (N = 8,516)	100.0 (N = 8,869)	100.0 (N = 9,922)	100.0 (N = 10,962)	100.0 (N = 11,409)

**TABLE X**  
**Percent of All Surgical Separations from Hospitals in Region III(b)**  
**Patients coming from within Region III(b)**  
**Adults and Children Only**  
**Nova Scotia, 1967-72**

Hospital	Patients From	1967 %	1968 %	1969 %	1970 %	1971 %	1972 %
Victoria General	Home Region	27.3	30.8	31.5	34.5	38.2	39.4
Halifax Infirmary	Home Region	44.4	41.6	41.5	37.2	34.3	32.4
I.W. Killam	Home Region	13.9	13.3	12.7	12.1	13.7	13.2
All Other (- Camp Hill)	Home Region	14.4	14.3	14.3	16.1	13.8	15.0
Total		100.0 (N = 17,824)	100.0 (N = 18,874)	100.0 (N = 19,096)	99.9 (N = 20,610)	100.0 (N = 21,803)	100.0 (N = 21,947)

**TABLE XI**  
**Percent of All Surgical Separations from Hospitals in Region III(b)**  
**Patients coming from Out of Region III(b)**  
**Adults and Children Only**  
**Nova Scotia, 1967-72**

Hospital	Patients From	1967 %	1968 %	1969 %	1970 %	1971 %	1972 %
Victoria General	Out of Region	63.3	62.6	61.9	60.4	60.8	62.1
Halifax Infirmary	Out of Region	15.1	15.7	16.5	18.0	18.0	16.4
I.W. Killam	Out of Region	15.9	15.9	15.3	15.5	16.8	16.9
All Other (- Camp Hill)	Out of Region	5.7	5.8	6.3	6.0	4.4	4.5
Total		100.0 (N = 5,414)	100.0 (N = 5,718)	100.0 (N = 5,929)	99.9 (N = 6,639)	100.0 (N = 7,622)	99.9 (N = 7,781)



These data do not include out-of-province referrals to the Halifax teaching hospitals and these have been increasing in recent years. Out-of-province referrals to the Victoria General Hospital increased from 472 in 1970 to 730 in 1972, to the I.W. Killam Hospital from 305 in 1970 to 608 in 1972 and to the Halifax Infirmary from 221 to 260.

## DISCUSSION

It seems clear that with the introduction of M.S.I. in 1969 there was a distinct increase in hospital utilization which was largely accounted for by hospitalization during which surgery was performed. In the most recent years it appears that on an over-all provincial basis this increased demand which represented, at least in part, a "catching up" on previously unmet need, has been met. The separation rate appears to be levelling off at 168.2/1,000 population. This, together with the progressive decline in the average length of stay has resulted in a decline, for 1972, in the patient-day rate for both surgical and non-surgical separations. Moreover, these phenomena cannot be explained by the supposition that the hospitals are now operating at full capacity since the occupancy rate, for all hospitals combined, declined in 1972 to 75.7%, a rate just slightly above that of 1968.

It thus appears that the present supply of beds at 6.24/1,000 population is adequate to meet the demand and even fewer beds will be required if current trends in the separation rate and length of stay continue and especially if the hospitals operate at higher occupancy rates than at present. This is not to suggest that the bed supply is satisfactorily distributed throughout the Province. This is currently under study and the results will be reported shortly.

On a regional basis, there are striking variations in the "demand" for hospital care which is largely accounted for by non-surgical separations. To what extent these variations represent differences in need has not been explored in this report. However, on the basis of a previous study<sup>4</sup> they appear to be largely related to variations in available bed supply. Subsequent papers will deal with the care "supplied" and the population served by the hospitals in each region and explore in detail those factors which may account for the observed differences.

The patient-day rates for all regions but one showed an increase after the introduction of M.S.I. especially for surgical procedures and are now showing signs of levelling off or declining. An exaggerated example of this general trend is found in Region VI where the patient-day rate declined by 15.2% over the period 1967-72. This was largely accounted for as a sharp decline in the average length of stay.

Most of the regional demand for hospital care is met or "supplied" within the patients' home region with the remainder being supplied almost totally by the teaching

hospitals in Region III(b). The volume of care supplied by these hospitals in 1972 varied from 13.0% of the patient-days of care from Region VII to 38.0% of the days from Region III(a). Moreover, in recent years the trend has been for all regions to rely more and more on the Halifax referral hospitals for patient care. Some regions, however, are beginning to show signs of becoming more self sufficient for surgical procedures.

An interesting observation and one of considerable importance for planning purposes, is the fact that the Victoria General Hospital and Halifax Infirmary appear to be switching their roles regarding service to their home region, especially for surgical procedures. In contrast to 1967, in 1972 a greater proportion of all home region patients were hospitalized in the V.G.H. than the Infirmary. On the other hand, there has been little change in the roles of these two hospitals with regard to serving out-of-region patients with the Victoria General maintaining its position as the major provincial referral center for adults.

## SUMMARY

The records of the Nova Scotia Hospital Insurance Commission are analyzed for provincial and intraprovincial regional trends in the utilization of Hospital Services. Noteworthy patterns include the increased rate for surgical procedures following the introduction of M.S.I. and the fact that the most recent rates appear to have levelled off. On a regional basis utilization rates differed considerably, with nonsurgical procedures accounting for most of the observed disparity. The Halifax region, the provincial referral center, is receiving proportionately more referrals from other regions since the introduction of M.S.I. Furthermore, the major referral hospital is emerging as the regional hospital, supplementing its former role. □

## Acknowledgement

We are indebted to the Nova Scotia Hospital Insurance Commission for their full cooperation in making available the data required for this study and to the following personnel in the Department of Preventive Medicine, Dalhousie University for their assistance in the analysis and preparation of the report; Mr. A. P. Smith, programmer-analyst, Mrs. M. Harnish, statistical clerk, and Mrs. D. Nicholson, secretary.

## References

1. Gordon, P. C., Smith, A. P. and Weldon, K. L. M.: A Model for the Routine Evaluation of a Hospital Program. *Nova Scotia Medical Bulletin*, 51: 194, 1973.
2. Ontario Hospital Services Commission, Annual Report, Statistical Supplement, 1971.
3. Statistics Canada, Catalogue No. 83-217 (1970).
4. Deutscher, S., Chipman, M. L. and Gordon, P. C.: Patterns of Hospital Use in Nova Scotia. *Can. Hosp.* 49: 80, 1972.



# Street Drug Analysis

## A Free Regional Service

After a relatively slow start, a free "street drug" analysis program for doctors in Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland is showing an increasing volume of referred substances.

The program operates with the aid of a federal grant from the Non-Medical Use of Drugs Directorate for the year 1973-74. The grant was made to Dalhousie University and administered by Mark Segal, Ph.D. and Herman A. Ellenberger, Ph.D. of the departments of pharmacology and pathology respectively. The analyses are carried out under the supervision of Dr. Ellenberger, toxicologist, at the Pathology Institute of the Department of Public Health in Halifax. The project got under way in July, 1973.

Twenty-three samples were received for analysis in 1973 and 19 in January-February 1974. Of the samples received, 14 were found to contain phencyclidine alone; 10 samples of plant material (leaves, stems and seeds) were identified as marihuana containing 0.21 to 2.16%  $\Delta^9$  tetrahydrocannabinol; 2 samples of plant material were found to contain phencyclidine and no marihuana; in 5 samples no drugs were detected; 11 samples were found not to contain the purported drug. Other drugs found were cocaine, LSD, MDA, dimethoxyamphetamine, methaqualone alone and in combination with diphenhydramine (Mandrax) and caffeine.

Dr. Ellenberger said all of the samples tested were from the Halifax area, most of them originating through Halifax Interaction, a drug crisis intervention and med-aid centre operating on the grounds of the Victoria General Hospital.

Although all physicians in Nova Scotia were informed of the service, Dr. Ellenberger said a variety of factors could account for the project's slow start.

"First of all people who are taking drugs seldom go to doctors. Others are learning to handle the problem on their own. And, of course, you'd expect to get the highest number of referrals from facilities and services which are dealing almost exclusively with the drug abuse problem. We've only got one service like this in the whole of Atlantic Canada and that's Halifax Interaction."

But he sees a workload increase as doctors become more aware of the service and as a result of its extension into the other three provinces.

Samples are accepted only from physicians treating patients. At least one dosage unit is required, although smaller samples are accepted with the attendant risk that they may not lead themselves to as complete an analysis as desired.

Samples of urine from patients suspected of having taken street drugs are also accepted for drug screening.

Special forms for submitting samples are provided on request and Dr. Ellenberger is asking doctors to provide as much information as possible on the patient.

"The results of analyses," he said, "are most definitely not intended to be used in any legal proceedings."

Meanwhile, an extension of the grant through the 1974-75 fiscal year has been applied for. "I'm hopeful it will be okayed," Dr. Ellenberger said. "It takes time to work up this kind of service and with the way requests have picked up since the start of the new year, it looks like it's needed." □

---

## THIS COULD BE CALLED THE DIRECT APPROACH

### STOP SMOKING NOW!

Dear Patient:

Smoking in any form is contraindicated in patients who suffer from coronary artery disease. It is particularly bad for the patient who is to undergo elective revascularization surgery. Postoperative complications associated with tobacco bronchitis and the "smoker's lung" are all out of proportion to those anticipated when the non-smoker comes to elective surgery.

As a matter of strict policy, the Cleveland Clinic team will not accept any heart patient for surgery who has not stopped smoking at least one month prior to date of hospital admission. This policy has been adopted for the protection of our patients and for the best interest of all concerned.

Donald B. Effler, M.D.  
Chief of Thoracic and  
Cardiovascular Surgery Department

□

# They're your patients. Whose Responsibility?

There is understandable concern today about health care costs. But some of the cost control proposals interfere—both explicitly and implicitly—in your selection of therapy.

The concept of product selection, for example, proposes that after you have selected the therapeutic agent, someone else selects the specific formulation to be dispensed. This clearly interferes in your choice of medication, without relieving you of your professional responsibilities for the patient.

No one can ever have your knowledge of the patient, his condition and his history. For this reason, PMAC asks you to remember:

1. The ultimate responsibility for your patient's treatment is and must be yours.
2. Unless you specify on your prescription that it must be dispensed as written, you may lose control of what your patient receives.

If a physician doesn't have complete control of the medication, how can he monitor his patient's responses?

When he authorizes a repeat, how can he be sure which product was used the first time, or if the same one will be used a second time?

Until all products are required to meet acceptable standards—clinical tests with supporting bioavailability data, or proof of bioavailability equivalence with clinically-proven products—PMAC feels you should continue to demand products with known efficacy when, in your judgment, your patient requires it.

If you are going to be held responsible for the patient, shouldn't you also be responsible for the selection of the medication?



**Pharmaceutical Manufacturers  
Association of Canada**

*A collection of reprints of relevant scientific articles on bioavailability is available from PMAC, 141 Laurier Avenue West, Room 1110, Ottawa, Ontario K1P 5J3.*



**These research-oriented companies are dedicated to providing new products of proven efficacy.**

Abbott Laboratories Ltd.  
 Alcon of Canada Ltd.  
 Arlington Laboratories  
 Astra Chemicals Ltd.  
 Ayerst Laboratories  
 Baxter Laboratories of Canada Ltd.  
 Bristol Laboratories of Canada  
 B.D.H. Pharmaceuticals  
 Boehringer Ingelheim (Canada) Ltd.  
 Burroughs Wellcome & Co. (Canada) Ltd.  
 Calmic Ltd.  
 Ciba-Geigy Canada Ltd.  
 Cooper Laboratories Ltd.  
 Cutter Laboratories International  
 (Canada)  
 Cyanamid of Canada Ltd.  
 Desbergers Ltée  
 Dow Pharmaceuticals  
 Fisons (Canada) Ltd.  
 Laboratories Franca Inc.  
 Charles E. Frosst & Co.  
 Glaxo-Allenburys Pharmaceuticals  
 Canadian Hoechst Ltd.  
 Lakeside Laboratories (Canada) Ltd.  
 Eli Lilly & Company (Canada) Ltd.  
 Mallinckrodt Chemical Works Ltd.  
 McNeil Laboratories (Canada) Ltd.  
 Mead Johnson Canada  
 Merck Sharp & Dohme Canada Ltd.  
 The Wm. S. Merrell Company  
 Miles Laboratories Ltd.  
 Organon Canada Ltd.  
 Ortho Pharmaceutical (Canada) Ltd.  
 Parke, Davis & Company Ltd.  
 Pfizer Company Ltd.  
 Pharmacia (Canada) Ltd.  
 Poulenc Ltd.  
 The Purdue Frederick Company  
 (Canada) Ltd.  
 Riker Pharmaceutical Company Ltd. 3M  
 A. H. Robins Company of Canada Ltd.  
 Rougier Inc.  
 Roussel (Canada) Ltd.  
 Sandoz (Canada) Ltd.  
 Schering Corporation Ltd.  
 G. D. Searle & Company of Canada, Ltd.  
 Smith, Kline & French Canada Ltd.  
 E. R. Squibb & Sons Ltd.  
 Syntex Ltd.  
 The Upjohn Company of Canada  
 Warner-Chilcott Laboratories Co. Ltd.  
 Will Pharmaceuticals  
 Winthrop Laboratories  
 Wyeth Ltd./Ltée

**PMAC** FULL MEMBERS.

**Pharmaceutical Manufacturers Association of Canada.**

**THE MEDICAL SOCIETY OF NOVA SCOTIA  
 ANNUAL SUMMER MEETING  
 KELTIC LODGE — CAPE BRETON**

- Sept. 5 — Thursday — Delegates arrive.
- Sept. 6 — Friday — Society Executive meets.  
 Section Chairmen Pow Wow.  
 M.M.C. Executive confers.  
 Health Council Executive deliberates.  
 Golf, Hiking, Tennis, Swimming.  
 Square dancing.
- Sept. 7 — Saturday — Society Executive continues.  
 Branch Presidents contemplate.  
 Golf, Tennis, Sports.  
 M.M.C. Reception.  
 Informal dinner.  
 Dancing mixed with Trophy and  
 Prize awards.
- Sept. 8 — Sunday — Good Bye!  
 See you in Digby in '75.

