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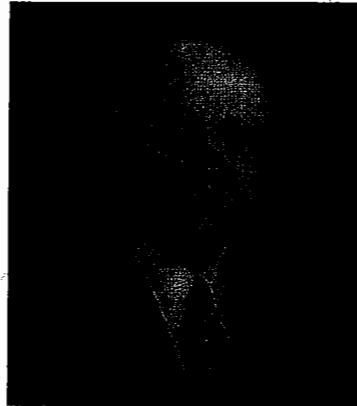
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2000 ALBERTA ORDER OF EXCELLENCE INDUCTEE:

DR. D. LORNE J. TYRRELL, MD, PhD, FRCP



Born in 1943, David Lorne John Tyrrell grew up on his parents' farm near Duffield, west of Edmonton. After completing high school in Stony Plain, he enrolled at the University of Alberta and received a Gold Medal in Science upon completion of a bachelor of science degree in chemistry in 1964. He finished his doctor of medicine and was awarded a Gold Medal in Pediatrics in 1968. In his second year of medicine, he received a Life Insurance of North America Studentship providing him an opportunity to complete a combined MD and PhD program.

Following an internship at the University of Alberta Hospital, Dr. Tyrrell entered Queens' University at Kingston and completed his PhD in pharmacology in 1972. In 1975, he returned to Alberta to complete training in internal medicine to qualify as a Fellow of the Royal College of Physicians and Surgeons of Canada. He subspecialized in infectious diseases and in 1976 was awarded the Medical Research Council of Canada Centennial Fellowship which has played a pivotal role in Dr. Tyrrell's medical career. The following two years of his postdoctoral training in the field of virology at the Karolinksa Institute in Stockholm, Sweden inspired a research interest that continues to this day.

In 1986, while teaching a graduate course, Dr. Tyrrell found clues that might lead to the discovery of antiviral drugs to inhibit the hepatitis B virus. Thus began his research on the virus that was the ninth leading cause of death according to the World Health Organization. Dr. Tyrrell was joined by his colleague in chemistry, Dr. Morris Robins, in studying chronic hepatitis B which affects approximately 300 to 350 million people. The major findings that ensued prompted one of the largest research contracts with industry ever known to a Canadian university. Glaxo Canada, now Glaxo Wellcome, supported his ongoing work and established the Glaxo Heritage Research Institute and a research chair in virology at the University of Alberta. Continuing his research, Dr. Tyrrell and his team discovered antiviral therapy for chronic hepatitis B leading to the licensing of Heptovir (Canada) and Zeffix (worldwide) which is saving many lives daily. The recognition received for this major finding include Alberta's ASTech Award for Innovation and Science in

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Les contributions à cette publication sont les bienvenues et peuvent être rédigées en français ou en anglais. Les annonces publicitaires sont également acceptées. L'abonnement annuel à FORUM est de 30.00\$ sauf pour les membres de l'Association qui le reçoivent gratuitement.

INTERPROVINCIAL AND INTERNATIONAL MOBILITY OF THE 1989 COHORT OF PHYSICIANS WHO EXITED FROM CANADIAN POST-M.D. TRAINING PROGRAMS

D. Thurber, MA, Director, CAPER

L. Buske, BSc, Chief, Physician Resources Information and Planning, CMA

BACKGROUND

There have been very few studies conducted at the national level that have followed the movement of physicians following completion of training.

A 1994 study by McKendry et al¹, surveyed physicians who had at one time practiced in Canada but had since relocated their practice to the United States. As well, the study polled physicians who had remained in Canada. The findings indicated that doing any amount of postgraduate training in the U.S. was a strong determinate for locating there in the future. Professional factors rated as most important in the decision to move to the U.S. or stay in Canada were: professional/clinical autonomy, availability of medical facilities and job availability. Level of remuneration was a factor that was considered equally important by both groups. The most significant personal reason for those emigrating was geographic climate; for those remaining in Canada it was relatives and educational opportunities for children.

Because the study surveyed a random sample of all expatriate physicians with a U.S. address, the time period over which physicians made the decisions to move spanned many decades.

A cohort study of the 1989 Canadian medical graduating class, conducted by Ryten et al², identified the location of each graduate and whether or not they were in training or out in practice. The study found that 7 years after graduation, the cohort remaining in Canada was reduced by approximately 12% to 1529 physicians. Of these, most were out in practice but 12.5% were still in training and 0.8% were inactive. The study reported only on the two time periods so presumably some physicians may have received postgraduate training outside the country and returned to Canada to practice.

The Canadian Institute for Health Information³ produces annual statistics on the migration of physicians by specialty, age, years since graduation, place of graduation, etc. As well, they track the number of physicians returning to Canada to active practice. The data represent an aggregate look at the flow of both Canadian and foreign trained physicians who at one time had a licence to practice in Canada.

This study concentrates on physicians who were already practicing medicine by tracking, over a 10 year period, those physicians who exited Canadian postgraduate training programs in 1989. Analyses have been done at three separate periods in time – 2 years, 5 years and 10 years after they exited postgraduate training. Both movement into and out of Canada and movement between provinces were studied.

METHOD

The database of the Canadian Post-M.D. Education Registry (CAPER) was used to select the 1989 exit cohort which was "tracked" in this study. The CAPER database consists of the individual records of post-M.D. trainees registered each year in all Canadian training programs. This information has been provided annually to CAPER since 1987 by the offices of Postgraduate Medical Education at the 16 Canadian faculties of medicine under a confidentiality policy requiring that identifiable individual information is not released from CAPER. The exit group consisted of all graduates of Canadian medical schools who were registered for post-M.D. (residency) training in Canada on November 1, 1988 and who had left training by November 1, 1989 (graduates of foreign medical schools who trained in Canada were not included in the data). The vast majority of these physicians would have left training in July, 1989, although few would have left at other times throughout the year. Only those physicians who had exited at a rank level consistent with

completion of training in a rotating internship, family medicine or a specialty were included in the exit group being studied. This restriction was made to ensure that residents who were simply taking a temporary break in training would not be included in the cohort of exiting physicians. Practice locations for the 1714 physicians were obtained from the masterfile of the Canadian Medical Association (CMA) at 3 time periods; 2 years (1991), 5 years (1994), and 10 years (1999) after the physicians left post-M.D. training. Practice locations were recorded between July and the end of August in each of the three years. This data set therefore includes 3 "snapshots" of the practice locations for each record. Other information used in the analysis such as gender had been provided as on the initial CAPER submissions.

Record matching to the CMA masterfile was done using a unique identifier. A code for the province or country of the practice locations for the 3 time periods was added to the CAPER database. If no practice location was available on the CMA masterfile, the physician was listed as "not located". Home addresses were not used. The residency training variables used in this study were: 1) the faculty of medicine which awarded the M.D. degree and the province in which it was located; 2) gender of the trainee; 3) the final training field of the residents in the cohort, and the faculty of medicine responsible for the last year of residency training and the province in which that faculty was located.

RESULTS

1. The proportion of the exit group which was located in Canada in each time period

Table 1 shows the number and proportion of the physicians in the 1989 exit group cohort who were located in Canada at 2, 5, and 10 years after exit from training. At two years after exit from training, we were able to locate 94% of the group in Canada. Five years after completion of training 92% remained in Canada and by 10 years after training, 89% of the original exit group of Canadian graduates was located in Canada. It should be remembered that the exit group consisted of graduates of Canadian medical schools who had done their residency training in Canada. By 1999, there were 27 physicians for

whom no practice address could be determined from the CMA masterfile. It is most likely that they were practicing medicine outside of Canada or that they were not practicing clinical medicine.

2. Detailed description of movement of the cohort between Canada and the United States

Because practice location information at these three time periods was used in this analysis, we were able to examine the movement of the cohort to and from Canada and the United States over the 10 year period. The United States is the main destination of Canadian physicians who leave the country, although it will be clear from other tables that not all of the physicians located outside Canada were in the United States.

Table 2 describes the movement of these physicians between the 2 and 5 year exit periods. At two years after leaving training in Canada, there were 94 physicians (5.5% of the exit group) from the cohort who were located in the United States. Three years later (5 years after exiting training), we found that 25 of these had returned to Canada. However, an additional 48 physicians from the original cohort had gone to the United States. There was a net increase of 23 physicians (for a total of 8.5% of the Canadian graduates) over the three year time period (between 2 and 5 years after exit) in the number of physicians located in the United States.

In the next 5 years (between 1994 and 1999), 18 of the 117 physicians in the United States moved back to Canada (Table 3). However, 54 more went to the United States for a net increase of 36 physicians: that is an increase of 30% over the 117 physicians who were there in 1994.

To summarize, in 1999 (Table 4), 62 (66%) of the original 94 physicians from the post-M.D. exit cohort who were in the United States were still there. In addition, 91 more physicians had moved to the United States over the next 8 years, so that by 1999, 153 physicians from this cohort were in the United States. This is 9% of the full exit group. The flow to the USA was relatively constant over the 10 year period with 48 physicians going in the first 5 years after exit from training and 54 going in the next 5 years.

