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# THE NOVA SCOTIA MEDICAL BULLETIN

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## A Tribute to Surgical Endeavour

Surgery is a demanding taskmaster requiring a life-long dedication. Devotees must not only be craftsman but should have a fundamental understanding of the physiological and pathological process, and the anatomical structure of the systems of the body in which they specialize.

Surgeons had a less respectable origin than physicians who were an erudite and scholarly breed. Whilst the latter philosophised and debated the finer points of medicine, surgeons were confronted with raw bones, ragged wounds, blood, and abdominal catastrophes. They learned by pragmatic and practical experience, and developed their skills beyond the basic accomplishments of barbers. This early guild of barber surgeons heralded a band of specialists who became resplendant in their own Royal Colleges. It was only later, on another continent, that the two Royal Colleges of Surgeons and Physicians were gathered under one roof.

In Britain, surgeons still mark their separate origins from their medical colleagues by the appellation "Mr." — the mark of a Fellow of the Royal College of Surgeons.

Ambrose Paré is the most renowned surgeon, innovator and author who brought surgery out of the Dark Ages, but it was the indefatigable John Hunter who gave the discipline a philosophy and an example to follow. By experiment, observation and thought he applied surgical skill to the realm of biology.

It is fascinating to read of the speed and dexterity of the master surgeons before anaesthesia became available. Not many surgeons could amputate a leg in twenty seconds these days. Without comparable advances in anaesthesia surgery would have remained dormant.

As Lord Moynihan<sup>1</sup> wrote many years ago, Pasteur's discovery of bacteria allied to Lister's application of anti and aseptic principles laid the foundation of modern surgery. Although Lord Moynihan's feelings that craftsmanship could not be improved were proved wrong, his prediction that advances in surgery depended on deeper understanding of physiological principles has been amply confirmed. In fact in the past decade, it is the amalgamation and application of many disciplines that have produced a veritable explosion of knowledge. Surgery has subdivided into highly specialized sub-groups.

In cardiovascular surgery, peripheral vascular surgery, neurosurgery, gastro-intestinal surgery, cancer surgery and orthopaedics, new techniques and materials are constantly changing old concepts. Vascular grafts, kidney transplants, micro-surgical anastomoses, reimplantation of limbs, joint replacement — all these procedures depend on an integration of knowledge from many sources. Yet their application demands a human assessment and a humane approach to the patient.

After his initial training, each surgeon must decide where he will settle and apply his prowess. It was fortunate for Nova Scotia that Dr. Jim Vibert — an outstanding student should decide to return to Truro and devote his enthusiasm to helping his own community.

It is hoped that the articles in this journal ranging from Gastro-enteritis to Jaundice would have appealed to him and serve as a tribute to his life's work.



## Care Medico

Dr. Donachie's article on the history of this organization and his experience as an anaesthetist in Tunisia provides an exciting and graphic account of the contributions made by a group of outstanding individuals to help the welfare of mankind. It brings to light the fantastic variation in the distribution of doctors around the world. Thanks to doctors Commanduro and Dooley, an excellent system of instruction and planning has allowed many countries to develop excellent surgical services, especially in orthopaedics.

The description of modern operating rooms and colour television in a land where such poverty and primitive conditions exist, seems incongruous but shows what has been achieved to alleviate many of the advanced diseases and deformities that are still present. Many conditions are preventable. In 1948 I witnessed many boys maimed by Mills bombs gathered from the Western Desert. Yet still they come in blinded and disfigured by the relics of World War II. Perhaps this moving account will stimulate other doctors to go abroad and work for Care Medico.

## Compartment Syndromes

Dr. Peter Morse should be congratulated on bringing together all the relevant information on intracompartmental compression. Most of us are familiar with Volkmann's ischaemic contracture but not many realize the significance of intracompartmental pressure in the limbs. In 1921, Jepson<sup>2</sup> was the first to elucidate the mechanism of this condition and reproduce it experimentally in animals. It seems probable that once the pressure inside a fascial compartment rises to within 30 mm of the diastolic pressure, the muscle's vitality is in jeopardy. Anything that increases the muscle bulk, occupies space or reduces the size of the space, may precipitate the vicious cycle that leads to muscle ischaemia.<sup>3</sup>

Dr. Morse's contribution should be thoroughly understood by all practitioners dealing with injured limbs. By decompressing the limb before it is too late not only may the patients' arm or leg be restored to normal, but his life may be saved as prolonged muscle compression may lead to renal failure from absorption of myoglobin breakdown products.

## Gallbladder Surgery and Gas Gangrene

Dr. Ikejani *et al.* present a remarkable case of gas gangrene which complicated a cholecystectomy for acute cholecystitis. The gangrene affected the thigh and buttock and clostridia were subsequently isolated from the blood, the wound and gall bladder. This phenomenon brings up the subject of anaerobic cellulitis which may complicate an operation. One must distinguish between gas gangrene due to clostridia; synergistic gangrene from streptococcal and facultative anaerobes; or a combination of streptococcal and facultative anaerobes; or a combination of streptococcal Group A and staphylococcal infection.<sup>4,5</sup>

Dr. Ikejani emphasizes the necessity to culture all acutely inflamed gall bladders that are removed. Perhaps hyperbaric oxygen would be valuable in such a case.

## Jaundice

An exploratory laparotomy in jaundice can be a hazardous undertaking. Dr. Dreilling's masterful presentation gives an excellent guide through the complex forest of diagnostic

tests that have evolved. His suggested line of management should give us a better understanding of the problems and help the surgeon in a difficult situation.

## Antithyroid Antibodies

Ms. Catherine George is a medical student and her research on antithyroid antibodies provides a valuable tool in the diagnosis of thyroid disease. Her data show that antimicrosomal antibodies are the most sensitive indicators of 'Graves' disease and Hashimoto's thyroiditis.

## Slipping of the Femoral Epiphyses

Dr. D.C.S. Brown's review of 37 cases is timely. His message is that every teenager with a pain in the hip or knee should have their hips examined clinically and radiologically. Any limitation of internal rotation makes the hip suspect, and both hips must always be scrupulously examined.

## Gastroenteritis

Finally, let us not forget that gastroenteritis is one of the world's most common disorders. The importance of electrolyte adjustment and fluid balance in restoring the internal milieu were emphasised by Lord Moynihan many years ago. Today, Dr. Tervo provides a practical guide to follow. □

B.J.S.G.

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4. **Stone H H and Martin J D, Jr:** Synergistic Necrotizing Cellulitis. *Ann. Surg.* 175:702-711, 1972.
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## DEPARTMENT OF ANATOMY DALHOUSIE UNIVERSITY Halifax, Nova Scotia

### POSITIONS OPEN: Assistant, Associate or Full Professors

Applications are invited from persons with Ph.D. and/or M.D. or D.D.S. qualifications for two faculty positions on or before July 1, 1978. Duties may include the teaching of Anatomy to Medical, Dental or Health Professional students. Experience in teaching Gross Anatomy and an established research program are required. Salary and rank commensurate with qualifications and experience. Applications, together with curriculum vitae and the names of two referees should be addressed to Dr. D. G. Gwyn, Head, Department of Anatomy, Dalhousie University, Halifax, Nova Scotia, Canada, B3H 4H7.



# An Appreciation

DR. JAMES CHARLES VIBERT

## WE SHALL REMEMBER JIM



1951

Many people, both within and without the medical profession, lost a great and true friend on August 26, 1977, when Jim Vibert died. To be struck down and killed when jogging — how cruelly ironic and unnecessary! For jogging was one of his major loves. Jim jogged to maintain physical fitness, which he had superbly, and for the sheer exhilaration and relaxation it provided.

But then Jim had many interests in which he believed deeply and acted accordingly. He believed in his religion, as so aptly said by his theological friend, who eulogized him at the funeral.

All those who knew the Viberts well, recognized the love that Jim had for his family: Isabel, his daughters and young Jim should realize that theirs was a father who cared. However, Jim's love was broader than that. Ask his patients and his nursing and medical associates: he was kind to people and worked hard to serve them. This, to me, is epitomized by his returning to Truro as a surgeon: to serve the people of the area that was home. Jim could have had a successful career in any number of places and levels: such were his talents. But he went home, used them and enjoyed it.

Another great love of Jim's was for mother earth and all things living. Protection of one's environment was another religion that he practiced. He obtained satisfaction from his beautiful roses and other growing things.

Those of us who went through medical school in the first large class of veterans (1946-51) shall certainly remember Jim. Always at the top scholastically, he was ever willing to help us lesser beings. He enjoyed a party and had that quiet sense of humour. My own best memory is of Jim reading Damon Runyon stories aloud to us, at the fraternity after midnight, after a long evening of study.

Such is the stuff of which real friendships are made. We shall greatly miss him, but we shall remember Jim fondly. □

E.A.M.

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## Vita Summa Brevis

*They are not long, the weeping and the laughter,  
Love and desire and hate;  
I think they have no portion in us after,  
We pass the gate.*

*They are not long, the days of wine and roses;  
Out of a misty dream  
Our path emerges for a while, then closes  
Within a dream.*

Ernest Christopher Dowson (1867-1900)



# CARE-MEDICO Programs — Tunisia, 1977

J. P. Donachie,\* M.B., Ch.B., D.R.C.O.G., D.A.,  
Amherst, N.S.

Prior to working in Tunisia during the month of April 1977, I knew very little about CARE-MEDICO and its programs. As most physicians are perhaps as equally uninformed as I was, it might be of interest to briefly review the organization and operation of CARE-MEDICO.

**CARE** (Co-Operative for American Relief Everywhere) grew out of the massive efforts at the end of World War II of twenty-two major American co-operative, religious and labour organizations, to supply food packages to people in Europe as they struggled to pull their lives out of the rubble. Incorporated in 1945, CARE is a voluntary, non-profit, non-political, non-sectarian, non-governmental agency. Since 1946, CARE has conducted mass feeding and nutrition programs in more than 80 countries on four continents and to date, has fed several hundred million men, women and children for varying periods of time. Day after day, CARE provides about twenty-eight million persons with food, and over 90% are children at pre-school and nutritional centers, primary schools and other institutions. In addition to regular feeding programs, there are a wide variety of projects in nutrition education, for both institutional staffs and the public. Mass feeding programs and emergency relief will continue, but CARE believes they must be accompanied by economic and social development through training programs directed towards the poorest rural populations, to help them become self-supporting through self-help.

In recent years CARE has entered into a steadily increasing number of signed "partnership" agreements with foreign governments. The host country assumes an important share of the responsibility as well as the cost of the projects. In turn, CARE provides administration, material and expertise not locally available.

Some typical recent partnerships resulted in school construction in Belize; equipping of school kitchens in Chile; nutrition centers in Costa Rica; water systems in Ecuador, Guatemala and Tunisia; community development including health, schools and vocational training in Panama; electrification of rural villages in South Korea and community development projects benefiting over a million people in Kenya. Such projects point up how effectively donor funds, combined with host government contributions and the sustained labour of the local people, bring about lasting improvement in the lives of villagers around the world.

**MEDICO**, which stands for Medical International Cooperation Organization, was co-founded by Dr. Peter D. Comanduras and the late Dr. Thomas A. Dooley in 1958. The international voluntary organization is non-sectarian, non-governmental and non-political. Support is by voluntary contributions from individuals, corporations and philanthropic

institutions, with grants from the United States and Canadian governments as well as from the governments in countries where MEDICO works. This support is in the form of financial assistance and donations of medical equipment, supplies and drugs. MEDICO personnel accept no fees from those they treat and they serve without regard to race, religion or political persuasion.

MEDICO programs are instituted at the request of the host government authorities under agreements whereby they provide such facilities, services, equipment, supplies, and professional and student personnel, as lie within their capability. MEDICO in turn provides physicians, dentists and para-medical personnel who work with host personnel in the development of the country's own health programs. MEDICO's programs are co-operative and are planned to lead to local self sufficiency. Currently, MEDICO activity takes two forms: either long term medical teams whose members receive modest salaries, full maintenance, transportation and usual fringe benefits; or volunteer medical specialists who at their own expense, serve a month or more abroad under MEDICO's rotating specialist programs.

In a typical year, MEDICO helps many thousands of suffering people throughout such significant achievements as: (1) formation of the first eye bank in Jordan, and the International Eye Bank and Research Foundation in Washington; (2) transfer of an orthopaedic unit in Jordan to local surgeons trained by physicians from United States and Canada over a period of five years; (3) opening of the first neurosurgical training program on the mainland of Malaysia; (4) inauguration of a training program in plastic surgery for physicians in South Vietnam, for restorative work on civilian victims of the war; (5) establishment of training courses for nursing assistants in hospitals in Honduras; (6) cooperation in broad programs of public health in Honduras and Nicaragua; (7) conducting in-country training in orthopaedic surgery in Indonesia and Tunisia by orthopaedic specialists from United States, Canada and Australia; (8) training of laboratory technicians in Afghanistan, Honduras and Indonesia; (9) initiation of the first accredited training programs for nurse anaesthetists and X-Ray technicians in Belize; and (10) post-graduate training of doctors in internal medicine, surgery and anaesthesia in Afghanistan.

## HOW MEDICO WAS FOUNDED AND DEVELOPED

In 1956, Dr. Comanduras returned to United States after completing a two month graduate study of tropical diseases in Puerto Rico, the Dominican Republic, Haiti and Cuba. In Haiti, he had visited a hospital in Port-au-Prince and had seen 250 child patients suffering from the effects of starvation. In another town, he had met a native doctor, recently graduated from a United States medical school, who had six bottles of medicine for hundreds of patients. To an American doctor, the tremendous and urgent need for doctors, drugs and supplies in these deprived areas so close to the United States, was shocking.

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Dr. Comanduras was so thoroughly appalled that, by his own account, he spent the next two years conferring at the offices of the International Health Agencies in Washington, talking to their official representatives, discussing health problems with a few of the Washington ambassadors from some of the under-developed countries, trying to discover how he could make a breakthrough into international medicine. He met with little success as, apparently, there was no place for the practice of clinical medicine by a private physician. Yet the paucity of doctors in various areas of the world was then as now, staggering.

United States has one physician for every 528 persons  
Afghanistan has one physician for every 21,360 persons  
Algeria has one physician for every 8,550 persons  
Dominican Republic has one physician for every 2,514 persons  
Honduras has one physician for every 5,516 persons  
Indonesia has one physician for every 29,480 persons  
Tunisia has one physician for every 8,780 persons  
Malaysia has one physician for every 5,320 persons

In all but a handful of these countries' major cities, hospitals are ill equipped and lack adequate medical personnel, which accounts for the high prevalence of tuberculosis, poliomyelitis, parasitic infections, deficiency diseases and many other illnesses.

At about the same time, Dr. Thomas A. Dooley returned from Laos, where he had set up a small clinic hospital with funds he had obtained from drug companies. He had been corresponding with Dr. Comanduras for some months before his departure, and the two men arranged to meet in Washington. At this time, despite differences in age, personal background and experience, they discovered they had reached the same conclusions and convictions by different routes. As a result of this meeting between Dr. Comanduras and Dr. Dooley, MEDICO was subsequently established and the first program was launched in Laos, Vietnam and Cambodia. Shortly afterwards, MEDICO's problems were compounded by the death of Dr. Dooley from malignant melanoma in January 1961, at the age of 34.

Natural disasters leave devastation, disease, injuries, sickness and unimaginable deprivation in their wake, and in recent years extraordinarily severe droughts and dried up water sources have made dust cakes of the earth in vast areas of the world, while torrential floods, hurricanes and earthquakes have desolated others. The end result is always the same: countless men, women and children are left homeless and destitute, ravaged by widespread famine, disease and death. Over the years, CARE and MEDICO have responded with immediate relief and aid for the needs of these victims as well as long term technical and medical help in dealing with the aftermath.

By 1962, the dynamics of CARE's own future development and the efficacy of regular feeding and nutrition as well as self help programs, strongly indicated the need for a medical component. In countries the agencies served, people rarely if ever saw a doctor during their entire lives and were ignorant of even the rudiments of hygiene and sanitation. At this time, the union between the two international humanitarian organizations was announced and MEDICO added a new dimension to CARE aid.

## HOW CARE-MEDICO FUNCTIONS

CARE is sponsored by twenty-five accredited national and international service agencies, each having a representative on CARE's Board of Directors, whose members guide all policies and programs and serve without pay. The MEDICO Advisory Board which is also represented on CARE's Board of Directors, includes outstanding leaders of the medical profession and of medical education in United States and Canada, as well as men and women prominent in civic and philanthropic affairs. MEDICO serves only those countries where CARE also has programs, permitting balanced and comprehensive assistance. CARE and MEDICO together complement existing rural and urban health programs, assisting in preventive public health measures, family planning, control of infectious diseases and nutrition.

MEDICO's vital role in CARE's programs of integrated aid is to recruit physicians, specialists, nurses and technicians to provide a balanced program of medical assistance at the least cost; to train host country medical personnel while giving medical care; to utilize and upgrade existing facilities as much as possible, and to phase out the service when local personnel are able to carry on at an efficient level of medical care.

Services of MEDICO embrace the twin visions of its co-founders: Dr. Dooley's for long-term medical teams and Dr. Comanduras for visiting specialists. Since the merger, CARE-MEDICO has further integrated these two types of service and heightened their effectiveness. Visiting specialists benefit from working within the framework provided by the long-term teams, and the teams in turn benefit from the stimulation provided by the skills of the specialists.

## TWO-YEAR MEDICO CONTRACT PERSONNEL

These volunteers serve overseas for two-year assignments, for modest salaries and living allowances which include adequate furnished housing with maintenance and utilities, subsistence and local transportation related to the job.



View of the Capital of Dugga from the Forum. Dugga was the seat of the Numidian Princes who allied themselves with Rome against Carthage. This city grew in prosperity initially after the sacking of Carthage in 146 B.C. and then again 100 years later after the defeat of Pompey.



## SHORT-TERM VOLUNTEER SPECIALISTS

This program was initiated in 1959 by a group of American orthopaedic surgeons. This humanitarian service has proved so popular that it now embraces most of the medical and surgical specialties. There are rewards in tourism for the volunteer specialist, who is often accompanied by a spouse on a month's working vacation, but the most abiding satisfaction is in sharing expertise with the long term MEDICO team treating the "forgotten" people of the world, and teaching local personnel on the job in hospitals or clinics.

The volunteer specialist tour is carefully scheduled and coordinated through medical channels and, to help derive the most fulfillment from the experience, the background of the country to be visited as well as bibliography for advance reading is made available. Over the years more than 400 long term staffers have served abroad, a total of over 900 service years. Meanwhile, volunteer physicians and nurses for all over United States, Canada and Australia have contributed a total of 1800 months of service.

Adapting concepts of Western medicine to developing areas of the world requires of medical personnel not only ingenuity, stamina and sense of humour, but perhaps most of all an understanding of the cultural gap they will be called upon to span. Attempting to diagnose a sick female patient in Afghanistan or Jordan or Tunisia, without being able to examine her because of Moslem custom, is one example of difficulties encountered. In the Western view, illness should be remedied as quickly as possible and the patient is expected to cooperate with the treatment. On the other hand in many of the developing countries, the patient feels that the "medicine man" knows the right magic if he is a good medicine man and therefore the patient's cooperation is unnecessary. Often the Local Healers, jealous of their prerogatives, are hostile towards what they regard as an invasion of their territory and winning them over to modern ways is a tough assignment. Even when patients come to the hospital, they may still cling to their traditional "cures" and have reservations about the treatment they are receiving. As a result, they may supplement hospital treatment with ointments, magic songs, tattooing, etc.

The MEDICO programs change according to needs indicated by the on the spot judgement of both the administrative staff and the medical teams. Moreover, the ultimate objective is to phase out, as soon as local personnel is sufficiently trained to be able to take over full responsibility for the programs initiated by CARE-MEDICO. MEDICO treats as many patients as possible while working at maximum output, and extends and boundlessly improves the treatment by training local physicians. In addition, MEDICO is now emphasizing provision of health programs, training of para-medical personnel and establishing basic rural health programs.

Formerly, doctors became very frustrated when they treated endless lines of patients, yet felt that when their tour with MEDICO was over they had left little of themselves behind: no permanent contribution to the people. Moreover, they recognized how preventable many of the illnesses and diseases they treated were, if only hospital care could have been provided. But in most areas where medical doctors served, the people regarded hospitals as the last resort — a place to send relatives to die. Now, MEDICO focuses on hospital care and also on the delivery of medical services at sub-stations and clinics which treat people on an out-patient

basis, while in doing so MEDICO does not neglect constant coaching in health care measures, both public and personal.

