

## Dependence on donated blood will plummet, experts predict

Although the need for donors is unlikely to disappear, a British Columbia biochemist says technologic advances mean that dependence on donated blood is likely to decline significantly during the next 2 decades. And Ross MacGillivray, a professor of biochemistry and molecular biology at the University of British Columbia (UBC), says the advances couldn't come at a better time: not only has rigorous testing of donor blood limited the number of eligible donors, but an aging population is increasing the demand for blood. Canadian Blood Services (CBS) says demand will increase by about 40% by December 2005. MacGillivray says the annual shortfall could reach 200 000 units by then.

Helping to overcome that potential shortfall is one of the goals of UBC's Centre for Blood Research, which was launched by MacGillivray and colleagues thanks to a \$15.1-million grant from the Canada Foundation for Innovation. Its goal is to decrease dependence on blood donors by ramping up research involving substitutes and extending the storage life of platelets.

The centre, which will operate virtually ([www.cbr.ubc.ca](http://www.cbr.ubc.ca)) until UBC's new Life Sciences building opens in 2005, in-

cludes chemical engineers, ethicists and scientists in its multidisciplinary team. MacGillivray says their goal is to make "huge strides" in a field where research has been lagging and "to train the next generation of transfusion medicine specialists." Partners in the project include CBS and Bayer Inc.

The centre will study everything from damage done by shear stresses placed on blood in the centrifuge to designing better storage bags. The short-term goal is to extend the shelf life of platelets — currently 5 days. "We want to look at the proteins that change in that 5-day period, and potentially, they would be targets for drugs," says MacGillivray. He says that even a 1- or 2-day extension of the shelf life would have a major impact.

The development of blood substitutes is a longer-term goal. The US army, which has its own transfusion service, is already trying to develop a synthetic oxygen-carrying blood component. MacGillivray is optimistic that the centre will eventually be able to develop synthetic platelets and other blood products. Although CBS has a goal of achieving a donor-free blood supply by 2025,



Martin Dee, UBC

### MacGillivray: New solutions for old problems

MacGillivray predicts synthetic products will instead be used to supplement donated blood.

"You will never become donor independent, but you could certainly decrease the dependence on donors," he says. He noted that blood-clotting factors used by Canadian patients with hemophilia are now derived via recombinant DNA techniques.

"We want to restore Canadians' faith in their blood system," he says, "and I think CBS is going a long way toward doing that." — Heather Kent, Vancouver

## Estimates of flu-related deaths rise with new statistical models

A US study has determined that more people are dying of influenza than previously thought, and the finding holds true for Canada too.

The study (*JAMA* 2002;289[2]:179-86), funded by the US Centers for Disease Control (CDC), used a new statistical model to estimate that 36 000 Americans are dying from influenza-related complications each year. The previous estimate was 20 000 deaths. An additional 11 000 mostly elderly people die annually from respiratory syncytial virus (RSV).

The estimates are "similar in Canada," says Dr. Theresa Tam, chief of respiratory disease with the Centre for Infectious Disease Prevention and Control. Canada's flu toll had been estimated at 500 to 1500 deaths annually, but after using new modelling Health Canada estimated that 700 to 2500 deaths may be attributable to influenza.

Health Canada takes the total number of deaths related to pneumonia and influenza and uses various techniques to determine how many deaths can be attributed to flu. The newer statistical models, which are similar to those used by the CDC, incorporate laboratory identifications for influenza and RSV, says Tam.

Statistics Canada says the number of deaths from pneumonia and influenza has increased from approximately 4200 in 1979 to 8030 in 1997. Of the latter, 6618 cases involved people older than 75, compared with 2965 in 1979. Despite the increase in the absolute number of deaths, says Tam, mortality rates have actually gone down in every age group. "Canada now ranks number 1 in the world for influenza [vaccine] doses per capita," says Tam. "It's almost 1 in 3."

Tam says every province has tried to

increase this immunization coverage. "As a public health message, it's worth concentrating on. It still prevents hospitalizations and deaths."

So should every province follow the lead of Ontario, which offers universal immunization against influenza? "That's a very good question," says Dr. Michael Tarrant, who represents the College of Family Physicians of Canada on the Canadian Coalition for Influenza Immunization. "Everyone is awaiting the results of Ontario's experiment. It's expensive but it may be worth while." (The vaccine costs \$5 per person plus \$10 to \$15 to administer.)

The CDC attributes the larger number of deaths in the US to an aging population and to the "predominance of influenza A (H2N2) viruses, the most virulent of the recently circulating influenza viruses." — Barbara Sibbald, CMAJ