□

**Note on Recent Survey  
 of Halifax-Dartmouth Doctors  
 by Mr. R. J. Cooper, Med '77**

As I promised in my letter accompanying the questionnaire, here are the rough results.

Of 418 questionnaires mailed, 270 were returned. In spite of the well justified criticism on the design of the questionnaire, and the lack of covering instructions, it was possible to separate all but 6 replies into the following categories:

Non or almost non drinkers	16%*
Social drinkers	49%
Heavy social drinkers	28%
"Alcoholics"	5%
Unclassifiable	2%

It is of interest to note that only 24 doctors of the 269 said they would cover up the drinking of a fellow practitioner.

\*percent rounded to nearest whole number

J. F. Nicholson, M.D.  
 Assistant Dean  
 Student Affairs and Admissions

□



# Current Management of Acute Gonorrhoea

F. Russell Manuel,\* M.D., M.Sc.,

Halifax, N.S.

## Introduction

Gonorrhoea is an escalating problem in most countries of the world including Canada where there has been an average increase in the reported number of cases of 12% each year for the past five years. In Nova Scotia the estimated increase in the reported cases of gonorrhoea in 1973 is 25.6% and in 1972 there was actually a reported 3% decrease. The truth is probably somewhere between these figures. However, the reported cases represent the tip of the iceberg because it has been estimated that for every reported case there are nine unreported cases.

Gonococcal infections are usually localized to the urogenital tract but they may manifest themselves as a proctitis, tonsillitis, conjunctivitis or through systemic spread as dermatitis, arthritis, septicemia and even meningitis. These unusual presentations are becoming more common so that the physician needs to be aware of these possibilities in sexually active patients. This paper considers only acute gonococcal urethritis in males and uncomplicated gonorrhoea in females.

## Clinical Manifestations

In males acute gonococcal urethritis usually presents with a purulent urethral discharge and dysuria occurring 2 to 10 days after intercourse with an infected woman (or man). However, longer incubation periods are reported and up to 40%<sup>(1,2)</sup> of infected males may have *no signs or symptoms*. We recently saw an asymptomatic young man who had his infection for at least 2 months (as evidenced by at least a dozen women who traced their infection to him). He presented with very slight inflammation of the meatus but had positive gonococcal smears and cultures.

The female patient with uncomplicated gonorrhoea usually has no signs or symptoms. Most women only become aware that they have gonorrhoea when their sexual partner informs them about the possibility. However, gonorrhoea in females may present as acute pelvic inflammatory disease as soon as two weeks after intercourse with an infected male. Hence the importance of seeing that all female contacts are examined promptly. It is estimated that 10% of women with gonorrhoea already have tubal involvement and that 20-30% of these will become sterile because of subsequent tubal scarring. That is, approximately 2-3% of all women infected with the gonococcus may be made sterile by their infection.

It may be true that gonorrhoea in males is less trouble than the common cold and easier to treat. However in females it can be quite a different disease as any physician who has worked on an active gynecology service will testify.

## Diagnosis

It is essential that a bacteriological diagnosis be made on all patients with gonorrhoea. It is true that most individual patients can be managed quite adequately on the basis of a clinical diagnosis but if this is done the physician is only treating the tip of the iceberg. Unless a bacteriological diagnosis is made the doctor is unlikely to take the infection very seriously himself and consequently will not have the incentive to impress upon the patient the potential seriousness of the infection to his contacts.

In males the diagnosis may be made in the doctor's office before the patient leaves. If gram negative intracellular diplococci are seen on the gram-stained smear then in about 95% of such males a diagnosis of gonorrhoea can be made. However if the intracellular diplococci are gram positive (this may be due to poor staining technique) or are not seen the patient may still have gonorrhoea. Cultures are necessary in both males and females and also provide the opportunity for obtaining information on the antibiotic sensitivities of the gonococci isolated. Such antibiotic sensitivity information is of value in the management of patients who fail to respond to standard treatment but is even more important for the identification of people who may be spreading antibiotic resistant gonococci. Such patients must be treated vigorously and followed up thoroughly — the same is true of their contacts. In Nova Scotia it is well documented that gonococci which are significantly resistant to antibiotics are rarely seen. The few we do see should be dealt with as preventive medicine emergencies.

In females a gonococcal culture of the cervix is the mainstay of diagnosis. Smears are practically useless but should be sent along with the culture because if the smear is positive and the culture is negative the physician should ask for additional cultures to rule out the possibility of gonorrhoea. Many authors now recommend that anal cultures for gonorrhoea be done routinely along with the cervical culture. Others recommend that female urethral cultures be done as well. The consensus of opinion seems to be that if two cultures are being done then the anal site is the next best site. At the Victoria General Hospital and the Pathology Institute, Halifax we have a study in progress which is attempting an evaluation of the use of anal cultures for gonorrhoea diagnosis. We would welcome

\*Associate Professor, Department of Preventive Medicine, Dalhousie University, Halifax, N.S.

Lecturer, Department of Urology, Victoria General Hospital, Halifax, N.S.



participation from physicians who are sending in specimens from their office practices. Our preliminary results indicate that the anal site is of very limited value for the diagnosis of gonorrhoea.

In women a "hanging drop" for trichomonads should be done at *each* visit. This simple and satisfying office procedure may be negative on one visit and positive at the next visit. Trichomoniasis commonly accompanies gonorrhoeal vaginitis and may be the principal cause of the patient's vaginal discharge. If moniliasis is suspected smears and cultures should also be taken to rule out this condition.

A patient who may have contracted gonorrhoea may also have contracted syphilis so that serological tests for syphilis are mandatory. Our routine is to do a VDRL screen test at the first visit, in approximately 1 month and three months after the last sexual intercourse with the person who might be infected. We tell our patients that the chances of getting syphilis are rare but that the usual treatment for gonorrhoea may hide typical signs of syphilis. We stress that the three month serology is the most important because it may take that long for the disease to produce detectable changes in the blood. We find that this information encourages the necessary follow-up visits and most patients are anxious to return.

Although some people feel that venereal diseases have become socially acceptable, most of our patients are concerned about confidentiality. It is likely that many physicians do not submit specimens to laboratories because of this concern of their patients. A simple solution to this problem is to submit venereal disease laboratory specimens with a number instead of a name. If this is done the physician should be certain that the number put on the lab form is recorded in the patient's file along with the date that the specimen is taken.

### Treatment

Most patients presenting with possible gonorrhoea are treated on the basis of clinical and historical findings at their first visit. Males with a purulent cream-coloured or greenish urethral discharge should be treated for gonorrhoea without waiting for the laboratory results or better still after making a diagnosis on a smear examined in the office. Females who have had intercourse with a man who is known to have had recent gonorrhoea should also be treated at the first visit. If a female is not sure whether her partner has gonorrhoea and is willing to abstain from intercourse it is reasonable to wait for the results of the culture to decide whether specific therapy is needed. However, one set of negative cultures are not sufficient to rule out gonorrhoea. A minimum of two negative cultures are necessary and if a transport medium is used to get the specimens to the lab then three negative cultures are advised. If possible one of the cultures should be taken just after a menstrual period because it is more likely to be positive at this time. We tell our patients that even though the gonococcus is present, the delicate organism may die in 5 to 20% of cases before it reaches the laboratory. When

this is understood patients usually return for the bothersome repeat cultures.

Uncomplicated gonorrhoea is a unique infectious disease because it is well established that the gonococcus can be eradicated by high blood levels of effective antibiotics over a short period of time. Single large doses of intramuscular procaine penicillin or oral ampicillin will cure the patient in approximately 95% of cases. Many antibiotics are active against the gonococcus but some are better than others. Our choices in order of preference are the following:

### Recommended antibiotics for the treatment of Uncomplicated Gonorrhoea

1. Aqueous Procaine Penicillin (APP) I.M. preceded by 1.0 Gm. probenecid, p.o. preferably ½ hour before the injection

Males: 2.5 million units I.M.

Females: 5.0 million units I.M.

The only practical APP available in the Maritimes at the time of writing is that manufactured by Connaught Laboratories because it contains 500,000 units per cc. which means 5 cc. in one buttock for males and 5 cc. in both buttocks for females. However as this concentrated preparation of penicillin is no longer being manufactured it may not be available locally. There is a need for some pharmaceutical firm to produce a concentrated injectable penicillin.

2. Oral Ampicillin 3.5 Gm. along with probenecid 1.0 Gm. stat. At present we offer our patients a choice of either treatment 1 or 2 because we think that they are equally effective<sup>3</sup>. A surprising number choose the injections. This is a lot of ampicillin (either seven 500 mg. capsules or fourteen 250 mg. capsules) and should be taken all at once in doctor's office. Doctors maintain supplies of injectable penicillin and should also maintain a small supply of single dose oral ampicillin for gonorrhoea patients. If the patient is given a prescription for an oral antibiotic we prefer a single dose suspension of ampicillin combined with probenecid because the patient is more likely to take this liquid medication in one dose than he is to take 7 or 14 capsules at one time.
3. Spectinomycin (T.N. Trobicin)  
Males: 2 Gm. I.M.  
Females: 4 Gm. I.M.

This is our first choice for patients who are hypersensitive to penicillin but should not be used in pregnant women. It is also useful in patients who fail to respond to treatments 1 or 2 but is not indicated as a first line antibiotic in Nova Scotia because gonococci which are highly resistant to penicillin are rare here.

4. Tetracycline

There are a multitude of these available on the market. Ordinary tetracycline is as good as any of the others.

Dosage: Tetracycline 1.0-1.5 Gm. p.o. stat. followed by 0.5 Gm., q.i.d. for a total of 9.0 Gm.



Single doses of tetracycline have been tried but lately have not proven to be as effective as treatments 1 and 2 above and so tetracycline must be given in multiple doses. This is a considerable disadvantage because patients frequently do not complete therapy when their symptoms disappear. They may save the remaining tetracycline for the next time that they have "a touch of the dose" and treat it inadequately.

#### 5. Erythromycin

Dosage: same as tetracycline

This is more expensive than tetracycline but may be used in pregnant women (in whom tetracycline and spectinomycin should *not* be used) who are hypersensitive to penicillin.

#### Treatment *not* recommended

Long acting intramuscular penicillins such as benzathine penicillin (T.N. Bicillin or Penadura) are contraindicated because they give very low blood levels of penicillin and are likely to encourage the development of penicillin-resistant gonococci. Similarly, oral penicillin<sup>2</sup> should not be used because the blood levels achieved by such preparations are very variable and furthermore the physician can not be certain that the patient will take the penicillin as prescribed.

#### Follow-Up

Both male and female patients should have follow-up cultures done and time should be taken to persuade them of the importance of these tests of cure. Most patients want to be sure that they are no longer infected.

**Males:** repeat urethral smears and cultures about one week after the antibiotic therapy is completed. The urethral discharge usually disappears within 3-4 days of the start of antibiotic. If the discharge is still present the patient should be asked to return for a second post-treatment smear and culture.

**Females:** at least 2 sets of post treatment cultures should be done (three if a transport media is being used, eg. Stuart's transport media). It is preferable that one of these be done soon after a menstrual period.

**Males and Females:** repeat VDRL serology at approximately one month and three months.

#### Prevention

The attending physician can contribute significantly to preventing the increase in gonorrhoea. However, a decrease in gonorrhoea will probably not occur until much more energetic efforts are devoted to the disease, including the development of a good serological test and possibly a vaccine.

In Nova Scotia and the rest of Canada it is mandatory to report the *names* of all cases of gonorrhoea. However, the main aim of reporting is to see that *contacts* are followed-up. In my opinion<sup>4</sup> there is little to be gained by

reporting the names of *cases* but the physician should talk to the patient about contacts. For every case seen there must be *at least* two other infected people. From the patient's point-of-view there are two main types of contacts. The first is a regular consort whom the patient knows well. The patient may not wish to reveal the name of this person but can be motivated to urge his contact to be examined and treated if necessary. The second type of contact is the casual acquaintance whom the patient may never see again. The patient should be asked to give as much information as they can about such contacts and this information sent or telephoned to the public health authorities so that a specially trained public health nurse may discretely follow them up and see that they get examined by a doctor.

Many patients with venereal disease are poorly informed about the diseases. The physician can accomplish a lot for the control of sexually transmitted diseases by making sure that patients leave his office with more complete information which they may pass on to their acquaintances.