## THE MEDICO PROGRAM IN TUNISIA

Tunisia is a small and beautiful country on the coast of the Mediterranean sandwiched between Algeria and Libya, endowed with green coastal plains and sunny beaches, as well as flat agricultural and grazing land, together with the vast encroaches of the Sahara in the south. Despite what we considered adequate preparation prior to our departure for Tunisia, we were unprepared mentally to turn back the pages of history several thousand or more years. There were men who still ploughed the ground with crude plows drawn by either a mule or a camel. Colorfully dressed women who, though emancipated by edict, still covered their faces and scurried along the road carrying bundles of sticks or jugs of water behind the man, who rode side saddle with the heels of his feet kicking his little donkey. The entire country is strewn with the vestiges of large Roman cities still largely uncovered — Carthage, Utica, Dougga, Bullaregia, Maktar, Thuburbo Maius — cities of ancient history still standing as somber monuments to the Empire that once was Rome. Bizerte of Barbary pirate days, Mareth and Kasserine — solemn reminders of the bloody days of World War II. All these are here in this relatively small, many times war-torn country, filled with mountains, wadis, salt lakes, deserts and oases, and at every turning of the road a new wonder. There are people who live in deep pits dug in the ground and nomads who roam the deserts and fields with their tents and camels, goats and sheep, just as their forefathers for thousands of years before them. For all this and many other things, we were unprepared.



Bab El Khadbra or "Gate to the Green Fields" is one of the more picturesque entrances to the old city of Tunis which existed before the foundation of Carthage.

The five and one-half million people who live there, mainly Moslems of Arab origin, still cling to centuries old customs and often resist the advances of modern medicine in spite of the desperate need for treatment, physical rehabilitation and preventive medicine. For example, cases of rickets are far from uncommon and at first glance this seems inexplicable because the climate is so sunny. Custom, however, dictates that from infancy children be covered almost from head to toe and as a result they suffer from a lack of sunlight. A child who develops a respiratory infection or cold is in real danger, because that child is likely to be anaemic, malnourished and



infested with parasites. For reasons such as these the death rate is high among children in Tunisia. Although the government claims to have an effective polio vaccination program, cases of residual polio, mainly of the lower limbs, are abundant.

In 1964, a MEDICO orthopaedic program was instituted in Tunisia because of the high incidence of bone disease there. Currently, it is based on the new 125-bed government facility — the Centre d'Orthopedie Kassar Said — located about 7 kilometers outside the capital city of Tunis. Kassar Said offers an unrivalled opportunity in Africa to create an orthopaedic training centre for the people of this great continent. The hospital equipment is of the most modern and sophisticated calibre. There are two large operating rooms for aseptic cases and another for septic cases, both of which have closed circuit television — and this in a country with villages without electricity or cooking gas, and with water supplied from wells or communal taps.

Kassar Said Orthopaedic Centre is an extremely busy facility, and the place is overrun with patients, some of whom have travelled hundreds of miles. Fathers and mothers come together carrying a baby or an older crippled child, or a parent leads a limping offspring. There are victims of polio dragging themselves around. People are squatting throughout the halls and all over the premises. They are crowded in the waiting rooms, patiently waiting their turn. Hundreds arrive early at the gates and stand waiting for the hospital morning to begin. Many have received previous treatment at their own communities and have been sent to this university teaching centre for more sophisticated consultation and treatment. Many patients present with fractures which have been treated with such methods as tattooing, burning the skin with a hot iron and "bandage domestique" — a splint concocted from wood slats and a bandage which often results in Volkmann's ischemic contractures of the limb or even gangrene.

At Kassar Said, the orthopaedic surgeon is confronted with hordes of cases of club foot, polio, tuberculosis of bone and joint, brucellosis, scoliosis and kyphoscoliosis, congenital dislocation of hips and of course, fractures. Arthrogyrosis is frequent, as also is hematogeneous osteomyelitis. A moderate number of arthritis cases present themselves for total hip or knee arthroplasty. Every week at least four or five hip fractures appear. Besides all this, one sees the usual gamut of orthopaedic problems.

The discouraging aspect of much of this is, however, that cases rarely come early in their disease. Club feet come to the clinic weeks, months or even years after their origin. Congenital dislocation of the hips is rarely ever seen before weight bearing. Polio cases appear with crippled, contracted and deformed limbs and advanced untreated scoliosis, years later. Children and adults with advanced Pott's disease are frequent, with draining sinuses and psoas abscesses, and often neurological involvement resulting from cord compression secondary to collapsed vertebrae.

The septic wards are filled and the septic surgery is busy. Wounds are drained, irrigated and healed by granulation, or are aided by skin grafting and antibiotic therapy. Wards are filled with traction cases. Hips are being re-aligned with skin or skeletal traction, some in rather unique fashion. Scoliosis is treated with Cotrel traction prior to Harrington surgery or with Halo-femoral traction. Children's femoral fractures are treated with skeletal traction. Contractures of knees, as a

result of polio, are straightened with distal femoral-proximal tibial pin traction, or first with posterior capsulotomy followed by traction — all with surprisingly good results. Traction is applied by the resident staff but carefully maintained by both doctor and nurse attendants. Casts are applied largely by carefully trained technicians. They must be overly reinforced because patients walk on them, and soiling and breakages are common. Operating rooms are generally reasonably equipped with sophisticated instruments, while fairly modern anaesthesia equipment and techniques are in use.



Bedouin Dancer in the M'Rabet in the Medina or Old City of Tunis. "Belly Dancing" as an art form leaves a lot to be desired.

It is not uncommon for children playing to find live grenades from World War II, and become horribly maimed by them. On a single day at the clinic four boys aged 10 to 16 had been brought in, not only blinded but they also became unilateral and bilateral amputees.

The medical program in Tunisia has been fully evaluated and is functioning satisfactorily to produce adequately trained orthopaedic surgeons. There is now less need for short term volunteers to supplement the orthopaedic program, however, there is still a need for visiting specialists in anaesthesia, who must also be fluent in French, as this is the working language of the country.

While all MEDICO projects aim at future transfer of responsibility to local staff, every day brings its own satisfaction and rewards. MEDICO administrators, medical teams and the volunteer visiting specialists who augment the



programs, are rewarded by the knowledge that they have personally contributed to the rehabilitation of untold numbers of victims of the many diseases rampant in the developing world. For both the professionals who give their skills and the donors who give funds, MEDICO people-to-people programs afford the opportunity to share directly in building a better world by helping recipients build better lives for themselves. □

**Suggested further reading:**

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## Canadian Thoracic Society Influenza Recommendations 1977-1978

Influenza A virus strains closely resembling A/Victoria/3/75 have been identified as being responsible for the influenza A activity which was seen throughout the world in the 1976-77 season. On-going serological surveys in Canada indicate that approximately half of the population may still be susceptible to A/Victoria and it is therefore anticipated that it will continue to be the predominant strain in the 1977-78 influenza season. The absence of spread of A/New Jersey (Swine flu) in 1976-77 suggests that it is unlikely that this virus constitutes a risk in 1977-78.

It is recommended that a bivalent inactivated influenza vaccine containing 200 CCA units of a virus resembling A/Victoria/3/75 H3N2 and 200 CCA units of B/Hong Kong/5/72 influenza virus be used for those people for whom influenza constitutes a significant risk (see below). Extensive clinical trials in 1976 demonstrated that a single dose of either whole virus vaccine or split virus vaccine (containing purified neuraminidase and hemagglutinin chemically split from the virus) produce satisfactory antibody responses. In children, two doses one month apart are required to stimulate an adequate response. While split virus vaccines tend to produce a lower incidence of side effects, the difference is of practical importance only in children.

### VACCINE USAGE

Annual influenza vaccination is strongly recommended for:

- 1) Persons of any age who have such conditions as:
  - a) chronic heart disease of any etiology, particularly with mitral stenosis or cardiac insufficiency
  - b) chronic bronchopulmonary diseases such as chronic bronchitis, asthma, bronchiectasis, tuberculosis, emphysema and cystic fibrosis
  - c) chronic renal disease
  - d) diabetes mellitus and other chronic metabolic disorders

- e) persons with malignancy or immunodeficient states considered at high risk
- 2) Persons over 65 years of age, particularly those in institutions.

Vaccination should be completed by the end of November.

Routine vaccination of healthy adults is NOT recommended because of the limited duration of protection from such vaccine, the relatively low attack rates of influenza in community outbreaks and the usual lack of serious complications of influenza in healthy people. Any decision to immunize this group must carefully balance the limited benefits of vaccination, their low risk from disease and the small but definite risk (approximately 1:100,000) of Guillain-Barré syndrome following vaccination.

### CONTRAINDICATIONS

Persons with histories of allergy to eggs, chickens or chicken feathers should not receive influenza vaccine.

### PREGNANCY

Evidence regarding the risks associated with influenza during pregnancy is conflicting. Apart from the general desire to avoid the use of any unnecessary agent(s) during pregnancy, there is no specific contraindications to influenza vaccination in pregnancy since the preparation used contains an inactivated virus. Thus pregnancy is neither an indication for nor contraindication to influenza vaccination.

### ADVERSE REACTIONS

Fever, malaise, myalgia and other mild systemic reactions occurring within six to 12 hours and persisting for 24 to 48 hours are not uncommon. Allergic reactions are rare as are neurologic reactions (see above). □



# Compartment Compression Syndromes

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## INTRODUCTION

Compartment compression syndromes have been recognized since von Volkmann's forearm deformity was described in 1868.<sup>1</sup> Wilson<sup>2</sup> spontaneously developed a drop foot from an anterior tibial compression syndrome<sup>3</sup> while on Scott's expedition in Antarctica in 1912. The first series of anterior tibial compartment compression syndrome was published by Dr. C. E. Horn<sup>4</sup> in 1945. His patients were healthy young recruits force-marched in military training.

Unfortunately, compartment compression syndromes are often missed or diagnosed too late to avoid sequelae.<sup>5,7</sup> Attention to the most common compartment compression syndrome, that of the anterior tibial compartment<sup>8</sup>, was raised by the frequency with which it appeared in the Victoria General Hospital (VGH), Halifax. Nine cases were seen in the first five months of 1977. This paper was written to encourage early diagnosis and to draw attention to the chronic form of the compartment compression syndromes.

## CASE REPORTS

### Case I

A 35 year old business executive was found unconscious on January 20, 1977, following an overdose of Dalmane (flurazepam hydrochloride), Serax (oxazepam) and Nolutal (methypylon). It appeared that he had lain in one position for two days and was in hypovolemic shock. His left leg was pulseless. The arteries were patent by arteriography, but venography showed thrombosis of the veins of his thigh. He was in acute renal failure caused by the massive release of myoglobin from muscle damaged by lying on his thigh. His leg was anaesthetic below midthigh and swelled massively. An orthopaedic consultation was sought three days after admission and an acute four compartment compression syndrome was diagnosed.

Fasciotomy revealed non-contractile, pink-grey muscles with very little bleeding. The wounds were packed open. The infarcted muscle demarcated after a few days but subsequently became infected and the leg was amputated above the knee with delayed primary closure.

The renal failure resolved completely. His leg injury kept him in hospital for a total of eleven weeks.

### Comment

The history of lying for two days in one position resulting in thrombosed veins should have suggested the diagnosis of crush syndrome.<sup>6</sup> The swelling of the damaged muscle caused the compartment compression syndrome (Figure 1) which could have been prevented by fasciotomy on the day of admission. In such critical circumstances fasciotomy can be performed under local anaesthetic on the ward or in the operating room.<sup>6</sup>

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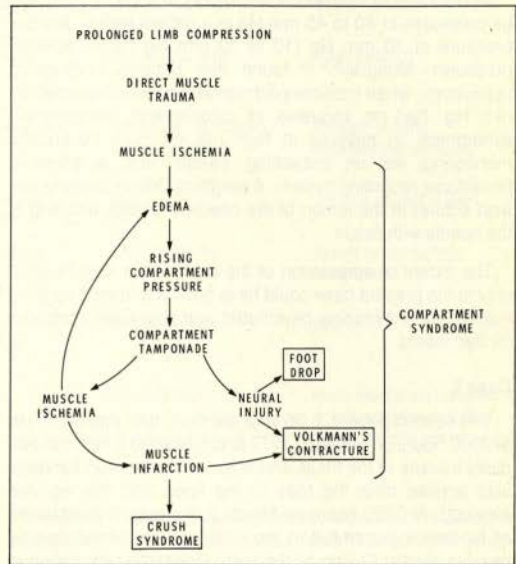


FIGURE 1

Pathophysiology of compartment compression syndrome (adapted from Mubarak and Owens<sup>6</sup>).

The initial coma, and the anaesthesia in the limb made assessment difficult and were indications for direct percutaneous measurement of intracompartmental pressure, using a sphygmomanometer, syringe and intravenous tubing (Figure 2).

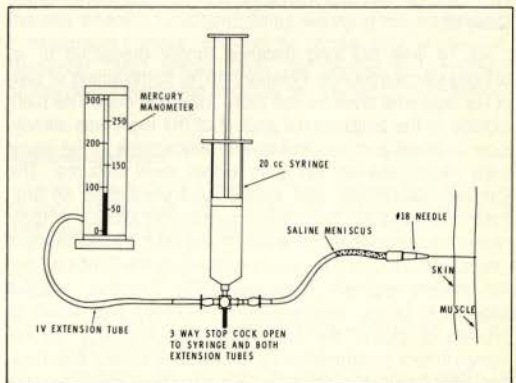


FIGURE 2

Percutaneous measurement of intramuscular pressure. The pressure in the tubing is increased with the syringe until the saline meniscus moves slightly (adapted from Whitesides et al<sup>7</sup>).



An average of three readings represents the pressure required to overcome the pressure at the tip of the needle (the intracompartmental pressure). Normal pressure is about zero mm of mercury.<sup>3,7</sup> Effective tissue perfusion stops when the intracompartmental pressure equals the diastolic pressure.

Whitesides<sup>7</sup> recommends fasciotomy at intracompartmental pressures of 40 to 45 mm Hg in a patient with a diastolic pressure of 70 mm Hg (10 to 30 mm Hg below diastolic pressure). Mubarak<sup>6,9,10</sup> found that patients undergoing fasciotomy, when intracompartmental pressures reached 30 mm Hg, had no sequelae of compression compartment syndromes. In patients at high risk he uses continuous monitoring via an indwelling needle and a pressure transducer recording system. A length of Dexon (polyglycolic acid suture) in the lumen of the needle prevents blocking of the needle with tissue.

The extent of amputation of the leg and the long hospital stay in the present case could have been decreased by early fasciotomy, minimizing psychiatric and economic problems for the patient.

### Case II

The second patient, a 36 year old man, had slipped on ice at 2000 hours on March 2, 1977 and sustained a comminuted distal fracture of the fibula and tibia. A compression bandage was applied from the toes to the knee and the leg was elevated. At 0700 hours on March 3, the patient complained of moderate discomfort in the anterior leg exacerbated by passive plantar flexion of the toes. Diminished sensation in the first web space and loss of dorsiflexion of the big toe were present, and anterior tibial compartment compression was diagnosed. Foot pulses, colour, capillary return and temperature were normal. Fasciotomy of the anterior and lateral compartments was performed at 0930 hours, less than twelve hours after onset of pain.<sup>11</sup> The compartment compression syndrome had resolved when the patient awakened from anaesthesia, and two weeks after injury he was discharged from hospital. Early diagnosis and immediate fasciotomy prevented sequelae of the compartment compression syndrome in this patient.

### Case III

An 18 year old long distance runner presented to an orthopaedic surgeon in February 1976, complaining of pain in his legs whenever he ran more than one mile. The pain, located in the anterolateral aspect of the legs, was steady, slow in onset and associated with tenderness in the same area. Rest relieved the pain within thirty minutes. The surgeon diagnosed "shin splints" and prescribed an anti-inflammatory drug, Tandearil (oxyphen butazone). A technetium pyrophosphate bone scan ruled out the possibility of a stress fracture. The pain was unrelieved by the Tandearil and the patient returned in August 1976. Exercise, passive stretching, taping and whirlpool treatment had failed to prevent or relieve the pain. The possibility of a chronic compartment compression syndrome was raised. Examination after strenuous exercise revealed tenderness over the anterior and lateral compartments and an unusual firmness of the muscles to palpation.

In mid-December the patient had elective fasciotomy of the anterior, lateral and posterior compartments of his left leg. At

operation, the compartments were firm and the muscles bulged through the fasciotomies. In February 1977, fasciotomy was performed on the other leg. The patient was allowed to return to normal activities after two weeks and pain has not recurred with the resumption of long distance running.

### Comment

Chronic compartment compression syndrome was first described by Leach et al<sup>12</sup> in 1967 but was not generally accepted until Reneman collected a large series of sixty-one patients.<sup>3</sup> The reluctance to make this diagnosis is apparent in the above case (sixteen months after onset). Only after all treatment modalities had failed was a diagnosis of chronic compartment compression syndrome made. The relief of pain was so complete that the patient requested the second operation.

Many cases of "shin splints" may be chronic compartment compression syndrome.<sup>3</sup> Findings are often elicited only after moderate to strenuous exercise, and include pain, tenderness and a "woody" firmness to palpation.<sup>3</sup> There may be associated diminished pulses, sensation in the first web space and motor power.<sup>3</sup> The increase in volume in the muscles with the hyperemia of exercise<sup>3,9</sup> exceeds the capacity of the rigid compartment (Figure 1), resulting in a rise in intracompartmental pressure. Fasciotomy appears to be the only satisfactory form of treatment that allows resumption of full activity.

### DEFINITION, PATHOGENESIS AND ETIOLOGY

Compartment compression syndromes are the result of ischemia caused by increased pressure within muscle compartments.<sup>3,5,7,8</sup> The compartments with their associated syndromes are listed in Table I. These muscle compartments are bounded by bone and fascia with openings only for nerves, vessels and tendons.<sup>10</sup> Swelling or bleeding (Figure 1) results in increased volume in an already filled, inelastic compartment, leading to increased pressure. The pressure affects the small vessels, obstructing arterioles, capillaries and lymph vessels.<sup>6</sup> The intracompartmental tissues are ischemic long before pressure is sufficient to occlude the arteries passing through the compartment.<sup>6</sup> Nerve palsies and ischemic muscle contractures can develop while distal pulses are present.<sup>3,5,7</sup>

Of the causes listed in Table II, the most common is the tight dressing or cast on a limb which swells. If pain persists after splitting a cast, and after removal of the cast, fasciotomy is indicated. Removing the cause of pressure should result in immediate relief.

### DIAGNOSIS AND TREATMENT

A history of unaccustomed exercise or injury to a limb followed by disproportionate pain, or prolonged compression of a limb (e.g. an overdosed patient lying in one position for several hours) should alert the physician to check for compartment compression syndrome.

The signs listed in Table II usually appear in the following order:<sup>9</sup> tenseness in the affected compartment; painful, passive movement of distal limb (stretching the ischemic muscle); motor loss; sensory loss; diminished pulses and gangrene of the distal limb. Diagnosis should be made on the first two or three signs.<sup>5,6,7</sup> The only effective treatment is decompression by fasciotomy.<sup>3,5,8,11,13</sup>



**TABLE I**  
**COMPARTMENTAL SYNDROMES AND ASSOCIATED PHYSICAL SIGNS**

COMPARTMENT	SENSORY LOSS	MUSCLE WEAKENED	PAINFUL PASSIVE MOVEMENT	LOCATION OF TENSENESS	
<b>Forearm</b>	dorsal	—	thumb and finger extensors	thumb and finger flexion	dorsal forearm
	volar	ulnar and median nerves	thumb and finger foexors	thumb and finger extension	volar forearm
<b>Hand</b>					
interosseus	—	interosseus muscles	adduction, abuduction of m-p* joints	dorsum of hand between metacarpals	
<b>Leg</b>	anterior	deep peroneal nerve	toe extensors and tibialis anterior	toe flexion	anterior aspect of leg
	lateral	superficial and deep peroneal nerves	peroneal muscles	foot inversion	lateral aspect of leg over fibula
	superficial posterior	—	soleus and gastrocnemius	foot dorsiflex	calf
	deep posterior	posterior tibial n.	toe flexors and tibialis posterior	toe extension	distal medial leg between Achilles tendon and tibia

\*metacarpophalangeal

**TABLE II**  
**ETIOLOGY**

**I. Decreased Compartmental size**

- A. closure of facial defects
- B. tight dressings
- C. localized external pressure

**II. Increased compartmental content**

- A. bleeding
  - 1. major vascular injury
  - 2. bleeding disorder
- B. increased capillary permeability
  - 1. post-ischemic swelling
  - 2. exercise seizures
  - eclampsia
  - 3. trauma (other than major vascular)
  - burns
  - intra-arterial drugs
  - orthopedic surgery
- C. increased capillary pressure
  - 1. exercise (cf. 11.B.2.)
  - 2. venous obstruction long leg brace
- D. muscle hypertrophy
- E. infiltrated infusion
- F. nephrotic syndrome

**PROGNOSIS**

In the past, compartment compression syndromes often resulted in nerve palsies (foot drop)<sup>2,4</sup>, ischemic contractures (von Volkmann's)<sup>1</sup>, and gangrene<sup>2</sup>. Undoubtedly the entity is much more common than was previously recognized<sup>8</sup>, with milder forms presenting as postimmobilization stiffness. Sequelae are very uncommon in cases treated less than twelve hours after onset especially if performed before onset of sensory loss.<sup>8,11</sup> Infection rate is similar to that of any elective incision (2%)<sup>8</sup> and resolution of signs is almost

immediate. Following onset of sensory loss rate of recovery is slower and incidence of sequelae rises,<sup>3,5</sup> In addition, when muscle infarction occurs, the rate of infection rises dramatically to 46%.<sup>8</sup> Fasciotomy should be done immediately in all cases (except those with overt gangrene) because there are reports of limited muscle regeneration<sup>14</sup> after late fasciotomies (up to twelve months after onset of the syndrome). The procedure is simple, and safe; it leaves an unobtrusive scar and has few complications.