Returns to Canada were slightly higher in the first 5 years (25) than they were in the next five years (18).

These data provide us with an interesting picture of the flow of physicians from one exit cohort between Canada and the United States. Although this movement would most certainly continue beyond the 10 year period, physicians who emigrate as well as those who return to Canada are heavily represented by those who are 15 years or less from receiving their undergraduate medical degree (in 1998, 70% of physicians emigrating - 63% of those returning came from this group according to CIHI³).

3. Other variables related to mobility between 1991 and 1999 of the 1989 post-M.D. exit cohort

For this part of the analysis, mobility was defined as any change in province or country of practice location between two and ten years after exit from training.

a) Mobility of the whole group

Of the 1714 physicians in this group, 333 (19%) changed practice locations in the 8-year period between 1991 and 1999 as given in Table 5.

b) Field of post-M.D. training

Table 5 shows the proportion of physicians from each training field who changed practice location. Family physicians were a more mobile group than specialists; 24% of the family physicians changed province or country of practice while only 15% of specialists did so. Looking within the specialty groups, we find that the medical specialists were the least mobile of all groups with only 11% changing practice locations. Surgical specialists, laboratory medicine specialists and medical subspecialists were more mobile with about 20% changing practice locations in the 8 year period.

c) Citizenship

There was no significant difference in the mobility of Canadian citizens and citizens of other countries who had earned their medical degree in Canada.

d) Gender

There was no significant difference in the mobility of men and women (17% of women and 21% of

men changed practice provinces/countries in the 8-year periods).

e) Language of instruction

Physicians who trained in the three faculties of medicine where the language of instruction is French were much less likely to be mobile (6%) than those from the English language faculties (22%).

f) Province during post-M.D. training

The province of post-M.D. training for this exit group was significantly associated (χ^2 , <.000 2-sided test) with mobility between 1991 and 1999. Physicians who trained in Newfoundland were the most mobile with 44% changing practice locations. Those who trained in the Maritimes (39%), Saskatchewan (35%) and Manitoba (24%) were more mobile than the national average (19%). Physicians who trained in Alberta (19%), Ontario (18%), British Columbia (17%) and Quebec (10%) were less mobile than the national average.

4. Interprovincial mobility of the 1989 exit group between 1991 and 1999

Table 6 gives the full picture of interprovincial geographic mobility of this exit group between 2 and 10 years after exit from training. For most provinces there was a net loss of physicians from this cohort over that time period.

For example, Newfoundland went from having 31 physicians from this group located there in 1991 to having 20 eight years later. Nova Scotia retained 73 of the 84 who originally located there. Provinces which gained physicians over the time period were Alberta and British Columbia. Both Quebec and Ontario maintained over 90% of those who originally were located there. PEI and the Yukon territories both had increases although the total numbers are very small.

5. Province in which the M.D. degree was earned and the last province of post-M.D. training predictors of practice location 10 years after exit from training

Table 7 shows the retention 10 years after exit from training of the physicians who earned the M.D. degree in each province. In British Columbia (85/114) and Quebec (285/406), over

70% of the M.D. graduates in this cohort were in the province 10 years later in this cohort. Ontario had retained 420 of its 629 (67%) M.D. graduates.

All provinces, to a varying degree also "gained" physicians from the M.D. graduates of other provinces. The main beneficiaries from other provinces were British Columbia, Alberta and the Maritime Provinces. British Columbia had more than doubled the number of physicians from its own 1989 graduating class by physicians moving to BC from other provinces. Although all Dalhousie graduates locating in the Maritimes were considered to be "Maritime" graduates, Quebec and Newfoundland graduates were not counted as Maritime graduates even though New Brunswick has funded medical education in Newfoundland and Quebec.

Table 8, similarly shows the "losses" and "gains" to each province from the groups of physicians who completed training in each province. Again, all provinces both "lost" and "gained" physicians over the 10 year period. Manitoba, the Maritime Provinces and Saskatchewan experienced having many of their trainees move away, but they also gained physicians from other provinces' post-M.D. trainees. British Columbia stood out as it had a high retention of its own trainees but also attracted physicians from other provinces.

CONCLUSIONS

This cohort based study described in detail the movement of Canadian physicians between provinces and to the USA up to ten years after they left post-M.D. training in 1989. Over a 10-year time period, there was a gradual move of 9.5% of the physicians to locations outside Canada (mainly the United States). Altogether, 19% of the physicians moved between provinces or outside the country in the 8-year period between 1991 and 1999. Provinces which gained the most from this movement were Alberta and British Columbia. British Columbia was by far the most common destination for physicians within Canada. As British Columbia has the smallest number of positions for medical education relative to its population, it is not surprising that physicians from other provinces find employment opportunities there. Also, Alberta and British Columbia are provinces that

have had increases in total population over the last 10 years.

Over the 10 year time period studied, all provinces both gained physicians from other provinces and had their trainees and graduates move away. Provinces which retained the highest proportion of their trainees and M.D. graduates were Quebec, Ontario, Alberta and British Columbia. Also, the Maritime provinces retained over 50% of their post-M.D. trainees and Manitoba retained 56% of its M.D. graduates. As a proportion of its own graduates, all provinces added to their practice pool from the M.D. graduates of other provinces. British Columbia gained the most from this phenomenon with the in-migration of 127 M.D. graduates from other provinces, thus doubling the physician workforce provided by its own graduates. Although the Maritime provinces also gained physicians from other medical schools, some would have had their medical education funded by the province of New Brunswick.

The time period discussed in this paper was a time of unprecedented upheaval in health care provision in all provinces. Both Ontario and Alberta underwent major hospital restructuring activities with hospitals being both closed and consolidated. As a result it was an unstable working situation for all physicians especially the new physicians studied in this paper. Thus, the mobility of this cohort may prove to be much greater than one would expect in a more stable working environment. The general pattern of physician mobility, however is similar to that seen in the 1989 M.D. graduates studied previously by Ryten et al².

Given this high degree of mobility of the Canadian physician workforce, it is certainly logical that physician supply be studied at the national level. Mobility is a fact of life and should be reinforced so that all provinces can benefit from the education and unique training opportunities provided in all parts of the country. Fortunately, barriers to mobility such as differential licensure and education requirements among the provinces are rare, and thus a very mobile workforce has been maintained. However, they are not completely absent and should certainly be discouraged if the country is

to obtain the most benefit from this highly trained labour sector. In a country with a relatively small population, the full range of training experiences is only available on a national basis. If citizens of all regions of Canada are to benefit from all our unique training programs, physicians must be able to move with ease to practice anywhere in the country.

REFERENCES

- 1 McKendry, RJR et al: Factors Influencing the Emigration of Physicians from Canada to the United States. CMAJ 1996;154:171-181.
- 2 Ryten E, Thurber AD, Buske L. The Class of 1989 and Physician Supply in Canada. CMAJ, March 24, 1998;158(6);723-728
- 3 Supply, Distribution and Migration of Canadian Physicians, 1999. Institute for Health Information, Ottawa, 2000.

Table 1

**Practice Location of the 1989 Exit Cohort* of Post-M.D. Trainees
At 2, 5, and 10 Years After Exit From Training**

Location	Number of years after exit from post-M.D. training		
	2 years (1991)	5 years (1994)	10 years (1999)
Located in Canada	1605 (94%)	1577 (92%)	1523 (89%)
Located in USA or another country	100 (5.9%)	125 (8.5%)	164 (9.5%)
Not located	9 (.4%)	12 (.7%)	27 (1.6%)
Exit group total	1714 (100%)	1714 (100%)	1714 (100%)

* Physicians who earned the M.D. degree in Canada and exited Canadian post-M.D. training programs in 1989 at a rank level which would be acceptable for certification in the individual physicians training program

Table 2

**Movement To And From Canada and the United States of America
Between 2 and 5 Years After Exit
(1991 to 1994) of the 1989 Post-M.D. Exit Cohort**

Total 1989 exit cohort	Physicians in USA 2 years after exit (1991)	Physicians in USA 5 years after exit (1994)	Physicians staying in USA between 1991 and 1994	Physicians returning to Canada	Physicians going to USA	Total gain to USA between 2 and 5 years after exit
N = 1714	N = 94	N = 117	N=69	n = 25	n = 48	n = 23

Table 3

**Movement To And From the United States of America
Between 5 and 10 Years After Exit
(1994 to 1999) of the 1989 Post-M.D. Exit Cohort**

Total 1989 exit cohort	Physicians in USA 5 years after exit (1994)	Physicians in USA 10 years after exit (1999)	Physicians staying in USA between 1994 and 1999	Physicians returning to Canada	Physicians going to USA	Total gain to USA between 5 and 10 years after exit
N = 1714	N = 117	N = 153	N=99	n = 18	n = 54	n = 36