Several recent studies have shown the value of doing routine cervical cultures for the gonococcus on sexually active women 15 to 30 years of age. If such cultures are done along with a "pap" smear or other routine vaginal examination the physician must be careful when interpreting the results. A vaginal *smear* which is positive for gonococci should never be accepted as proof of gonorrhoea without a positive culture. □

#### References

1. Portnoy, J. et al.: "Asymptomatic Gonorrhoea in Men". *CMAJ* 110: 169-171, 1974.
2. Handsfield, H. H. et al.: "Asymptomatic Gonorrhoea in Men". *New Eng. J. Med.* 290: 117-123, 1974.
3. Kvale, P. A. et al.: "Single Oral Dose Ampicillin-Probenecid Treatment of Gonorrhoea in the Male". *JAMA* 215: 1449-1453, 1971.
4. Brown, J. et al.: "Treatment of Gonorrhoea Urethritis with Spectinomycin Hydrochloride". *CMAJ* 110: 173-176, 1974.
5. Manuel, F. R.: "The Names of Gonorrhoea Patients should not be Reportable". *CMAJ* 110: 145, 1974.

**Medical  
Estate  
Planning  
Services**

Donald R. Cox

Suite 1110  
Duke Street Tower  
Scotia Square

Phone: 422-6314

Estate Planning Directed to the Medical Profession



# Caustic Burns of the Oesophagus in Children

T. R. Verma,\* M.D., F.R.C.S. (Eng. & Ed.),

O'Leary, P.E.I.

## Introduction

Accidental ingestion of strong corrosive agents by a child remains a serious medical problem. When the initial injury penetrates the entire oesophageal wall, free perforation may occur. Most burns, however, do not result in perforation, but subsequent wound healing and scarring convert the pliant oesophagus into a rigid, narrow tube incapable of passing food. This paper reviews our experience with this problem, in Halifax.

## Extent of the problem

Total number of patients seen during the period 1963-1972 at the Children's Hospital, Halifax, with a history of oral contact with a household cleaner containing lye, were 165, an average of about 16 patients per year. The age group that is highest at risk is 1-5 years when children have a tendency to put everything they can get hold of into their mouths. See Fig. 1. Drano is by far the commonest agent ingested.

## Management

All our patients are admitted via the Poison Control Centre. About 30% of the patients brought in have obviously not ingested the agent and are discharged home. The remainder need further attention. If there is the slightest suspicion of caustic ingestion, the patient is started immediately on Hydrocortisone and Antibiotic therapy.

As outlined in Fig. 2, an early oesophagoscopy is carried out to establish the diagnosis. If no burn is seen, treatment is discontinued and the child discharged home. If on the other hand a burn is seen, the 'scope is not advanced any further, but treatment with steroids and antibiotics is continued for at least 3 weeks. During this period, a cine-fluoroscopy and a barium swallow will determine the injured areas. Oesophagoscopy and prophylactic dilatation, using Jackson dilators, is carried out at intervals. A gastrostomy may be required in some patients, both for feeding purposes and for retrograde dilatations with Tucker's dilators. This period usually lasts for 6 to 24 months, depending on the severity of the stricture. Overnight admission may be necessary for the dilatations.

## Results

During the past 10 years, only 7 patients went on to develop stricture of the oesophagus. All of them required a gastrostomy for varying lengths of time. There was 1 death,

in a patient who required colonic interposition. The other 6 patients have responded to serial dilatations and are leading normal lives.

## Discussion

Caustic burns in small children will continue until these dangerous materials are eliminated from the market or packaging is carried out in child-safe containers. Swallowing of corrosive fluids in children is nearly always accidental; the toddling explorer is most often the victim.

Once the caustic material has come in contact with the oesophagus, varying degrees of burns can take place: strong alkalis cause liquefactive necrosis of tissues with loss of cellular identity and saponification of tissue fats. If acute perforation of the oesophagus has not occurred, more typically a chronic oesophageal stricture formation with its morbidity, is the rule.

Salzer, in 1907, recommended early dilatations of the oesophagus, using soft rubber catheters, filled with fine lead shot, before the onset of stricture formation. Other workers reported success with this technique also. But all these patients were not oesophagoscoped, so we shall never know how many of them were truly burnt. Studies done by Knox<sup>2</sup> in 1967 in alkali burns of the oesophagus in dogs showed best results in animals who received bouginage and prednisone in addition to antibiotics. Rosenberg<sup>3</sup> in 1951 had reported good results with cortisone.

Alex Haller,<sup>4</sup> Jr., et al carried out experimental studies using the cat oesophagus, and showed the efficacy of early dilatation combined with cortisone and antibiotics. This study was followed by excellent clinical results using the same regime. Of 285 children, 29% were shown to have oesophageal burns and of these, 12% developed strictures. Prolonged dilatation was curative; no oesophageal replacement was necessary in this group. Our own series at Halifax bears out the efficacy of this regime. There was, however, 1 death from sepsis following colonic interposition.

Recently, experimental work with d-penicillamine and Betaaminopropionitrile (BAPN), seems to show even better results. These agents are lathyrogens, and prevent cross-linkage in collagen synthesis, thus weakening the scar (Madden,<sup>5</sup> et al). But more work with these agents will have to be awaited before applying them in clinical practice.

## Summary

A 10 year review of corrosive burns of the oesophagus in children, seen in Halifax, is presented. Early institution of

\*Formerly, Senior Resident in Surgery, The Izaak Walton Killam Hospital, Halifax, N.S.

Present Address: Community Hospital, O'Leary, P.E.I.

steroids and antibiotics is recommended in suspected cases. Oesophagoscopy should be carried out as early as possible to establish the diagnosis, and prophylactic dilatations, if stricture formation is anticipated. □

#### Acknowledgement

I wish to thank Drs. D. A. Gillis & H. O. Nason, for allowing me to study the patients admitted under their care.

#### Bibliography

1. **Burford, T. H., Webb, W. R. and Ackerman, L.:** Caustic burns of the esophagus and their surgical management: A clinical experimental correlation. *Ann. Surg.* **138:** 453, 1953.
2. **Knox, W. G., Scott, J. R., Zintel H. A., Guthrie R. and McCabe R. E.:** Bouginage and steroids used singly or in combination in Experimental Corrosive Esophagitis. *Ann. Surg.* **166:**930, 1967.
3. **Rosenberg, N. Kunderman, P. J., Vroman, L., and Moolten, S. E.:** Prevention of Experimental Lye Strictures of the Esophagus by Cortisone. *Arch. Surg.* **63:**147, 1951.
4. **Haller, J. A. Jr., Andrews, H. G., White J. J., Tamer, M.A. and Cleveland, W. W.:** Pathophysiology and Management of Acute Corrosive Burns of Esophagus: Results of treatment in 285 children. *J. Ped. Surg.* **6:**578, 1971.
5. **Madden, J. W., Davis W. M. Butler, C, II, and Peacock, E. E., Jr.:** Experimental Esophageal Lye Burns. II. Correcting established strictures with Betaaminopropionitrile and Bouginage. *Ann. Surg.* **178:**277, 1973.



**ATLAS  
TRAVEL  
SERVICE LTD.**

**YOUR EXPERTS IN TRAVEL**

Whether you're going to a Convention, on a Vacation or on Business — Call us at either of our two convenient Locations.

**Lord Nelson Arcade 429-7970  
Scotia Square 429-7974**

## **R<sub>x</sub>** FOR LEASING

**THE RIGHT PRESCRIPTION CAN ONLY  
BE FILLED AFTER PROPER DIAGNOSIS**

Hillcrest General Leasing offers you 23  
years in the Automotive and  
Equipment Field.

**CONSULT US TODAY**

All makes & models

**Hillcrest General Leasing  
Limited**

2816 Windsor St., Halifax 455-4786



Office Supplies and Printing  
Social Stationery

5476 Spring Garden Road

Halifax Shopping Center

Scotia Square

Halifax, Nova Scotia

**FOR ALL YOUR OFFICE NEEDS**



# The Non-Metastatic Skeletal Manifestations of Bronchogenic Carcinoma

## A CASE PRESENTATION AND REVIEW OF THE LITERATURE

William D. Stanish,\* M.D.,

Halifax, N.S.

### INTRODUCTION

Hippocrates, in the fifth century B.C., was the first to describe a patient who presented with finger clubbing associated with gross obstructive lung disease with emphysema. In the more contemporary medical literature von Bamberger in 1889 and Pierre Marie in 1890 independently reported the clinical entity of alteration of the body skeleton in conjunction with pulmonary disease. Marie at that time called the clinical condition, hypertrophic pulmonary osteoarthropathy. He defined hypertrophic pulmonary osteoarthropathy as "the symmetrical osteitis of four limbs chiefly localized in the phalanges with terminal epiphyses of long bones of the forearm with leg, sometimes extending to the roots of the limb, and flat bones and accompanied by a dorsal kyphosis with some affection of the joints." This description requires little alteration even today.

In the pre-antibiotic era, alterations in the body skeleton were most frequently associated with suppurative diseases of the pulmonary parenchyma. However, since the introduction of antimicrobials, bronchogenic carcinoma is the major triggering disease process.

It has been well recognized that rheumatic complaints can frequently be the prodrome of pulmonary malignancy. Also, it is important to note, these same joint complaints may mimic other arthritic diseases for several years prior to the point at which the malignancy becomes clinically obvious. The major purpose of this article is to emphasize this major clinical fact. Hammerstien and O'Leary in 1957 presented 22 cases of hypertrophic pulmonary osteoarthropathy. In this study, 20 of the 22 cases were suffering from carcinoma of the lung, and yet, 19 of the 20 cases were misdiagnosed on the initial evaluation.

This article will attempt to produce a summary of the classical clinical, pathological, and radiological findings in patients with non-metastatic bone disease associated with bronchogenic carcinoma. A brief comment will also be made on concepts of pathophysiology.

### CASE PRESENTATION

#### 1. Chief Complaint

Mr. W. S., a 51 year old white male, was admitted to the surgical unit of the Halifax Infirmary on November 4,

1972. At the time of admission, the patient complained of arthralgia of multiple joints which commenced in September 1972, fever of approximately two weeks' duration, and a 30 lb. weight loss which had been incurred over the two month period prior to admission.

#### 2. History of Past Illness

The patient commented that he had a flu-like illness in January of 1972. Subsequent to this, he had been troubled by malaise, easy fatigability, and insidious weight loss. In September of 1972, the patient stated that he developed acute pain and swelling of the metacarpal phalangeal joints and proximal interphalangeal joints of the hands and stiffness of his shoulders. The pain and stiffness progressed to involve the knees and ankles and at the time of admission, the major symptomatic joints were the right ankle and right knee. The patient commented that his daily activities were grossly compromised by the joint symptoms. He stated at the time of admission that he had developed a fleeting macular rash over the scalp and legs anteriorly which was non-puritic and non-suppurative in nature. The patient was a chronic smoker and would smoke one package of cigarettes per day (20 cigarettes). However, he had no complaints of cough, sputum or hemoptysis. Physical examination of the respiratory system revealed the chest moved symmetrically with respiration. There was normal expansion and excursion. There was no abnormality to percussion, palpation or auscultation. Musculoskeletal system — the pathological joints were: the right knee which had marked tenderness, marked synovial thickening, moderate hyperemia of the joint; there was a moderate effusion, no crepitus, no popliteal cysts, no ligamentous laxity and the range of movement was grossly compromised by pain. The right ankle was distinctly swollen; there was marked tenderness and marked hyperemia of the overlying skin. Both joints were very warm to touch.

#### 3. Laboratory Data

Hemoglobin 12.9 gms%, W.B.C. 13,100 with 4% eosinophils. E.S.R. 72, electrolytes normal, 5 nucleotide 26.6 milliunits per mil (normal 3-11), alkaline phosphatase 200 milliunits per mil (normal 27-75). VDRL non-reactive rheumatoid factor negative. L E cell preparation negative, Bence-Jones protein negative, A G ratio 0.5, EKG was abnormal with a sinus tachycardia, intraventricular conduction defect and non-diagnostic S T T wave abnormalities. Pulmonary function studies revealed moderate obstruc-

\*Resident in Orthopaedic Surgery, Dalhousie University, Halifax, Nova Scotia.



tive pulmonary disease with mild diffusion defect. X-rays of the chest revealed a questionable lesion, a left hilar area which was suspected to be vascular in nature, or sarcoidosis. The idea of bronchogenic carcinoma was a remote consideration. Sputum cytology revealed class II inflammatory cells on three different occasions. X-rays of the hands were negative. X-rays of the knees revealed synovitis with blurring of the infrapatellar fat pad. Bony structures were normal; ankles were normal, and metastatic series were negative.

#### 4. Course in Hospital

On November 10, 1972 the patient underwent bronchoscopy and mediastinoscopy in which specimens of the right paratracheal node and an area of the left bronchial area were obtained. There was no malignancy apparent. On November 15, 1972 the patient underwent left pneumonectomy. At operation, it was apparent that there was indeed a malignancy involving the left upper lobe with extension to the hilar node region. There was no gross involvement obvious at the time of operation in the subaortic nodes and there was no involvement of the left lower lobe. Histological evaluation revealed squamous carcinoma of the left upper lobe with extension to the hilar nodes but without involvement of the subaortic nodes.

#### 5. Post-Operative Course

Within three days of the operation, the patient's joint symptomatology diminished dramatically. Not only was he pain-free from his right knee and right ankle pain, but the obvious synovitis underwent dramatic remission. At the time of discharge on December 12, 1972, the patient was ambulating without joint complaints. He had no clinical evidence of synovitis of any peripheral joints. He had a full range of movement of the right knee and right ankle.