**CONCLUSION**

Diagnosis of compartment syndromes is straight forward. Intracompartmental pressure measurement may assist in a decision to operate in difficult cases. If the early signs of compartment pressure are present, immediate fasciotomy is the only effective treatment; delay results in the sequelae of compartment compression and the complication of infection. Recurrent "shin splints" may be caused by a chronic compartment syndrome and may be relieved by fasciotomy□

**Acknowledgements**

I wish to thank Dr. D. Petrie and Dr. W. Stanish for advice and clinical material, and Miss Shapter for editorial assistance in preparing this material for publication.

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# An Unusual Case of *Clostridium Perfringens* Infection Following Cholecystectomy\*

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**A fatal case of gas gangrene of the left thigh and buttock, without any visible portal of entry and following rapidly after cholecystectomy, is reported. *Clostridium perfringens* was isolated from abdominal incision site and from the thigh and buttock. It is postulated that the patient developed bacteremia as a consequence of cholecystectomy and that thrombosis of the veins of the thigh and/or buttock existed from varicose veins and/or post-operative state, which provided the anaerobic conditions in which *Cl. perfringens* grew to produce clostridial myonecrosis. The principle of prophylactic use of antibiotics after biliary tract surgery is discussed. It is advised that when toxemia and collapse follow rapidly after cholecystectomy, clostridial infection should be the immediate consideration and treatment started promptly. Unawareness of the possibility of the disease can lead to both misdiagnosis and late diagnosis and contribute to a high morbidity and mortality.**

*Clostridium perfringens* is a well-known complication of war wounds and accidental traumatic injury. It is also a complication of surgical wounds, especially following amputation of the leg in patients with diabetes mellitus, septic abortion, and disorders of intestines in which appreciable necrosis is present and biliary tract surgery<sup>1</sup>.

The association of clostridial infection with biliary tract surgery has been well documented and the literature on the subject has been reviewed by McLenan<sup>2</sup>, Bornstein *et al.*<sup>3</sup> and Sarmiento<sup>4</sup>. In these reviews, rare cases of gas gangrene which present in the thigh or buttocks or both without any apparent wound are described. Since then, Brummelkamp<sup>10</sup> reported a case which developed in one leg following cholecystectomy and Engeset *et al.*<sup>11</sup> reported a case of gas gangrene which occurred in the normal leg of a road accident victim with a compound fracture of the opposite leg.

We report here an unusual case of gas gangrene following cholecystectomy which occurred in the left thigh and buttock. Such cases are few in literature and merit recording.

## CASE REPORT

The patient, L.B., an obese 64 years old adult male with varicose veins and infected eczema of both legs, was admitted to St. Joseph's Hospital, Glace Bay, for investigation of pain across lower part of chest which radiated from right to left upper quadrant of the abdomen. He gave a history of intolerance to fat. The past medical record included several admissions into this hospital. There was an appendectomy in 1940; in 1966, he sustained severe injury

to the chest and back with fracture of several ribs and lacerations of the right forearm; and in 1972, he was admitted for varicose veins, eczema and dermatitis of the legs, hips and right arms. Except for moderate-sized right inguinal hernia, general physical examination was essentially negative.

On admission, the temperature was 35.6°C., pulse 80, B.P. 130/90 mm Hg. and respiratory rate of 80. Important laboratory data included haemoglobin level of 15 g., hematocrit of 45, a WBC of 6,900/cu. mm with 51% neutrophils, 2% stab cells, 11% eosinophils, 1% basophils, 30% lymphocytes and 1% monocytes. The ESR was 13 mm/hr, VDRL was non-reactive. Fasting blood sugar was 98 mg/dl, urea nitrogen 13 mg/dl, total protein 7.5 g/dl, albumin 4.2 g/dl and the A/G ratio of 1:1.2. Cephalin flocculation was negative. Total bilirubin was 0.8 mg/dl, indirect bilirubin 0.65 mg/dl and icteric index of 5. Serum creatinine was 0.85 mg/dl, alkaline phosphatase 6.0 units/l, SGOT 28 units/l, sodium 143 mEq/l, chloride 105 mEq/l, potassium 3.9 mEq/l and CO<sub>2</sub> combining 27 mEq/l. Urinalysis was normal and urine culture showed no growth after 24 hours. Chest x-ray showed multiple mobile densities in the upper right quadrant suggesting cholelithiasis. No linear gas shadows were present. The electrocardiogram was normal.

The patient responded well to treatment of eczema and dermatitis with vioform hydrocortisone. Elective cholecystectomy was recommended on consultation.

Preoperative swab cultures from right and left feet grew *Staphylococcus pyogenes*, coagulase positive and sensitive to oxacillin, neomycin, and gentamicin. Preoperative abdominal skin swab culture showed no growth after 24 hours.

Cholecystectomy was performed at 8 a.m. and the patient was returned to the ward by 11 a.m. in satisfactory condition. The temperature was 36.6°C, pulse 80, strong and regular, B.P. 120/80 and respiratory rate of 20. At 3 p.m., the patient complained of an unusual amount of abdominal discomfort and vomited about 30 ml. of bile-colored fluid. At 6:30 p.m., a small amount of serous drainage was noted in the dressing. At 8:30 p.m., the temperature rose to 39.9°C and by midnight, the patient complained of severe abdominal pain. The temperature was 38.9°C, B.P. 150/90 mm Hg with a pulse rate of 132.

At 12 noon on the second post-operative day, his chest was congested. From the morning of that day, the temperature fluctuated between 38°C and 38.9°C, the pulse between 112 and 118 and the B.P. between 100/56 and 80/50 mm Hg. The patient was restless and apprehensive with occasional hiccups. There was incontinence of urine which was relieved with Foley's catheter. Electrocardiogram revealed atrial fibrillation with a ventricular rate of 175 mm and non-specific ST-T changes. General physical examination was unrewarding. No cause could be elicited to account

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for the fever and hypotension. It was then presumed that the patient had bacteremia, with focus of infection in the abdomen, as the lungs were clear and there was no evidence of renal or neurological infection.

At 1 p.m., the patient was given 40 mg. intramuscular injection of gentamicin on the left buttock. At 8:30 p.m., dressings were removed from the site of operation and swabs for culture were taken from the drain and incision sites. Blood was also taken for culture.

Important laboratory findings included hemoglobin of 11.4 g%, WBC of 50,050/cu mm with 76% neutrophils, 9% stab cells, 6% basophils and 7% monocytes. Clotting time was 3 min. (normal 4-10 min), prothrombin 17 sec 39% (normal 12 sec 100%), blood urea nitrogen 55 mg/dl, SGOT 170 units/l, total bilirubin 2.8 mg/dl, sodium 130 mEq/l, potassium 4.9 mEq/l, CO<sub>2</sub> combining 15 mEq/l. Arterial blood gases showed a pH of 7.415, PCO<sub>2</sub> of 21.5 mm Hg and PO<sub>2</sub> of 50 mm Hg.

On the third post-operative day, the patient continued to show marked anxiety and restlessness interspersed with periods of frank agitation. The urine was bloody. The pulse was irregular and the temperature continued to be high. He continued to fibrillate with rapid ventricular rate. Breathing was shallow and noisy. There was now frank hypotension with septic shock and he did not respond to the usual forms of treatment. At noon, it was noted that there was a swelling in the left thigh and buttock, which was pale and stiff with rapid increasing crepitus. Roentgenogram showed the presence of gas in and around muscle bundles in fern-like lacy pattern. A clinical diagnosis of gas gangrene was now made. Aspirated serosanguinous fluid was obtained from the swelling for culture. The report of the wound culture taken the previous day was also reported at this time as positive for *Clostridium* sp. At 2:30 p.m., while preparations were being made for surgical debridement and treatment with penicillin, the patient went suddenly into cardiac arrest and died.

*Clostridium perfringens* and non-haemolytic streptococci were identified and cultured from the abdominal incision site, while *Cl. perfringens* only was identified and cultured as pure growth from aspirated fluid from left buttock and thigh. Blood culture also grew *Cl. perfringens*. The organism was isolated by using anaerobic procedures and special enrichment technique. The identity of isolates of *Cl. perfringens* was established by conventional cultural and biochemical procedures. This was confirmed by the Pathology Institute in Halifax, but the toxin type was not determined.

Post-mortem examination, performed six hours after death, showed the body of a well-developed obese male of about stated age, weighing about 100 kg with healed dermatitis of both legs. Varicose veins of the two legs were present. The sclerae and skin showed mild jaundice. Both pleural cavities contained about 1700 ml. of straw-colored fluid. The lungs were voluminous, showed severe edema and congestion, and there were areas of petechiae of both lungs. The abdominal incision site showed thin, brownish, seropurulent discharge with an odor of putrefaction. There was no crepitus or necrosis of the muscles. The spleen was enlarged, weighing 600 mg and showed congestion. The liver weighed 2,830 gm and showed micronodular cirrhosis.

The left buttock and thigh were swollen, edematous and tense with purplish discoloration and moderate crepitus. An incision made in the thigh and carried upwards to the buttock showed gas bubbles between the muscle fibres with mousy

odor. There was widespread muscle necrosis and the muscle bellies appeared cooked with pale color. No bleeding was observed when the muscle was retracted, pinched or cut. Microscopic sections showed separation of the muscle by edema with coagulative necrosis of muscle fibres, loss of striations, nuclei vacuolation. Hemorrhages and many dilated capillaries and venules most of which were thrombosed were noted.

The brain weighed 1492 gm. No gross abnormality could be found except for small irregular areas of congestion in the white matter. The cord was unremarkable.

Post-mortem blood culture grew pure culture of a gram positive, plump, rod-shaped organism which was later identified as *Cl. perfringens*.

## COMMENT

The case presented is an illustrative example of the few cases of gas gangrene reported in literature which present in the buttock or thigh or both, without any apparent wound. As in this case, they are usually diagnosed late in the course<sup>2, 3</sup>. Since *Cl. perfringens* was isolated from the abdominal incision site, we assumed that the organism originated from the gallbladder and there was a history of a spill of the gallbladder fluid during the operation. No bacteriological studies were made of the gallbladder removed at operation, as it was immediately put in formalin as is usual. Since then, however, we have studied gallbladder bacteriology and isolated *Cl. perfringens* in 4 of 100 cases. *Cl. perfringens* has been isolated in 2 to 18 per cent of gallbladders<sup>12, 18</sup>.

Although no serological or bacteriological typing was carried out to confirm that *Cl. perfringens* isolated from the surgical wound and that from the buttock and thigh were the same, it was assumed that both belonged to the same strain. But whereas the former existed as a mere contaminant in which the wound exudes brownish, seropurulent discharge without producing any invasiveness in the abdominal wall, the later produced frank anaerobic clostridial myonecrosis.

There was no history of any recent accidental injury of the thigh and buttock resulting in abrasion through which infection could have entered, or a hematoma in which infection could have started from clostridial bacteremia. And although fulminating gas gangrene with associated high mortality which developed at the site of intramuscular injection has been reported<sup>2, 3, 7, 19, 22</sup>, we did not associate gas gangrene in the present case with the injection of gentamicin on the left buttock at 1 p.m. on the second post-operative day, because early symptoms of gas gangrene had already begun before the injection was given. If it is accepted that gas gangrene did not originate as a result of the injection given, the more likely explanation is that he had a bacteremia as a consequence of gallbladder operation, and that thrombosis of the veins of the thigh and/or buttock existed from varicose veins and/or post-operative state, which afforded the anaerobic conditions in which *Cl. perfringens* grew to produce clostridial myonecrosis. McLachlin and Paterson<sup>23</sup> have shown that conditions such as varicose veins and post-operative state cause venous thrombosis, many of which are not apparent clinically and only a minority of which are diagnosed.

What the present case also suggests is that clostridial organism can be found in the gallbladder and that it is a potential danger in biliary tract surgery. Because early



diagnosis is important for successful treatment, a policy of routine culture of the bile, common bile duct and biliary stone, as well as the gallbladder mucosa, has been advocated<sup>7, 17</sup>. Fukunga<sup>17</sup> has suggested that this is particularly valuable in patients with acute cholecystitis, biliary tree obstruction, and in high risk patients of 70 years of age or over in whom the incidence of infection is high. Some workers have also advocated the use of prophylactic antibiotics in the immediate post-operative period<sup>7, 9, 17, 18</sup>. Pyterk and Bartus<sup>9</sup> have warned that too rigid adherence to the concept that antibiotics be specific for infections complicating surgery, especially as relates to surgery of the biliary tract, would allow an increase in *Cl. perfringens* infections as well as an increase in the number of deaths from this organism.

It must be borne in mind, however, that when a wound is contaminated with many kinds of organisms as that resulting from gallbladder infections having various susceptibilities to antibiotics, all that prophylactic antibiotics will do is to insure the selection of resistant organisms as the ultimate offenders. It will thus encourage bacterial mutations and foster the development in patient and environment nosocomial flora that may be therapeutically formidable. And let us not forget that prophylactic antibiotic treatment with penicillin may produce toxic reactions and side effects.

We are in agreement with the views expressed by Elliot-Smith and Ellis<sup>24</sup> that the small risk of clostridial infection does not justify prophylactic antibiotic in gallbladder surgery, except perhaps in the high risk patients and elderly, those more than 70 years of age or with common duct stones or obstructive jaundice. Surgeons should, however, be aware of this rare complication of a common operation. They should constantly bear in mind that if toxemia and collapse follow rapidly after cholecystectomy, clostridium infection should be the immediate consideration and treatment started promptly.

The initial diagnosis of gas gangrene must remain a clinical one. The rarity of the infection in the usual practice should not stop one from considering the possibility in a suitable setting. The usual systemic features are some degree of toxic mental state such as increasing anxiety, confusion or marked apathy, intense local pain, unaccountably sharp rise in pulse rate, elevated white cell count, an elevated temperature often in the range of 38°C - 40°C, and tachycardia. Radiology is helpful but should not be necessary for diagnosis. Whereas gas in an abscess is usually limited to tissue planes, the gas in clostridial infection permeates the tissue and can be identified as small radiolucencies producing lace-like pattern in the muscles over a rapidly increasing area. Indeed, unawareness of the possibility of the disease can lead to both misdiagnosis and late diagnosis, and this may contribute to a high morbidity and mortality. □

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# Pathophysiology of Jaundice: A Modern and Logical Diagnostic Approach to the Jaundice Patient

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## INTRODUCTION

Clinical jaundice<sup>1</sup> derives from physiologic derangements which can be classified as:

- 1) prehepatic
- 2) intrahepatic
  - a) hepatocellular
  - b) postlobular
- 3) posthepatic
  - a) hepatocholechochal
  - b) pancreatic

This grouping, schematized in Figure 1, has a surgical bias rather than a pathophysiologic biochemical orientation, since the primary goal of the surgeon treating patients with jaundice is to separate obstructive from non-obstructive cases. With the diversity of methods available at present, a failure to do so is unacceptable. Diagnostic laparotomy for jaundice<sup>2</sup> can only be condoned in patients acutely ill with sepsis, whose general condition does not permit use of the full diagnostic armamentarium.

Much importance has often been ascribed to stool colour but this data more often describes the severity of disorder than its etiology. Clay colored stools do occur in intrahepatic as well as posthepatic jaundice.

The diagnostic techniques available in the differential diagnosis of jaundice include the following procedures:

- 1) Simple Biochemical Analysis of
  - a) blood
  - b) urine
  - c) stool
- 2) Function Studies
  - a) liver
  - b) pancreas with or without cytology
- 3) X-ray Techniques
  - a) routine gastrointestinal series
  - b) hepatocholangiography
  - c) computer axial tomography — CAT
  - d) sonography

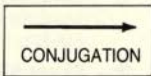
PREHEPATIC	HEPATOCELLULAR	POSTHEPATIC
SERUM	LIVER CELL	DUCT SYSTEM
BILIRUBIN-PROTEIN		CANALICULI → DUCT — CD — PAPILLA
OVERLOAD BLOOD DISORDER	ENZYMATIC FAILURE EXCRETORY BLOCK LIVER DISEASE—METABOLIC DISORDER	CHOLESTASIS—OBSTRUCTION STONE—STRICTURE—CA

FIGURE 1  
Schema for Classification of Jaundice.

The *clinical data* furnishes many clues which may elucidate the diagnoses and should influence the sequence with which the physician employs the various diagnostic techniques. The following data should be stressed because of their direct implication:

- 1) hepatotoxic medication → intrahepatic
- 2) existing blood dyscrasia → prehepatic or intrahepatic
- 3) familial occurrence of jaundice → prehepatic or intrahepatic
- 4) recent anaesthesia → intrahepatic
- 5) recent transfusion → intrahepatic
- 6) biliary colic → posthepatic
- 7) RVQ abdominal signs → posthepatic
- 8) RVQ mass → posthepatic
- 9) evidences of sepsis → posthepatic

- 4) Various Invasive Techniques
  - a) liver biopsy
  - b) endoscopy — ERCP — with or without cytology
  - c) isotopic scanning
  - d) laparoscopy
  - e) arteriography

This enormous diagnostic armamentarium, schematized in Figure 2, when employed without design can lead to unnecessary delay in diagnosis and excessive cost in care.

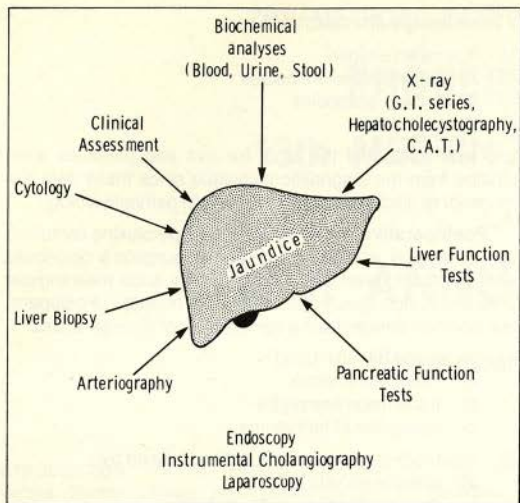
**Biochemical analysis<sup>3</sup>** is the initial step in diagnostic sequences. It is non-invasive, least expensive, and immediately available. The simplest and most useful determination would be:

- 1) hepatic enzymes — SGOT, SGPT, 5- $\alpha$ -N
- 2) alkaline phosphatases
- 3) conjugated and unconjugated bilirubin

The diagnostic flow chart illustrated in Figure 3 affords a neat preliminary separation of jaundiced patients for the surgeon. It must be emphasized that this division is preliminary and not

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**FIGURE 2.**

Diagnostic armamentarium in the differential diagnosis of jaundice.

infallible. There is considerable overlap of biochemical data among patients with hepatitis, cholestatic jaundice, and extrahepatic obstructive jaundice. This schema is valuable in suggesting further diagnostic sequences. For example, if the diagnosis is between hepatitis and cholestatic jaundice, a liver biopsy should disclose the pathology. If the choice is between cholestatic jaundice and obstructive jaundice, a secretin test and/or retrograde endoscopic cholangiography would be diagnostic. The sequence would be as indicated in Figure 4.

Although biochemical analysis of stool, duodenal contents and urine for bilirubin and its derivatives are routinely performed, these examinations are really more useful in assessing the completeness of obstruction rather than the type.

Once the familial hyperbilirubinemias, hepatitis, and cholestatic jaundice have been excluded, the task is that of determining the nature and site of obstruction.

**X-ray** is the next technique. A routine flat film of the abdomen followed by an upper G.I. series may disclose:

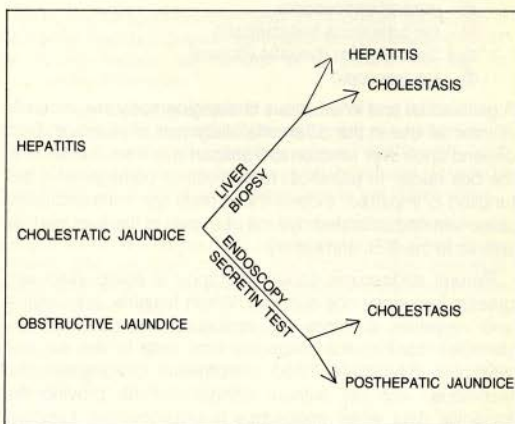
- 1) gallstones
- 2) G.B. displacements and calcinosis
- 3) lesions in the pancreatic head

Hypotonic duodenography can significantly improve the recognition of pathology in the periampullary region.