Table 4

**Movement To And From the United States of America
10 Year Summary
(1991 to 1999) of the 1989 Post-M.D. Exit Cohort**

Total 1989 exit cohort	Physicians in USA 2 years after exit (1991)	Physicians in USA 10 years after exit (1999)	Physicians staying in USA between 1991 and 1999	Physicians returning to Canada	Physicians going to USA	Total gain to USA between 2 and 10 years after exit
N = 1714	N = 94	N = 153	N=62	n = 32	n = 91	n = 59

Table 5

**Post-M.D. Trainees Exiting in 1989
(Canadian M.D. Graduates at Completion of Training)
Field of Post-M.D. Training (Specialty Groupings)
By
Practice Location Change (Province or Country) Between 1991 and 1999**

Field of post-M.D. training	Same	Different	Total
Family Medicine	645 (76%)	199 (24%)	844 (100%)
Medical Specialties	363 (89%)	46 (11%)	409 (100%)
Medical Subspecialties	122 (80%)	31 (20%)	153 (100%)
Lab Medicine	36 (80%)	69 (20%)	45 (100%)
Surgical Specialties	215 (82%)	48 (18%)	263 (100%)
Subtotal All Specialties	736 (85%)	134 (15%)	870 (100%)
Total	1381 (81%)	333 (19%)	1714 (100%)

Table 6

**Interprovincial Mobility Between 1991 and 1999
of the 1989 Post-M.D. Exit Cohort**

Province	Number of physicians from the 1989 exit cohort located in each province in 1991	Number of physicians from the 1989 exit cohort located in each province in 1999	Change	
			#	% (loss- or gain+ from 1991 location)
Newfoundland	31	20	-11	-36%
Nova Scotia	84	73	-11	-13%
Prince Edward Island	2	4	2	...
New Brunswick	45	38	-7	-16%
Quebec	325	305	-20	-6%
Ontario	614	562	-52	-8%
Manitoba	72	65	-7	-10%
Saskatchewan	37	26	-11	-30%
Alberta	173	179	6	4%
British Columbia	217	247	30	14%
Northwest Territories	3	2	-1	...
Yukon	2	2	0	...
Total (Canada)	1605	1523	-82	-5%*

... numbers too small to present meaningful proportions

* this is the 5% who left Canada in that time period

Table 7

**The Number of M.D. Graduates Located in the Province in Which
the M.D. Degree Was Earned
10 Years After Exit From Post-M.D. Training in 1989
(Practice Location in 1999 - CMA Masterfile)**

% Retention at 10 Years After Exit From Post-M.D. Training

Province	Number in the exit cohort who received the M.D. degree in each province	Number of graduates in each province after 10 Years	Additions from other provinces over 10 years	Total from national cohort in province after 10 years	Proportion who earned the M.D. degree in another province
Newfoundland	63	18	2	20	10%
Maritime Provinces	119	66	49	115	43%*
Quebec	406	285	20	305	7%
Ontario	619	420	142	562	25%
Manitoba	113	49	16	65	25%
Saskatchewan	72	18	8	26	30%
Alberta	208	114	65	179	36%
British Columbia	114	85	162	247	65%
Northwest Territories	--	--	2	2	--
Yukon	--	--	2	2	--
Total	1714	--	--	1523	--

* Dalhousie was considered as the medical school serving all Maritime provinces. Physicians who graduated in Quebec or Newfoundland and located in the Maritimes were considered as coming from another province

Table 8

**The Number of Exiting Post-M.D. Trainees Located in the
Province of Post-M.D. Training
10 Years After Exit from Training in 1989
(Practice Location in 1999, CMA Masterfile)**

Province	Number exiting from post-M.D. training in 1989	Number located in the province of training 10 years later	Additions from the post-M.D. exits of other provinces	Total in province in 1999	Proportion who completed post-M.D. training in another province
Newfoundland	52	11	9	20	45%
Maritime Provinces (Dalhousie)	118	56	59	115	51%
Quebec	351	272	33	305	11%
Ontario	711	474	88	562	16%
Manitoba	91	51	40	65	61%
Saskatchewan	57	13	13	26	50%
Alberta	183	110	69	179	38%
British Columbia	151	120	127	247	51%
Northwest Territories	--	--	2	2	100%
Yukon	--	--	2	2	100%
Total	1714	--	--	1523	--

* Dalhousie was considered as the medical school serving all Maritime provinces. Physicians who completed training in Quebec or Newfoundland and located in the Maritimes were considered as coming from another province



CANADIAN CENSUS REMINDER

The next Census of Canada will take place on Tuesday, May 15, 2001. The census is a vital source of information about Canada and Canadians, it must be complete and accurate. It is therefore important that Canadians complete their questionnaires.

SPECIAL ANNOUNCEMENT
CIHR/ACMC 2001/2002 FUNDS for RESEARCH IN MEDICAL EDUCATION

In 1991 the Medical Research Council (MRC) and the Association of Canadian Medical Colleges (ACMC) established a collaborative agreement on the funding of research in medical education, with funds to be administered by the ACMC through its Committee on Research in Medical Education. It is anticipated that for the fiscal year 2001/2002, \$95,000 will be available for research in medical education. The average size of funded grants is approximately \$9,500 and grants requesting greater than \$20,000 is strongly discouraged.

Applications will be considered for funding in support of specific research proposals in medical education. To be considered, proposals should concern research in medical education that extends our understanding of the educational process. Projects concerning program development or program evaluation only will not be considered, so applications should emphasize how the research is distinct from program development or program evaluation.

Note that in 1995, the Medical Council of Canada (MCC) established a fund for research in medical education focused on student assessment. Application cannot be made to both funds for the same project. If the focus of the project is on student assessment, application should be sent to the MCC (Suite 300, 2283 St. Laurent Blvd., Ottawa, Ontario, K1G 3A2). If the focus is on other aspects of medical education, application may be made to the CIHR/ACMC fund. Applications will have a first screening and will be automatically forwarded to the other funding source if warranted.

APPLICATIONS SHOULD FOLLOW THE PROCEDURES AND RESTRICTIONS OUTLINED BELOW:

THE DEADLINE FOR RECEIPT OF APPLICATIONS IS FRIDAY FEBRUARY 2, 2001.

Funding decisions will be announced by the end of May, 2001.

All grants are awarded for a period of 12 months from June 1, 2001. Grants that do not describe reportable results that are anticipated at the end of this one year period will not be considered. Amounts not spent at the end of the grant period (May 31, 2002) will automatically revert to the ACMC unless an extension is applied for prior to March 31, 2002 and approved prior to the end of the grant period. Capital costs are not traditionally supported and, when supported, the purchased capital will remain the possession of the ACMC and will be returned at the end of the one-year granting period.

A final report will be submitted to the ACMC/RIME Committee at the end of the granting period.

All applications must contain signatures denoting departmental, faculty and university approval.

Proposals should be formatted under the following general headings

1. Application cover page complete with: Title of proposal, names of principle and co-investigators, relevant signatures

2. Problem statement (research questions and rationale)

3. Review of literature

4. Research design and methods (experimental design, subjects, materials, data collection, data analysis)

5. Project schedule

6. Budget and justification

7. References

8. Appendices (if necessary)

9. Ethics approval of the institution where the research is to be carried out (confirmation that the proposal is submitted for ethics review must be provided at the time of submission and certification of ethics approval must be obtained before funds will be released)

10. Condensed (2 page) curriculum vitae describing each investigator's education, research training, academic positions held, and publications over the last five years

THE TITLE PAGE MUST BE FULLY COMPLETED OR PROPOSALS WILL NOT BE CONSIDERED.

A MAXIMUM OF 5 PAGES IS PERMITTED FOR SECTIONS 2-5, AND A MAXIMUM OF 15 PAGES FOR SECTIONS 6-10. Documents should be single-spaced using margins of not less than 0.75" and Times or Arial fonts not less than 11 points.

FIVE COPIES of applications should be forwarded to the following address:

Glenn Regehr, Chair
ACMC Committee on Research in Medical Education
Faculty of Medicine Centre for Research in Education
University Health Network, University of Toronto
Bell Wing 6-666, 585 University Avenue
Toronto, Ontario M5G 2C4

All publications and presentations arising from research supported by the grant will carry the names of the CIHR and ACMC as sponsors of the research.

ANNONCE SPÉCIALE

FONDS 2001/2002 DU ICRS ET DE L'AFMC POUR LA RECHERCHE EN ÉDUCATION MÉDICALE

En 1991, le Conseil de recherches médicales (CRM) et l'Association des facultés de médecine du Canada (AFMC) ont conclu une entente de collaboration sur le financement de la recherche en éducation médicale, les fonds devant être administrés par l'AFMC par le biais de son Comité de la recherche en éducation médicale. Au total, 95 000 \$ seront disponibles pour l'exercice financier 2001/2002 au titre de la recherche en éducation médicale. La bourse moyenne sera d'environ 9 500 \$, et toute demande excédant 20 000 \$ sera fortement découragée.