### CLINICAL FACTORS

Review of the literature concludes that non-metastatic skeletal disorders associated with bronchogenic carcinoma demonstrate a male-to-female predominance in the range of 20-1. O'Leary states that the disease complex is increased in the sixth and seventh decades with a mean age of 59. His results are based on a review of 79 cases with hypertrophic pulmonary osteoarthropathy occurring with bronchogenic carcinoma. These findings concur with those of Semple and McCluskie.

Three distinct clinical types of bone and joint disorders can occur with bronchogenic carcinoma. Recent literature concludes that although transient synovitis may be the initial manifestation of lung cancer, finger clubbing and hypertrophic pulmonary osteoarthropathy are seen much more frequently. It is important to note that a patient who presents initially with monoarticular synovitis may develop hypertrophic pulmonary osteoarthropathy in the near future. Hansen demonstrated that pulmonary osteoarthropathy can occur without finger clubbing and that clubbing must not be considered synonymous with hyper-

trophic pulmonary osteoarthropathy. A description of the three types of non-metastatic skeletal manifestations of lung cancer are as follows:

#### 1. Hypertrophic Pulmonary Osteoarthropathy

Ray and Fisher have demonstrated that approximately 10 per cent of patients with lung cancer will at some time in their clinical course develop pulmonary osteoarthropathy. It is very common for patients to develop signs and symptoms of osteoarthropathy prior to demonstration of the tumour radiologically or clinically. Semple and McCluskie demonstrated clearly in their study of 24 patients with bronchogenic carcinoma that close to 65 per cent of these patients presented initially with joint symptomatology. These individuals classically present with pain, stiffness and swelling of large joints which include knees, ankles and wrists. Some may present with associated joint effusions and bone tenderness. A small percentage of these patients may be bedridden because of the incapacitating nature of the joint pain.

#### 2. Finger Clubbing

Finger clubbing is usually associated with hypertrophic pulmonary osteoarthropathy but not invariably. Lovell demonstrated that finger clubbing seen with hypertrophic pulmonary osteoarthropathy usually is asymptomatic until attention is drawn to it by the consulting physician. However, this observation is in direct contrast to that of Anderson who concluded that finger clubbing with neoplasia differs from the finger clubbing associated with infection. The former is characterized by more pain, is more acute in onset, and has a distinct red rim surrounding the nail base. Also he demonstrated that there is increased blood flow to the periphery in the individuals who have finger clubbing associated with carcinoma in contrast to those with infection or cyanotic heart disease.

Clinically finger clubbing follows three distinct stages of development. The first sign is that of increased fluctuation of the nail bed. The second sign is a thickening of the fibroelastic tissue at the base of the nail with filling out of the angle between the nail and the basal tissues. The third sign is a distinct alteration in the curvature of the nail.

#### 3. Synovitis

Synovitis may be the first sign of hypertrophic pulmonary osteoarthropathy or it may exist as a distinct monoarticular or polyarticular inflammatory process.

The synovitis usually involves knees, ankles, elbows, wrists, and metatarsal phalangeal joints. In its clinical presentation, it distinctly resembles rheumatoid arthritis.

### RADIOLOGICAL EVALUATION

Evaluation of soft tissues reveals soft tissue prominence in finger clubbing associated with bronchogenic carcinoma. However, there is no evidence of the spade-like configuration of the terminal tufts as seen in acromegaly. With



clubbing there is no periosteal elevation involving the distal terminal tufts.

The periosteal changes as seen in hypertrophic pulmonary osteoarthropathy involved the diaphysis of long bones and tubular bones. The new bone formation tapers off at the extremes of the shaft and at the extreme ends of the shaft no evidence of bony enlargement is noted.

Various types of periosteal elevations are seen:

- (1) Simple elevation of periosteum wherein a radiolucent area is seen between periosteum and cortex
- (2) Lamination or onionskin appearance of elevated periosteum with smooth layers of new bone formation
- (3) Irregular areas of periosteal elevation seen sporadically
- (4) Irregular solid areas of periosteal cloaking with wavy contours
- (5) Cortical thickening where periosteal elevation has merged with the cortex and no radiolucent line is apparent

It is important to note that in hypertrophic pulmonary osteoarthropathy no recognizable x-ray manifestations of joint involvement were observed.

## **PATHOLOGY**

Microscopically, tubular bones show periosteal new bone formation with cortical thickening most marked in the diaphysial regions. The epicondyles and tendon insertions are remarkably free of disease.

Microscopically, a pseudocortex of 1 to 5 millimeters in thickness is produced and undergoes lamellar reconstruction. This reconstruction ultimately fuses with and expands the original cortex. This element of proliferative periostitis is associated with lymphocytic and plasma cell infiltration.

The joints involved show extra articular thickening but may have mild to moderately severe chronic synovitis which is associated with non-specific degenerative changes in the articular cartilage. There is invariably plasma cell and lymphocytic infiltration not unlike rheumatoid arthritis.

Lovell in 1950 demonstrated a marked excess of fibrous tissue in the distal digital segments of patients with finger clubbing. This was demonstrated in conjunction with an increase in caliber of small vessels. He also described many small A-V anastomoses which were bypassing capillaries. This observation suggested that fibrous hyperplasia, which exists in finger clubbing, was secondary to actual anoxia of the distal digit.

## **TUMOUR CHARACTERISTICS**

The work of Ray and Fisher, in which they reviewed 139 cases of bronchogenic carcinoma, described 14 of these patients with hypertrophic pulmonary osteoarthropathy. Of these cases, 13 tumours were peripheral in location. This observation was substantiated by those of Hammerstien and O'Leary who found very poor yields with bronchoscopy and bronchial washings suggesting that these tumours have

a peripheral nature. Although Ray and Fisher could not demonstrate a predominant tissue type, several other workers including Semple and McCluskie as well as Flavell found a marked increase of arthritic signs and symptoms in patients with squamous cell carcinoma.

## **CONCEPTS OF PATHOPHYSIOLOGY**

Mendlowitz in 1942 discussed the multiple theories of etiology which included toxemia, anoxia, capillary stasis and lymphostasis. The concepts of autonomic and endocrine instability were also reviewed. Recent objective data has concluded that in patients with hypertrophic pulmonary osteoarthropathy associated with bronchogenic carcinoma there is increased blood flow to the particular limb involved. As demonstrated by Flavell, Huckstep, and others, transection of the vagus nerve or removal of the tumour will decrease blood flow to the involved limb. This is followed by the patients' joint symptomatology remitting and radiologically his bones reverting to normal in approximately six to nine months. It was observed by Semple that following tumour resection, the patients without exception had cooler hands and feet, the peripheral pulses were not as bounding and the skin furrows (which are uncommonly seen with hypertrophic pulmonary osteoarthropathy) disappeared. Three theories of pathophysiology are still considered mildly feasible:

### **1. Endocrine Imbalance**

Hypertrophic pulmonary osteoarthropathy has occurred after subtotal thyroidectomy as demonstrated by Mum in 1933. Corry demonstrated remission of joint symptoms using estrogen in patients with lung cancer. Selye in 1944 was able to produce a polyarthritis which resembled hypertrophic pulmonary osteoarthropathy in adrenalectomized animals. Although all of these observations suggest an endocrine disorder, no autopsy or biochemical data has substantiated this theory.

### **2. Humoral Substance Secreted from Tumour**

Removal of lung tumours does precipitate a remission in the symptomatology of osteoarthropathy. A similar affect can also be triggered by clamping the pulmonary artery. However, malignant tumours of the lung associated with hypertrophic pulmonary osteoarthropathy do not histologically possess secretory cells. Also against this theory is the fact that transection of the vagus nerve alone will cause remission of the joint symptomatology even if the tumour has been left in situ.

### **3. Autonomic Pulmonary - Systemic Vascular Reflex**

Cudkowitz and Armstrong in 1953 found many pre-capillary bronchopulmonary anastomoses in the lungs of patients with finger clubbing plus hypertrophic pulmonary osteoarthropathy. They also demonstrated hyperplasia of the walls and narrowing of lumina of smaller peripheral bronchial artery branches. This was felt to be a secondary phenomenon of blood having been shunted away from the peripheral small vessels.



It was then concluded that peripheral nerve fibers were rendered ischemic by this diversion of the blood flow from the periphery. These nerves triggered impulses which would indeed provoke an increase in the peripheral blood flow and thus enhance further formation of A-V anastomoses.

## DIFFERENTIAL DIAGNOSIS

### 1. Primary hypertrophic pulmonary osteoarthropathy

This distinct clinical entity is an idiopathic form of pulmonary osteoarthropathy which is transmitted in a quarter of the progeny as an autosomal recessive. It is increased in male offspring and has been called pachydermoperiostosis. The onset of this disease is in adolescence with intermittent swelling of the large joints and finger clubbing. Very commonly it is associated with deep skin furrowing of the scalp, arms, legs and infrequently, the shoulder region. It is commonly associated with hyperhidrosis and although running a progressive course will usually stop abruptly after several years' duration.

### 2. Rheumatoid Arthritis

### 3. Acromegaly

### 4. Paget's Disease

### 5. Luetic Periostitis

### 6. Vitamin A Intoxication

## SUMMARY

A review of the non-metastatic skeletal manifestations of bronchogenic carcinoma has been presented. Arthritic complaints of patients with lung cancer are frequently overlooked and misdiagnosed. This is a vitally important clinical fact because very commonly bone and joint complaints may be the heralding symptoms of smouldering lung tumours.

It is suggested that patients presenting with objective joint disease who do indeed pose a problem in diagnosis must be screened carefully to rule out possible lung cancer. □

## Bibliography

- Steiner, H., Dahlback, O., and Waldenstrom, J. (1968). "Ectopic Growth Hormone Production In Carcinoma Bronchus." *Lancet*, 1:2 - 783-785.
- Susmano A. (1968). "Idiopathic Hypertrophic Osteoarthropathy." *American Heart Journal*, 76: 582-583.
- Huckstep, R. L., and Brodtkin, P. E. (1958) "Vagotomy In Hypertrophic Pulmonary Osteoarthropathy Associated with Bronchogenic Carcinoma." *Lancet* 2: 343.
- Flavell, G. (1956) "Reversal of Pulmonary Hypertrophic Osteoarthropathy by Vagotomy." *Lancet* 1:260.
- Mendlowitz, M. (1942) "Clubbing & Idiopathic Osteoarthropathy." *Medicine* 21: 269.
- Greenfield, G. B. (1967) "Various Roentgen Appearances of Pulmonary Hypertrophic Osteoarthropathy." *American Journal of Roentgenology* 101:927-931.
- Anderson, H. A. and Bernate, P. E. (1964) "Extrathoracic Manifestations of Bronchogenic Carcinoma" *Medical Clinics of North America*. 48: 921-931.
- Diner, W. C. (1962) "Hypertrophic Osteoarthropathy." *JAMA* 181: 555-557.
- Holling, H. E., Brodey, R. S. and Boland, C. (1961) "Pulmonary Hypertrophic Osteoarthropathy" *Lancet* 2: 1269-1274.
- Greenburg, E., Divertie, M. B. and Woolner, L. B. (1964). "Review of Unusual Systemic Manifestations Associated with Carcinoma." *American Journal of Medicine* 36: 106-120.
- Simple, T. and McCluskie, R. A. (1955). "Generalized Hypertrophic Osteoarthropathy in Association with Bronchial Carcinoma" *British Medical Journal* 1: 754.
- Hansen, J. L. (1952). "Bronchiol Carcinoma Presenting as Arthralgia." *ACTA Medica Scandinavica* 142: supp. (266) 467.
- Hammerstien, J. F. and O'Leary, J. (1957). "Features and Significance of Hypertrophic Osteoarthropathy." *Archives of Internal Medicine*. "99: 431.
- Castleman, B. (1967). C.P.C. *New England Journal of Medicine*. 277: 24.
- Hollander, J. E. and McCary, D. J. "Arthritis and Allied Conditions." *LCA - Febriger* 1972: 8th Edition 1367-1373.

## NEW MEMBERS

The Physicians listed below have joined The Medical Society of Nova Scotia between November 1, 1973 and February 28, 1974. A most cordial welcome is extended from the Society.

Dr. William F. Barton	Dartmouth, N.S.
Dr. Roderick A. Bird	Halifax, N.S.
Dr. Rusi J. Buhariwalla	Dartmouth, N.S.
Dr. Donald M. Campbell	Dartmouth, N.S.
Dr. Josephine J. Candy	Halifax, N.S.
Dr. John H. Chadwick	Halifax, N.S.
Dr. Ronald A. Chalmers	Dartmouth, N.S.
Dr. William H. N. Covert	Halifax, N.S.
Dr. Sarita Diwan	Halifax, N.S.
Dr. Roy E. Englund	Halifax, N.S.
Dr. George A. Ferrier	Dartmouth, N.S.
Dr. Syed M. H. Hasan	Bridgewater, N.S.
Dr. William H. Howes	Halifax, N.S.