Obstruction to biliary flow can be pinpointed by one of two techniques:

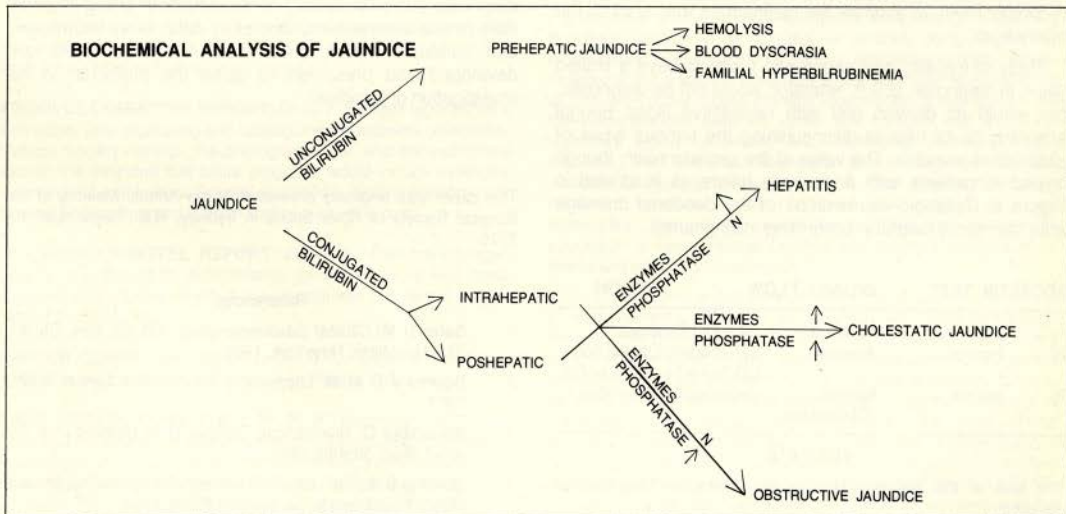
- 1) those disclosing mass
- 2) those outlining biliary passages

At present both techniques are experiencing a mushrooming of methods and refinement.



**FIGURE 4**

Flow chart of Jaundice II.



**FIGURE 3**

Flow chart of Jaundice I.



Demonstration of a mass by barium displacement is now considered a late manifestation of tumefaction. Rather, mass may be indicated by

- 1) Ultrasound (especially fluid)
- 2) CAT scanning
- 3) isotopic scintillography ( $Te^{99}$ ,  $Ga^{175}$ )
- 4) arteriography

Scanning with technetium<sup>99</sup> is most useful for metastatic tumors, whereas gallium<sup>175</sup> scanning is capable of demonstrating abscess. Arteriography has been less rewarding.

Outlining the biliary tract most exquisitely localizes the site of biliary obstruction. *Cholangiography* may be accomplished by the following techniques:

- 1) Physiologic Cholangiography
  - a) oral cholecystography
  - b) intravenous cholangiography
- 2) Instrumental Cholangiography
  - a) peroral endoscopic
  - b) percutaneous transhepatic
  - c) trans-jugular (hepatic venous)
  - d) laparoscopic

A gallbladder and intravenous cholangiography are generally of minimal use in the differential diagnosis of jaundice. Both depend upon liver function to transport dye from the blood to the bile ducts. In jaundice, regardless of pathogenesis this function is impaired. Indeed these tests are contraindicated since retained iodinated dye may be toxic to the liver itself as well as to the G.B. and kidney.

Peroral endoscopic cholangiography is being used with greater frequency and success. When feasible, the positive and negative evidence of endoscopic cholangiography generally confirm the diagnosis and help in the surgical treatment. The other listed instrumental cholangiographic techniques are not without danger but do provide the essential data when endoscopy is unsuccessful. Laparoscopy is an underutilized technique in the United States. Under direct vision it is possible to locate masses with safety, to biopsy them, to aspirate the gallbladder, and to inject the biliary tract.

Study of *hepatic and pancreatic function* have a limited value in diagnosis. B.S.P. retention would not be diagnostic, nor would its derived test with radioactive Rose Bengal scanning be of help in distinguishing the various types of obstructive jaundice. The value of the *secretin test*<sup>4</sup>, though limited to patients with endoscopy failure, is illustrated in Figure 5. *Cytologic examination* of the duodenal drainage after secretin is helpful in confirming malignancy.

SECRETIN TEST	BILIARY FLOW	LESION
1) Abnormal	Abnormal	CA Head Pancreas
2) Normal	Abnormal	Extrahepatic Obstruction CD Stone Structure, or CA
3) Normal	Normal (Cholestasis)	Hepatocellular Jaundice

FIGURE 5

The Use of the Secretin Test in the Differential Diagnosis of Jaundice.

*Immunologic titres* such as:

- 1) Australian antigen
- 2) Antimitochondrial antibodies
- 3) Antinuclear antibodies
- 4)  $\alpha$ -fetoprotein

and examination of the stool for ova and parasites were omitted from the diagnostic technique since these data are more apt to disclose etiology rather than pathophysiology.

"**Postoperative Jaundice**" is a most perplexing complication of surgery which often taxes the surgeon's diagnostic skill. It should never be sidestepped by such meaningless phrases as non-specific postoperative hepatitis. Postoperative jaundice derives from a combination of diverse factors:

- 1) Increased Bilirubin Load
  - a) hemolytic anemia
  - b) transfusion hemolysis
  - c) resorption of hematoma
- 2) Impaired Hepatocellular Function Induced by
  - a) anesthesia with halothane
  - b) drugs-antibiotics, antimetabolites
  - c) shock
  - d) viral infection
- 3) Cholestasis Caused by
  - a) hypoxia, hypotension
  - b) drugs
  - c) sepsis
- 4) Duct Obstruction Due to
  - a) operative injury
  - b) retained stones
  - c) abscess

The differential diagnosis, thus, can be just as complex as in patients entering the hospital initially with jaundice.

## SUMMARY AND CONCLUSIONS

A logical diagnostic approach is advocated for the investigation of patients with jaundice. Laparotomy for diagnosis alone is usually contraindicated. Using sequentially clinical assessment, laboratory data, X-ray techniques, and various invasive procedures, two flow charts are developed and presented to guide the physician in his investigation of jaundice. □

This paper was originally presented at the Annual Meeting of the Surgical Society of Nova Scotia in Sydney, N.S., September 10, 1976.

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**DISCIPLINE COMMITTEE REPORT:** Dr. Mason reported that this Committee had not been required to deal with any problems during the year. He noted that discipline of the profession is a matter for the Provincial Medical Board. When complaints are received by the Society indicating that disciplinary action might result, they are forwarded to the Provincial Medical Board for consideration.

**DRUG & ALCOHOL ABUSE COMMITTEE:** Dr. H. A. Locke was not available to present his report. It was referred to the Executive Committee along with the motion "THAT a physician in each town or village spend one half to one hour a week during the school year speaking to pupils of key grades (7-11) on what he has seen alcohol do to some of his patients over a period of 10 to 30 years in his practice. This might be an excellent way for Society members to diminish the ten percent of drinkers who become alcoholics."

**EDITORIAL BOARD REPORT:** Dr. B. J. S. Grogono reported to Council that the Bulletin was continuing to produce a medical journal of very high standards. Dr. Grogono urged physicians from all parts of the Province to become more involved in production of the Bulletin and, in particular, to submit articles for publication. His recommendation "THAT the annual subscription dues allocated to the Bulletin be increased to \$10.00 to cover expenses as outlined in the Budget" was approved.

**EMERGENCY MEDICAL SERVICES REPORT:** Dr. D. P. Petrie was not available to present his report. It was referred to the Executive Committee.

**ETHICS COMMITTEE REPORT:** Dr. R. L. Langdon informed Council that his Committee had been involved extensively in matters relating to physician advertising and physicians communicating with the public through the news media. His report indicated that the Provincial Medical Board was in the process of preparing a Code of Ethics as required by the Statutes. The subject of Rules, Regulations, Guidelines, and Ethics was discussed at length, as was the matter of the extent to which the Medical Society is involved in the development of P.M.B. Regulations. It was the view of Council that Provincial Medical Board Regulations should be recognized for what they are and NOT as ethics, which in reality are unenforceable by law. It was "RESOLVED THAT The Medical Society of Nova Scotia NOT accept any Provincial Medical Board Rules or Regulations as a Code of Ethics for physicians in this Province, but that they would be recognized as Rules and Regulations governing the practice of medicine in Nova Scotia." Dr. Quigley commented on the considerable extent to which the Medical Society is involved with the Provincial Medical Board in development of Regulations to the Medical Act. He noted that in some instances changes in this respect have been at Society initiative. He assured the Medical Society that any action with respect to development of a Code of Ethics would be in co-operation with the Medical Society.

**FACULTY OF MEDICINE LIAISON COMMITTEE REPORT:** Dr. J. F. Hamm presented this report on behalf of Dr. D. B. O'Brien, Chairman, who was unable to be present. Dr. Hamm reported that the Society has enjoyed excellent relations with the Dean and his staff. He pointed to the value of continuation of this Committee as it provides a forum for discussion, but not decision, of items of interest to both the Faculty and the Society.

Council approved a recommendation that the Faculty of Medicine Liaison Committee continue as an active committee of The Medical Society of Nova Scotia.

**FINANCE COMMITTEE REPORT:** Dr. P. D. Jackson reported that the Finance Committee had reviewed the Society honorarium schedule and recommended an increase for members serving on the Economics Committee of the Officers. Council approved the revised honorarium schedule as set out in his report.

Council approved the financial statements of The Medical Society of Nova Scotia for fiscal year ending 1977. Council also approved that H. R. Doane and Company be retained as The Medical Society of Nova Scotia auditors for the year 1978.

The Finance Committee recommended that the Society should budget on a longer term basis in relation to its income requirements. Dr. Jackson pointed to the necessity to operate at a profit and also to develop and maintain a reserve of funds for the unexpected. He suggested that this development of reserves be done on a regulated basis and recommended that Council authorize that membership dues be increased automatically on an annual basis in relation to the Consumer Price Index. This proposal was discussed at some length with it being agreed that Council was really not in a position to commit its members for many years in the future. Dr. Jackson was asked to speak later in the meeting relative to the specific increase required for fiscal year 1979 (commencing 1 October 1978). Later in the Meeting Council approved a recommendation "THAT the membership dues for all categories of Society membership be increased by eight percent (8%) effective October 1, 1978 for fiscal year 1979."

**MEDIATION COMMITTEE REPORT:** Dr. Mason expressed his sincere appreciation to Society Branch Presidents for their co-operation in dealing with the difficult, time-consuming and distasteful task of mediating complaints. He reported that the volume of complaints received at the Society office continues at the same high level. The complaints take a variety of forms but for the most part can be generally categorized as doctor/patient relationship problems. He added that another category of significance and concern are those complaints relating to quality of patient care. Dr. Mason expressed special concern regarding the side-effects these individual incidents will have, observing that the actions of a few members reflects on the entire profession. Dr. Mason urged all members to keep in the forefront of their thoughts the extreme importance of good doctor/patient relationships.

**MEDICAL EDUCATION COMMITTEE REPORT:** Dr. J. D. A. Henshaw reported on the series of meetings held with all Branches during the year at which time he and Dr. R. Wayne Putnam, Director of the Division of Continuing Medical Education — Dalhousie University, and Dr. Mason had spoken on the subject of Funding of Continuing Medical Education. The purpose of these presentations was to provide factual information on the sources of funding the C.M.E. Division of Dalhousie University, to demonstrate how the funds available are spent, to give an overview of alternative methods of funding currently used in Canada, and to encourage discussion and suggestions from Society members with a view to obtaining a consensus of opinion that could be used to direct future trends. He also spoke on the success of the fund-raising operations conducted by the Division and Medical Society staff. Referring to the recent Provincial Medical Board increase in its Grant in the amount of \$5,000. He informed Council that the bulk of this money would be used to defray the costs of community hospital programs in the smaller and more remote communities.

His recommendations that the Society continue to provide active support to the Continuing Medical Education Division, Dalhousie University; and that the Society accord a vote of thanks to Messrs. D. D. Peacocke and C. S. Redden for their fund-raising activities during the past year were approved.

At this point the question arose as to what action the Medical Society was taking regarding The Canadian Medical Association's endorsement of development of Regional Councils for Continuing Medical Education. It was pointed out that this matter had been referred to the Medical Education Committee by the Executive Committee of the Society but to this point no decision had yet been made. It was agreed that the Medical Education Committee should review the proposal and submit its recommendations to the Executive Committee for further consideration.



**MEMBERSHIP SERVICES COMMITTEE REPORT:** Dr. E. G. Nurse reviewed the contents of his report referring in particular to the significant change negotiated relative to the wording of total disability. He urged all participants and non-participants of the Medical Society Program to review this in relation to their own requirements. His report provided considerable detail on the subject of increasing membership in the Medical Society and participation in the Insurance Programs.

**NUTRITION COMMITTEE REPORT:** Dr. J. T. Hindmarsh's report referred to the problem of nutrition education in schools and gained Council's approval of his recommendation that an approach be made by the Committee to the Department of Education to allow a review to be conducted of nutrition teaching in Nova Scotia schools.

Dr. Hindmarsh also pointed to the subject of eating habits of school children, referring especially to junk food as being a principal factor in the cause of cardiovascular disease. He urged physicians to involve themselves in rectifying this situation.

**OCCUPATIONAL MEDICINE COMMITTEE REPORT:** Dr. A. Prossin provided Council with a detailed briefing on the activities of his Committee over the past year on both the Provincial and National scene. In particular he referred to development of educational programs being devised which would provide information to both industry and various categories of occupational health and safety personnel.

**PAP SMEAR COMMITTEE REPORT:** Dr. R. C. Fraser was not present to present his report and it was referred to the Executive Committee.

**PHARMACY COMMITTEE REPORT:** Dr. G. C. Jollymore spoke to a point of principal concern to his Committee, this being the rights of physicians in relation to prescribing of drugs. He indicated that this status was threatened by not only legislation, for example, product selection, but by omission on the physician's part.

**PHYSICAL FITNESS COMMITTEE REPORT:** Dr. M. G. Shaw in pointing to the original committee mandate that it first try to encourage an increase in fitness of Society members and secondly, to try and increase the fitness of the general public, commented that the committee felt it had succeeded in increasing member awareness of fitness and that on the long term this would undoubtedly have benefits. He provided the membership with comments relative to the Society's sponsorship of Orienteering which he described as a car rally without the car. He described the Society's involvement in this promotion as one of considerable value which would have extensive benefit to the Society. He also pointed to a project which would encourage competition between doctors and lawyers as was once the case. His recommendations that the Society proceed with the idea of the doctor/lawyer fitness competition, that the Society continue to support Orienteering, and that Society Branch Medical Societies be encouraged to sponsor some local fitness event were approved. In so doing, Council suggested that in relation to the third recommendation there should be encouragement to the unfit when promoting local athletic events.

**PRESIDENTS' LIAISON COMMITTEE REPORT:** Dr. W. F. Mason, in referring to his published report, spoke briefly on significant points therein. In particular he expressed concern with the failure of some physicians to maintain membership in The Medical Society of Nova Scotia. He explained to the meeting how Branch Presidents, Secretaries, Section Chairmen, and Branch Representatives to the Executive Committee are being provided with updated lists of non-members along with encouragement to have them join the Society. Discussions on this subject were lengthy and warm, with many members expressing dissatisfaction with those physicians who benefited from the efforts of members. A motion "THAT in the future when The Medical Society of Nova Scotia negotiates fee increases with the Government of Nova Scotia that any monies obtained from such negotiations be divided amongst its members only." was put

and discussed for the principal purpose of placing on record the dissatisfaction of the members with the non-members. The motion was referred to the Executive Committee for ongoing action.

The subject of compulsory membership was raised and discussed briefly with the notation that the Cape Breton Medical Society was contemplating making membership in The Medical Society of Nova Scotia Compulsory for its Branch members.

The subject of Spruce Budworm Spraying was raised and spoken to at length by Dr. O. A. Hayne. It was presumed that this was an effort to cause the Medical Society to alter its position issued in early 1977. Dr. A. M. Sinclair spoke on the medical hazards relative to use of sprays against spruce budworm. Dr. Mason then read the Society's statement and Council reaffirmed its stand as set out in January 5, 1977 Press Release which reads as follows: "In a statement released today, Dr. W. F. Mason, President of The Medical Society of Nova Scotia stated, "On examination of scientific evidence, the Medical Society believes that there is a significant hazard to the human nervous system and liver from several compounds presently used to fight Spruce Budworm infestation.

"That a number of countries have banned aerial spray programs is significant" he stated, "Sweden, for example, banned aerial spraying in 1969.

"We urge that authorities give most serious consideration to the medical aspects of any program designed to alleviate any infestations such as the Spruce Budworm."

**PUBLIC RELATIONS COMMITTEE REPORT:** Dr. D. V. Wiloughby was absent attending Royal College Examinations in Ontario. His report was referred to the Executive Committee.

**SALARIED PHYSICIANS COMMITTEE REPORT:** Dr. M. A. MacAulay described the work of the Committee over the past year pointing out that several groups of Salaried Physicians have requested that the Medical Society negotiate or consult on their behalf. He indicated that a representative of a group of physicians working for Dalhousie University recently met with the Committee Chairman to discuss this matter. This was the first contact the Committee had with Dalhousie staff.

Council approved two recommendations, one, that the Salaried Physicians Committee should continue to assist in the preparation of position papers for salary negotiations and consultations, and two, that the Committee should continue to serve as an information source for salaried physicians.

**WORKMEN'S COMPENSATION BOARD LIAISON COMMITTEE REPORT:** Dr. G. J. H. Colwell informed Council that his Committee along with Officers of the Society had met with the new Chairman of the Workmen's Compensation Board. Arising out of these discussions were some very significant concessions in terms of fees on the part of the W.C.B. He pointed out that President's Letter No. 12 dated November 14, 1977 contained the details of the results of these negotiations.

**EXECUTIVE COMMITTEE CHAIRMAN'S REPORT:** Dr. B. J. Steele referred to his report, noting that it was a summation of the activities of the Executive Committee over the past year. The Committee had met six times. A member, pointing to a recommendation approved by the Executive "that physicians endorse the use of placental localization prior to initial amniocentesis", said that he understood there was no difference in mortality rate between groups which did and did not have this done. There being no one present to discuss this point, Dr. Steele agreed that it would be looked into further. Concern was also expressed with the Dalhousie Department of Obstetrics and Gynaecology Newsletter which is circulated from time to time with no signature. The most recent one, of October 1977, recommended the use of ultrasound at a specific point in pregnancy and under certain circumstances. It was felt that this could have serious ramifications if allowed to go unchallenged. Dr. George agreed to provide the Medical Society with further information and a specific recommendation on this subject.



Dr. M. G. Shaw expressed concern that members would choose to raise issues such as the foregoing at General Council. He expressed the view that members should communicate with the Society on these problems immediately they arise so that they can be considered by the appropriate committees and then reported on at Council.

**EXECUTIVE SECRETARY'S REPORT:** Mr. D. D. Peacocke in presenting his report, referred to the Dr. Garnett W. Turner Memorial Trust Fund noting that it had risen very little in the past year. He reminded members that a donation to this fund was deductible for tax purposes and encouraged its use when the appropriate occasion arose. He also referred to the participation by himself and Mr. Schellinck in a Medical Student Program of the Faculty of Medicine, Dalhousie University, expressing the view that on a long term basis this participation would be beneficial in terms of Society membership.

**REPORT OF MSNS REPRESENTATIVE TO C.M.A. BOARD OF DIRECTORS:** Dr. E. V. Rafuse in his report summarized the activities of C.M.A. during the past year which would be of particular interest to all Nova Scotia physicians. Such topics included Federal Bills regarding Funding of Health and Social Security Services, the Canada Health Survey, Manpower, Negotiations, and Revision of Council Structure to name a few.

Dr. Rafuse pointed with concern to the rising number of graduates of Canadian Medical Schools leaving Canada to practice in the United States. In 1977 the number of physicians leaving Canada will equal the number of graduates of all medical schools west of Ontario.

**REPORT OF MSNS REPRESENTATIVE TO C.M.A. COUNCIL ON COMMUNITY HEALTH:** Dr. M. A. Smith updated the membership on activities in which his Council has been involved. These included Immunization, the Canada Health Survey, Abortion, and Smoking. His report indicated an active year for 1978 and he welcomed any suggestions for topics which his Council should discuss.

**REPORT OF MSNS REPRESENTATIVE TO C.M.A. COUNCIL ON MEDICAL ECONOMICS:** Dr. P. E. Kinsman reported that his Council is concerned particularly with the unhealthy financial situation of Canadian physicians. He indicated that during this coming year his Council would be more concerned with developing long term policy in this regard as opposed to dealing with specific matters such as payment methods and other day-to-day details.

Dr. Kinsman's reference to computer technology drew discussion and pointed to the possibility that in the future the Medical Society might wish to establish a Committee on Computer Technology which would have the purpose of advising membership on trends and developments in this respect.

**REPORT OF MSNS REPRESENTATIVE TO C.M.A. COUNCIL ON MEDICAL EDUCATION:** Dr. B. L. Reid raised the subject of the formation of a Regional Continuing Medical Education Council. He encouraged the formation of this Council but noted the various implications implied in establishing such a Council. He felt that if formed it should include New Brunswick and Prince Edward Island. It was resolved by Council that the matter of formation of a Regional Council for Continuing Medical Education be referred to the Executive Committee for consideration.