Seules les demandes portant spécifiquement sur des propositions de recherche en éducation médicale seront prises en considération. Pour être étudiées, les propositions doivent porter sur des projets de recherche en éducation médicale qui permettront d'approfondir notre compréhension du processus éducationnel. Les projets qui ne porteront que sur la mise sur pied ou l'évaluation d'un programme ne seront pas pris en considération. Par conséquent, toute demande devra démontrer en quoi la recherche se distingue de l'élaboration ou l'évaluation d'un programme.

Il est à noter qu'en 1995, le Conseil médical du Canada (CMC) avait mis sur pied un fonds de recherche en éducation médicale mettant l'accent sur l'évaluation des étudiants. Il est interdit de s'adresser aux deux fonds pour le même projet. Si celui-ci met l'accent sur l'évaluation des étudiants, il faudra soumettre la demande au CMC (pièce 300, 2283 boul. St-Laurent, Ottawa (Ontario) K1G 3A2). S'il porte plutôt sur d'autres éléments de l'éducation médicale, il faudra que la demande parvienne au fond ICRS/AFMC. Les demandes passeront par un premier filtrage et seront automatiquement acheminées, au besoin, vers l'autre source de financement.

LES DEMANDES DEVRONT RESPECTER LA MARCHÉ À SUIVRE ET LES RESTRICTIONS SUIVANTES :

LA DATE LIMITE DE RÉCEPTION DES DEMANDES EST LE 2 FÉVRIER 2001.

Les décisions en matière de financement seront annoncées à la fin mai 2001.

Les subventions seront accordées pour une période de 12 mois, débutant le 1^{er} juin 2001. Les projets qui ne prévoient pas de résultats déclarables à la fin de la période d'un an ne seront pas pris en considération. Les sommes non dépensées à la fin de la période de subvention (soit au 31 mai 2002) seront automatiquement remises à l'AFMC, à moins qu'une prolongation n'ait été demandée avant le 31 mars 2002 et qu'elle ait été approuvée avant la fin de la période de subvention. Les frais d'immobilisation ne seront pas normalement couverts et, lorsqu'ils le seront, les immobilisations acquises appartiendront à l'AFMC et lui seront remises à la fin de la période de financement d'un an.

Un rapport devra être soumis au Comité de la recherche en éducation médicale de l'AFMC à la fin de la période de subvention.

Toutes les demandes doivent présenter les signatures nécessaires d'autorisation du département, de la faculté et de l'université.

Le comité de l'éthique pertinent de l'université devra confirmer son approbation du projet avant que le financement n'en soit octroyé.

Les propositions devront comprendre les rubriques générales suivantes :

1. Page titre incluant : titre de la proposition, noms des chercheurs principaux et collaborateurs ainsi que les signatures pertinentes
2. L'énoncé du problème (questions de recherche et justification)
3. Revue des publications
4. Organisation et méthodes de recherche (conception expérimentale, sujets, documents, collecte de données, analyse des données)
5. Échéancier du projet
6. Budget et justification
7. Références
8. Annexes (au besoin)
9. Approbation, au plan éthique, par l'établissement où la recherche doit être menée (la proposition doit être accompagnée d'une preuve qu'elle a fait l'objet d'une révision déontologique. De plus, la libération des fonds requiert l'attestation que la révision a été positive)
10. Curriculum vitae condensé (2 pages) décrivant, pour chaque enquêteur, les études, la formation en recherche, les postes d'enseignement occupés, et les publications parues au cours des cinq dernières années.

LA PAGE TITRE DOIT COMPRENDRE TOUS LES ÉLÉMENTS CITÉS, FAUTE DE QUOI, LA PROPOSITION SERA ÉCARTÉE. UN MAXIMUM DE CINQ PAGES SERA PERMIS POUR LES PARTIES 2 À 5, ET TOUT AU PLUS 15 PAGES POUR LES PARTIES 6 À 10. Les documents doivent être dactylographiés à simple interligne avec des marges d'au moins 0,75 pouces et des polices Times ou Arial d'au moins 11 points.

La demande EN CINQ EXEMPLAIRES doit être envoyée à l'adresse suivante :

Glenn Regehr, président
Comité de la recherche en éducation médicale de l'AFMC

Centre de recherche en éducation de la faculté de médecine

University Health Network, University of Toronto
Bell Wing 6-666, 585 University Avenue
Toronto (Ontario) M5G 2C4

Toutes les publications et présentations découlant de la recherche et rendues possibles par la subvention devront mentionner le ICRS et l'AFMC comme commanditaires.

ASSOCIATED MEDICAL SERVICES, INCORPORATED
PRESIDENT/CHIEF EXECUTIVE OFFICER

Associated Medical Services, Incorporated (AMS) seeks a person capable of filling the position of AMS President and CEO; this position is to be filled no later than April, 2002.

AMS is a charitable organization which, through its Board and through its Hannah Institute for the History of Medicine, Bioethics Program and Medical Education Program, supports a wide range of scholarly activities in Canada. These activities require collaboration with many other interested groups in order to accomplish AMS' aims and objectives.

The President presides over the meetings of the Board and of its Executive Committee and has overall responsibility for the corporation's operation. Day to day responsibility for activities of the Hannah Institute of the History of Medicine, as well as for AMS activity relevant to medical education and bioethics, rests with the AMS Program Directors who report to the President.

Current AMS activities include:

- Hannah Chairs for the History of Medicine in each of the five Ontario medical faculties
- Canada-wide history of medicine grants, scholarships, fellowships, publication aid and other awards to assist in development of research and teaching in the History of Medicine
- Bioethics projects in cooperation with several Canadian teaching hospitals
- Education programs including 'Linking Libraries' in cooperation with the Ontario Health Sciences Libraries

The AMS President is a member of the AMS Board which consists of nine Directors with a broad range of professional backgrounds. All AMS Directors must be residents of Ontario; each is appointed/elected for a three-year term with the possibility of renewal; none may be re-elected after age 75. The President provides leadership for the Board and acts as its primary external representative. The Board retains ultimate responsibility for all decisions of the Corporation; the President is accountable to the Board.

The AMS Board welcomes applications for this position from physicians and others with suitable credentials and experience. Applicants should be willing to commit no less than the equivalent of four days/week to this position in the AMS office. Normally, appointment to this position will be for a period of no less than five years. Salary will be negotiable and commensurate with experience. The application must include a curriculum vitae detailing qualifications, a letter outlining the reasons for interest in this position and the names of three referees.

Interested respondents should apply, in confidence, prior to March 1, 2001, to:

Chairperson, AMS Search Committee
Associated Medical Services, Inc.
14 Prince Arthur Avenue, Suite 101
Toronto, ON M5R 1A9

PRESENTATION OF DR. TERRY MONTAGUE TRILATERAL 2000

What determines health and quality of life? Health as good economics.
Montebello, Quebec September 24, 2000

The challenge posed by the conference title is thought-provoking. It asks the, not inconsequential, question of what determines health and quality of life. And, the sub-title suggests a causal relation between the clinical and fiscal health of nations.

To address these questions requires assessment of the link between societal investments in health research and care delivery and their impact upon health outcomes, employment and productivity. The following is a perspective on these issues with the Canadian medicare system as the primary reference focus.

Canada is a nation of 10 million square km and 31 million people, 12% of whom are 65 years of age or older. Average life expectancy is now greater than 79 years, second only to Japan.

In 1999, the GDP (Gross Domestic Product) was 925 billion dollars and health care spending was estimated at 86 billion or slightly more than nine percent of the GDP. This ranks as the fifth highest national expenditure; the United States holding the lead with more than 15% of the GDP devoted to health.

In per capita terms, Canadian health spending has decreased recently, falling from \$1,926 (US) per citizen in 1993 to \$1,828 per capita in 1997, placing Canada in 14th place for this category of resource disbursement. In comparison, the United States spent \$4,095 per capita on health care in 1997, even though 40 million citizens have no health insurance coverage.

The observation that Canada, compared to some other countries, has lesser expenditures but obtains superior health outcomes such as greater longevity, has been used to infer an absence of a direct link between the level of health spending and health outcomes. On the other hand, there is some evidence of a direct or causal relation between expenditures and outcomes.

For example, Richard Plain, University of Alberta, found a very tight correlation between life expectancy and per capita public expenditures on health in the province of Alberta between 1975 and 1995.

More recently, a compelling argument that spending on efficacious therapies is cost beneficial has been advanced by Frank R. Lichtenberg of the Graduate School of Business at Columbia University. He defined a highly significant positive relationship across many diseases, between use of new drugs and mortality reduction. He estimated that for each new drug approved between 1970 and 1991 in the United States, there was an incremental impact in 1991 of 11,200 life-years saved. He further concluded that new drug use explained more than 45% of the increased longevity of the US population, and a significant proportion of the GDP, in that same 20 year interval.