Dr. Mian A. Khaliq-Kareemi	Digby, N.S.
Dr. Gillian Lawrence	Amherst, N.S.
Dr. Tilak de Fonseka Mendis	Halifax, N.S.
Dr. David S. Moore	Truro, N.S.
Dr. David A. Murphy	Halifax, N.S.
Dr. Michele P. G. Murphy	Antigonish, N.S.
Dr. Harold S. Murray	Halifax, N.S.
Dr. Arthur R. Macneil	Halifax, N.S.
Dr. Donald M. Nicholson	Halifax, N.S.
Dr. Rajender Parkash	Yarmouth, N.S.
Dr. Shanubhai T. Patel	North Sydney, N.S.
Dr. Sonia R. Salisbury	Halifax, N.S.
Dr. Donald L. Stacey	Dartmouth, N.S.



## Diet and Cardiovascular Disease

J. H. Haldane,\* F.R.C.P.(C), F.R.C.P.(Glas.), F.R.C.P.(Edin.),

Halifax, N.S.

Just as tuberculosis was the scourge of the nineteenth century, so coronary heart disease is the epidemic of this. There were 626,000 coronary deaths in the U.S.A. in 1967; 167,000 were in persons aged 35 to 64 years — 31% of all deaths in this age group — with a male: female ratio of 3:1.<sup>1a</sup> Intensive research has failed to stem the tide, and treatment has had to rely on drugs that reduce the work of the heart, and on surgical techniques such as the early cardio-omentopexy, implantation of the internal mammary artery into the myocardium, and the more recent aorto-coronary bypass graft. Therapy with vitamin E, a substance derived mainly from vegetable oils, gained popularity in the 1940s; this agent relieves intermittent claudication,<sup>2</sup> and recent studies suggest that it may have a beneficial anti-oxidant effect.

It is one of the paradoxes of life that a high standard of living may engender factors that lead to premature death. Thus, it has been suggested that modern developments in food processing, especially flour-refining (which reduces anti-oxidant content),<sup>3,4</sup> are an important contributory factor in the increasing rates of myocardial infarction — and some experimental work on animals indicate a greater susceptibility to cancer in the overfed.<sup>5</sup> Furthermore, it is widely held that diets high in animal fat predispose to coronary atherosclerosis.

Certain predisposing factors are known to be of etiological significance in the premature development of coronary atherosclerosis,<sup>4</sup> including an inherited tendency, male sex, a high blood-cholesterol level, hypertension, diabetes mellitus, cigarette-smoking, 'soft' drinking water, obesity, and lack of physical activity. It has become apparent that elimination of only one of several risk factors will not prevent the development of atherosclerosis, but morbidity/mortality rates are significantly lower in lean, physically active, non-smokers.

A 10-year follow-up study<sup>6</sup> in seven countries, of 12,000 men originally aged 40 to 59, showed that the five-year rate of coronary-artery disease in Finland and the U.S.A. (saturated-C fat intake comprising 17-22% of total caloric intake) was four times that in Japan (saturated fats = 3% of calories), and that the high saturated-fat intake correlated with a high serum cholesterol level. Ideal saturated-fat intake is 15% of total calories.<sup>4</sup>

What is a normal serum cholesterol value? No single level divides those 'at risk' from those 'not at risk': 250 mg. (per 100 ml.) carries a greater risk of coronary atherosclerosis

than 220 mg. — which, in turn, bears a greater risk than 180 mg. Thus, the Framingham study<sup>7</sup> showed that men with a serum cholesterol > 250 mg./100 ml. were five times more likely to suffer myocardial infarction than those whose level was < 220 mg./100 ml.

Whereas the serum cholesterol level is the most accurate readily available measure of the risk of premature atherosclerotic disease, the fasting serum triglyceride levels are more useful for practical management; furthermore, if cholesterol alone is measured, many cases of hyperlipidemia will be missed. Electrophoresis and ultracentrifugation separate lipid fractions according to their densities (Fredrickson types 1 to 5), but the lipid content of serum can be assessed very simply. After a 14-hr fast, blood is taken; the serum is separated and refrigerated. At 25 hrs, a creamy layer on the top denotes chylomicronemia, as seen in type 1 and 5 (both rare), opalescence suggests types 2b, 3 and 4, and clear serum indicates type 2a, all of which are associated with coronary artery disease. Conditions known to produce hyperlipidemia must be excluded. These include uncontrolled diabetes mellitus, hyperthyroidism, nephrosis, biliary obstruction, pancreatic disease, alcoholism, myeloma, and contraceptive steroids. When a primary etiology has been established, diets appropriate to the type of lipid disturbance are prescribed, supplemented by drug therapy if necessary. An essential step is to evaluate the immediate family: children not only inherit characteristics from their parents but also adopt their habits and mode of living.

Dietary cholesterol is derived exclusively from foods of animal origin; in North Americans the average daily intake is 700 mg. In addition, they ingest about 180 mg. of plant sterols daily, from vegetables, fruits, and grains, but these sterols are not absorbed from the gastrointestinal tract. Dietary cholesterol must be reduced below 200 mg. per day before any benefit is apparent. The amount of carbohydrate ingested also may be significant, especially in type-5 hyperlipoproteinemia, but protein intake of < 150 g. per day does not affect serum lipid levels. It should be noted that patients with only a high level of serum cholesterol (Fredrickson type 2a) are relatively refractory to diet and drug therapy. A diet containing <200 mg. cholesterol daily will reduce serum cholesterol only 25% in type 2, but will reduce cholesterol by 60% and plasma triglycerides by 80% in type 3. (However, in one study,<sup>8</sup> males ingesting for a long time a diet high in unsaturated and low in saturated fat and cholesterol had a gallstone frequency of 34% [14% in control subjects].)

\*Assistant Professor of Medicine, Dalhousie University, Halifax, N.S.



The first objective in treating lipidemia is the attainment of ideal body-weight: this alone will reduce blood-lipid levels in types 3, 4, and 5. Then the help of a dietitian should be sought, to plan a diet with low cholesterol content, with polyunsaturated in place of saturated fats, and of caloric value suitable for the individual patient. The diet should contain sufficient vitamin B, also, deficiency of which causes beri-beri. The recommended balance between polyunsaturated: saturated fat ratio is about 1:2, in both diabetics and nondiabetics. (Olive oil, composed largely of monounsaturated oleic acid, constitutes approximately 40% of total caloric intake of Southern Europeans, whose incidence of coronary atherosclerosis is low.)

Unsaturated fatty acids that are inadequately protected by antioxidants, especially the marine oils used in margarine, can produce nutritional muscular dystrophy in animals: they permit the formation of toxic lipid peroxides that affect skeletal muscle and the myocardium by disrupting cell metabolism and can cause sudden death. Anderson<sup>3</sup> has suggested that a similar subclinical state may occur in man, making the myocardium more vulnerable to atherosclerosis and thereby increasing the incidence of myocardial infarction; he believes that the natural antioxidants in most fats and oils (mainly tocopherols) are destroyed by modern food processing. The risk of atherosclerosis might be considerably reduced by substituting wholemeal bread for the product made from highly refined white flour, whose naturally rich antioxidant content has been destroyed by the oxidation process.<sup>4</sup>

### Congestive Heart Failure

Many patients in congestive heart failure are initially anorexic and prefer a liquid diet, and digitalis excess may exacerbate this. As their condition improves a bland diet can be introduced (tea, toast, and jam; then mashed potatoes with poultry or fish), and gradually a normal diet can be resumed, with salt restriction. The patient should be instructed to avoid foods with a high sodium content, and — provided that renal disease is absent — to use a salt substitute. Azotemia, of mild to moderate degree, is common and is aggravated by diuretics; if it is progressive, protein and sodium should be restricted<sup>4</sup> (40 g. protein daily, together with 40 mEq reducing to 20 mEq Na, if renal failure is severe). Refractory congestive failure is treated similarly with 20 mEq Na daily and moderate restriction of fluids; salt-free bread,<sup>4</sup> butter, and cheese may be recommended. If diuretics without K-salt supplements are prescribed, patients should be encouraged to eat K-rich foods (bananas, citrus fruits, dried fruits; beans; green vegetables, particularly broccoli and spinach).

### Hypertension

Before hypotensive drugs were available, a diet very low in sodium was prescribed. This reduced blood pressure, but was so unpalatable that no patient would tolerate it more than 2-3 weeks. With modern hypotensive therapy, little change in diet is required unless the patient is obese or has hyperlipidemia. Drug treatment is potentiated by sodium restriction (to 5 g. daily).

The possible benefit of normalizing lipid levels cannot be fully assessed until the results of field trials such as the European Clofibrate Primary Prevention Trial<sup>9a</sup> and the Coronary Drug Project<sup>9b</sup> are known and the results of implementing the U.S. National Diet-Heart Study Group's recommendations<sup>10</sup> have been evaluated. However, it is a reasonable goal, since the evidence is overwhelming that excess lipids in the blood lead to premature atherosclerosis.

Sound dietary habits can result only from public awareness of good nutrition. Health professionals should be taught modern nutrition concepts, and the food industry should be encouraged to prepare nutritious foods scientifically. "Nutritionally excellent baked goods of all types can be prepared commercially in completely acceptable form with reduced saturated fat, cholesterol and calorie content."<sup>1b</sup> Labelling of all foods, indicating contents and their quantities, should be enforced: consumers should be able to identify nutrient content, particularly the amount and type of fat.

Government intervention appears necessary to promote a healthier diet, as it was more than two thousand years ago: "Let them give us pulse to eat and water to drink. Then let our countenance be looked upon before thee, and let the countenance of the children that eat of the portion of the king's meat . . . And their countenance appeared fairer and fatter in flesh than all the children which did eat the portion of the king's meat. Then Melzar took away the portion of their meat and the wine that they should drink, and gave them pulse." (Daniel 1, 12-16). □

### References

1. Primary prevention of atherosclerotic diseases, Report of the Inter-Society Commission for Heart Disease Resources (I. S. Wright, National Chairman, and D. T. Fredrickson, Project Director). *Circulation* 42: a, p.A-57; b, p.A-85; 1970.
2. Tappel, A. L.: Vitamin E. *Nutr. Today* 8(4): 4, 1973.
3. Anderson, T. W.: Nutritional muscular dystrophy and human myocardial infarction. *Lancet* 2: 298, 1973.
4. Davidson, S., Passmore, R., and Brock, J. F.: Human Nutrition and Dietetics, 5th ed., Edinburgh and London, Livingstone, 1972.
5. Jose, D. G.: The cancer connection with immunity and nutrition. *Nutr. Today* 8(2): 4, 1973.
6. American Heart Association: Coronary heart disease in seven countries. *Circulation* 41, Suppl 1, 1970.
7. Kannel, W. B., et al.: Serum cholesterol, lipoproteins, and the risk of coronary heart disease: the Framingham study. *Ann. Intern. Med.* 74: 1, 1971.
8. Sturdevant, R.A.L., Pearce, M. L., and Dayton, S.: Increased prevalence of cholelithiasis in men ingesting a serum-cholesterol-lowering diet. *New Engl. J. Med.* 288: 24, 1973.
9. Jones, R. J. (ed.): Atherosclerosis: Proc. 2nd Internat. Symp. on Atherosclerosis, 2-5 Nov., 1969, Chicago, Ill. New York, Springer-Verlag, 1970. a, p.582; b, p.586.
10. The National Diet-Heart Study Final Report, Amer. Heart Assoc. monograph no. 18. *Circulation* 38, Suppl 1, 1968.

[Recommended reading for your patients: "Let's Eat Right to Keep Fit" by A. Davis, Signet Nonfiction W4630. \$1.75.]



# Your Finger or Your Foot

## A CASE OF RECTAL IMPACTION

F. Ian Gilchrist,\* M.D., D.T.M., D.P.H.,

*Fair Lawn, New Jersey*

As students in medical school, it was frequently impressed upon us by certain of our teachers, that a rectal examination was an important part of the general physical examination of a patient. And it was stressed that neglect of this part of the investigation of the individual could have dire consequences: "If you don't put your finger in it, you put your foot in it." However it was never mentioned that remembering the adage could also have surprising results. The following case illustrates that remembering or not may both be traumatic.

The patient was a female, aged about 40 years, who presented at a general clinic complaining of simple constipation. The dietary habits of the populace in south-eastern Sierra Leone are such that this is a common complaint and in the absence of other reported abnormality the woman was prescribed a simple laxative. However she returned the following day saying she had had no results.

Careful examination showed her to be in good general health, the only apparent abnormality being firm masses palpable through the abdominal wall in the left lower quadrant, giving the impression of hard feces, the latter being supported by a rectal digital examination. Nurses were requested to give her a soap and water enema, which produced no results. This was followed by an oil retention enema, which was similarly unproductive. At this point the only solution seemed a digital disimpaction.

On inserting the finger into the rectum an effort was made to dislodge the first bolus. There resulted a sharp prick to the finger, which was rapidly withdrawn. A second, rather more gingerly approach, confirmed the impression of a porcupine in the rectum. Recourse was had to a proctoscope and a pair of ovum forceps and it was found that the offending animal was a mass of matted fishbones that extended for several centimeters up into the rectum.

It developed that the woman came from a coastal area where small fish were eaten in large quantity. Though she had satisfactory dentition she did not usually make an effort to extract or chew up the smaller bones and it was obvious that over a long period of time these had become clumped together in the rectum. One might wonder how it was that they had not perforated the bowel. The procedure of removal was equally painful to patient and physician and was not quickly accomplished.