**REPORT OF MSNS REPRESENTATIVE TO C.M.A. COUNCIL ON MEDICAL SERVICES:** Dr. J. A. George in his report indicated the nature of topics considered by his Council during the past year. These included the effect of budgetary restraints on provision of medical services, vitamin therapy, and bendectin and its possible link with birth defects.

**REPORT OF MSNS REPRESENTATIVE TO M.D. MANAGEMENT LIMITED:** Dr. G. A. Sapp encouraged physicians to consider increasing their participation in M.D. Management physician counselling services and educational programs. He noted these were heavily attended in other parts of Canada and suggested that problems for Nova Scotia physicians would likely be equal to that of other doctors in Canada.

In resigning as Nova Scotia's representative, Dr. Sapp pointed to what he considered shortcomings of the M. D. Board of Management. Specifically, he referred to the long tenure of the members and a proposal from the Board that there be a minimum age for members. The Society urged its representative to the C.M.A. Board of Directors to concern itself with the points raised by Dr. Sapp.

**REPORT OF MSNS REPRESENTATIVE TO COMMUNICABLE DISEASE CONTROL ADVISORY COMMITTEE:** Dr. Margaret E. Churchill reported on meetings held to discuss establishment of a Central Immunization Registry and development of improved programs for protection against Rubella. Progress on these items is reported elsewhere.

**REPORT OF MSNS REPRESENTATIVE TO LIAISON COMMITTEE ON NURSING:** Dr. Macadam Duncan presented a detailed and lengthy report which was first seen by Council at the meeting. It was received for information and referred to the Executive Committee for study; this included the recommendation "THAT the Interim Guidelines for Total Parenteral Nutrition (Hyperalimentation) as prepared by the R.N.A.N.S. and revised at Medical Nursing Liaison Meeting on October 25, 1977 be referred to the Executive Committee of the MSNS for further study and action as it deems appropriate."

**REPORT OF PRESIDENT OF MARITIME MEDICAL CARE INC.:** Dr. A. N. Lamplugh reported on behalf of Dr. C. Donald Vair who was absent from the City. A member raised the question as to why the toll free inquiry number was not in fact toll free. Dr. Lamplugh indicated he would investigate this matter.

Maritime Medical Care Inc. was criticized for authoring the recent letter to all physicians regarding physicians' prescribing habits, noting that this had come to public attention and had done physicians very little good. It was clarified that the Commission had directed Maritime Medical Care Inc. to prepare and issue the letter, and that the Medical Society had been privy to the letter before it was sent out.

**REPORT OF MSNS REPRESENTATIVE TO JOINT LABORATORY SERVICES COMMITTEE:** Dr. G. A. Merten's report was received for information. Matters discussed by the Committee included (1) The Statistics Canada Schedule of Unit Values for Clinical Laboratory Services; (2) Safety Programs for Hospital Laboratories; (3) Standards Evaluation Programs; (4) Future developments of Laboratory Services in Nova Scotia.

**REPORT OF MSNS REPRESENTATIVE TO MEDICAL ADVISORY COMMITTEE ON DRIVER LICENSING:** The report of Drs. C. C. Giffin and L. P. M. Heffernan was received for information and in their absence referred to the Executive Committee.

**REPORT OF MSNS REPRESENTATIVE TO NOVA SCOTIA LUNG ASSOCIATION:** Dr. F. J. Misener's report, in his absence, was referred to the Executive Committee.

**REPORT OF MSNS REPRESENTATIVES TO PHARMACY REVIEW COMMITTEE:** Dr. H. I. MacGregor reported that he and Dr. Slipp had attempted to present the views of the members of the Society in all discussions pertaining to the Pharmacare Program.

**REPORT OF MSNS REPRESENTATIVE TO PROVINCIAL HEALTH MANPOWER CO-ORDINATING COMMITTEE:** Dr. A. J. MacLeod highlighted events of significance occurring during the past



year in relation to manpower. He pointed to the establishment of the Atlantic Provinces Co-ordinating Committee for Health Manpower, membership of which comprised delegates from the four medical societies, the four licensing boards, the four health manpower co-ordinating committees, and two faculties of medicine. It was attempting to gain recognition as an advisory body to the Atlantic Provinces Deputy Ministers' Conference. He also referred to the very active committee dealing with physician manpower in relation to specific cases of applications for immigration. He noted, too, that the committee was responsible for studying Residency establishments.

**REPORT OF MSNS REPRESENTATIVE TO PROVINCIAL MEDICAL BOARD:** Dr. H. J. Bland presented his report for information and pointed to a specific problem that the Board was concerned about; namely, the issuing of blank prescriptions signed by the physician to be filled out by the pharmacist. He indicated that this may have been acceptable in the old days in small communities but was no longer so. He encouraged all physicians to comply in all respects with the appropriate regulations.

He commented further on the development of a Code of Ethics and Regulations by the Board indicating that the Medical Society would be consulted on this subject.

**REPORT OF MSNS REPRESENTATIVES TO PROVINCIAL MEDICAL BOARD REHABILITATION COMMITTEE:** This report by Drs. C. C. Giffin and D. K. Murray was received for information.

**REPORT OF RH COMMITTEE DIRECTOR:** Dr. R. S. Grant's report was received for information and referred to the Executive Committee for consideration of its recommendations.

**SECTION FOR ANAESTHESIA REPORT:** Dr. D. D. Imrie was unable to be present therefore his report was received for information, and referred to the Executive Committee.

**SECTION FOR GENERAL PRACTICE REPORT:** Dr. R. D. Stuart referred to the productive meeting held with the Faculty of Medicine/Department of Medicine/Department of Surgery of Dalhousie University on the subject of difficulties relating to referrals reports and general co-ordination between practicing physicians and University physicians. He noted an article on this subject will appear in the Bulletin. One member expressed concern regarding the lack of effective communications between the Section and its members. Dr. Stuart informed the meeting that his Section was aware of this and attempting to rectify the situation by updating its membership list and mailing system.

**SECTION FOR OPHTHALMOLOGY REPORT:** Dr. E. V. Rafuse reported that during the year the Section for Ophthalmology and Otolaryngology had been split and a separate Ophthalmology Section organized.

He pointed to the continuing shortage and maldistribution of ophthalmologists in Nova Scotia.

**SECTION FOR OTOLARYNGOLOGY REPORT:** Dr. K. E. Walling reported on the fact that the Section for Otolaryngology had been established during the year. He indicated that work was progressing in relation to the Fee Schedule and the Section is discussing the feasibility of establishing a Peer Review Group within the Section to deal with matters in this area.

**SECTION FOR PAEDIATRICS REPORT:** Dr. N. P. Kenny informed Council that her Section had participated in studying manpower requirements for the Maritimes during the past year. Also of concern to the Section were Fee Schedule matters, Immunization, and Child Abuse.

Council approved two recommendations, one "THAT the Society support ongoing study into the problems of manpower requirements with special attention to geographic maldistribution, and the need for

primary care versus consultant practitioners." and two, "THAT the Society support efforts to ensure that Fee Schedules are just and sufficient for preventive health care and chronic illness in addition to acute care needs.

The Section recommendation that the Society support and encourage the concept of a Central Register for Immunization Information as a first step in approving immunization status, and endorsement of the concept of a physician resource person in Branch Societies for dealing with problems of Child Abuse were considered superfluous as they had been approved under a previous report.

**SECTION FOR PATHOLOGY REPORT:** Dr. I. Kerner's report was presented by Dr. G. H. Anderson in her absence. Matters discussed by the Section were similar to those discussed within the Joint Laboratory Services Committee.

**SECTION FOR PSYCHIATRY REPORT:** Dr. C. E. Taylor in presenting his report referred to the Section's interest in the matter of remuneration for indirect services. This was discussed at some length and concern was expressed that this may be too widely interpreted and physicians might begin to charge for services they have traditionally provided — such as service on hospital boards and committees. Dr. Taylor explained that the reference was to such things as child psychiatrists conferring with other health workers in relation to a patient's care. Dr. Hamm informed the meeting that this subject had been raised with the Commission but no decisions or courses of action yet established.

It was also reported that the recently-introduced Federal Health Social Services Act had been put aside — likely permanently.

**SECTION FOR RADIOLOGY REPORT:** Dr. A. J. Johnson raised a particular point of concern to radiologists, this being the subject of By-Laws and the effect that they could have on physicians such as radiologists who were unable to practice outside hospitals. The subject of Hospital By-Laws was discussed at some length, and it was pointed out to the membership the extent to which the Medical Society had been involved in attempting to rationalize this problem during the past year. Dr. Steele informed Council that the Medical Society would be meeting with the Minister of Health in the near future to discuss this very critical subject further. Two resolutions were passed, these being "THAT The Medical Society of Nova Scotia examine the Department of Health Guidelines to Hospital By-Laws as to their impact on hospital-based physicians in solo practice reaching retirement age." and "THAT General Council of The Medical Society of Nova Scotia strongly deplore the attempted exclusion of doctors from continued membership on active staff, and that no specific age be mentioned; and that this be referred to the Executive Committee for further action."

**SECTION FOR SURGERY REPORT:** Dr. B. J. Steele in his report referred to consideration by his Section of the establishment of a Trust Fund in tribute to a deceased member. The Section was asked to consider this matter further and report to the Society, perhaps proposing an all-encompassing Trust Fund which could pay tribute to all deceased members.

**NEW BUSINESS:** It was moved by The Medical Society of Nova Scotia that the Society officially thank Dr. C. L. Gosse, Lieutenant Governor of Nova Scotia, for his kind hospitality on Thursday, November 17, 1977 and in the past.

It was moved that a suitable plaque be presented to all living past presidents and deceased past presidents' wives of The Medical Society of Nova Scotia, and all future presidents at the end of their term in office. This resolution was referred to the Executive Committee of the Society for action.

Concern was expressed by a number of members over the failure of Committee Chairmen or representatives to be present at Council to not only present their reports but to speak to matters which might arise from their reports during the debate of other reports. It was



RESOLVED THAT members of Council next year have informed alternates available to make reports on their behalf if they are unable to be present.

**ANNUAL MEETING:** On two occasions during Council the Society was called to order in Session of the Annual Meeting to ratify the actions of Council and to hear the President's Valedictory Address which appears subsequent to these Transactions. Additionally, the membership heard and approved the report of the Nominating Committee which reads as follows: **Appointment of Branch Representatives to the 1978 Executive Committee** — Antigonish-Guysborough — Dr. J. E. Howard; Cape Breton — Drs. M. R. Rajani & M. A. Smith; Colchester East Hants — Dr. R. C. D. Stewart; Cumberland — Dr. R. M. Washburn; Dartmouth — Drs. J. P. Savage & J. W. MacDonald; Eastern Shore — Dr. A. C. Marshall; Halifax — Drs. E. V. Rafuse, M. G. Shaw & B. D. Byrne; Bedford/Sackville — Dr. James Fraser; Inverness-Victoria — Dr. J. O. Belen; Lunenburg-Queens — Dr. M. S. McQuigge; Pictou — Dr. D. R. MacLean; Shelburne — Dr. R. C. Montgomery; Valley — Drs. P. Goddard & G. H. Ross; Western — Dr. D. M. Deveau.

**The 1978 Nominating Committee members were approved as follows:** Antigonish-Guysborough — Dr. J. E. Howard; Cape Breton — Drs. P. D. Jackson & L. A. Skinner; Colchester East Hants — Dr. A. C. H. Crowe; Cumberland — Dr. A. Elmik; Dartmouth — Drs. J. W. MacDonald & H. P. Poulos; Eastern Shore — Dr. P. B. Jardine; Halifax — Drs. E. V. Rafuse, M. G. Shaw & B. D. Byrne; Bedford/Sackville — Dr. S. M. Woolf; Inverness-Victoria — Dr. R. Stokes; Lunenburg-Queens — Dr. D. W. Morse; Pictou — Dr. D. G. Kirk; Valley — Drs. P. E. Kinsman & B. Carruthers; Shelburne — Dr. J. U. MacWilliam; Western — Dr. D. M. Deveau.

The following nominations were confirmed: President-Elect — Dr. B. J. Steele; Chairman, Executive Committee — Dr. M. A. Smith; Vice-Chairman, Executive Committee — Dr. M. E. Churchill; Treasurer — Dr. P. D. Jackson; Honorary Secretary — Dr. A. J. MacLeod.

Prior to addressing the Annual Meeting, Dr. Mason introduced Dr. J. H. Budd, President of The American Medical Association, who was visiting Nova Scotia as a special guest of the Society. An interview with Dr. Budd follows Dr. Mason's address.

The 124th Annual Meeting of The Medical Society of Nova Scotia Adjourned at 5:00 p.m., November 18, 1977. □



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# Presidential Valedictory Address, 1977

W. F. Mason, M.D.

Halifax, N.S.

It has been a pleasure and a privilege for me to have had the opportunity to serve you as your President for the past year. It has been a thoroughly enjoyable experience which has given me a different perspective on medicine and this province. I would like at the outset to thank Mr. Peacocke and Mr. Schellinck, as well as the secretarial staff for their help and guidance during this year. You have heard a succession of presidents do likewise. I suspect the staff knows that I am grateful for the work, but it is important for me to remind all of you of the good fortune we have to have such men as Mr. Peacocke and Mr. Schellinck managing our affairs. Their hard work and loyalty and the manner in which they conduct the business of our Society is a credit to us all.

I cannot in the time available to me speak to you on all the concerns I have with respect to our profession and our Society, but I would like to speak briefly about three of these matters.

First, with the advent of prepaid medical care in Canada, the greatest threat felt by many physicians was the possibility of losing the fee-for-service method of payment in favour of salaries. This has not come to pass and seems less likely now than a few years ago. A number of physicians in the province working in traditional fee-for-service situations, however, now appear to be opting for salaried positions rather than fee-for-service. I personally regret this move and doubt their wisdom in doing so; however, we cannot challenge their right to do so if they wish. The method by which this transition appears to be achieved is usually through some arrangement with a hospital. Such arrangements are already producing problems for the Society in defining the sharing of work and responsibility when these physicians work side by side with fee-earning physicians. To date, the planning for this change appears to be most haphazard. A number of questions have been raised, most of which will be obvious to you. Will these physicians be working 40 hour weeks while their colleagues are responsible for most, if not all, of the off-hour work? What if the fee-earning physician sees the patient of a salaried physician and then finds that he cannot be paid for the care through MSI? These are just two of the many questions which come to mind.

Our greatest concern, however, must be for the effects of this change on traditional patient care and to the profession. I have worked under both the salaried and the fee-for-service arrangement, and I can assure you, the latter is certainly preferable from a patients point of view in my opinion, and if you doubt any detrimental effects on the profession, you need only look at the situation in Great Britain. Is this possibly a method by which an ambitious administration of a hospital increases its scope of responsibility.

This leads me directly to my second point: The relationship between physicians and the community hospitals in which they work, or more particularly, the Boards of these hospitals. We live in an age where consumer participation is the byword and hospitals are no exception. The physician is recognized in some quarters as having only a selfish interest in the operation of hospitals and, more often than not, has no or inadequate representation on hospital boards. Between the often medically unsophisticated hospital board and the physicians who are responsible for making the system work, we have the hospital administrator whose star appears to be very much on the ascendancy.

Heavens knows, many hospitals will benefit greatly from the presence of a properly trained administrator. However, this must be kept in perspective. Expanding bureaucracy is not the solution to improving health. I find this trend disturbing and urge all physicians to recognize and accept their responsibilities and get involved in the management of their hospitals.

Administrators must be made to recognize the great value of physicians as a source of experience, information and leadership. The team concept must apply more broadly than to just those health personnel who have contact with the patient.

It is essential that physicians maintain a close working relationship with their board. Where representation on or to the board is inadequate, change it. Keep your eye on the target — the patient and his problem — and be sure that you — and not someone else as a result of your default — are directing his care.

My third point has to do with the emotional subject — money, and I promise not to dwell on it for too long. Too much time in our society in my view is spent haggling over money in one form or another. Nevertheless, I feel I must mention the changes which have taken place this year in the method of funding health care. You should all become conversant with the changes to understand from where the pressures will come in the future and why. Federal grants to the provincial government for post secondary education and health care appear to be much less protected at the provincial level than previously and we may well find that they are used for other purposes while continuing pressures are placed on the health care system to economize beyond a point which is realistic. Governments being made up of very human politicians tend to follow the policy of the "squeaky wheel getting the grease". It is not impossible to believe that without some safeguards much of this money may find its way into other budgets, for example highways or social services. An increasing amount of health care expenses are due to what we as physicians might consider ancillary services and are not, in fact, related to physician provided services. While we must certainly continue to do all we can to save money, much of this increasing expense is outside our control and I would contend that it is in these areas that most of the savings can be made. I would call on the Department of Health as well as the medical profession and hospital administrations to develop new methodologies to control our increasing health care costs. I believe this can be done. It is startling to realize that in this province it would cost in the region of \$700 to transport a patient from Cape Breton to Halifax and return by ambulance; perhaps even more startling is the cost of \$60 to transport patients the approximate three city blocks between the Halifax Infirmary and the Victoria General Hospital and return. It does not take much imagination to contemplate savings in this region. As the cost of diagnostic and therapeutic equipment increases to staggering amounts, we must make more efficient use of this equipment. No longer can we pay upwards of half a million dollars for a piece of equipment to have it operating on a six to eight hour a day basis. If private initiative can perform a function as well as the Department of Health at a significant saving, it should be encouraged to do so.

I have touched briefly on only three of the many problems that the medical profession faces; there are a number of others which are of equal importance. We have already begun to struggle with the question of manpower and the fact we may well have an oversupply of physicians in the near future. There are many others.

In closing, I would like to thank all of those Society members who have served on committees of the Society in the last year as well as to the branch presidents and their executives. It is your efforts which keeps the society strong. I thank you very much for the opportunity of having served as your President during this past year. It has been thoroughly enjoyable and it has been an experience I will never forget.

Thank you very much. □





# The Medical Society of Nova Scotia

## APPLICATION FOR MEMBERSHIP

NAME .....  
Surname Given names

ADDRESS .....  
..... POSTAL CODE .....

TELEPHONE NUMBER: Home ..... Office ..... SOCIAL SECURITY NUMBER .....

PLACE OF BIRTH ..... DATE OF BIRTH .....

MEDICAL SCHOOL ..... DATE OF GRADUATION .....

ARE YOU LICENSED IN N.S.? ..... DATE ISSUED ..... NUMBER .....

OTHER DEGREES .....

POST GRADUATE TRAINING .....  
.....

PRESENT TYPE OF PRACTICE .....

SECTIONS: Membership in the Society entitles you to make application for membership in the Section(s) of your choice. Please mark (Section(s) you may be interested in.

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Anaesthesia                         | <input type="checkbox"/> Paediatrics            | <input type="checkbox"/> Salaried Physicians          |
| <input type="checkbox"/> General Practice                    | <input type="checkbox"/> Pathology              | <input type="checkbox"/> Surgery                      |
| <input type="checkbox"/> Internal Medicine                   | <input type="checkbox"/> Psychiatry             | <input type="checkbox"/> Urology                      |
| <input type="checkbox"/> Ophthalmology and<br>Otolaryngology | <input type="checkbox"/> Radiology              | <input type="checkbox"/> Obstetrics and<br>Gynecology |
|  | <input type="checkbox"/> Internes and Residents |   |

ARE YOU A MEMBER OF  
A BRANCH SOCIETY? ..... WHICH BRANCH SOCIETY? .....

REMITTANCE ENCLOSED (See over for details of membership) \$ .....

DATE ..... SIGNATURE .....



# An Interview with the President of the American Medical Association

Elizabeth Shapter,\*

Halifax, N.S.

Doctor John H. Budd, President of the American Medical Association (AMA), was in Halifax to attend the annual meeting of the Nova Scotia Medical Society. At a private interview following the conference, Dr. Budd discussed major concerns of the AMA, including President Carter's promise of national health insurance for all, the use of laetrile and saccharin, and an issue of concern to Canadians — the loss of our doctors to the United States.

In the United States, the government provides health care through Medicare and Medicaid. Medicare covers people over age 65; participants pay a monthly premium as well as an initial deductible of the first day in hospital and a co-insurance during hospital stay. There is also an initial deductible on the doctor's bill. Patients can be covered for the deductible expenses through Blue Cross or commercial insurance plans. Also included in Medicare are people under age 65 who have been ill for as long as two years who have problems like end stage renal disease or are disabled.

Medicaid is provided for people under age 65 who are indigent. It is offered by the states with some federal assistance.

Costs for both plans are in excess of \$20 billion per year and rising; this is considerably above estimates when the plans were instituted.

Proposals for national health care in the United States have been made since about 1948 but the problem has recently gained prominence with Mr. Carter's promise of medical insurance for all Americans during his term of office. At present there are a number of approaches to realizing this goal.