Certainly the costs of health care remain of concern to payers. They represent about one third of all provincial government budgets. They are substantial, as well, on an individual basis. For example, a single taxpayer in the province of Quebec earning a salary of \$50,000 is estimated by the Canadian Taxpayers' Federation to be paying in excess of \$5,000 per year toward health care.

The data of Plain and Lichtenberg should provide some solace to governments that there is a high rate of social return for health expenditures. The data also offer comfort to individual citizens that their taxes are buying at least some valuable health outcomes for themselves and their families.

However, an important question to be answered is: can care and outcomes be improved?

That is a question that has concerned my colleagues and I in CQIN (Clinical Quality Improvement Network) and the various partnership projects of the Patient Health Department of Merck Frosst over the last decade.

Briefly, for all diseases studied by CQIN and other similar outcome research groups, there are large gaps between best care, as defined by the results of clinical trials, and usual care, as defined by repeated audits and surveys of daily practice patterns in hospital and community settings. For example, in atherosclerotic coronary artery disease, the number one disease killer in Canadian society, where the evidence of therapeutic

efficacy is overwhelmingly consistent and diagnosis and access are not large problems, the level of prescription of dietary advice and lipid lowering drugs to even the highest risk patients remains well less than 50%. And, the level of patient concordance and persistence with therapy, even when prescribed, is similarly despairing, averaging about 50% after six months.

Within the overall care gap, there are consistently larger gaps for females and older patients. This is especially troublesome and counter-intuitive because for many of the burdensome chronic diseases, such as cardiac disease, the older patients are at the highest risk and would benefit the most if they received efficacious therapy. For osteoporosis, a disease which resides largely in older women, the gaps between optimal and usual diagnosis and therapy may be greater than 90%.

To close the care gap, the CQIN investigators and the Patient Health teams have utilized a relatively simple recipe based on a broad stakeholder partnership. Although simple in concept, partnerships are not necessarily easy to create or maintain. This latter point has recently been emphasized by Charles Deutsch, an educator from Harvard University. He said of partnerships: "We talk about them as if they were exhilarating, but they are usually exhausting and sometimes maddening. They have to focus relentlessly on results or they are likely to get lost attending to process."

Based on the CQIN and Patient Health experiences, the focus on results is very important. It is the single most important driver of improved results. When stakeholders are made aware of their own practice patterns and patient outcomes, even if no other intervention is done, subsequent practices and outcomes, when repeatedly measured, will repeatedly improve. This phenomenon is almost certainly a very practical modern manifestation of the Hawthorne effect.

Among the four large programs with which Merck Frosst are presently involved, the most mature is ICONS (Improving Cardiovascular Outcomes in Nova Scotia). It is a five-year study tracking the heart health of more than 30,000 Nova Scotians, focussing on patients with heart attacks, unstable angina, heart failure and atrial fibrillation. ICONS is a grass roots, ground up partnership. The 70 plus member steering committee includes, in addition to patient,

academic, governmental and industry representatives, clinical teams of a community medical specialist, a primary care physician, a pharmacist and one or more nurse study coordinators from each of the 10 administrative health districts in Nova Scotia.

There are three practical lessons to be learned from the broad governance structure of ICONS. It gives a community-based moral authority to the goal of improving care and outcomes. It stimulates a sense of ownership and buy-in to the care gap and its closure. And, it acts as a head start intervention to initiate the positive Hawthorne effect.

The formula works. In Nova Scotia, use of proven therapies for the various diseases have significantly improved year, over year, over year. Moreover, outcomes like hospitalization and re-hospitalization have decreased, with attendant decreases in system costs.

ICONS is continuously evolving. Patient and provider care maps, including standardized discharge forms, are being initiated; physician work shops are rolling out; pharmacy-based compliance programs are being planned; a web site has gone up; and a series of abstracts and publications is being produced by nine writing groups. In addition, the importance of non-medical influences on patients' health is increasingly being recognized.

For example, of female patients with heart attacks or unstable angina: one third are over 80 years of age versus one sixth of men; 52% have an income less than \$20,000 versus 30% of male patients; and 39% of females live alone versus 26% of men. Or in other words, females seem to have a larger socioeconomic gap as well as larger care gaps.

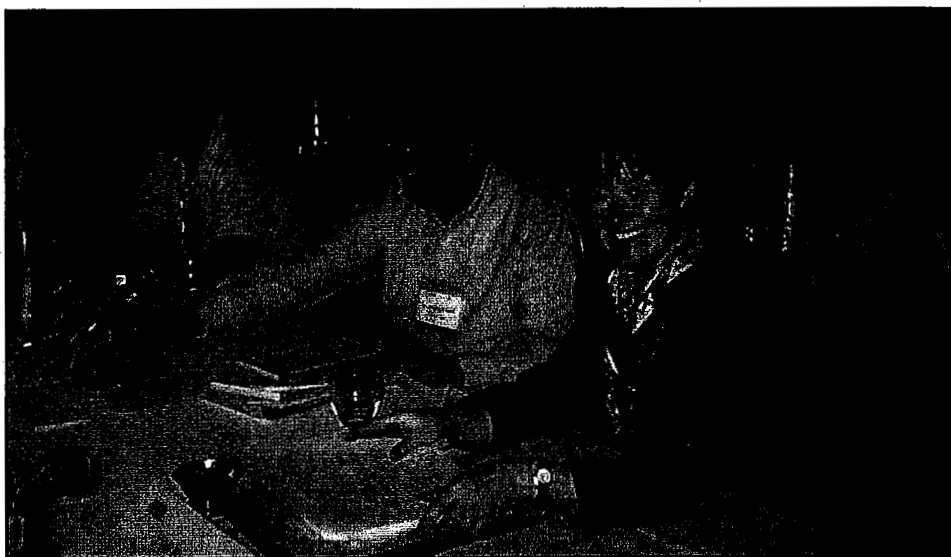
In summary, from the perspective of a concerned and experienced stakeholder, the task of improving health care in Canada cannot be accomplished by a single stroke of the pen, nor by a single individual; nor by a single stakeholder group. The broad partnership model, exemplified by ICONS, offers great promise to serve the needs of all Canadians. And, such a model will act as an appropriate guide for outcomes-based decisions of health policy.

Merck Frosst is intensely interested in the evolution of health care in Canada. Beyond interest, Merck Frosst has a credible role to play in its evolution including an obligation to bring feasible solutions and suggestions to a table of

partners. Merck Frosst is committed to continued participation in this worthwhile endeavour to find answers to the pressing and trying questions of the day. Time will tell if we are successful in these goals.

Good luck and good management to us all.

Dr. Terry Montague,
Merck-Frosst Canada



Delegates from right to left: Ms. Yve Buckland, UK; Dr. John Wyn Owen, UK; Mr. Scott Rowand, CAN; Dr. Maurice Shock, UK and Dr. Kenneth Shine, US.

ANNOUNCEMENTS/ANNONCES

University of Toronto

Professor John Dick of Molecular and Medical Genetics has received the prestigious Robert L. Noble Prize, awarded by the National Cancer Institute of Canada in recognition of outstanding achievements in cancer research and sponsored by Eli Lilly Canada Inc. Dick received the award for his pioneering research that paves the way for new treatments for leukemia.

Professor Chi-Chung Hui of Medical Genetics and Microbiology is the recipient of the National Cancer Institute of Canada Terry Fox Young Investigator Award, given to a promising young investigator doing outstanding basic laboratory research. Hui received the award for his work in understanding the biological process by which cancer develops. The award is supported by the Terry Fox Foundation.

Professor Carol Hutchison of Surgery is this year's winner of the Dean A.L. Chute Award (the Silver Shovel), awarded annually to the undergraduate teacher who is deemed by the fourth-year undergraduate medical class to have demonstrated excellence in overall teaching in the third and fourth years of the undergraduate medical program. The award was presented at the Annual Medical Alumni Association banquet for the graduating class.

Professor Robin Richards of Surgery was elected president of the Canadian Orthopaedic Research Society for a one-year term at the Society's Annual General Meeting. The purposes of the society are to promote, support, develop and encourage research in orthopaedic surgery, musculoskeletal diseases, musculoskeletal injuries and related disciplines and to provide, encourage,

develop and sponsor related educational activities as well as provide a forum for the dissemination of knowledge in these fields.

Université de Sherbrooke

Docteur Richard Boulé est nommé directeur du Département de médecine de famille, Faculté de médecine, Université de Sherbrooke.

Natif de Chicoutimi, le docteur Richard Boulé a fait ses études dans cette région avant de se déplacer à Québec pour obtenir en 1978 son diplôme MD de l'Université Laval et sa licence du Conseil médical du Canada (LMCC). Il est certifié du Collège des médecins de famille du Canada en 1980 et obtient par la suite son grade

de Maîtrise en pédagogie des sciences de la santé de l'Université Laval. En 1991, il devient fellow du Collège des médecins de famille du Canada.