This case is typical of the surprising and interesting pathology that turns up regularly in an African general practice. Sometimes we may tend to think of tropical

general practice as being made up essentially of the dramatic and overwhelming case. But it isn't, though of course there is certainly a percentage of more difficult cases. Most of such a practice is made up of the rather mundane and relatively simple with the unusual thrown in, such as this small digital surprise. The challenge comes perhaps from the variety encountered and the limited resources that are available under any given circumstances. Being confronted with many kinds of disease can provoke serious doubts as to the sufficiency of one's training. However it soon becomes clear that what is important is not so much having all the answers, or being familiar with all illness, but rather being able to quickly follow guidelines to the crux of a problem. It only takes a few short months of regularly facing the young woman who has an impossible dystocia, or the patient with agonizing toothache, or a gangrenous limb, or a scrotum dragging on the ground, to be able to do a Caesarian section, or a molar extraction, or an amputation, or a scrotal repair, etc. Under the pressure of circumstances one learns quickly and indelibly. General medicine in Africa calls upon the physician to learn well, and to develop a unique ingenuity in the face of fatigue and too-heavy caseloads. But it carries to the very highest interest index. Not only does the pathology vary greatly, but the ecologies and social environments too are kaleidoscopic.

Nor is our listing of various surgical procedures indicative of the whole nature of the general tropical practice. On the contrary, the purely medical conditions have numberless ramifications. The real physician will want to know why and how a particular disease has developed, and this may lead him to examine such things as entomology and parasitology, witchcraft and poisoning, air, water or food pollution, feeding traditions and new dietary acquisitions, and many other variables. He often will be in a position to pinpoint the cause of disease spread and many will look to him for prevention. The several different cultural and ethnic groups he may serve will all need acceptable solutions to their problems and he may thus be encouraged to look at the matter of traditional medicine and positive elements of ethno-specific therapeutics. Finally, he is likely to have the ear of politicians, administrative and traditional authorities and thus to have the potential to create positive health conditions, though obviously on the basis of ingenuity rather than of material abundance.

There is often a strange mix of conditions in modern-day Africa. Capital financing for the construction and equipment of health facilities is often relatively easy to come by.

\*8-11 22nd Street, Fair Lawn, New Jersey, 07410



On the other hand costs of maintenance are difficult to support. Those who provide money (friendly governments, missions, etc.) are more inclined to use their funds for that which can bear a plaque, or a symbol, or of which they can take a photograph, or paint a picture, rather than for a nebulous, intangible program. Thus one often finds situations where equipment has been provided but cannot run because there is no one with the competence to maintain it; vehicles that remain stationary because operating budgets do not allow the purchase of fuel supplies, etc.

Consequently African medical practice no longer necessarily implies work under rudimentary conditions. Transport and communication difficulties often handicap the physician who wants outside consultation or assistance, but because he may still have relatively adequate tools, by knowing basic methodology, and exercising his intellect, he can still come up with satisfactory solutions, even when lacking the moral support or expertise of other professionals.

In an editorial in the Nova Scotia Medical Bulletin in February, 1972, a writer pointed out some important changes taking place in the field of Medicine. One of these, he indicated, was "the recognition that learning is what the medical school is all about", and that "learning is not necessarily closely related to teaching". In a world where the balance of medical manpower remains extremely uneven it is obvious that those physicians responsible for larger populations will face greater varieties of pathology.

They will learn not only more about sickness and health, as it is taught in medical school, but about the relative nature of these two terms also. They will see many ways in which human groups interpret their states of malaise or well-being and acquire skills, physical, social, and intellectual, useful in a variety of solutions to any given disease state. They will, in fact, be in a rich learning environment.

Change is massively upon the African continent as it is elsewhere. And like other situations sometimes it is salutary and sometimes it is not. The fact of change has not, up to this time, greatly reduced the sum of human suffering, largely because progress in many areas has often been weakened by negative developments elsewhere. As a consequence, in the field of medicine there remains much to be done. New African institutions are beginning to turn out highly competent health workers of many categories, but the numbers are not yet great. This means that many areas of the continent remain where there are service roles to be filled by physicians and other health workers from outside. National and international agencies, businesses and missions, national ministries of health, etc., may provide opportunities to see self and others in a tremendous variation of suffering and joy, and life with such experience can go its short way with a measure of satisfaction which it might otherwise lack. We would encourage others to venture their fingers, and their feet, to experience the surprises that our profession reserves to teach us lessons big and small. □

---

## Physician Self-Assessment

Lea C. Steeves, M.D.,

Halifax, N.S.

The following questions have been submitted by the Division of Continuing Medical Education, Dalhousie University, and are reprinted from the American College of Physicians **Medical Knowledge Self-Assessment Test No. 1** with the permission of Dr. E. C. Rosenow, Executive Vice-President.

It is our hope that that stimulated by these small samplings of self-assessment presented you will wish to purchase a full programme.

**NOTE: THE FOLLOWING SET OF DIRECTIONS IS DIFFERENT FROM THOSE GIVEN FOR THE PREVIOUS QUESTIONS. IT IS ESSENTIAL THAT THESE QUESTIONS FOLLOWING BE USED IN A BLOCK, HEADED BY THE CORRECT DIRECTIONS.**

**DIRECTIONS:** For EACH of the disease entities listed below, select the associated frequency of cirrhosis as a complication (a, b, c, d, e).

- |   |  |
|---|--|
| (A) Almost always accompanied by cirrhosis          | (D) Rarely if ever causes cirrhosis      |
| (B) Commonly associated with cirrhosis of the liver | (E) No known association with cirrhosis* |
| (C) Occasionally complicated by cirrhosis           |  |

421. Infectious mononucleosis  
422. Cystic fibrosis of the pancreas

423. Wilson's disease

424. Acute infectious hepatitis  
425. Drug-induced cholestasis

(Please turn to page 76 for answers)

□



# The Legacy of Pictou County Scots to Medicine 1767 - 1914

Harold L. Scammell, M.D., C.M.,

*Halifax, N.S.*

During the Summer of 1973 Pictou County has been celebrating the 200th anniversary of the arrival of the Ship Hector from Scotland. It is a significant event for all Canadians, as that company of Scots was the beginning of a great emigration from the Highlands and Lowlands to this part of North America. In this respect the Hector should be regarded as a Symbol. It led the way. It was immediately followed by others in a steady stream. Following the American Revolution, land grants to soldiers disbanded from Highland Regiments greatly increased the population. Another increase came during the Highland Clearances. Only in the 1830's did a pause occur, followed by men and their families from the Lowlands, chiefly Ayrshire, to meet the demands of the General Mining Association for experienced people to work in the Albion Mines coal field. Also worthy of remark is the fact that the original settlers in 1767 were originally Scots who went first to Ireland, then to Pennsylvania and Maryland, before taking advantage of free land for settlement in a more northern part of British America.

Pictou County has been justly acclaimed for its great intellectual contribution to both Canada and the United States by its people of Scottish origin. There is no possible way this could be attributed to the *Hector* passengers or their descendants alone. In fact they were almost lost in the mainstream of settlement and progress, but the fact still remains: They led the Way.

It is difficult to imagine the toil and privations of those early settlers. The struggle to live occupied the beginning years to the exclusion of all else. Some had received a modest degree of education in Scotland, but there was no time for books after their arrival. Actually there was no time to impart what they knew to their offspring. Rev. James D. MacGregor who came from Scotland to Pictou in 1786 describes the situation as it was at that time:

"It was no little discouragement to me that I scarcely saw any books among the people. Those who spoke English had, indeed, a few, which they had brought with them from their former abodes, but scarcely one of them had got any addition to his stock since. Almost all of them had a Bible; and it was to be seen with some of the Highlanders who could not read. There was no school in the place. Squire Patterson had built—a small house, and hired a teacher for a few months now and then, for his own children."

Later he writes:

"What was more discouraging, I could not see a situation in Pictou where a school could be maintained for a year, so thin and scattered was the population. Besides, many

of the Highlanders were perfectly indifferent about education, for neither themselves nor any of their ancestors had ever tasted its pleasure or its profit."

MacGregor did what he could, and with help his efforts began to stimulate interest in an intelligent population, but it was not until the arrival of Rev. Thomas McCulloch in 1803, thirty years after the arrival of the *Hector* that progress could be anticipated. In 1811 McCulloch was able to qualify for government aid to his Grammar School. Five years later a Bill passed the House of Assembly to establish Pictou Academy, providing for more advanced education. From this institution six years later the first class of graduates appeared, forty-nine years after the landing.

Dr. John Harris, one of the grantors of the lands to the early settlers, may have practiced briefly in Pictou, but no mention of it can be found. In fact the only reference to a doctor in Pictou County apart from Harris is the notice of the death of "William McCulloch, late Surgeon in Pictou." He apparently died late in 1813, a brother of Rev. Thomas McCulloch.

How did they get along without a doctor? Today we find it difficult to answer that question. We know that the death rate especially of children was very high. We also know that Smallpox and Yellow Fever were dreaded and guarded against. But we also know that folk medicine was depended on to see many a person through an illness. Frost-bite, burns and broken bones were serious mishaps, and often caused death. But if one got over the age of childhood without mishap one could look forward to reaching forty, and some even reached or passed the century mark.

The early doctors came from outside, some from the British Isles and some from New England or farther south. Certainly they could almost be called missionaries as there was little ready money, travel was by foot, boat or horseback, and distances were great. Dedication had to be an emotional asset.

If the Scots were slow in making a start in education they made up for it when given the opportunity. MacGregor and then McCulloch provided it. Their chief aim was the production of a native ministry for the Antiburgher sect of the Presbyterian Church, but on this alone they could not succeed. That Church had insisted on a broad background of education in its Ministers, so when Pictou Academy received its charter in 1816 its educational program was a liberal one embracing the liberal arts and the science of that day. Theology, at least in theory, was taught later. The program initiated a flood of Presbyterian Clergy,



but it also provided an excellent start for students looking forward to medicine. McCulloch himself had started as a student of medicine in the University of Glasgow, before turning to Theology, and saw all the advantages of having healers of the body as well as of the soul.

Pictou was a seaport town. Ships came and went from Britain and the eastern seaboard of the United States. Rail travel was still in the future. It was natural for those seeking a medical career to go to the closest schools available by ship and those were in Boston, New York, Philadelphia and Baltimore.

As an example let us view the career of Doctor William R. Grant. He was born near Springville in Pictou County in 1811. His grandfather, James Grant came in the Hector. He went to Pictou Academy, destined for the Ministry, but for reasons unknown turned from it to medicine. In keeping with the system in those days he began as an apprentice with Doctor Alexander MacDonald of Antigonish in 1834. Rev. Thomas McCulloch had a friend in Antigonish, Rev. Thomas Trotter, with a strong interest in science and mathematics, and that may have been a factor in his choice of a mentor. He spent two years in Antigonish, working at Anatomy, Physiology and Therapeutics and their practical applications, and then entered Jefferson Medical College where he graduated in 1839. The rest of his life he spent in teaching anatomy, first in Jefferson and later as Professor of Anatomy in the Pennsylvania Medical College. He also practiced medicine and surgery. He died in 1852.

His grandfather James was the ancestor of Dr. H. G. Grant former Dean of Medicine at Dalhousie, and Dr. Donald M. Grant of Halifax, and Dr. Edward Grant, his brother, of London, England.

The presence of a basic source of higher education in Pictou Academy, preliminary to Medical Studies, had also an influence in sending young men abroad for professional training. That College's origin and support, apart from that of the Province, came from the Antiburghers. The Established Church of Scotland, The Kirk, bitterly opposed it in Pictou and throughout the county. No adherent of The Kirk would send his son to Pictou Academy. This situation prevailed until 1838 when Doctor McCulloch became the first Principal (President) of Dalhousie College in Halifax. Then the mutual animosity gradually diminished.

In the 1830's, Doctor George Johnstone, opened an office in Pictou after securing the M.R.C.S. in London, England. He was a native son and began to practice "at the residence of Mrs. Johnstone (presumably his mother) opposite the market." About the same time Doctor James Skinner (died 1836) practiced in the Town, as did Doctor E. Kirkwood and a Doctor Chipman; Doctor Anderson had opened an office at what is now Lyon's Brook, where his professional card bore the words, "Advice to poor, gratis."

Something has been said of the influence of Thomas McCulloch on medical education in Pictou County, but another layman of the 19th Century had a special effect. He was James Daniel B. Fraser, born in Pictou, February

11, 1807. He studied at Pictou Academy and in 1828, opened a drugstore in the Town. Late in 1847, Sir James Y. Simpson published his use of Chloroform as an anaesthetic in Scotland, and on March 22, 1848, Fraser gave it to his own wife during labour. He had prepared the Chloroform himself! The child then born was Robert P. Fraser, I knew him in his later years. Then he had a drooping eyelid. The records show that in 1853, he had "an operation on an eye under Chloroform." If this was for a birth injury it was not very successful. Fraser's Chloroform was used by Doctor Almon at the Poor's Asylum in Halifax for an amputation in 1848. It is quite possible that in Obstetrics its first use in Canada was in Pictou.

Fraser, senior, became a legend in Pictou in his own time. He was a Scientist with curiosity and fresh powers of observation. Besides the Chloroform he contributed at least one procedure to a non medical field, still usefully employed to this day. He was a founder of "The Pictou Literary and Scientific Association." He stimulated interest in Science and its application to medicine, not only in Pictou but throughout Nova Scotia.

