



Ottawa signals new interest in population health

The federal government is going to boost population-health initiatives with new funding, Health Minister Allan Rock said during a speech at the CMA's 132nd annual meeting in August. Meanwhile, the CMA General Council has approved a series of resolutions designed to strengthen the physician's place at the forefront of health promotion. In general, population health is a concept in which the emphasis is on the health of the entire population, not the health of an individual. The accent, therefore, is on health improvement via health promotion, not by the provision of acute or individual care. Many doctors disagree with the concept, since they treat patients — and their problems — individually.

Rock told delegates that health promotion and disease prevention would be a priority from "this day forward."

"Sustaining our health care in the long term depends on our ability to improve the health of Canadians," Rock said. He said diabetes alone costs the system \$9 billion a year — along with 25 000 deaths — and two-thirds of Canadians lead "dangerously inactive lives."

The minister also promised new money. "I am not talking about taking money from care and cure to spend it on prevention and promotion," he said. "I know only too well how badly those dollars are needed where they are. I do not regard this as an either-or proposition. I think we have to focus on both."

Meanwhile, Dr. Cynthia Forbes, chair of the CMA's Council on Health Care and Promotion, pointed out that physicians have "lagged behind in the population-health debate." The CMA

addressed this through resolutions that called for collaboration with others to improve population health, promotion of the positive ways the health care system affects Canadian health, ensuring that public policies consider potential health consequences and promotion of medical and social interventions to ensure an optimal start to life for children.

Forbes said physicians are often antagonistic toward proponents of the population-health model, in part because of their concerns that it will undermine acute care. "[Population] health has become a highly politicized health rhetoric used as a shield to justify spending cuts," said Forbes.

She added that the public fails to appreciate and understand the services offered by physicians, such as smoking-cessation and hypertension-control programs. In addition, physicians are concerned that the evidence-based approach to care isn't being applied to population health. — *Barbara Sibbald, CMAJ*



CMA PHOTO

Allan Rock: new emphasis on population health

Dentists sour about amount of sugar in drugs



The Canadian Dental Association (CDA) has rung the alarm bell about the amount of sweetener used in both prescription and over-the-counter drugs in Canada. "The sugar content of the formulations is from 20% to 80%, and patients at particular risk include those with special needs and infants on long-term medications who have not yet established proper oral hygiene," a motion approved recently by the CDA board states. "The presence in the mouth of sweet syrupy medications can contribute to high rates of dental caries, such as those seen in early childhood caries."

The CDA says doctors should prescribe drugs that use sugar substitutes whenever possible and that drug labels should indicate sugar content to help in the search for alternatives. "High-sugar-content medications such as oral elixirs, suspensions and chewable medications should include warnings," the CDA added. It also wants drug companies to replace sugar with sugar substitutes.

First-ever Webcast of annual meeting

It took 132 years, but for the first time CMA members could watch goings-on at general council without being there — all they had to do was turn on their office computer. "It was part of an initiative to communicate to members across the country," explains CMA Secretary General Peter Vaughan, a strong proponent of using new technology to improve communications. Only about 250 delegates represent the CMA's 46 000 members at General Council. "We're trying to use technology to be open and transparent to everybody about what the association does," says Vaughan.

The Webcast at www.cma.ca covered the opening ceremonies, speeches by CMA President Hugh Scully and federal Health Minister Allan Rock, the debate over motions and much more. It ran for all 3 days of General Council from Aug. 23-25. The success of the Webcast is now being evaluated. "It was a good first step," says Vaughan.



Winnipeg becoming leader in MRI-based research

The first made-in-Canada, head-only, functional magnetic resonance imaging scanner is expected to give a Winnipeg research centre a leading edge in MRI capabilities. The St. Boniface General Hospital Research Centre in Winnipeg will use the \$3-million MRI scanner, which was custom-built by the National Research Council's Institute for Biomedicine in Winnipeg, at its new Centre on Aging.