At one extreme is the Kennedy — Corman Bill advocating total care with no participation in cost by the patient, with elimination of the private insurance industry and with total costs met by taxation from an increase in the Social Security Tax and monies from General Revenue. A member of the Congressional Budget Office has stated that a plan with these provisions would increase the government's health costs by \$168-200 billion per year. In the view of AMA this increase is exorbitant and would rob other essential areas like housing, transportation and defense.

The AMA finds itself at the opposite position. As Dr. Budd points out, they are in agreement with providing health care to all Americans but their plan for doing so would differ markedly from the Kennedy — Corman Bill. The AMA makes a basic distinction between a national health insurance and a national health service. In the latter, the government provides the service and the patient pays nothing directly; Dr. Budd and AMA feel that this type of program is not in the best interests of Americans. There is a strong determination to avoid the problems that such systems have created in the United Kingdom and Canada.

AMA favours the availability of health insurance for all. This is almost the case now since about 85% of Americans already have some form of health insurance, most of which is provided by private organizations. The considerable variety in existing plans allows both patients and doctors to choose what best suits their needs.

One major type of plan is provided by health maintenance organizations (HMOs), for example, the Kaiser Permanent Plan. In this plan, the patient pays an annual lump sum for coverage of medical care and hospital costs. Doctors working in the plan are salaried and receive yearly bonuses. In addition, the costs of their offices, nurses and malpractice insurance are paid by the plan. There are obvious advantages to these organizations. Many young

doctors in these plans do not face the costs of setting up their own practices although many do so after they are established. There is a specific incentive not to overtreat patients since monies remaining at the end of each year are paid to the doctors as bonuses. However, such plans have attracted only about 7 million Americans despite their long existence; the Kaiser plan has been in operation for 40 years. The reason for this is not any inadequacy in the plan but rather the desire of patients to select their physicians and not be restricted to those paid by the plan. Also, patients feel that they lack the personal attention given by a doctor they are specifically identified with. A major problem arises since HMOs are purchased by employers and serve the employed population almost exclusively; therefore, they avoid the very high health care costs incurred by the old, the poor and those requiring long term care.

The government would like to expand the HMOs. At one time they stated that the HMOs must have open enrollment for something like 30 days a year so that people otherwise uninsurable could enter the plans. They also required that such plans become comprehensive and include things like drug treatment, dental care, mental health care and crippled children care. A number of HMOs that tried to meet these requirements found the costs exorbitant despite greatly increased premiums and some went bankrupt. As a result, the government relaxed its requirements. At present there is a general feeling that HMOs are cheaper than other possible insurance schemes but this results from the limited population they serve and extension to all Americans would radically alter their service and costs.

Other types of insurance are really indemnification agreements. These guarantee a certain amount of money for hospital stay, X-rays, operations, etc. and usually mean payment in full. However, some plans deliberately do not pay total costs since some patients prefer not to pay such high premiums and meet the balance of expenses they incur themselves.

Most Americans are involved in a plan called UCR (usual customary or reasonable fee). Since each doctor sets his own fees in the United States and there is no fee schedule, the usual fee is the amount a specific physician usually charges for a particular procedure. The customary fee is what the insurance company sees to be the going rate for that procedure in the doctor's community. Payment to the doctor can go as high as the customary fee. However, in difficult cases, a physician may charge more than either the usual or customary fee and on the basis of the particular circumstances may claim that his fee is reasonable. If a group of doctors in the appeal court agree that the charges are indeed reasonable, the doctor is paid in full. Under this scheme, doctors are not informed of local customary rates since the plan is intended to encourage them to charge fees they feel are appropriate to the services they provide. This is part of the philosophy of individual freedom that is central to the practice of medicine and provision of health care in the United States. Dr. Budd feels the UCR works well and should be maintained despite the difficulties it creates for insurance companies who must set premiums.

## AMA Proposals

In essence, AMA does not wish to see major changes in the present insurance schemes. It is opposed to government run and financed health care and feels strongly that federal involvement in both the administration and financing of health services should be minimal. It is anxious to preserve the present system of private commercial insurance. Dr. Budd feels that pluralism is extremely important since a plan that suits one part of the country may not be

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best for another. Of great importance to AMA is preservation of the patient's freedom to choose his doctor and insurance plan, and the doctor's freedom to practise as he feels he should, subject to review by his peers. The present insurance must be extended and be made comprehensive to include both basic and catastrophic care. AMA feels there must be some cost containment measures that involve doctors as well as other people. Quality control of the system should be instituted by doctors and there is a need to strengthen the powers of licensing boards. At present, AMA does not grant licenses and therefore has no control over who can practise medicine in the United States.

Dr. Budd points out that many people assume that a national health insurance plan will reduce costs and improve the quality of health. He says both assumptions are false. By increasing availability and access to medical care, costs must rise. Even if the present system is generally maintained as AMA recommends, costs will increase by \$5-15 billion per year. As to improved health, since the most frequent causes of death from age 4-40 years are automobile accidents, other accidents, murders and suicide, there is little doctors can do to change the situation. Many people see unsolved social or life style problems as medical failures but Dr. Budd agrees with Canada's Minister of Health, the Honourable Marc Lalonde that they can be solved only by changing life styles and not by providing more access to medical care. Dr. Budd also states that many such problems are the result of medical successes rather than failures as diseases that formerly caused death are being managed and life prolonged, often at great financial cost.

Since AMA's credibility with Congress is very high at present, there is reasonable likelihood that many or all of its proposals will be included in extended health care but public meetings are currently being held throughout the country to allow the viewpoints of all who are involved to be expressed.

#### Other Problems

One of the most frequently asked questions recently is what AMA's position is on the use of laetrile. On this issue AMA is in complete agreement with Senator Kennedy who strongly opposes use of the drug. Dr. Budd points out that its value has not been shown and is concerned that patients who are being victimized by promoters of the drug may not be obtaining treatment that could benefit them.

Another issue that has caused great public interest is the use of saccharin. AMA does not recommend that the product be banned as in Canada. Rather, it recommends further studies using amounts of saccharin similar to those consumed by the average person. The Canadian reaction on this issue is seen as rather extreme.

#### Canadian Doctors Moving to the United States

When asked about the apparent recruitment of Canadian doctors, Dr. Budd stated that there was no policy to attract Canadians south. As a former Canadian himself, he is well aware of the acceptance of Canadian doctors in the United States. However, he sees few differences in the two countries that would provoke a mass exodus. The main reasons he feels Canadian physicians are leaving Canada are the prospect of less government control over the practice of medicine, discontent with socialized medicine in Canada and the appeal of a somewhat higher standard of living since salaries are generally higher and taxes somewhat lower in the United States. As to the American goal of the "pursuit of happiness", Dr. Budd feels that there are many unhappy Americans and that the level of contentment among people in general may be higher in Canada than in some parts of the United States. However, he has been grateful for his experience in the United States and feels that Canadians adapt very readily to life there.

Recruitment at present is being done by proprietary hospitals which are investor owned. These are popular in various states, for example, Tennessee, Texas and California, but do not exist in all states. They are business ventures that sell bonds and believe in the profit motive as a fact of good business. They are somewhat similar to the HMOs in that doctors are constrained not to over bill or over utilize facilities by their economic interest in the success of the venture. No doubt for some individuals there are advantages to this system.

As in Canada, entry of immigrant doctors has been restricted because of the difficulty of establishing the level of training at foreign medical schools. This, of course, does not apply to Canadians whose medical schools are accredited in the same manner as American schools. In the view of AMA there is no effort to induce Canadians to go south and the movement that exists is little more than one would expect when two countries exist in such close proximity. □

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## ANNUAL MEETING EXHIBITS

The Medical Society of Nova Scotia wishes to express its sincere appreciation to those firms which exhibited at our Annual Meeting in November 1977 at the Lord Nelson Hotel.

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Medical Society members appreciate the extensive financial contributions that exhibitors make toward defraying the costs of conducting an Annual Meeting. As well, the additional expense of preparing exhibits and arranging for the displays are also recognized. Most important, however, is the opportunity the exhibitors have given to members of the profession to meet with representatives of the various firms for discussion of new products and services available to them.

Members of the Society are encouraged to convey their gratitude by giving the exhibitors' representatives an extra expression of appreciation on the occasion of their next encounter. □



# A Central Immunization Record for Nova Scotia

Elizabeth Shapter,\*

Halifax, N.S.

Who immunizes whom? And even more important, who is not immunized? These are questions that cannot be fully answered and yet, the answers to them are necessary to maintain effective health care in Nova Scotia.

The provincial Department of Health, backed by The Medical Society of Nova Scotia, is attempting to create a central bank of immunization data for the province. Most primary immunizations are provided through family physicians, whereas, most booster immunizations are given by the Department. But there is no exchange of information between individual physicians and the Department and therefore, there is no complete set of records for most individuals. Of greater significance is the fact that there is no feasible means of tracking down those who have received no immunization and therefore are at high risk for preventable diseases, most of which can cause epidemics if there is a sufficiently large susceptible population.

Starting early in 1978, the Department will create a Central Registry of Immunization Statistics in which it will record all immunizations it provides along with equivalent information solicited from family physicians. The exchange of information will be reciprocal since the Department will record family physicians' names on consent for immunization forms required of all school age children and will then inform the various physicians of vaccines their patients have received. In this way, doctors will have complete immunization data for their patients and the Department will have a central bank of data for the province. It will then be possible to see the extent to which immunization programs have reached their target populations and who has not been immunized.

Recent testing in non representative groups has shown levels of immunization below 70% and in some cases as low as 50%. If testing were representative, one would probably find that 10-25% of the population are not immunized. However, it is impossible at this point to be sure what sort of gap actually exists. Since the Department has a very small role in primary immunization, it often comes into contact with children only when they reach school age at which time immunization data are taken from parents, based on their memory which is often of dubious accuracy.

Mobility of the population, especially in urban areas, is another obstacle to continuity of records. In the Bedford area alone, about 50% of infants born in 1974 had moved two years later. A central registry, however, would overcome this problem since complete immunization data would be easily available to physicians the children see after they move.

The mechanics of setting up and maintaining the registry will require a fairly large increase in the volume of clerical work done by the Department but will make little demand on the physician. It has been suggested that when doctors receive their vaccines from the

Department they be given a form on which information about recipients can be recorded as injections are given. These forms would require minimal information — patient's name and age, date of vaccination and MSI number — and could be completed by the receptionist/secretary. Consent forms used by the Department will include patient's name, age and family physician; date of vaccination; vaccine given and by whom and MSI number. The consent form for rubella (appendix I overleaf) is similar to forms that will be used for other immunizations. The Department will have the onerous tasks of informing all physicians of children they vaccinate about the immunization their patients have received and entering immunization information received from physicians on each individual's file in the public health nurse's record.

The central record will be conducted on a trial basis starting early in 1978 in the Northumberland, Fundy and Atlantic health units. During the summer of 1978 the Department will assess the development of the record so that needed amendments can be made. Participants will also be encouraged to criticize the program. If the mutual reporting system is working effectively, it will be extended to other parts of the province. The success of the central registry depends heavily on the willingness of physicians to supply the Department with the necessary information as well as on the Department's efficiency in informing physicians.

Although the value of the record at present is obvious, it is in the long term that it will be of most use. Five years after initiating the record (assuming the reciprocal exchange of information system works) the Department will have records of the key immunization years from birth to school age for most children in the province. It will then be possible to determine the gap between the target population and the number actually immunized. As the program develops, a means of tracking down those who do not have the recommended immunization and boosters can be built into the system. Although epidemics are almost forgotten in our society, there is growing concern that compliance in immunization is declining. Yet it is still apparent that immunization is necessary. For example, diphtheria has shown a resurgence throughout Canada and sporadic cases of poliomyelitis reported up to 1975 have given rise to speculation on the extent to which the wild virus is still in circulation and how readily it can be re-introduced. It is necessary therefore, that the Department be able to monitor the immunization status of the Nova Scotia population through a central record.

A further future benefit in the existence of a complete central record is the use that could be made of the facts recorded to compile statistics for large retrospective epidemiological studies. Ultimately these may be important in assessing patterns of immunization.

At present the record is a pilot project. If cooperation between physicians and the Department of Health is good, it will provide definite benefits to both. In the long run it will also benefit the people of Nova Scotia by allowing accurate assessment of immunization status throughout the province. □

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MEASLES — MUMPS — RUBELLA IMMUNIZATION**

Dear Parent or Guardian:

It is recommended that your child receive a dose of Measles — Mumps — Rubella (German Measles) vaccine at this time to increase his or her immunity or protection against these common diseases.

Children who are ill, who are on therapy for leukèmia or tumors, who are on steroid or cortisone-type drugs, or have rheumatoid arthritis, or who are sensitive to chicken or duck eggs or feathers, or on the antibiotic neomycin, should not receive this vaccine.

As with all vaccine there is a slight risk of some reaction.

Please contact the Public Health Nurse for more information if required.

**PERMISSION FOR IMMUNIZATION**

Name of Child	Grade	Home Room Teacher
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YES. I request my child be immunized.

NO. I request my child NOT be immunized

- If NO — (1) Is this because of recent immunization?  
If so, when and where was this performed?  
(2) If for other reason — please state

Date \_\_\_\_\_ Signed \_\_\_\_\_  
Parent or Guardian

PLEASE COMPLETE BOTH SIDES OF THIS FORM, SIGN, AND RETURN IT TO THE SCHOOL

IMM. 3-1/77

DO NOT DETACH

.....  
Please fill in the details required in the underlined spaces. This form will be completed by the Public Health Nurse, and sent to your family doctor for his/her records. Please be sure to clearly address the form where indicated on the reverse side.

Dear Doctor \_\_\_\_\_, Date \_\_\_\_\_  
Name of Family Doctor

Your patient \_\_\_\_\_ Age \_\_\_\_\_  
Name of Child

Address \_\_\_\_\_  
\_\_\_\_\_

was immunized today at \_\_\_\_\_ School  
with \_\_\_\_\_

M.M.R. (IMM.3-1/77)

Yours sincerely,  
P.H.N.



# Antithyroid Antibodies: Association with the Clinical Diagnosis

M. Catherine George,\* B.Sc.,  
Halifax, N.S.

Since the experimental production of organ specific antibodies to thyroid extract was reported in the mid-1950's, a variety of techniques have emerged to measure antithyroid antibodies. The tanned red cell hemagglutination technique has been the most generally used procedure for the estimation of antithyroglobulin (TG) antibodies. Recently, a similar procedure has been developed to detect antimitochondrial (MC) antibodies, replacing the former standard method, the complement fixation test. Several workers have found the microsomal hemagglutination test (MCHA) to be specific and sensitive for thyroid microsomal antibody, simpler to do than the complement fixation test, and as sensitive as the immunofluorescent technique.

In 1975, the Pathology Institute began measurement of anti-TG and anti-MC antibodies using the Kit Method of Fujizoki Pharmaceutical Co., Ltd., Tokyo. It was decided to look at the results of these tests performed over a one year period to see how these correlated with the clinical diagnosis.

## MATERIALS AND METHODS

The results of the TGHA and MCHA tests performed over the period from April 1975 to April 1976 were examined, as well as clinical and laboratory information available on individual patients.

## RESULTS

Over the twelve month period, a total of 132 tests were performed on 117 patients. Results are displayed in Tables I and II, and in Figure 1.

TABLE I

Clinical Diagnosis	No. of Cases	No. of Tests	Anti TG		Anti MC	
			pos	neg	pos	neg
Chronic Thyroiditis	23	26	8	18	25	1
Graves' Disease	28	30	3	27	22	8
Graves' Disease (Diagnosis uncertain)	2	2	—	2	—	2
Diffuse Nontoxic Goitre	15	15	—	15	10	5
Nontoxic Multinodular Goitre	8	11	—	11	4	7
Toxic Multinodular Goitre	2	2	—	2	1	1
Nodular Goitre with Thyroid cyst	1	1	—	1	1	—
Solitary Thyroid Nodule	3	4	—	4	1	3
Thyroid Adenoma	5	8	1	7	5	3
Papillary Carcinoma	2	2	—	2	1	1
Subacute Thyroiditis	2	4	—	4	—	4
Primary Hypothyroidism	7	7	1	6	3	4
Goitre with Lymphoma	1	1	—	1	1	—
Idiopathic TBG (familial)	1	1	—	1	1	—
Not Known	4	4	—	4	—	4
Euthyroid	13	14	—	14	3	11

\*Fourth-Year Medical Student, Dalhousie University, Halifax, N.S.

TABLE II

Clinical Diagnosis	Range of	
	Anti TG	Anti MC
Hashimoto's Thyroiditis	Neg-1:102,400	Neg-1:1,638,400
Graves' Disease	Neg-1:400	Neg-1:400
Diffuse Nontoxic Goitre	Neg.	Neg-1:102,400
Toxic Multinodular Goitre	Neg.	Neg-1:6400
Solitary Thyroid Nodule	Neg.	Neg-1:400
Adenoma	Neg-1:100	Neg-1:102,400
Carcinoma	Neg.	Neg-1:6400
Subacute Thyroiditis	Neg.	Neg.
Primary Hypothyroidism	Neg-1:100	Neg-1:1,638,400
Not Known	Neg.	Neg.
Euthyroid	Neg.	Neg-1:25,600

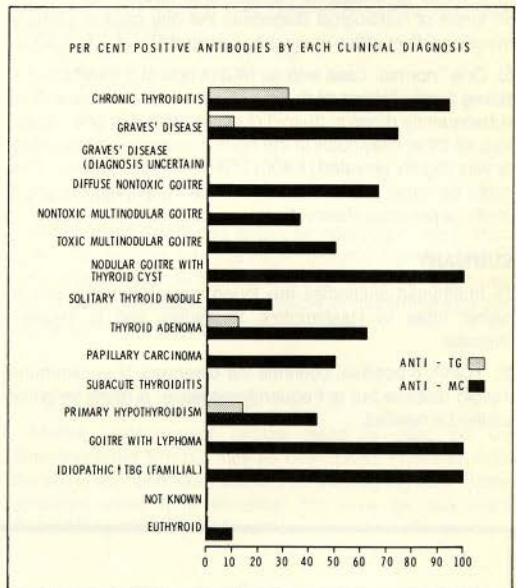


FIGURE 1

It can be observed that MCHA is more frequently positive than is TGHA; it should be noted that in all cases in which TGHA was positive, so was MCHA, i.e. there was no case in which TGHA alone was positive. The converse, however, is not true.

## DISCUSSION

From the above data, the following points emerge:

- 1) MCHA is more frequently positive than TGHA; it is positive even when TGHA is negative; it would appear that MCHA may be more useful in the diagnosis of thyroid



disease than TGHA. It has been suggested that doubling dilutions of serum instead of quadrupling them would provide a more accurate measurement of antibodies in the MCHA test<sup>7</sup>. Perhaps this might prove true for the TGHA test. It seems that TGHA is not as sensitive in detecting thyroid disease as is MCHA.

2) In the two clinical disorders (Hashimoto's Thyroiditis and Graves' Disease) in which antithyroid antibodies figure prominently, MCHA was positive in 94% of the former and 74% of the latter; TGHA was positive in only 31% of Hashimoto's and in 10% of Graves'; MCHA and TGHA are more consistently elevated and to a greater extent in autoimmune thyroid disease (i.e. Graves' and Hashimoto's).

3) MCHA titres span a wide range in both Hashimoto's (Negative- 1:1,638,400) and in Graves' Disease (Negative-1:102,400). Consequently it does not differentiate well between those diseases. In this series, MCHA titres were higher more often in Hashimoto's than in Graves'.

4) In the diagnostic category diffuse nontoxic goitre, 3 cases of MCHA were positive at a dilution of 1:25,600 and one was positive at a dilution of 1:102,400. Since these titres are so high, one suspects an underlying autoimmune disorder akin to Hashimoto's may be operative here.

5) It would be extremely interesting to further characterize (in terms of histological diagnosis) the one case of primary hypothyroidism with a maximally elevated titre (1:1,638,400).

6) One "normal" case with an MCHA titre of 1:25,600 had a strong family history of thyroid disease; this individual may subsequently develop thyroid disease. With this one exception, all other individuals in the normal category had negative or very slightly elevated (1:400) TGHA and MCHA titres. This might be expected for the normal healthy population and it confirms previous observations.

## SUMMARY

1) Antithyroid antibodies are found more frequently and in higher titres in Hashimoto's Thyroiditis and in Graves' Disease.

2) TGHA, if positive, confirms the diagnosis of autoimmune thyroid disease but is frequently negative; a more sensitive method is needed.

3) MCHA titres span a wide range and are positive in both Graves' and Hashimoto's; however in Hashimoto's the titre is higher.

4) With one exception, the normal population has negative or low levels of anti-TG and anti-MC antibodies. □

## Acknowledgements

Special thanks to Dr. E. Carl Abbott for the guidance he has given me in this project, to Dr. William Longley for providing me with the data for this project, and to Drs. Carl Abbott, Sonia Salisbury and Allan Shlossberg for help in providing the clinical diagnoses.

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# Slipped Capital Femoral Epiphysis

Douglas C. S. Brown,\* M.D., C.M., F.R.C.S.(C),  
Halifax, N.S.