Dalhousie University

Dr. David Anderson of the Department of Medicine was awarded the Lea C. Steeves Award for teaching excellence in continuing medical education. Created to honour Dalhousie CME's first Director, the Lea C. Steeves Award recognized the outstanding contributions of teachers to Dalhousie's continuing education programs for Maritime physicians.

ORDER OF EXCELLENCE

continued from page 1...

1993; J. Gordin Kaplan Award for Excellence in Research from the University of Alberta in 1998; and the Prix Galien Canada Medal for research from the Pharmaceutical Manufacturers of Canada also in 1998. Dr. Tyrrell was awarded a Gold Medal by the Canadian Liver Foundation and the Canadian Association for the Study of Liver in 2000.

Dr. Tyrrell's dedication to research is equalled by his gift for teaching. He has been honoured by students of all levels of study, including an Outstanding Resident Award and Teacher of the Year Awards in all three phases of medical school: basic sciences, clinical and bedside teaching. He also received the University of Alberta Rutherford Undergraduate Teaching Award in 1990 and the University Cup for excellence as an educator and a researcher in 1999. In 1998, he was Alumnus of the Year, University of Alberta, Faculty of Medicine.

Dr. Tyrrell has trained many research students and postdoctoral fellows; served on more than 200 committees, task forces and research teams; and is widely published in books and medical and science journals around the world.

Dr. Tyrrell's impressive medical career includes academic appointments at the University

of Alberta, one of Canada's most prestigious teaching and research institutions. These appointments include: Assistant Professor in Medicine and Biochemistry in 1976, promoted to Full Professor in Medicine and Biochemistry in 1982; Director of the Division of Infectious Diseases from 1982 to 1986; and Chairman of the Department of Medical Microbiology and Infectious Diseases from 1986 to 1994. He was appointed Dean of Medicine in 1994 and re-appointed in 1999 as Dean, Faculty of Medicine and Dentistry.

While receiving provincial, national and international accolades for his revolutionary work, Dr. Tyrrell's close ties with his native province remain strong. A firm conviction to developing quality medical health care in Alberta and Canada has kept Dr. Tyrrell at home. Some of his numerous commitments include past-president of the Association of Canadian Medical Colleges and past-chair of the Provincial Advisory Committee on Health Research. He also recently co-chaired the Canadian Medical Forum Task Force on Physician Supply in Canada and has co-authored a paper on that topic that has captured national attention.



COMMUNITY BASED EDUCATION: CHALLENGES AND OPPORTUNITIES

Plenary Session - ACMC-ACTH-CAME Annual Meeting
Whistler, B.C. - May 2000

*Arthur Kaufman
Professor and Chair
Department of Family and Community Medicine
University of New Mexico School of Medicine*

Fred and Bill, two senior residents in Family Practice had clinics in an Albuquerque neighborhood called the "War Zone." This neighborhood features a very high transiency rate, a large number of immigrants from Southeast Asia and Latin America, a high rate of poverty, and a high rate of drug abuse and violence. There are few social resources in the neighborhood. Each resident is expected to spend a half day per week working on a community health problem. Talking to their patients, Fred and Bill identified "lack of employment" as a major community health risk so they worked with a local group of immigrant Mexican women in creating a house-cleaning cooperative. The woman invested in buying cleaning equipment and they started to get jobs around the neighborhood. Bill and Fred felt they had made an important contribution to community health by increasing local income and social stability.

This vignette identifies several themes I'd like to address. First, health needs and priorities are different when seen from a vantage point of the community rather than from a clinic. Second, skills and challenges for health professional students are different and complementary in the three learning venues of hospital, clinic and community. I will offer a definition of community-based education (CBE), give a rationale for it, and look at the different manifestations of community-based education in different parts of the world. Evidence supports CBE as a valuable aspect of the curriculum of a medical student or resident and but there are unique requirements for CBE in academic institutions. Finally, I'd like to propose several actions steps to make community-based education more meaningful at one's academic health center.

CBE, like any important educational innovation, only takes hold if it responds to an important need in society. There are many changes taking place in health care delivery involving a shift of a very complex health care from hospital to clinics, and from clinics to homes. There is also a substantial body of research from Public Health investigators showing that forces underlying ill health are very much social and

economic, such that interventions in these areas might be more cost effective than a sole focus on biomedical interventions. Not long ago, many in academic centers resisted the shift of education from inpatient to ambulatory care settings. Later, the value of the latter became apparent. First, you could see the natural history of disease if you followed patients more longitudinally in a clinic rather than during several intense days in a hospital. Second, teachers in ambulatory care were invariably faculty rather than residents, the usual teacher in the hospital setting. Similarly, community-based learning is different from ambulatory-based learning. In a community, you are closer to the origin of disease, to how a presenting problem could have been prevented. Interventions at a population and community level are more easily envisioned beyond the one-on-one interventions characterizing the clinical and hospital encounter.

These perspectives on the value of CBE underline the origin of The Network: Community Partnerships for Health through Innovative Education, Services and Research. In the late '70s, the World Health Organization was concerned about how little the vast resources expended on developing countries' academic health centers seemed to be for community health. WHO felt that academic health centers world wide willing to move the venue of learning into communities would better service their societies and would catalyze similar changes in more traditional academic centers. And The Network of these institutions was initiated and has grown to over two hundred health profession schools worldwide, continuing to develop community-based innovations, learning from each other, and disseminating their innovations.

What is the definition of "community-based learning?" Boden and Blye in their 1999 book from England defined community-based education as "education undertaken by the student in one of many community settings outside the hospital". These may range from a primary care practice, to a health center, to the factory, or to the home. "Community-oriented learning" is learning organized both practically and intellectually around the needs and concerns which arise in communities in relation to their health and healthcare. It can take place in the classroom, the hospital or in various community settings. The authors saw "community-oriented learning" relating

to the objectives of education and not just the location. My preferred definition was proposed by Magzoub who merged the two concepts above: "Community-based education is defined as a means of achieving educational relevance to community needs and consequently as a way of implementing a community-oriented educational program. It consists of learning activities that utilize the community extensively as a learning environment in which not only students but also teachers, members of the community and representatives of other sectors are actively involved throughout the educational experience."

Many think that community-based learning is relevant only for developing countries, for rural care, or for primary care. This is not true. It is just as relevant for urban, tertiary care hospitals in regard to how they address their communities' health problems. I'd like to address this point because while vast resources of academic centers usually are oriented toward tertiary care services, they do not address adequately priority community health needs.

What is the rationale for community based education today? If you look at the underlying causes of ill health in our society, you can see that about 70% is caused by modifiable behaviors and environmental conditions. Risky behaviors such as unsafe sexual practices, smoking, drinking and avoiding exercise are usually addressed on a one-on-one basis in a clinic. Yet we know that most individuals at risk in the community are not in our clinics. We have to find a way to reach outside our traditional locations of healthcare if we are to reduce disease burden in our society. One illustration of this point is mortality from tuberculosis in England and Wales in the last 150 years. This condition, so amenable to biological research and intervention, would be expected to have declined sharply with the introduction of antibiotics. McKeon shows that the decline in mortality began long before the antibiotic era and showed little change in the rate of decline after the introduction of anti tuberculosis drugs. The decline in TB seems to have had more to do with improvement in nutrition, less crowded housing, and other social and economic changes in English society.

Where does our health system intervene in disease? If you look at the natural history of the leading disease killers it is clear to me to focus our activities more in the later stages of disease where care is more expensive. Population and community interventions, invariably intervene earlier at the stage of risk. This is perhaps a more cost effective utilization of society's health dollar.

In North America, 750 people in an average population of 1,000 in any given month, will experience an illness or injury. Only a quarter (25%) of the total population sees a physician or practitioner for this ailment. Nine of these are admitted to a community hospital and only one is treated in a teaching hospital. This "one-in-a-thousand" world of medical education is the world of traditional health professions training, while this quarter of the community is the world of medical practice, and this entire population is a world where risks are amenable to early interventions. How do we as academicians better influence the health of a population? Let me take New Mexico as one example of this dilemma in how we try to bridge academic health center priorities and community health.

New Mexico, on the US Mexican boarder, has twice the population of New Brunswick and it has one third the land mass of British Columbia. It's unique in having the second highest percentage of ethnic minorities, which comprise half the population, who are primarily Hispanic and American Indian. It is a very rural state. While two thirds of the population is rural only one-third of health providers are in rural areas. So there is a geographic maldistribution of providers very much not unlike the circumstances in Canada. What causes premature death in our state? Number one is injuries, of which over 50% are alcohol related. Second is cancer, much of that smoking and environmental pollution related. And third, is homicide and suicide, correlated with alcohol abuse, social disarray, low income, and easy access to guns. This is our challenge. But how were we preparing our residents and students to address these challenges?