Its powerful magnet, at 3 T compared with the more standard 1.5 T, allows researchers and clinicians to obtain considerably more information about patients, explains Dr. Blake McClarty, professor and chair of the Department of Radiology at the University of Manitoba. "We can look at blood flow during brain activity and we can see when increased blood flow occurs during [specific] activities and in what portion of the brain." Its many uses include providing information on where brain activity occurs in poststroke patients or in patients with dementia.

"This MRI looks at how the brain functions rather than looking at the anatomy," explained Dr. Ian Smith, director general at the Institute for Biomedicine. "If a recovered

stroke patient is paralysed on the right side, so activities on the left side of the body aren't happening, we can see how after about a year in [some] patients, the brain starts using its right side for these activities. We can see how the brain promotes recovery." This understanding could lead to the development of an artificial process to "recruit" brain activity.

Winnipeg's head-only MRI means that the research centre now has 3 MRI scanners. One is for conventional diagnostics and the other is a C-shaped, 0.2 T scanner manufactured by Siemens for an integrated system of robotic-guided neurosurgery. Developed by Mark Torchia, a research scientist at the centre, that system integrates MRI with laser technology and robotics.

This integrated system lets a surgeon "image" the patient, view the tumour, determine the best way to gain access to it and then program the computer to guide the device to the tumour.

With 3 MRI machines, the St. Boniface research centre is poised to advance its diverse research projects and move them closer to clinical applications and possible commercial opportunities. — *Jane Stewart, Winnipeg*



An MRI scanner at St. Boniface

Blood-donor ban for UK visitors stems from Krever report

Justice Horace Krever's emphasis on "preventive" action to ensure safe blood products is directly responsible for Health Canada's recent decision to ban blood donations from Canadians who spent a cumulative total of 6 months or more in the United Kingdom between 1980 and 1996. The ban was imposed to avoid donations from people infected with variant Creutzfeldt-Jakob disease.

In making the announcement Aug. 18, Dr. Doug Kennedy of Health Canada's Bureau of Biologics and Radiopharmaceuticals quoted from Krever's report: "Preventive action should be taken when there is evidence that a potential disease-carrying agent is or may be blood borne, even when there is no evidence that recipients have been affected." He also stated: "If there are no measures that will entirely prevent harm, measures that may only partially prevent transmission should be taken."

That is precisely the tactic pursued under the Health Canada ban, which Canadian Blood Services (CBS) put into effect Sept. 30 — 5 months before the government deadline. The new directive is a "compromise" between risk and benefit, said Kennedy. It is "strictly a precautionary measure" given that there is only a theoretical risk of

contracting the fatal brain disorder through the blood supply. The US has introduced a similar ban.

The years between 1980 and 1996 were selected because that is thought to be the period when bovine spongiform encephalopathy (mad cow disease) evolved in the UK. The 6-months' cumulative time was based on data that indicated "we would get rid of 80% to 90% of the risk but only defer about 3% of donors across Canada," said Kennedy. "We want to avoid blood shortages," he added.

CBS estimates the deferred 3% of donors donate 20 000 units of blood annually. CBS has launched a publicity campaign to increase the number of donors and frequency of donations to make up for the anticipated shortfall.

"Our greatest concern is that people will stop donating without reason," said CBS chief executive officer Lynda Cranston. Donors are urged to contact their local CBS blood centre or call 888 760-8545 to determine if they are still eligible. CBS will also be monitoring hospitals to determine the policy's impact.

No cases of variant CJD have been reported in North America. There is no known treatment and no way to screen blood donors for it. — *Barbara Sibbald, CMAJ*



Pulse

Has the lure of greener pastures lessened?

The Canadian Institute for Health Information (CIHI) reports that 569 Canadian physicians moved abroad in 1998, a significant decline from the 659 doctors who left in 1997 and a 27% drop from the 1994 peak of 777 physicians.