During the rapid adolescent growth a shearing stress on a weakened epiphyseal plate may cause a sudden or gradual migration of the head (epiphysis).

The slip occurs through the zone of provisional calcification of the plate but the periosteum remains intact. The neck moves upward, rotating anteriorly to the anteverted position, resulting in a varus external rotation deformity. (or the head is said to move backward and downward).

## ETIOLOGY

The exact mechanism leading to slip is unknown. It is known that growth hormone weakens the plate and sex hormones strengthen it; so that rapid growth, or obesity with underdeveloped genitals (adiposogenital syndrome) may thus be explained (on an experimental basis) as clinical states more prone to slip.

Pathologic states such as renal osteodystrophy, osteomalacia, dyschondroplasia are more easily understood causes. In our series hypothyroidism, panhypopituitarism plus spondylo-epiphyseal dysplasia have been recognized in three patients. A fourth followed femoral osteotomy for angular deformity in a six year old but the exact mechanism was unknown.

The adolescent periosteum thins and the growth plate sometimes assumes a less horizontal position, which may result in less shear resistance. Variations in limb development have not been shown to predispose to slipping of the femoral epiphysis.

Finally, trauma often seems to be a factor, particularly in acute severe slips but often pre-slip symptoms were present. Athletic stress may well provide the chronic shear stress.

I.W.K. Hospital experience 1970-1975, suggest this is not a common diagnosis, though it is the leading disorder in adolescent hips. It was seen more commonly in males, but was seen bilaterally more commonly in females and more frequently in the overweight. (Table I)

TABLE I  
I.W.K. HOSPITAL 1970-1975

M	26	Bilateral 7	(Age 12-15=33)
F	11	Bilateral 5	(Under 12=4)
	37	Patients	
R	14		(Weight over 70kg. 30%)
L	11		over 60kg. 50%)
R&L	24		
	49	hips	

\*Assistant Professor, Department of Orthopaedic Surgery, Izaak Walton Killam Hospital for Children, Halifax, N.S.

## CLINICAL PRESENTATION

**History** — 26 patients had symptoms or signs for over four weeks (chronic). Symptoms may become more severe rapidly (acute on chronic). More commonly persistence of symptoms and signs lead to diagnosis on subsequent visits.

**Pain** — Hip pain is felt in the groin, thigh or knee. With gradual onset the latter is more common.

**Limp** — A subtle Trendelenburg gait is seen, the degree depending on severity of slip. With acute slips the child might be unable to walk. Asymptomatic slips are missed as evidenced by late recognition of the deformity in investigation of arthritic hips later in life.

**Examination** — The classical finding is limitation of internal rotation, the hip flexing in abduction and external rotation. Flexion deformity is not present. Adduction of the flexed hip is limited, when tested with the hip flexed at 90 degrees.

**Stages** — Pre-slip — wide epiphyseal plate, soft tissue swelling but no slip.

Minimal — less than 1 cm. slip

Moderate — more than  $\frac{2}{3}$  slip

Ten patients had moderate slips and two had acute severe slips.

## COMPLICATIONS

One patient developed avascular necrosis of the femoral head. No patients had cartilage necrosis. Followup is not long enough to know the incidence of arthritis in this series but is generally considered to follow in moderate slips and certainly in those left with severe deformity.

## RADIOLOGICAL FINDINGS

Medial displacement of the head is seen on the anteroposterior film but may be overlooked. However since the slip is so much more obvious on the frog leg view (flexed abducted view) it is essential this view be requested. Remodeling alters the neck contour.

TABLE II  
TREATMENT

Pre-operative Manipulation 3 of 10 severe slips

Operative	Knowles Pins	30
	Moore Prosthesis	16
	Smith Petersen nail	2
Osteotomy	Cervical	2
	Subtrochanteric	3
		53

2 patients had prophylactic contralateral pinning and 2 had secondary osteotomies resulting in 53 operations.



## TREATMENT

Conservative treatment is not recommended because of the danger of progression. When the slip is minimal or moderate, pinning is advised. (Threaded pins) Severe slips may be reduced before pinning but this increases the chances of complications. Deformity correcting osteotomies may be done at the time of pinning or later when the plate has fused. (Table II)

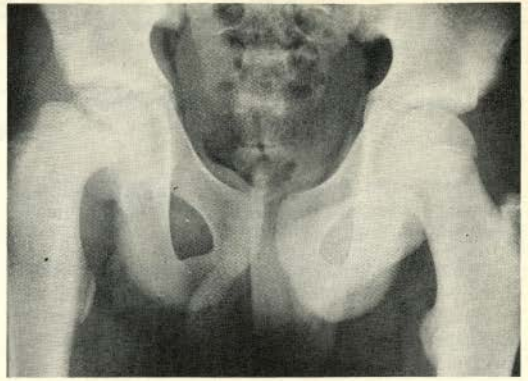
## CASE REPORTS

### Case I

This 14 year old boy had a minor injury with progressive disability, was finally unable to walk and was admitted with a two week history. Closed reduction and Knowles pin fixation gave a good result. Five months later without injury, he presented with a two-day history and was treated for a minimal contralateral slip.

### Case II

This 13 $\frac{1}{2}$  year old girl present with vague leg pain, (intermittent) and initial X-rays were considered normal. (II-A). One year later, following persistent symptoms X-rays showed progression. (II-B). She was treated by femoral osteotomy and her movement improved. Later following epiphyseal fusion, retrospective X-ray assessment indicated that she probably had a minimal asymptomatic contralateral slip just prior to fusion.



### CASE I

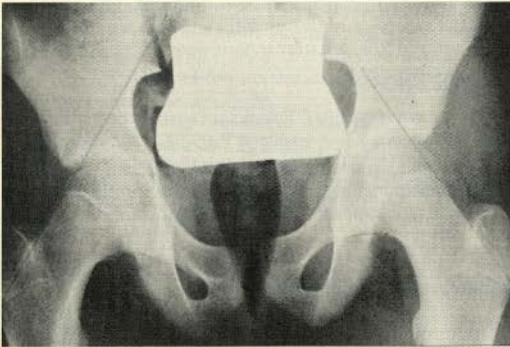
To show marked slip of femoral epiphysis in 14 year old boy.

These films show the minimal X-ray changes, the epiphysis migrating to touch Shenton's line and losing its bulge lateral to the femoral neck. The frog leg views are essential to demonstrate the slip more easily.

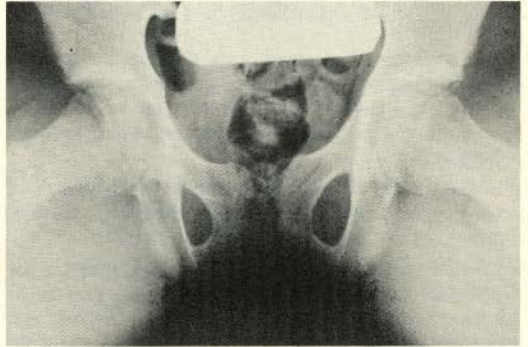
## SUMMARY

While this condition may not be common, it is essential that it be included in the differential diagnosis in teenagers who

*Continued on page 171.*



(A) Initial X-rays Ap. and lateral.



(B) One year later X-rays Ap. and lateral to show progression of Slip.



### CASE II

Slip of femoral epiphysis in 13 $\frac{1}{2}$  year old girl.



# The Practical Management of Acute Infantile Gastroenteritis

R. C. Tervo,\* M.D.

Hamilton, Ontario

## I. INTRODUCTION

Gastroenteritis is a common infectious disease in toddlers and infants. About one in every ten children under one year of age, brought to a general practitioner, suffers from diarrhea and although most infants with gastroenteritis are successfully managed at home, one in ten will require hospitalization.<sup>1,2</sup>

This report is a practical overview of the clinical assessment and management of the infant or young child who presents with gastroenteritis.

## II. ETIOLOGY

A human reovirus-like agent has emerged as the major pathogen associated with "winter" gastroenteritis in hospitalized infants and young children.<sup>3</sup> It may be isolated from stools in about one-half of these patients hospitalized for an acute diarrheal disease.<sup>4</sup> Salmonella, Shigella, invasive and toxigenic *E. coli* continue to be important bacterial pathogens.<sup>5</sup> Staphylococcal gastroenteritis occurs in outbreaks of food poisoning. In certain geographic areas, *Yersinia enterocolitica* is now as common a cause of bacterial diarrhea in children as Shingellosis. Infections not primarily of the gastrointestinal tract, such as otitis media or urinary tract infection, may have diarrhea as part of their overall presentation. Iatrogenic infections, such as staphylococcal or candida gastroenteritis, occur in the patient vigorously treated with antibiotics.

## III. CLINICAL ASSESSMENT

### A. CLINICAL EVALUATION

Decisions for managing gastroenteritis depend on an accurate clinical assessment. It is important to consider those features typical of gastroenteritis (Table I) and to exclude more serious intra-abdominal disease, such as pyloric stenosis or intussusception. Other illnesses, including otitis media, urinary tract infections, or meningitis, to which the diarrhea might be secondary, should be ruled out or treated.

Assessing the degree of dehydration and judging where management is best carried out are the next prime concerns.

### B. DEHYDRATION

Dehydration is the major important complication of gastroenteritis<sup>2</sup> and is due to the continued loss of water and electrolytes from the body.<sup>6</sup>

The type of dehydration may be categorized on the basis of the electrolyte alterations into isotonic, hypotonic, and hypertonic (Table II) and this classification is of practical importance. The child with hypertonic dehydration has a skin

constituency that is doughy or rubbery, and the evaluation of skin turgor may lead to an assessment of the dehydration that appears much less than anticipated by the history.

The type of body fluid imbalance may have consequences that can be predicted and prevented. Water shifts between the intracellular and extracellular fluid space in order to maintain osmotic equilibrium. In hypertonic dehydration, fluid moves out of the cells into the extracellular compartment and if this movement occurs quickly, cell shrinkage follows. This shrinkage in the brain can lead to the severing of bridging vessels and complications of intracranial hemorrhage, such as convulsions.

TABLE I  
CHARACTERISTICS OF INFANTILE VIRAL  
GASTROENTERITIS<sup>4</sup>

<b>Character of Infection</b>	
Incubation period	< 48 hours
Site of infection	villous epithelium upper small bowel crypts in severe cases cytoplasm of enterocyte
Epithelial localization	
<b>Character of Disease</b>	
Duration	4-5 days
Vomiting	+
Watery diarrhea	+
Frequent and severe in young	+
<b>Character of Mucosa</b>	
Structure (light microscopy)	variable normal to villous flattening
Mucosal enzymes: dissaccharidases	

## IV. PHYSIOLOGY OF THE ACID-BASE IMBALANCE WITH DEHYDRATION

The child with diarrhea and vomiting frequently has a metabolic acidosis. Bicarbonate ion is lost in the stool, and the kidney clears less hydrogen ion because of a decrease in glomerular filtration rate. Starvation and dehydration lead to the accumulation of ketoacids, while tissue anoxia via diminished perfusion causes an increase in lactic acid. Giving aspirin will further aggravate the acidosis. Continued milk feedings and the conversion of lactose to lactic acid by intestinal flora also add to the acid load.

## V. GUIDELINES FOR THE MANAGEMENT OF DEHYDRATION SECONDARY TO GASTROENTERITIS

There are four areas to consider when outlining an approach to rehydration in gastroenteritis:<sup>8</sup>

- i. volume loss
- ii. electrolyte changes
- iii. acid-base status
- iv. related metabolic disturbances

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**TABLE II**  
**CLINICAL PRESENTATION OF DEHYDRATION RELATED TO PLASMA TONICITY<sup>7</sup>**

	Isotonic	Hypertonic	Hypotonic
<b>History:</b>			
Onset of illness	Variable	Acute	Variable
Fever	Variable	High	Variable
Losses from diarrhea & vomiting	Conspicuous	Minimal or disproportionately great relative to physical signs	Conspicuous
<b>Physical Signs:</b>			
Skin turgor	Marked loss	Much less than anticipated from the history of fluid loss	Marked loss
Skin consistency	Soft	Rubbery	Soft
Fontanelle	Sunken	Sunken	Sunken
Eyeballs	Sunken	Sunken	Sunken
Pulse rate of tension	Rapid & poor	Rapid & bounding	Rapid & very thready
Onset of shock	Variable	Later	Early
Peripheral circulation	Poor	Relatively preserved	Very poor
Blood pressure	Low	Moderately low	Very low
CNS signs	Not common	Frequent & marked	Not common
Sensorium	Lethargic	Varying somnolence & irritability	Early coma

**A. GENERAL CONSIDERATIONS**

1. **Volume Loss** — The clinical features of dehydration relate to plasma tonicity, while the degree of dehydration may be expressed as a percentage of body weight, i.e., 5%, 10%, and 15%. (Table III). The habitus of thin or obese infants makes the clinical assessment of dehydration difficult and misleading, so to compensate, the estimate of the percent of acute body weight lost may be increased by 3% in fat infants and decreased by 3% in thin infants. A urine specific gravity may confirm the clinical impression as a specific gravity greater than 1.025 shows early renal compensation in an attempt to conserve water. The hematocrit or BUN are usually elevated when dehydration approaches 10%.

3. **Acid-Base Status** — Kussmaul breathing, a blotchy skin, and acetone breath all denote acidosis. Although these features are most likely due to dehydration, salicylism and diabetic ketoacidosis should also be considered.

The determination of blood gases help resolve this situation, and a venous sample will give useful values for pH and pCO<sub>2</sub>.

Glycosuria and ketonuria should raise the suspicion of diabetes mellitus.

4. **Related Metabolic Disturbances** — An abnormal serum glucose of calcium should be considered when there are convulsions or an altered state of consciousness.

**TABLE III**  
**DEGREE OF DEHYDRATION EXPRESSED IN VOLUME OF FLUID LOST EQUAL IN MASS TO BODY-WEIGHT<sup>6</sup>**

% of Body-Weight Lost	Severity	
<5	Mild	Some loss of skin turgor, no other signs and general condition good.
5	Moderate	Clear cut evidence of dehydration; looks ill. No signs of peripheral circulatory failure.
10	Severe	Gross dehydration with signs of peripheral circulatory failure.
>10	Critical	Severely shocked. Moribund.

2. **Electrolyte Changes** — The clinical features that correspond to electrolyte alterations have been outlined. (Table II). Convulsions are usually caused by the underlying disease, hypernatremia, associated metabolic disturbances, or too rapid a reduction of serum sodium.<sup>9</sup> Determining serum sodium, potassium, and chloride, as well as blood gases, are important aids in clinical management.

**TABLE IV**  
**PRINCIPLES OF TREATMENT OF DEHYDRATION**

Stage	Time	Purpose
I	0-2 hours	1. Restore blood volume. 2. Treatment of shock.
II	2-24 hours	1. Replace the remaining sodium and potassium deficit. 2. Partially correct the water deficit. 3. Partially correct the acid-base imbalance. 4. Maintenance requirements.
III	1-4 days	1. Complete replacements. 2. Maintenance requirements.
IV	4 days to 1-3 weeks	Restore body fat and protein

**B. MANAGEMENT**

1. **Less than 5% Dehydrated** — In the early phase of illness, the child who is 5% dehydrated does not need to be hospitalized and the following instructions may be given to the child's parents:



- a) There are many reasons for diarrhea and vomiting, but the dramatic loss of fluids from either cause must be made up by encouraging the child to take in as much liquid as possible while ill.
- b) The parent who is worried or who observes persisting diarrhea, particularly in a young child, should be encouraged to check with a doctor or hospital.
- c) Diet: Medicines are not helpful as they further irritate the gut.

Day 1-2:

- i. If the child is vomiting and has diarrhea, stop all food and milk. Give only clear fluids, such as clear soup, sugar and water, apple juice, clear tea, jello, ginger ale without bubbles, or any other suitable fluid for a full day.
- ii. Milk and food further irritate the gastrointestinal tract, but clear fluids allow time for the intestinal lining to heal.
- iii. The child will not starve with a short course of dietary fluids and no solids.

Day 2-3:

If the diarrhea is less severe, then add to the diet soft foods, such as apple sauce, crushed bananas, or rice pabulum mixed with water and crackers. This is a non-irritating diet which is also mildly constipating.

Day 3-4:

If the diarrhea has stopped, then gradually start a normal diet, adding milk last.

- d) Avoid high solute feedings, particularly boiled skim milk or whole milk, as the high solute load will result in an increase in obligatory water loss through the kidneys, exacerbating dehydration.

**2. Greater than or Equal to 5% Dehydrated** — The child who is more than 5% dehydrated requires hospitalization.

- a) *Stage I* — If the child is in shock, i.e., 10-15% dehydrated, the aim is to restore circulation and urine output to normal.

- 1. IV (normal saline) at 20 ml/kg in 1-2 hours or
- 2. plasma 10 ml/kg in 1 hour.

Deduct the amount calculated above from the fluid deficit to be replaced.

- b) *Stage II* — The child's fluid needs are now determined with the objective of returning the patient to a state of good health and eating a normal diet with adequate nutrients.

**1. Volume Loss** — The fluid requirements are calculated by adding maintenance requirements, calculated deficits, and ongoing losses.

- i. Maintenance Requirements — Appropriate volumes for body weight for each 24 hours are given as follows:

First 10 kg of body weight = 100 ml/kg/24 hours  
 Second 10 kg of body weight = 50 ml/kg/24 hours  
 Each subsequent 10 kg of body weight = 20 ml/kg/24 hours

- ii. Deficits — The amount of replacement fluid is calculated on the basis of known or estimated weight loss. Since one gm loss of body weight equals 1 ml of water deficit, the clinical assessment estimates the degree of dehydration. For example, a 10 kg infant who is 5% dehydrated requires 500 ml to replace his calculated deficits.

- iii. Ongoing Losses — An additional amount of fluid may be given to account for losses by diarrhea or vomiting. The requirements are estimated as follows:

- a) moderate loss = 10 ml/kg/24 hours
- b) severe loss = 25 ml/kg/24 hours

As a useful guide, when the appropriate fluid required for 24 hours is calculated, half the correction is administered over the first 8 hours. If the child is to be transferred to a referring hospital, the transferring team should record the water losses during the journey.

**2. Electrolyte Changes** — After the initial resuscitation, a hypotonic fluid may be used, such as 3.3% dextrose in 0.3% saline ( $\frac{2}{3}$  +  $\frac{1}{3}$ ) which will prevent excess electrolyte being given.

If the serum sodium is greater than 150 mEq, the deficits are corrected over 48 to 72 hours, with serum sodium not being lowered faster than 10 mEq per 24 hours. Again, a hypotonic intravenous solution, such as half strength saline or 3.3% dextrose and 0.3% saline may be used.<sup>8,11</sup>

Potassium may be added to the intravenous solution when the child has voided, then daily requirements are met by adding 5 mEq to every 250 ml of solution. If the serum potassium is low, as much as 40 mEq to every litre of intravenous solution may be used.

**3. Acid-Base Status** — A metabolic acidosis almost invariably accompanies gastroenteritis. This may be corrected when the child looks ill and the serum bicarbonate is less than or equal to 12 mEq/L. The amount required "x" is calculated as follows:

"x"  $\times$  .3 (one-half the distribution coefficient for serum bicarbonate)

x body weight (kg) = deficit in mEq  
 = number of ml of 7.5% sodium bicarbonate to be given

About 1 ml of 7.5% sodium bicarbonate is equivalent to .9 mEq of bicarbonate, so each mEq of bicarbonate need approximately equals 1 ml of 7.5% bicarbonate solution. This may be given at a rate of 1 mEq/min.

If the child is clinically acidotic and no blood gases are available, give 1 ml/kg body weight of 7.5% sodium bicarbonate IV push, and 1 ml/kg body weight in the IV solution and run over half an hour.

**4. Related Metabolic Disturbances**

- i. Hyperglycemia may be a complication of gastroenteritis. If the blood sugar is less than 650 mg% and there is no other evidence the patient has diabetes mellitus, no insulin should be given.



- ii. Hypoglycemia is a rare complication, documented with a blood sugar less than 40 mg%, which can be treated giving 2 ml of 50% Dextrose/kg IV push.
  - iii. Hypocalcemia is not treated unless the patient is symptomatic or the serum calcium is less than 6.0 mg%. To treat, give:
    - a) 10 ml of 10% calcium gluconate in 40 ml of basic fluid over 2 hours.
    - b) monitor the serum calciums.
5. **Summary** — The emergency management is summarized as follows:
- i. treat shock
  - ii. calculate a 24 hour fluid correction and give half the volume over the first 8 hours
  - iii. treat the acidosis
  - iv. beware of associated metabolic disturbances
  - v. communicate care to covering staff or referring hospital

## VI. OTHER CONSIDERATIONS

### A. ANTIBIOTICS

Most bacterial diarrheas are mild and self-limiting and their course is little affected by antimicrobial therapy. Accordingly, the emphasis in management should be placed on supportive measures as already outlined, reserving antibiotics for selected cases where a clear indication exists, such as:

- a) enteric fever, shigellosis, or other pathogen with evidence of systemic infection, e.g., septicemia, bone involvement, etc.
- b) infections in prematures, neonates, and seriously ill infants, especially where isolation facilities are inadequate.