There was clearly a mismatch between what students and residents were learning, and what the community needed. We therefore developed a curriculum which was highly community-based so learners could confront the reality of community health problems and determine how they might intervene. Today, twenty-five percent of the medical students' four-year curriculum is based in the community including a three-month first year immersion in a rural town. All students must complete two to three research projects at least two of which are community health assessment projects, and every aspect of the curriculum is infused with the population and behavioral perspective. The residency in Family Practice has grown to 60 residents dispersed into the communities. We have, in addition, established three rural-based residencies to further increase the number of residents ultimately choosing to work in these under served areas.

I want to illustrate how the introduction of a community-based curriculum, not as a marginal but as a central activity, alters student behavior. A third year medical student, assigned to an in-patient otolaryngology service, cared for a young child whose family recently had moved to Albuquerque and had repeatedly brought their child to the emergency room for a worsening tooth abscess. The family had seen a dentist who diagnosed the problem and recommended a root canal to drain the apical abscess. The family had little money (in the United States it is very costly to have dental care) and so they treated their child at home with the Penicillin tablets they received in the emergency room and hoped the problem would go away. It did not. The apical abscess blew up into a massive abscess infecting the bone and the child required surgical draining and IV antibiotics. The cost of many days of hospitalization cost was over 20 thousand dollars. The student wondered how this catastrophe could have been prevented? She discovered that the family was unaware of low cost dental services in town. Nor did the hospital personnel the family encountered inform them about its availability. So the student spent 2 hours surveying the city's low cost and free dental services. She composed a flyer with this essential information and posted the flyer in all primary care and emergency care sites in the hospital. I chose this vignette to illustrate how even in an urban, tertiary care hospital one can take the next step into the realm of community prevention.

The next example concerns a senior medical student who conducted his project over a year. He was a student from rural New Mexico, he loved guns, he was a hunter and was a member of the National Rifle Association. We didn't see eye-to-eye about gun ownership, but I had enormous respect for him and what he accomplished. He was in the emergency room one day and a child was brought in who had been accidentally shot in the head by his younger brother. The brother had found his father's loaded gun at home and was just playing with it when it accidentally discharged. The young patient died in the emergency room and this was a traumatic experience for this medical student as well as the family whom he subsequently befriended. Converting his sorrow to action, the student worked with the family and with local media to make a public service announcement that was run for free on television. The bottom line of the announcement was "Please keep your guns locked and your bullets outside your guns, to protect our children." It was a very popular and moving public service announcement on television delivered by the mother of the child who was killed.

The student went further. He then successfully negotiated with the New Mexico Game and Fish Department to require that every gun sold in New Mexico bear a yellow tag instructing gun owners about storing guns safely and unloaded in the home. This has had a significant impact, decreasing the number of children being shot by handguns in the last five years. Again, the student took that next step beyond care of the individual patient - but the next step would not have been effective unless he was working with other community sectors and agencies outside the medical center.

What is the evidence supporting the efficacy of community based learning? Important data comes from the Rural Physician Associates program at the University of Minnesota. There, they accept 20 to 30 students out of each third year class each year and instead of rotating them through hospital clerkships in Minneapolis, they are sent to communities in rural Minnesota where they are immersed, learning in primary care practices and in community hospitals. Instead of separate clerkships, their experiences are integrated. Some years ago they analyzed how students learned in the two tracks, one hospital-based, one rural community-based. All reported differences more significant. Students in the rural immersion program had triple the number of patient encounters per month, they acquired a greater number and variety of clinical skills, they were given a higher level of responsibility, and they provided greater continuity of care.

In our own program at the University of New Mexico, for the last three years all students were asked to rate each element of their curriculum (lectures, labs, rural immersion, clinical skills, tutorials) as to how well it fulfilled the most important objectives of the curriculum in their first two years. There are 21 such objectives. Looking only at those curricular components that scored very high, sixteen of the 21 objectives were deemed to be fulfilled very well by the first year's three month rural immersion experience. Fourteen objectives were fulfilled by tutorials, and thirteen by continuity clinics. Students gained information from other components of the curriculum, but were not rated as highly. We also conducted a study comparing student's experience with adolescents in community school-based clinics vs the problems with adolescents presenting at an academic center. At a school-based setting, they saw significantly more emotional problems, counseling issues, family planning, and health care maintenance, where as adolescents seen in the academic health center presented with significantly more trauma and acute care problems.

What is the impact of community-based education on professional career selection? Jack Colwill at the University of Missouri conducted a national study correlating the likelihood of students choosing to go into Family Medicine, with the type of medical school they attended. In medical schools without a family practice department, only 4% of those graduates chose family medicine. If the school had a family medicine department, it jumped to 13%. If students, in addition, had some community experiences, it went to 18%, as in the case of Minnesota, Washington or New Mexico where there is a substantial community experience, it jumps to 23%. Finally 45% of students graduating from osteopathic schools, where most of the role modeling is in primary care, go into family medicine. Colwill's conclusion is that medical school, in the U.S. were toxic environments in which to attract students into family medicine.

In New Mexico, we applied the principles of community-based learning to our Family Practice Residency by establishing three rural, community based sites. Comparing graduates of our rural vs urban program, 80% go into rural practice compared to 45% of our urban graduates. Virtually every rural residency in the U.S. shows the same data.

What are some of the requirements for community-based education? I will mention a few. First, the definition of "teacher" should be broadened because often the home visiting nurse, the local politician, the banker, or the teacher, are important, informal teachers in those settings. Second, it's critical for students to actually be immersed in the community, giving hands-on care, for a sustained period of time. Students don't gain as much out of the experience if they are passive observers for a short period of time. Third, there are unique competencies best learned in the community such as "multi professional team work."

At academic health centers, there are often high barriers between professional schools reinforced by separate buildings, budgets, and administrations. Thus, we train our students in isolation for a practice which will be integrated. Our strategy is to bypass the turf and barriers on campus and focus on developing model, multi professional practices into which students can work together. Fourth, skills well learned in community settings also include health policy development and community advocacy.

What rewards are required for community-based teaching? A study done at Rockford Illinois assessed why community teachers teach for free, even in this very stressed environment of managed care. The number one reason is personal satisfaction and intellectual stimulation

from having learners in the practice. The experience is a natural continuing medical education. When students ask questions, it stimulates the preceptor's reasoning and stimulates continued learning. Another value to the preceptor is the technology students bring to the practice, such as how to use office computers to access medical libraries and evidenced based medicine resources.

The Galveston and New Mexico programs offer preceptors practice coverage at reduced cost, using primary care residents. The program offers the practice and the community the added opportunity to recruit these residents into the practices. Residents, in turn, gain an understanding of the advantages of practice in rural communities and how much they are needed. They are usually treated as special guests when they are in the community compared to being "just another resident" at the academic health center.

One important aspect of resident and student learning in the community is how behavioral and population issues become a greater priority for them. While our curriculum in New Mexico is infused with population and behavioral issues, it is less meaningful to the students when sitting in a classroom. But when the student is faced with a patient in a community with few resources and finds the patient can't be referred to a specialist because of financial, language, or transportation barriers, those population and behavioral issues suddenly loom large. It's also clear that the further one is from the hospital, the louder is the community's voice. When a patient is encountered in a hospital bed, dressed in pajamas, the doctor is the one in control. In a community, one is on the patient's turf and you can sense the community's strengths and assets when you go to the local social club, bowling alley, or church service.

Finally, I want to speak about "academic arrogance." I think this is a very big problem with which all of us are familiar. How are community physicians viewed from the academic center? Are their strengths recognized or are they demeaned on ward rounds because the tertiary center sees a disproportionate number of their "failures". Sir William Osler, the great Canadian physician, reacted when curriculum planners at Johns Hopkins, where he worked at the time, decided to hire full time physician faculty to teach students who worked in hospitals, not the community. Osler commented, "cabined, cribbed, confined within the four walls of a hospital, practicing the fugitive and cloistered virtues of a clinical monk, how shall he, forsooth, train men for a race the dust and heat of which he knows nothing and cares less? The danger would be the evolution

throughout the country of a set of clinical prigs, the boundary of whose horizon would be the laboratory and whose only human interest was research."

We have clear educational strengths within our academic centers but they have to be balanced with complementary educational strengths in our communities. To accomplish this balance, we must mobilize all major forces in the academic health center. Community-based

education is too vital for our society's health to be seen as a marginal activity.

I'd like to close with a quote from Max Planck the physicist. He summarized how scientist accept new discoveries. "A new scientific truth does not triumph by cornering its opponents and making them see the light, but rather because its opponents eventually die and a new generation grows up that is familiar with it." I hope it will not take us that long to incorporate community-based learning into our curriculums.