If the early days of Pictou were marked by death from communicable diseases the lapse of time and better quarantine observance gradually reduced the danger from those brought in by ship. It would also appear that ordinary diseases of childhood were losing some of their virulence. In Pictou, however, typhoid fever was endemic until a new water supply and system came into use at the beginning of the present Century. Then it vanished dramatically. Vaccination against Smallpox was controlling the disease to isolated epidemics. But a new and deadly scourge arose, pulmonary tuberculosis. Perhaps it was there much earlier, but it became noteworthy about 1850. It was then referred to as Consumption, and the disease process as a Decline. For various reasons it became a disease to be concealed. Families considered it a stigma that had an antisocial effect on their lives. The question so frequently asked, "Is there any Consumption in the family?" had an influence on marriage, adoption, employment, choice of occupation and many other aspects of life if answered in the affirmative. Concealment contributed to its spread. It wiped out entire families. A family is known to me where a child died each year for six years. Often those who "wore out" the disease were carriers. Bovine tuberculosis entered the picture but in the early days "cows just died." Nobody knew why. The misfortune was accepted like the effects of a dry summer on the crops.

A great deal might be written about the history of this disease in Nova Scotia but specifically Pictou County was probably no better and no worse off than other parts of Nova Scotia. But to some, the results of Trudeau's work at Saranac Lake, N.Y., held out hope. It was obvious that Sanatoria (there was but one, in Kentville) could not cope with the problem. Then two laymen and a physician in Pictou County decided that in their respective fields they could make a contribution. Their aims were, (a) to banish concealment, (b) to reduce hopelessness, and (c) to show



how home treatment could be easily and cheaply effected. Doctor George Cox of New Glasgow was the physician, Mr. J. W. MacLeod, Engineer, looked after technical and other details, and a third man cared for the advertising and publicity. The result was a book, "Consumption, Its Treatment and Cure," which was distributed free in Nova Scotia. Fresh air, ample diet, and sleeping porches outside were its main features. It got support, through the efforts of Mr. MacLeod from Lord Strathcona, then living in London, but with a mansion, Norway House, in Pictou. Money and services were donated. Mr. MacLeod undertook the distribution and one of his student helpers was later to be Angus L. Macdonald, Premier of Nova Scotia.

The book achieved its aims, and did a great deal of good at a time when it was needed most. Mr. MacLeod's forebears came from Durness in the northern Scottish Highlands and settled in the western part of Pictou County.

It has been noted earlier that this article will end its theme in 1914 at the outbreak of World War I, and this for several reasons. After the war the social life of the County changed. The horse and buggy, or sleigh era was almost over, though the latter conveyance was in use for ten years more by country physicians. The level of employment was high. Young men who did not enter the services were serving in some phase of production. They left the farms for wages and allowed the older men there to carry on. There was more ready money than ever before. Services men returning after the war were given some incentives to get higher education and took them. Included were those who chose medicine as a vocation. The class that entered Dalhousie in 1920 was the largest up to that time and for some years thereafter. Physicians who had served overseas came back with special skills and chose to use them in their later work. These encouraged others to do the same. Hospitals and their services increased and improved. The profession was getting organized again after several years in the doldrums. These and other factors tend to diffuse the influence of the Pictou Scottish tradition which had placed heavy weight on general practice. Even surgeons did general practice.

But the time has now arrived to assess the legacy given us. From 1830 to 1914 I have counted one hundred and ninety-seven men and women who studied medicine and were born in the County. In numbers the Clans were represented by Cameron 7, Campbell 4, Fraser 8, Grant 6, Munro 6, Murray 10, MacDonald 10, MacIntosh 5, MacKay 11, MacKenzie 10, MacLean 5, Sutherland 6. The Scots with one or more bearing the same family name made the total of undoubted Scottish origin one hundred and sixty-eight.

Some returned from Medical School to practice in their County. Many went farther afield. Some became Medical Missionaries in foreign lands. Others went to distant parts of Canada and the United States. A few achieved fame in their profession. Name after name is associated with evidence of a strong devotion to professional standards in practice.

It would require a much longer article to deal with individuals, but mention must be made of Drs. A. W. H. Lindsay and Dr. W. H. Hattie whose pictures adorn the foyer of the Tupper Building at Dalhousie University. It may be noted aside that the first four Presidents of Dalhousie came from Pictou County and had Scots blood in their veins.

The small spring which originated with the Hector Settlers, gradually increased by added immigration to a stream. The potential power of that stream was developed by education, quite early and very well. The result was a large number of physicians who served their patients well. No hardship was too great to hinder a call for aid. By boat to Pictou Island in summer, and over a shifting ice field in winter, by wagon, by sleigh or on horseback, on foot, on snowshoes they went. Surgery was done on the kitchen table. All children were born at home. The doctor was the family friend and counsellor. At times of birth and death, and in all the intervening years he made his friends. He was respected and trusted. Very few became even moderately affluent. No account was rendered without due thought to the ability to pay.

The legacy from those Scots is great indeed. Perhaps we should recall it more often. □

*Compliments of*

## The CAMEO RESTAURANT and LOUNGE

**The Prestige Restaurant of Halifax**

*Fine Dining Tradition Since 1929*

5511 Spring Garden Rd.



## Experiences on "S. S. Hope"

W. D. Stevenson,\* M.D.,

Halifax, N.S.



When I was first asked by your Editor to write of my experiences on the "S.S. HOPE" several months ago, I demurred because there had been already some publicity about it in the Medical Post and other papers. In fact, Project HOPE which is sponsored by the People to People Health Foundation Incorporated of the U.S.A., had just recently opened an office in Montreal and was now an official Canadian charitable organization. On reflection, however, the two-month period spent in sunny north-east Brazil, in the winter months, when the rest of you were fighting colds and blizzards, has brought back so many pleasant memories that I thought it might be of interest if I shared some of them with you.

To begin with, the "S.S. HOPE" is a modernized Second World War Hospital Ship which is staffed by a regular permanent staff of nurses plus a few full-time doctors to provide administration and continuity of the Program. The medical staff of the Ship is comprised of specialists in practically all fields of medicine who spend a two-month's

rotation in their specialty. Thus, every two months sees almost a complete turnover of the medical staff, with some 25-30 specialists ending and beginning their rotations. At the invitation of a medical school in one of the developing countries, the Ship had spent a ten-month sojourn in some ten or eleven different locations. Its specialists work closely with their counterparts in the hospitals of the host community, and on the Ship, the purpose being to introduce North American methods and techniques in patient care and in teaching. A second purpose, and I think one of the most successful in all of the varying ways of providing aid to developing countries, is in making friends and establishing friendly contacts and interchanges between the host country and North America. There has invariably been an upgrading of the level of the standard of patient care and teaching wherever the Ship has gone, but there is no question that the educational process has not been a one-way affair, and those of us who have had the privilege of serving have returned with many stimulating new ideas, not only from the host country's physicians but from the provocative group of colleagues serving with us.

\*Professor and Head, Department of Neurosurgery, Victoria General Hospital and Dalhousie University, Halifax, N.S.



For one who may have become a bit weary of the rat race or mired in the rut of daily routine or at odds with administration or red tape dispensers, I can heartily recommend a period of service in such an organization. It is a stimulating experience. The obvious desire of every rotator not only to work hard but to do everything in his power to assist his colleague is enough to restore one's faith in humanity. Perhaps I should record just a few of the highlights and some reflections.

A 40 year old woman arrived with papilloedema and vision almost gone with a huge sphenoidal-ridge meningioma within a day or two of our arrival. This was the first rotation, the operating room had just opened, and one could have wished for a somewhat more minor procedure to get things underway. Fortunately, the head nurse was an ex-neurosurgical operating room nurse who had worked with our colleagues in Vancouver — this did much to ease the initial tension and we heaved a sigh of relief when things went along smoothly.

Our Brazilian counterpart was a skilful general surgeon who, although having no formal neurosurgical training, did what he could to handle neurosurgical emergencies, head injuries, hydrocephalus, but was unable to provide help in the major intracranial fields of tumors, aneurysms, etc. We worked together in every procedure that was done assisting each other from case to case. Though he could speak no English and I not a word of Portuguese, our common interest, plus a sense of humor and the occasional help of an interpreter enabled us to overcome the language barrier.

The visit of the "Great White Father" (Dr. William Walsh of Washington, D.C., President of the People-to-People Health Foundation Incorporated) was always an occasion. Dr. Walsh usually visits each rotation and has the capacity to give a pep talk which suffices to inflate the ego of

everybody to almost unbearable proportions. A more humbling experience, a day or so later, occurred down on the ward when one suddenly realized that one must write one's own orders, and now there is no resident to turn to to ask the proper antibiotic and its dosage. The nurses proved to be most helpful!

An interesting young 21 year old married woman who presented with a complete paraplegia was investigated and we ultimately removed a granulomatous mass from the conus medullaris of her spinal cord which, to our great surprise, turned out to be an intense inflammatory reaction caused by schistosomiasis eggs. This parasite is endemic in northeast Brazil and some of the Caribbean Islands. Removal of the focus plus subsequent systemic therapy caused the inflammatory reaction to abate, and we were most gratified when one of our colleagues sent a picture of her, walking on the deck, a few weeks later.

The expense and difficulty of getting good x-ray examinations in the regional hospitals sometimes led to embarrassing situations; for example, the man with rather obscure cerebellar symptoms who was sent down a distance of some 300 miles or so from a large capital city of a neighboring Province to the specialists on "S.S. HOPE" to solve the problem. A simple chest x-ray showed a large primary bronchogenic carcinoma at the hilus.

Another of our most pleasant and memorable experiences was to become friends with Dr. A. Schmitz, another HOPE rotator, former Neuroradiologist at the University of California in San Francisco, co-author of a book on Neuroradiology, who taught me more about angiography and pneumography than I had learned in years.

Another highlight was a lovely reception given by the Dean of Medicine within a week or so of our arrival. He entertained some fifty persons at his home for dinner. Five days later, the Dean was in hospital with typhoid fever and





we all thanked our lucky stars for the shots and sore bottoms we had had to have before getting our passports validated.

Another of our highlights was the unbelievably warm hospitality of our surgeon counterpart and the neurologists — they all had us to their homes for dinner and evening on more than one occasion and, had we been up to it, I'm sure we would have shared the dawn breaking with them most Sunday mornings. They worked hard and they played hard and we all parted with a real sense of sorrow.

Project HOPE has now reached a crossroads in her career. I am given to understand that extensive and expensive repairs are required should the present Ship remain in service. At the moment, no information is available whether these repairs are to be made, whether there is a possibility of a new ship being acquired, or whether the program may be changed to a land-based operation. Whatever the outcome, we wish her well, and a long life to continue her worthwhile programs. □

### What is Your Diagnosis? — ANSWER

Hairline fracture of the lower one-third of the tibia ("toddler's fracture") shown on the lateral projection only. This type of fracture may be difficult to visualize on standard AP and lateral projections, and may require oblique projections. The follow-up radiographs show the mineralized callus of a healing fracture.

### Physician Self-Assessment — ANSWERS

421-E	425-D	423-A
422-C		424-D

## Suicide Statistics for Halifax County, Nova Scotia and Canada

Solomon Hirsch,\* M.D.

Halifax, N.S.

As was mentioned in the last issue of the Bulletin in "Suicide and Suicide Attempts in Metro Halifax,"<sup>1</sup> more recent statistics are now available. As used in that article, "Metro Halifax," refers to Halifax County. The following statistics for Halifax County were obtained from the Deputy Registrar General, Halifax, N.S., and these for Nova Scotia and Canada from Statistics Canada.

Table I

Number of Suicides and rates (per 100,000) for Halifax Co., N.S.

Year	Number	Rate
1967	18	7.2
1968	13	5.1
1969	27	10.5
1970	26	10.3
1971	23	8.8
1972	38	14.4

Table II

Number of Suicides and rates (per 100,000) by sex in Nova Scotia and Canada.

Nova Scotia				Canada			
Year	Sex	Number	Rate	Year	Sex	Number	Rate
1969	M	67	17.5	1969	M	1,641	15.5
	F	9	2.4		F	650	6.2
	Total	76	10.0		Total	2,291	10.9
1970	M	63	16.4	1970	M	1,732	16.2
	F	10	2.6		F	681	6.4
	Total	73	9.5		Total	2,413	11.3
1971	M	62	15.6	1971	M	1,866	17.3
	F	7	1.8		F	693	6.4
	Total	69	8.7		Total	2,559	11.9
1972	M	73	18.3	1972	M	1,900	17.4
	F	20	5.1		F	757	6.9
	Total	93	11.7		Total	2,657	12.2

### Reference

\*Professor of Psychiatry, Dalhousie University.

<sup>1</sup> Hirsch, S., et al. 53:5, 1974



# MEDICAL ADVISORY COMMITTEE ON DRIVER LICENSING

The provincial Medical Advisory Committee on Driver Licensing handled 407 individual cases during 1973 but committee activity was upped — to put it mildly — by 553 referrals. The referrals involved cases coming before the committee more than once for additional information.

While 122 cases were taken under advisement pending further information as the year closed, 97 licence denials for medical reasons were confirmed. Eighty-two were okayed as medically fit.

This left 252 recommended as medically fit but with requirements ranging from driver improvement re-examination to the submission of follow-up medical reports — or various combinations of both — as prerequisites before any solo vehicular activity.