The selection, dose, and route of antibiotic will depend on the clinical situation and the organism isolated.<sup>5</sup>

### B. ANTIDIARRHEAL PREPARATIONS

A wide variety of antidiarrheal preparations are available containing such agents as Kaolin or Atropine. There is no evidence they add anything useful to the management of gastroenteritis and if used inappropriately, may do more harm than good.

## VII. CONCLUSION

Though gastroenteritis is a common and often serious ailment in young children, its treatment and management are straightforward. In most cases, a simple regimen of home care without the need for medications is indicated. More severe cases require hospitalization for dehydration, but the basic cure remains identical. Only where more serious underlying illnesses are the cause of the diarrhea are any other treatments necessary. □

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Halifax, N.S.

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it's different  
the cause strikes out  
our mutual animosity  
brings the world together  
into a common stream  
of human understanding

Usually . . . . .  
Usually the mall's paved by cars  
— people pouring money  
— paying their souls  
in exchange for merchandise  
Usually the police sit hawkeyed  
waiting to pounce  
on the contrary  
dishing out tickets  
for overtime parking



Talk about variety  
small toddlers hardly big enough  
to walk, rush by  
like dancing catherine wheels  
teenagers by the hundreds  
spread in an ever changing  
weave of interlacing lines  
bob and thread  
amongst the alleyways  
of panting life



Usually the Premier flies (economy class)  
Flies above the heads  
of us common folk  
and the august opposition leader  
chases his remarks  
with scorn



Take each lap  
as she comes  
Like life's journey  
unpredictable . . . . .





*Cast off in style  
straight down  
the easy slopes  
where everything goes your way  
— pass the refreshment bench  
(tempting but avoidable)  
round those Mumford flats  
and up, up, up  
to reach the friendly heights  
where harbour visions cheer  
and that consoling oil rig  
lies  
snugly unaware  
of our demeanour*

*So then it's over!*



*The politicians lend a cheerful air  
and each contraption  
winds to a close  
speedsters and sportsmen  
lightweight and heavy leviathan  
tandem and unicycle  
powered  
by that strange force  
that through the great  
arcade of life  
forever  
flows.*



This event was held in May on behalf of the Nova Scotia Kidney Foundation.



# Some Pictorial Highlights of the 124th. Annual Meeting



Dr. A. J. MacLeod, Honorary Secretary of the Medical Society, with the recently acquired Mace leads the Officers as they parade into Council to begin proceedings for 1977.



Dr. T. J. McKeough, retiring Past President of the Society, presents a token of appreciation to Fran Mason for her support of her husband, Bill, during his term of office as President of the Society.



Dr. and Mrs. A. A. Giffin, Senior Member of The Medical Society of Nova Scotia from Kentville, checking on the details of their prize, a trip for two to Florida, with representatives from Quality Travel and Mirabelle Tours.



Dr. John H. Budd, President of the American Medical Association, and Mrs. Budd receive a gift from the Medical Society presented by the Society's new President, Dr. John Hamm.



Dr. J. F. Hamm of Stellarton being installed as President of The Medical Society of Nova Scotia by Dr. Robert Gourdeau, President, Canadian Medical Association.



Acknowledging his appointment as President-Elect of the Medical Society for 1978, Dr. B. J. (Bernie) Steele speaks to members and guests during the Banquet following the Annual Meeting.



Newly installed President, Dr. J. F. Hamm, affixes the Past President's Pin to Dr. W. F. Mason's lapel.



Society members and guests relaxing to the music of Arne Benson in Lord Nelson Regency Ballroom.



# Personal Interest Notes

## SENIOR MEMBERSHIP CITATIONS THE MEDICAL SOCIETY OF NOVA SCOTIA

### *Dr. Robert Marsden Caldwell*

Born in Woodstock, New Brunswick, in 1907, Robert Marsden Caldwell moved to Yarmouth in the same year, where he grew up and attended Yarmouth Elementary and High Schools. Following his schooling in Yarmouth, he entered Dalhousie University. At the age of sixteen he took his pre-med and continued on to graduate from medicine in 1932 with a degree of MDCM. Following the local internship at Camp Hill Hospital, the V.G. Hospital and the Nova Scotia Sanatorium, he took an extra year of residency at the Bridgeport Hospital, in Connecticut, U.S.A. He then returned to Yarmouth in 1933, where he started Medical Practice in General Medicine.



The Society recognized Dr. Robert M. Caldwell's long service to Nova Scotians by installing him as a Senior Member in The Medical Society of Nova Scotia. Shown with Dr. Caldwell is Dr. W. F. Mason, President M.S.N.S., making the presentation.

Bob Caldwell practiced seven years in Yarmouth, from 1933 to 1940, at which time he enlisted in the 22nd Field Ambulance Corps, Royal Canadian Army Medical Corps, at the outset of the Second World War.

In 1941, he went overseas and was stationed at the holding depot to the South of England. From here, he was posted to the Winnipeg Rifles as their Medical Officer and stayed with this regiment throughout the war until 1945.

He went ashore in Normandy on D-Day with this regiment and was wounded two months later near Cannes, in France.

Recovering from this, he re-joined this regiment a month or so later to continue on through the European campaign.

In 1945, he was repatriated to Canada and honorably discharged to take up practice again in Yarmouth, at first in General Practice and later, he devoted most of his time to anaesthesia.

He was also plant medical officer for Dominion Textiles for thirty years, a post which he still holds today.

His outstanding contribution to the local Medical Society has been his astute care of their purse strings, being their long time treasurer. He has other interests in golf, fishing and swimming to round out his athletic life. For many years he was the government appointee to the Board of Governors of the Yarmouth Hospital.

He is mostly appreciated by his peers for his unswerving devotion to duty both medical and that of proud Canadian.

He has been unobtrusively but efficiently supported in all his undertakings, both medical and financial by his wife Myrtle who has never failed to maintain her good humour and cool. They have three children, the oldest daughter having graduated from Dalhousie Law School, and the one son, who believe it or not, is a tax inspector and the other daughter is still in school.

In short, I am honoured to propose, Dr. Robert Marsden Caldwell, as a senior member in the Nova Scotia Society.

Dr. R. P. Belliveau.  
(Presented by Dr. H. T. Fulde)

### *Dr. Frederick Murray Fraser*

Murray Fraser was born in Halifax and received his M.D. degree from Dalhousie 45 years ago. During his undergraduate days he was elected president of the Arts and Science Society. He was an active member of the Phi Rho Sigma Fraternity. He was also prominent in sports, and was manager of the Championship rugby football team.



Shown receiving Senior Membership in The Medical Society of Nova Scotia is Dr. F. Murray Fraser, long time Halifax physician. The installation is performed by President M.S.N.S., Dr. W. F. Mason.



After receiving his M.D. degree in 1932, he took post-graduate studies in London, Vienna, and in the world famous Rotunda Hospital in Dublin from which he received his Licentiate of Midwifery. He began general practice of medicine in England in 1934 with a particular interest in obstetrics.

Murray enlisted at the outbreak of World War Two and spent the next five years in Ethiopia and Africa. After the war he spent a further two years in general practice in England before returning to his native province in 1948.

Over the past 28 years Murray Fraser has contributed much to his community, to his university, and to his profession. He has served innumerable citizen groups and professional bodies. He is a past-president of the Halifax YMCA and past-president of MMC. He was a member of the Board of Governors of Dalhousie from 1956-1962. He is a past-president of the Dalhousie Medical Alumni Association, and in 1973 that association named him "Alumnus of the Year". He has served as National President in the College of Family Physicians; and for his contribution and widespread reputation in the practice of family medicine, that college conferred upon an Honorary Fellowship in 1969 and in 1973 named him "Physician of the Year" for Canada.

Due to Murray's contribution to Dalhousie, his community, and his profession, Dalhousie conferred a Honorary Doctor of Laws upon him in 1974.

As you can see, Mr. President, from only a few of the highlights of Dr. Fraser's career he has been both an outstanding citizen and doctor, and is well-deserving of the honour of "Senior Member" in the Nova Scotia Medical Society.

Dr. M. G. Shaw.

#### SENIOR MEMBERSHIP CITATIONS THE CANADIAN MEDICAL ASSOCIATION

### *Dr. Carleton Lamont MacMillan*

Doctor Carleton Lamont MacMillan was born on April 18, 1903 at Goldboro in Guysborough County, Nova Scotia. He received his education at Sydney Academy and Acadia University before he enrolled at Dalhousie University for his training in medicine. He graduated in 1928 and in the same year took up practice in Baddeck, Cape Breton. For forty years he served a wide area of the island as a family doctor. Many of his experiences are described with grace and humour in his book "Memoirs of a Cape Breton Doctor" published in 1975, a work so favourably received that it has recently been issued in a popular edition.

From 1949 to 1967 Dr. MacMillan was a member of the Legislative Assembly of Nova Scotia. In 1972 his outstanding contribution to his community was recognized by his election to the Order of Canada.



Dr. C. L. "Monty" MacMillan was installed as a Senior Member of The Canadian Medical Association at the Medical Society's Annual Meeting Banquet in absentia. Dr. Robert Gourdeau, President C.M.A., is shown presenting the award to Dr. MacMillan's son, Dr. C. L. MacMillan, Jr.

### *Dr. Audley Atwood Giffin*

Doctor Audley Atwood Giffin was born in Halifax on April 13, 1906. After completing his secondary education in the school system of his native city he entered Dalhousie University, from which he graduated with the B.A. in 1927 and the M.D. in 1931. For the next three years he was associate physician at the Nova Scotia Sanatorium. In 1934 he was appointed house surgeon at the Royal Victoria Hospital in Montreal and a year later he became resident surgeon at the Children's Memorial Hospital of Montreal.

During World War II Dr. Giffin served with R.C.N.V.R. and attained the rank of surgeon-captain to the Canadian North-West Atlantic Command.



Dr. Audley Giffin is installed as a Senior Member in The Canadian Medical Association. Dr. Robert Gourdeau, President of C.M.A., performs the ceremony.



Dr. Giffin has pursued his professional career, devoted to general medicine, in Kentville, Nova Scotia. Here, for a 10-year term he has been president of the medical staff of the Blanchard Fraser Memorial Hospital, and for 13 years chairman of the Board of Directors of the hospital during its expansion to regional hospital status. He is president of the Kentville Hospital Association and past president of the Valley Medical Association. He acted as chairman of the Research Commission of the Nova Scotia Medical Society that prepared the briefs presented to the Royal Commission on Health Services and to the Nova Scotia Government, prior to the adoption of Maritime Medical Care Incorporated as the administrative agent for the Medical Services Commission. He has been a member of General Council of the CMA and a member of the executive and president of Maritime Medical Care Incorporated.

Dr. Giffin's services to his community have been many and spent in high office. He has been a councillor and deputy mayor of Kentville and the chairman of its School Board. He has been president of the Nova Scotia Home and School Association, vice-chairman of the Association of Urban and Municipal School Boards, and a member of the provincial council on Teacher Education.

In his leisure time Dr. Giffin finds enjoyment in sailing and in the pleasures afforded by his library.

#### Statistics on Admissions To Dalhousie Medical School

This year, 233 applications to Dalhousie Medical School were received from residents of the Maritime Provinces (139 from Nova Scotia, 82 from New Brunswick, and 12 from Prince Edward Island). From these applicants, 88 were accepted, and the remaining 8 students are from other Canadian Provinces, the United States and Nigeria. In this new class, there are 28 females and 68 males.

**Dr. Marvin R. Clark** has resigned as Assistant Dean and Director of Continuing Medical Education, Dalhousie Medical School, to accept the post of Deputy Minister of Health for Prince Edward Island. Congratulations Marv.

**Dr. John R. Dill** will carry out a pilot study, involving the detection of coal-related lung disease.

**Dr. Robert M. MacDonald** has retired as Dean of Health Professions, and a testimonial dinner was recently held in his honour. He will continue to teach in the Department of Medicine.

**Dr. George E. Miller**, Professor of Medicine, University of Illinois, participated in a symposium on medical education, with special emphasis on evaluation. He was chosen to present the first Dr. Paul Cudmore Memorial Lecture on Medical Education, in which he stressed the changes that had taken place since he last visited Dalhousie Medical School ten years ago. He reminded his listeners that evaluation is the chief determinant of what medical students learn, and he encouraged both faculty and students to continue their joint efforts to improve evaluation methods.

**Dr. R. Wayne Putman** has received a grant from the Department of National Health and Welfare to study Ambulatory patient care, and make a comparison between ideal care and the actual care being given.

**Dr. Pentti M. Rautaharju** has been awarded a further grant to fund his on-going research in the detection of coronary and hypertensive heart disease.

**Dr. Bernard J. Steele**, speaking for the Society, has promised cooperation with the Provincial Health Department in establishing a central immunization registry.

#### OBITUARY

**Dr. T. W. (Tom) Gorman**, 60, of Antigonish, N.S. died Wednesday, Nov. 16, 1977 at the Victoria General Hospital in Halifax. Born in Sydney he received his education at the Sydney Academy, St. Francis Xavier University and McGill University. He served as a captain in the Royal Canadian Medical Corps and has practised medicine in Antigonish since 1951. Dr. Gorman was past president of The Medical Society of Nova Scotia. He is survived by his wife, the former Louise Kane, four daughters, a son and a sister. Our sincere sympathy is extended to the family. □

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# C.M.A. AWARDS

On the occasion of the February/March 1978 Branch Meetings, Medical Society members will be asked to nominate candidates for various C.M.A. Awards. These awards are described below.

It is hoped that you will give this very important subject careful consideration and ensure that your Branch does not let this opportunity to honour your confrères pass by.

## MEDAL OF SERVICE

1. Service to the profession in the field of medical organization.
2. Service to the people of Canada in raising the standards of medical practice in Canada.
3. Personal contributions to the advancement of the art and science of medicine.
4. To qualify, a recipient must have contributions in at least two of the above fields.

## FREDERICK NEWTON GIBBORNE STARR AWARD

- A. The medal should represent the highest award which lies within the power of the CMA to bestow upon one of its members.
- B. Achievement shall be the prime requisite in determining the recipient of the award.
- C. The recipient may have achieved distinction in one of the following ways:
  1. By making an outstanding contribution in the field of—
    - a) Science
    - b) The fine arts — sculpture, painting drama or music
    - c) Literature — non-medical
  2. By achievement —
    - a) In serving humanity under conditions calling for courage or the endurance of hardship in the promotion of health or the saving of life.
    - b) In advancing the humanitarian or cultural life of his community.
    - c) In improving medical service in Canada.

Such achievement should be so outstanding as to serve as an inspiration and a challenge to the medical profession of Canada.

## SENIOR MEMBERSHIP IN THE C.M.A.

"Any member of The Association in good standing for the immediately preceding ten year period who has attained the age of 65 years is eligible to be nominated for senior membership by an ordinary member of The Association. He shall be approved by the Executive body of the Division in which he practised, but he may be elected only by the unanimous approval of the members of the Board of Directors of The Association present and voting.

"Each Division is entitled to one senior member per year, notwithstanding the provisions as follows:

'A Division may approve for election one senior member per year, in addition to the above, for each 1,000 members on its register for that year'.

"In the case of a Division acting as Host to the Annual Meeting of The Canadian Medical Association, an additional senior member may be nominated.

"Senior members shall enjoy all the rights and privileges of The Association but shall not be required to pay an annual fee." □

## NEW MEMBERS

The Physicians listed below have joined The Medical Society of Nova Scotia between August 1, 1977 and October 31, 1977. A most cordial welcome is extended by the Society.

- |                       |                         |
|-----------------------|-------------------------|
| Dr. L. D. Barro       | Yarmouth, N.S.          |
| Dr. E. A. Dayton      | Dartmouth, N.S.         |
| Dr. L. J. d'Entremont | Meteghan, N.S.          |
| Dr. Philip Earle*     | Baytown, Texas          |
| Dr. F. A. C. Galvon   | Sydney, N.S.            |
| Dr. W. G. Gill        | Amherst, N.S.           |
| Dr. F. R. Grainger    | Halifax, N.S.           |
| Dr. R. D. Green*      | London, Ont.            |
| Dr. R. F. Gunn        | Kentville, N.S.         |
| Dr. R. A. Harding*    | Victoria, B.C.          |
| Dr. K. J. Henderson   | Truro, N.S.             |
| Dr. R. O. Holness     | Halifax, N.S.           |
| Dr. Ilona Kerner      | Yarmouth, N.S.          |
| Dr. C. T. Kilcollins  | Windsor, N.S.           |
| Dr. G. A. Klassen     | Halifax, N.S.           |
| Dr. R. A. W. Miller*  | Montreal, Que.          |
| Dr. P. C. Morse*      | Winnipeg, Man.          |
| Dr. J. F. McCurdy     | Halifax, N.S.           |
| Dr. R. W. Norman*     | Vancouver, B.C.         |
| Dr. Claudia Resch*    | Winnipeg, Man.          |
| Dr. H. J. Saunderson  | Halifax, N.S.           |
| Dr. G. L. Sayat       | Yarmouth, N.S.          |
| Dr. J. P. Schaffner   | C.F.B. Cornwallis, N.S. |
| Dr. R. N. Sers        | Antigonish, N.S.        |
| Dr. M. M. Slayer      | Bridgewater, N.S.       |
| Dr. S. P. Sturmy      | Canso, N.S.             |
| Dr. W. W. Tidmarsh    | New Glasgow, N.S.       |
| Dr. Ian Verryn-Stuart | Halifax, N.S.           |
| Dr. R. B. Wallace     | Inverness, N.S.         |

\*Recent Dalhousie Graduates.

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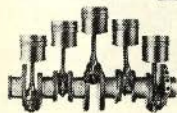


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## The Mercedes-Benz 300D.



Here is a most ingenious alternative to the conventional automobile. A truly remarkable new Mercedes-Benz. With a new body design and suspension system. With ample room for five people. With the proven Mercedes-Benz 5-cylinder engine that offers you an extraordinary combination of performance and operating economies.

To date, only one alternative to the conventional automobile engine has kept its promise: the Diesel engine.

Now Mercedes-Benz has synthesized its proven, 5-cylinder Diesel engine with new, technologically advanced body design, suspension, steering and safety systems to produce the new 300 Diesel.

The new 300D was six years in development. Its clean, wedge-like, aerodynamic lines derive from the classic 450 Series Mercedes-Benz sedans. And they hide a host of rarefied engineering advances.

Though only a trim 190.9 inches from bumper to bumper, the new 300D is an honest, 5-passenger sedan. The secret of its generous spaciousness lies in the Mercedes-Benz skill at putting the room in the car—without sacrificing safety.

### A matter of taste

Enter a new 300D and you find yourself surrounded by a complete array of luxurious appointments. All are standard equipment. Cruise control. Bi-level climate control. Electric windows. Fully adjustable front bucket seats whose support system is actually tuned to the car's suspension. Thickly padded doors and armrests. Tinted glass. Quartz chronometer. AM/FM radio with two front speakers. Central locking system. Trip mileage counter. Front brake-pad wear indicator. Two-speed wipers. Even parcel nets.

The new 300D is not an exercise in opulence. But is an example of meticulous taste. As your

senses will tell you, there's quite a difference between the two ideas.

### Sports-car handling

The new 300D is one of the most sparkling road cars Mercedes-Benz has ever engineered. The fully independent suspension system is of a completely new design which provides uncannily precise control and road-holding. A sophisticated "zero offset" design in the front axle provides progressive anti-dive control and improved directional stability and steady tracking when braking, even under rough road conditions.

The power steering is a variation of the world-famous Mercedes-Benz recirculating ball system. It is extremely precise and requires only 2.7 turns lock-to-lock. A separate steering system shock absorber soaks up road vibrations.

Here is the sophisticated power train, suspension and steering of a sports car. And that is why the new 300D handles like one.

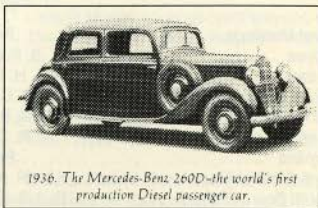
The new 300D's engine was the first Diesel to deliver performance comparable to that of gasoline engines.

Drive a 300D and you drive the legitimate alternative to the traditional car—with some singular advantages. Its singularity is emphasized when you feel the power of its unique, fuel-injected five-cylinder engine. It's the smoothest, most powerful Diesel yet engineered into a passenger car.

Because of the inherent efficiencies of its Diesel engine, the new 300D burns its fuel more

completely than any gas-powered engine. So there's no need for costly emission control devices.

The 300D five-cylinder Diesel engine is extremely smooth, and yet official EPA estimates show it can deliver up to 33 mpg on the highway and 27 mpg in town. Of course, your mileage will depend on how and where you drive, and the condition and equipment of your car.



1936: The Mercedes-Benz 260D—the world's first production Diesel passenger car.

The new 300D has no carburetor, spark plugs, distributor, points or condenser. Which means the 300D never needs a conventional tune-up.

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# THE MEDICAL SOCIETY OF NOVA SCOTIA

NOVA SCOTIA DIVISION OF THE CANADIAN MEDICAL ASSOCIATION

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