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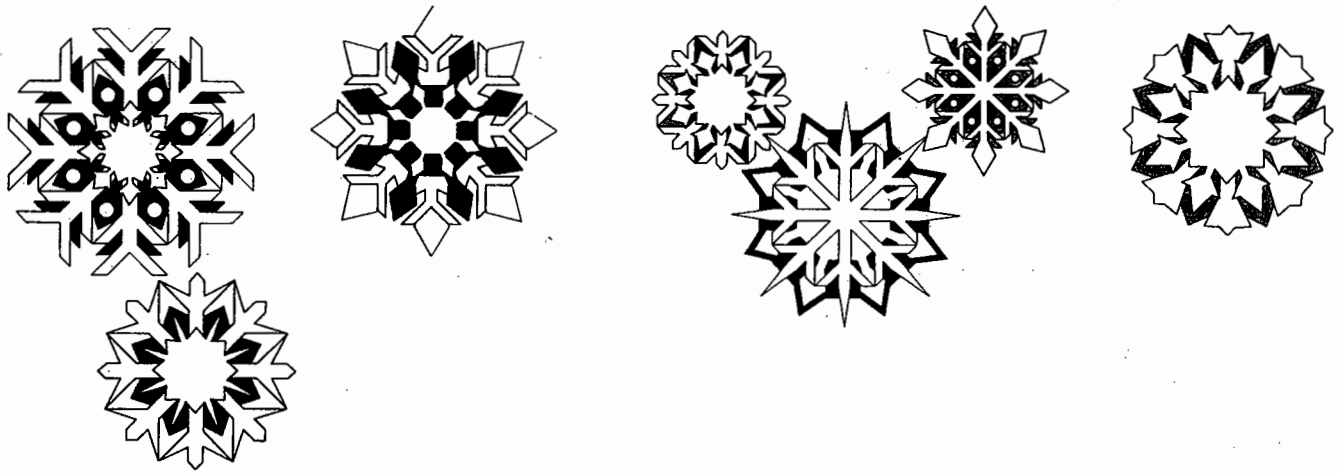
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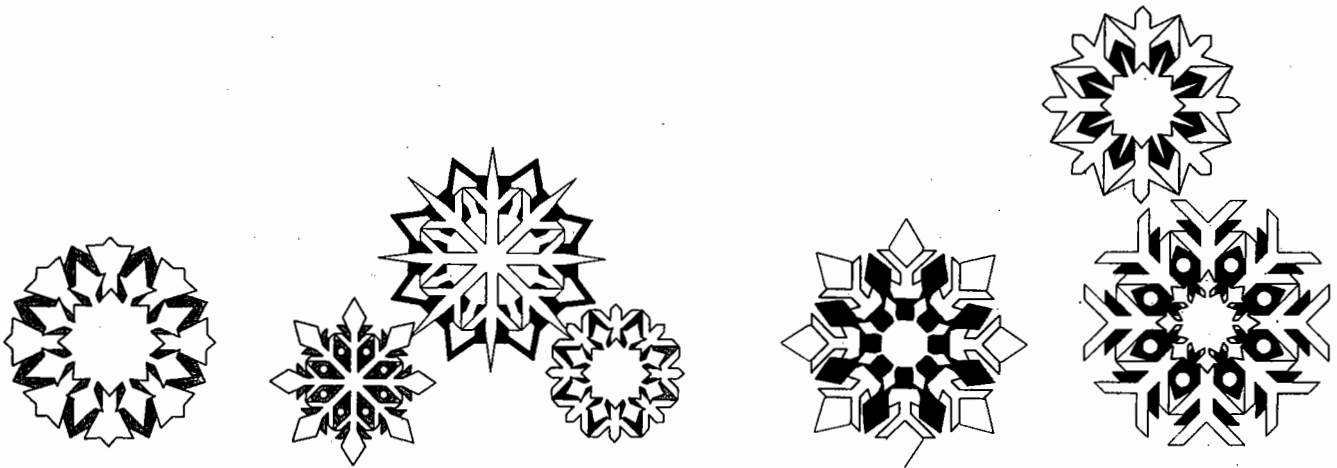
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SEASONS GREETINGS

From the Staff at ACMC



**ACMC-ACAHO-CAME ANNUAL MEETING
58TH ANNUAL MEETING - APRIL 28 - MAY 1, 2001
WESTIN HARBOUR CASTLE, TORONTO**

Toronto, Canada's largest city, and the sixth largest in North America, will be the site of our 58th Annual Meeting. Its cultural and culinary attractions reflect the fact that it is among the most ethnically heterogeneous in the world.

Both plenary session themes look to the future but from quite different perspectives. The first will challenge our guest speakers to imagine the post-genomic era as envisaged a decade from now and to help us prepare for that new world as educators, students, researchers, entrepreneurs, health professionals and policy makers. Participants will include Dr. Kathy Siminovitch of the Mount Sinai Hunenfield Institute; Mr. Timothy Caulfield from the University of Alberta Health Law Institute; Dr. Ron Beavis, President, Proteometrics Canada Ltd., and Dr. Lorne Tyrrell, Dean of Medicine and Oral Health Sciences, University of Alberta.

Theme two will explore the burgeoning field of alternative/complementary health care. Our speakers will also be asked to look to the future and address the question: What do tomorrow's doctors need to know about remedies that half of Canada's population subscribe to? Presenters will include the Federal Minister of Health, Dean Carol Herbert of the Faculty of

Medicine and Dentistry at the University of Western Ontario and Dr. Stephen Straus, Director of NIH's National Centre for Complementary and Alternative Care. Additionally, a distinguished panel will respond to audience questions and comments. Health Canada will report on a survey on this topic which included educators, students and residents.

The Annual Meeting J. Wendell Macleod Lecture will be given by Dr. John Evans, Chairman of the Board, Torstar Corporation in recognition of his outstanding contributions to medical education in Canada.

Attendees will include, among others, our usual delegate profile - deans and decanal staff from our medical schools, the CEO's of academic healthcare organizations, members of the Academy of Chief Executive Nurses, chairs of Surgery and Family Medicine and educators, students, residents and researchers. There will be a full slate of CAME workshops, posters and a facilitated poster discussion session.

See you in Toronto this Spring!

**SPIRITUALITY AND HEALTH CONFERENCE
UNIVERSITY OF CALGARY
MAY 24-26, 2001**

CALL FOR PAPERS

Keynote speakers will include Dr. David B. Larson, President and Primary Founder, National Institute for Healthcare Research, Bethesda, Maryland and Dr. Chandrahant P. Shah, Professor, Department of Public Health, Health Administration, Pediatrics and Family and Community Medicine, University of Toronto.

Please consult our website for additional information and a copy of the call for papers:
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Conference information is also available from P. McDougall: Tel: (403)220-3988; Fax: (403)270-2330; E-mail: pmcdouga@ucalgary.ca.

ACMC INFORMATICS WORK GROUP WEB SITE
HTTP://ACMCINFORMATICS.INFOPOP.NET

During the April 2000 meeting of the Informatics Work Group a variety of issues pertinent to medical informatics were discussed. Areas of interest included: a) issues surrounding the emergence and increasing significance of medical informatics within our schools; b) development of electronic curricula; c) information management within the medical school, among associated hospitals and the school and externally through Telehealth innovations; d) the potential use of applications to facilitate research; and e) evaluation of the pedagogical efficacy of the integration of new technologies on teaching and learning.

By the end of the meeting there was general agreement that many of these issues might best be addressed on a more detailed and continuous basis through a web based forum, which would serve as a medium for the exchange of ideas, a mechanism for the comparison of global directions and individual objectives, and a means for national collaboration of projects of large scope.

The ACMC Informatics Work Group web site URL is:

<http://acmcinformatics.infopop.net>. The site is open to all and we welcome your contributions.

TWO RECEIVE GENDER EQUITY AWARD

University of Western Ontario medical professors Barbara Lent and Joan Bishop received the May Cohen Gender Equity Award from the Gender Issues Committee of the Council of Ontario Faculties of Medicine (GIC:COFM).

"Drs. Lent and Bishop received this award to recognize their contributions to improving the gender equity environment and improving awareness and education in the area of women's health both at the University of Western Ontario and across the province," said Dr. Rose Goldstein, Chair of GIC:COFM.

The May Cohen Gender Equity Award is an annual award to recognize outstanding effort or

achievement of an individual(s), program(s), department(s) or school in improving the gender equity environment in academic medicine in Ontario. Deans of Ontario Faculties of Medicine may make up to two nominations for the award from within their faculty of medicine.

The award is named in honour of Dr. May Cohen in recognition of her unique contributions throughout her professional career, to promote women's health issues, increase awareness of gender issues in health and healthcare, and enhance women's role within the medical profession.

APPOINTMENT

Russell T. Joffe, M.D., has been appointed Dean of the New Jersey Medical School of the University of Medicine and Dentistry of New Jersey. Dr. Joffe, who will assume his new position on January 1, 2001, has

been Dean of the Faculty of Health Sciences and Vice President for Health Sciences at McMaster University in Ontario for the last three years.

NOUVELLE PUBLICATION FRANCOPHONE

Pédagogie Médicale

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- Offrir une tribune destinée à favoriser le partage des expériences et des résultats dans le champ de l'enseignement et de l'apprentissage des sciences de la santé, répondant aux critères de qualité des publications scientifiques.
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- Diffuser les travaux de recherche en éducation des sciences de la santé.
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