Doctors leaving Canada tend to be male (70%) and young, with just over half having 10 years' experience or less. A slightly higher proportion of emigrants are special-

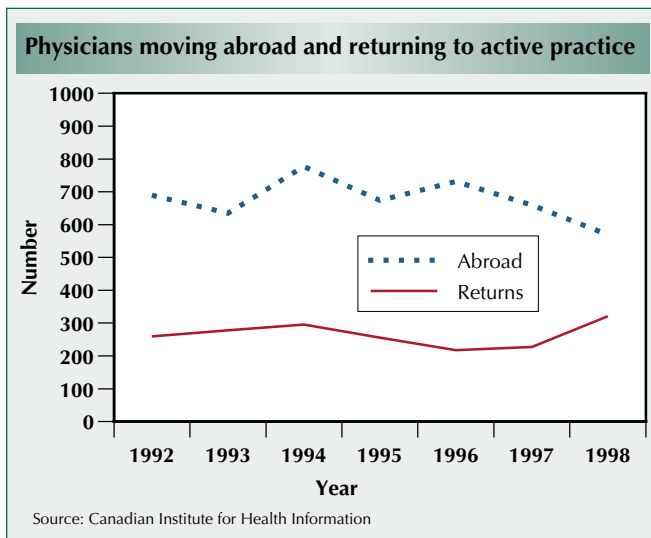
ists (56%), and the majority of all physicians who leave (77%) are graduates of Canadian medical schools. The number of physician emigrants in 1998 represents approximately 1% of the active physician supply, but this varies from province to province. The low is 0.7% in Quebec and the high is 1.7% in Prince Edward Island.

The number of emigrants is likely an underestimate because the CIHI database has difficulty tracking physicians who leave immediately after completing postgraduate training but without receiving full licensure in Canada.

The number of physicians returning to active practice in Canada in 1998 increased to 321, up from 227 in 1997. Males and females — both specialists and family physicians — tend to return in about the same proportions as those leaving. Even excluding residents, 44% of physicians returning to Canada have 10 years' experience or less.

In recent years the annual net loss has been in the range of 400 physicians. The 1998 net loss of 248 doctors, while substantially lower, is still larger than the combined annual output of the medical schools in Newfoundland, Manitoba and Saskatchewan.

This column was written by Lynda Buske, Chief, Physician Resources Information Planning, CMA. Readers may send potential research topics to Patrick Sullivan (sullip@cma.ca; 613 731-8610 or 800 663-7336, x2126; fax 613 565-2382).



Dean needles doctors about failure to promote vaccination

The dean of medicine at Dalhousie University says physicians should put immunization back on the frontline of Canadian prevention strategies. "We can make such a difference if we can move it up," Dr. Noni MacDonald told 200 delegates attending the Federation of Medical Women of Canada annual meeting in Ottawa in August. She said diligent immunization efforts reduce morbidity and mortality and also help decrease absenteeism, reduce hospitalization rates and save money.

But immunization programs have been so successful that "the public doesn't see the risk because they don't see the disease any more," she said. Smallpox has been eradicated, paralytic polio has disappeared from this continent and other diseases are becoming rare. "We've rested on our laurels," MacDonald complained, and

experience elsewhere indicates that this is a mistake.

In Russia, a decrease in the rate of diphtheria vaccination has resulted in 100 000 annual cases of that disease and "many" deaths. In Canada there were 2500 cases of measles in 1995; the rate has declined since 2-dose vaccines were introduced.

MacDonald argues that improved vaccination programs are more important than ever due to an upcoming boom in the number of school-age children plus a growing population of seniors. Adults are "definitely at risk" of pertussis because there's no immunity 5 years after vaccination. A California study of adults who had a chronic cough for 2 or more weeks found that 12.5% had pertussis (*JAMA* 1996;275:1672-4). In Canada, the rate of pertussis among young

adults aged 15 to 24 increased from 0.6% between 1982/89 to 5.5% between 1990/97. For other adults, it increased from 0.3% to 2.7% during the same time periods.

Influenza, a known killer of seniors that also leads to increased hospitalization among the those under age 5, is still not a popular target for immunization. MacDonald urged universal immunization for school children and residents in long-term-care facilities.

MacDonald agrees that vaccines pose some risks, but argues that the risks posed by the diseases themselves "are so much worse" (see *CMAJ* 1999;161:736-8). "Too many of the people who are scaremongers out there focus on the risks of the vaccine and they never tell people about the risks of the disease," she said.