In other business, form-inundated physicians will be glad to hear the committee agreed that in requiring a medical report on a case a note should be appended to the report form so the examining physician will have some idea of why he is being asked to take a look at the patient.

Meanwhile, the essentially commendable reluctance of the Victoria General Hospital's medical record section to provide information to other than M.D.'s has, in some instances evidently, hindered case resolutions. Medical Society appointee Dr. Leroy Heffernan will help overcome the problem by initiating future inquiries over his name. □

## AIR-PAGE ANSWERING SERVICE LTD.

2979 Oxford St., Halifax  
Ph. 453-2640

HAVE YOU  
EVER SEEN  
A DOCTORS  
BEEPER?

DO YOU WANT  
TO EXAMINE  
ONE?



For details contact Rick Norman anytime — No obligation

NEW MINI PAGER NOW AVAILABLE: 4½" x 1 1/3" x 4/5";  
4.8 cubic inches Weight 3.9 ounces

City wide radio paging frees up your "on call" time.

**INVEST** \$500 or more  
in **ROYAL TRUST'S**  
**4 FUNDS**

FOR GROWTH OR INCOME  
NO LOADING/WITHDRAWAL FEES

 **Royal Trust**

Call 429-2700  
Mr. Fox or Mr. Moriarty

1648 Hollis Street, Halifax  
Bayers Road Shopping Centre, Halifax  
Holiday Inn, Dartmouth

FAMILY PRACTICE OR G.P. NEEDED to join modified medical foundation. Located in coastal Maine, catchment includes Canadian patients. Challenging position. Relocation expenses paid. Contact Dr. Donald Robertson, Downeast Community Hospital, Machias, Maine 04654. Tel. 207 — 255-3356.



# Appreciations

## DR. FLAVIEN J. MELANSON

In the early hours of February 26th, 1974, the Nova Scotia, and especially, the Western N.S. Medical Association, lost an able and qualified surgeon — the community, a loyal citizen — and his confrères, a friend with a cheerful and sympathetic disposition.

He was born on March 25th, 1914 at Ste. Anne du Ruisseau, Yarmouth Co., N.S. His father, Dr. A. R. Melanson, was from Clare municipality and his mother, Mrs. Marie J. Melanson (Miss Marie J. Hamelin) was from Portneuf, Quebec.

His parents gave him sound and basic notions of the French language at home. He then started his education at the public school and, at an early age, he entered St. Anne College where he graduated with a B.A. degree in 1934. He continued his medical studies at Laval University in Quebec and in 1939, he obtained an M.D. degree and L.M.C.C.

Following his graduation in medicine, Dr. F. Melanson continued, in his native village, the fine work started by his father in 1906. Irrespective of race or creed, he offered his medical services to the residents of Ste. Anne du Ruisseau, Tusket, Quinan, Amiraault's Hill and several other villages in the surrounding neighborhood till 1948.

He then went to France to take up special studies in surgery, where he was "Assistant Etranger" of the hospitals of Paris. He occupied this position until June 1952, when he returned to Canada. He was president of the Canadian students at "Maison des Etudiants Canadiens, Paris" for four years. He continued his surgical studies at the Montreal General and the Hotel Dieu Hospital and obtained a certificate in general surgery from the Royal College of Physicians & Surgeons of Canada.

In 1954, till his premature death, he offered his time and his surgical services to the same residents he had previously served. His passing will be keenly felt by those to whom he gave the best care.

In August, 1955, on the occasion of the Acadian Bicentennial celebrations at Grand Pré, he was honored by Acadia University, receiving the honorary degree of Doctor of Science.

Dr. F. Melanson was a member of the Provincial Medical Board of N.S. and had been re-appointed for another three year term, ending December 31st 1976. He was a past president of the Western N.S. Medical Association.

Without a doubt, all the members of the Medical Profession in N.S. join with me, in expressing to his charming wife and children — his brothers, Father Raymond and Guy and, his relatives, our deepest and sincere sympathy on this unexpected departure. □

P.H.LeB.

## DR. ELIZA P. BRISON

Doctor Eliza Perley Brison died at her home in West Gore, Hants County, on January 1st, 1974, after a long illness. She was ninety two years of age and the eldest woman physician in Nova Scotia.

Early in life she developed tuberculosis of a hip joint which incapacitated her for an extended period and resulted in a crippling condition for the rest of her life. In spite of it, nothing daunted her and she met every challenge with calm courage. She graduated in Medicine from Dalhousie University in 1911, the last year it was affiliated with the Halifax Medical College.

She decided on a career as a psychiatrist working with mentally retarded children, and joined the staff of The Walter Fernald State School at Waverley, Massachusetts, where she remained some twenty years.

Returning to Nova Scotia she was appointed Resident Anaesthetist at the Victoria General Hospital. The Department of Public Health of the Province was undergoing structural changes, and when these were completed she was transferred to the Department as a psychiatrist to continue work in her special field. In this she was more or less a pioneer. While her work was province wide, she had strong contacts with the Nova Scotia Training School at Truro, and the Maritime Home For Girls in the same town. She continued to work effectively until her retirement, and spent her remaining years in the County of her birth.

She was a quietly cheerful person who inspired confidence. Kindness and consideration along with human understanding and infinite patience were the outstanding adjuncts which made her social and professional life a success. The fact that she compensated so well for a severe physical handicap was in itself an inspiration to those more physically endowed. She did great good without being aware of it.

To her sisters and other members of her family the Bulletin extends its sincere sympathy. □

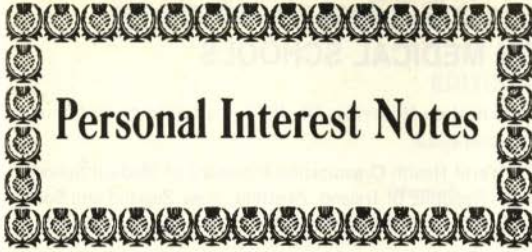
H.L.S.

---

*No class of men needs friction so much as physicians; no class gets less. The daily round of a busy practitioner tends to develop an egotism of a most intense kind, to which there is no antidote. The few setbacks are forgotten, the mistakes are often buried and ten years of successful work tend to make a man touchy, dogmatic, intolerant of correction, and abominably self-centered. To this mental attitude the medical society is the best corrective, and a man misses a good part of his education who does not get knocked about a bit by his colleagues in discussions and criticisms.*

Sir William Osler.





# Personal Interest Notes

**Dr. Crossman H. Young** of Dartmouth attended Convocation ceremonies for the American College of Cardiology at New York, when he was made a Fellow of the College.

**Dr. G. Douglas Denton** of Wolfville attended Convocation ceremonies for the American College of Cardiology at New York, when he was made a Fellow of the College.

**Dr. Ian E. Purkis** has been selected as a member of a delegation of 10 Canadian anaesthetists to make a six week study of acupuncture analgesia in China. The visit, part of the Sino-Canadian exchange program is scheduled to start in April.

## SECTION NEWS

The annual meeting of **The Section for General Practice**, chaired by Dr. J. A. McPhail, was held February 15, 1974 with 48 members in attendance.

The issue of compensation for physicians on duty at the Dartmouth Emergency Centre and its relation to similar situations elsewhere in the Province was discussed at length. The meeting approved a motion that the current fees paid at the DEH be paid elsewhere in the Province to physicians providing service while remaining on duty at the hospital. This proposal will be given further consideration by the Society.

Dr. Carlyle Phillips reported on his attendance at the Conference on General Practice held recently in Ottawa. Following this report the Section approved continued support for this Conference by sending at the Section's expense one or two delegates next year.

A proposal recommending establishment of a General Practice Society was discussed and defeated.

Dr. Carlyle Phillips reported to the Section on negotiations that had taken place to date. Lengthy discussion ended in a motion by Dr. Parsons seconded by Dr. Skinner which read that the motion of December 19, 1973 made by Dr. P. Jardine and Dr. J. MacDonald be approved. This motion states that the Section felt that the fees regarding house calls, night calls, emergency calls and hospital visits be increased as per the list of increases submitted to the Officers as anomalies, and that these increases should be implemented before any other increases are considered. This should be done before any across the board increases are entertained. Direction was given to the Fees Committee in that if any item should be dropped, it should be the

hospital visit fee code A041.

The meeting went on record on a motion by Dr. Reid seconded by Dr. Phillips that the increase in doctor/population should not be used to our detriment in fee negotiations.

The meeting approved the following appointments: Past President — Dr. J. A. McPhail; President — Dr. D. S. Reid; Vice-President — Dr. J. W. MacDonald; Secretary — Dr. A. H. Murray; Treasurer — Dr. John H. Fraser; Communications — Dr. M. R. Banks; ExOfficio — President, Nova Scotia Chapter, College of Family Physicians; Standards Committee — Dr. P. B. Jardine — Chairman; Dr. Rex L. Langdon and Dr. A. N. Lamplugh — Members; Fees Committee — Dr. Carlyle Phillips.

The meeting approved the following significant proposals:

- (a) The position of Vice-President be replaced by that of President Elect in order to provide Executive Committee continuity;
- (b) Not fewer than 5 regular meetings of the Executive including corresponding members be held each year;
- (c) Actual expenses of Executive and Regional correspondents shall be paid upon presentation of bills to the Treasurer;
- (d) The President shall report to the annual meeting of Council;
- (e) Section dues to be increased from \$5.00 to \$10.00.

The proposed Model By-Laws being considered by the Society were discussed. It was observed they did not make provisions for a Dept. of General Practice in hospitals. The meeting agreed that this should be brought to the attention of The Medical Society of Nova Scotia.

## OBITUARY

**Dr. Flavien Melanson, 59**, of Ste. Anne du Ruisseau died February 26, 1974. He graduated from Laval University in 1939. Our sympathy is extended to his family. An appreciation on Dr. Melanson is printed on page 78 of this issue. □

## ADVERTISERS' INDEX

Air Page Answering Service .....	77
Atlas Travel Service .....	62
Bank of Montreal .....	80
Cameo Restaurant .....	73
Hillcrest General Leasing .....	62
Mahon's Stationery Limited .....	62
Medical Estate Planning Services .....	60
Natural Retreats .....	80
Parke Davis & Company Limited .....	O.B.C.
Pharmaceutical Manufacturers Association of Canada .....	56 & 57
Robins, A. H., Company of Canada Ltd. ....	I.B.C.
Royal Trust .....	77
The Upjohn Company of Canada .....	I.F.C.
Schering Corporation Limited .....	Centre Insert
Classified .....	77



## CHANGE IN REGULATIONS REGARDING REGISTRATION OF GRADUATES OF FOREIGN MEDICAL SCHOOLS

At a meeting of the Provincial Medical Board of Nova Scotia held on November 10, 1973, the following motion was passed:

"In order for graduates of schools of medicine listed in the World Health Organization Directory of Medical Schools, other than those located in Canada, the U.S.A., United Kingdom, Republic of Ireland, Australia, New Zealand and South Africa to be considered by the Provincial Medical Board of Nova Scotia for registration and licensure to practise medicine in Nova Scotia, the applicant must have completed:

1. Two years of rotating internship in a hospital approved by the Canadian Medical Association for junior rotating internships, or in a hospital in the U.S.A., which is fully affiliated with a faculty of medicine, or
2. One year of rotating internship in a hospital approved by the Canadian Medical Association for junior rotating internships, or in a hospital in the U.S.A., which is fully affiliated with a faculty of medicine, and one year of a residency program in family medicine in a university based program, or one year in a university based program of training in General Medicine, General Surgery, Obstetrics & Gynaecology, Paediatrics or another program of training satisfactory to the Credentials Committee of the Provincial Medical Board, or
3. Obtained a certificate in a specialty from the Royal College of Physicians and Surgeons of Canada.

One of the two years required in 1 and 2 above, must be taken in a hospital in Canada approved for such training."

M. R. Macdonald, M.D.  
Registrar

□



GREENFIELD, QUEENS COUNTY,  
NOVA SCOTIA

Only 90 MINUTES from HALIFAX — 5000 ACRE planned outdoor recreational area on 5 interconnecting lakes with over 50 miles of CANOEING WATERS.

A CAMPING CENTER for guests, beautiful BEACHES, a WATERWHEEL SAWMILL MUSEUM, a MARINA and SCENIC BOAT CRUISE.

PROTECTED CLUSTERS of wooded, waterfront VACATION HOMESITES serviced by roads and electricity are located between many acres of forested country KEPT AS NATURE MADE IT.

All homes must be built tucked into the forest fringe 100' back from the lakeshore.

INVESTORS purchasing 3 or more adjacent properties get 10 PERCENT OFF of \$2500 to \$10,000 an excellent first year return in advance for joining the NATURAL RETREAT FAMILY.

Call OWEN TUSTIAN or BOB STRACHAN  
At 454-2939 or 543-4616

### When you're ready to set up practice, we're ready to help.

Bank of Montreal. We've been helping doctors and dentists longer than any other Canadian bank. We've got plans designed to meet your particular needs.

Operating funds, term loans and mortgages (business or personal). We can also arrange your car or equipment leasing.

We mean it when we say

Just look for the shingle.



The First Canadian Bank

Bank of Montreal



#### IMPORTANT PHONE NUMBERS

Provincial Medical Board .....422-5823  
Maritime Medical Care .....429-9700  
Medical Society of Nova Scotia .....423-8166