Company takes heart as battery problem solved

Ottawa-based World Heart Corporation says it has solved the battery cell problem that was affecting its ventricular assist device known as the Heartsaver. World Heart spokesperson Dr. Tofy Mussivand said the battery-related failure was caused by a defect in

the printed circuit board that controls power flow to the device's internal battery during recharging. World Heart says the device should be available for testing in January 2000.

The Heartsaver device operates using an external power supply; the

internal battery is designed to allow the device to operate without the external power source for up to 90 minutes. The company says it expects to begin clinical trials in the first half of 2000, subject to Health Canada approval.

Research Update

Bolstering brain cells against stroke damage

A team of Canadian researchers has discovered a major mechanism by which cells are destroyed during stroke — a discovery that promises to pave the way for drugs that limit the brain damage suffered by patients (*Science* 1999;284:1845-8). By gaining an understanding of this critical chemical chain reaction, the researchers were able to derail it, thereby reducing the vulnerability of brain cells to stroke.

Dr. Michael Tymianski and colleagues at the Toronto Hospital–Western Division Neurosciences Centre found that a specific protein (PSD-95) causes calcium entering brain cells through receptors called NMDAs (*N*-methyl-D-aspartate) to bind with nitric oxide synthase (NOS) enzymes to form stroke-triggering free radicals. Eliminating or inactivating PSD-95, the research team discovered, makes brain cells more resistant to damage caused by lack of oxygen and glucose.

“The most significant aspect of this work is that now we recognize PSD-95, and molecules like it, as potential targets for drugs that treat stroke,” said Tymianski, a neurosurgeon and a Medical Research Council of Canada clinician-scientist. “This is a novel target and is quite exciting for us from the point of view of therapeutic potential, as drugs that interfere with PSD-95 are relatively easy to make.”

Tymianski and his fellow researchers are currently studying animals deficient in PSD-95 to find out if they are more resistant to stroke. From there, the team will design drugs that either suppress natural production of PSD-95 or prevent the protein from binding with NOS or NMDA. Once developed, such drugs will likely take 3 to 6 years to be approved for human trials.

“Only by understanding these principles can we move forward to develop rational therapies for stroke that will work,” said Tymianski, who is also an associate professor at the University of Toronto. “We feel that we have brought the field a step closer to this goal. Based on this finding, we may be able to design drugs that target specific steps along the molecular pathways that lead to the destruction of brain cells after a stroke.”

The research team from Toronto Hospital–Western Division has patented its discovery and is currently seeking

an industry partner for future stages of the project. — *Greg Basky, Saskatoon*

Understanding how the gut reacts

A clue to intestinal inflammatory disease has been uncovered (*Nat Med* 1999;5:900-6). Feeding egg whites to mice genetically engineered to react to egg-white peptides had no effect until the mice were also given inhibitors of cyclooxygenase-2, which led to intestinal inflammation. Researchers found that cyclooxygenase-2-dependent arachidonic acid metabolites act as immunomodulators in the immune response to dietary antigens such as egg whites. Cyclooxygenase-2 therefore plays a key role in the intestinal immune system.

Long-term effects of childhood febrile seizures

Experiments in rats show that fever-induced seizures cause changes in the brain that last into adulthood (*Nat Med* 1999;5:888-94). After immature rats were subjected to heat-induced seizures, they experienced a selective presynaptic increase in inhibitory synaptic transmission in the hippocampus. These serious nerve alterations in the brain persisted well into maturity. The findings challenge the view that febrile seizures in childhood are benign. They also contribute to the debate about the causes of epilepsy later in life.

Starve a fetus, feed a sociopath

To test the theory that nutritional deficiency in the womb can lead to antisocial personality disorder later in life, researchers looked at more than 100 000 men in the Netherlands whose mothers were malnourished because of World War II food blockades during their pregnancy (*JAMA* 1999;282:455-62). The men were all given psychiatric examinations at age 18 before military service. Those exposed to severe maternal nutritional deficiency during the first or second trimesters had 2.5 times the risk of antisocial personality disorder. However, severe deficiency during the third trimester, or only moderate deficiency at any time in pregnancy, did not increase the risk.