FRONT LINE MEDICINE

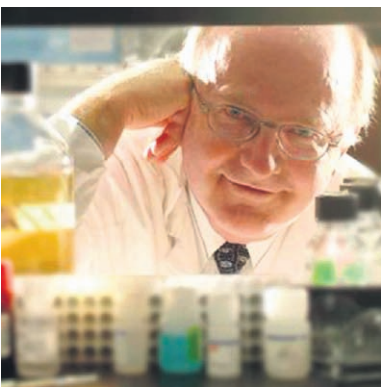

PHOTO: UNIVERSITY OF SASKATCHEWAN

Dr. Lorne Babiuk

Director, Vaccine & Infectious Disease Organization (VIDO), University of Saskatchewan

Canada's health research superheros

VIDO is internationally recognized for its role in the use of biotechnology to develop vaccines, and developed the first genetically engineered vaccine for animals. Recently, it has expanded its research from animal to human health. Dr. Babiuk and his colleagues were recently awarded US $5.6 million for their project from the Bill and Melinda Gates Foundation. Dr. Babiuk's objective is a single-dose vaccine that will protect newborns against whooping cough, a respiratory disease that kills 400,000 babies annually.

Getting your shots: a cost-benefit analysis

BY TAMMY LABER

When a report was published in the UK linking the measles, mumps and rubella (MMR) vaccine to an increased risk of autism, immunization rates in the UK fell dramatically from approximately 90 per cent to below 70 per cent.

As a result, these diseases have resurfaced. A British child recently died from measles after almost 15 years of zero mortality. And, Ontario had an outbreak of measles last year among members of a religious community who were not vaccinated.

Yet, according to Dr. Allison McGeer, a microbiologist and infectious disease consultant at Toronto's Mount Sinai Hospital, the MMR vaccine is safe. "People sometimes publish things that turn out to be nonsense," she says of the Lancet article that started this autism scare.

Dr. McGeer has given her own children many vaccines without fear, and feels vaccines are among the safest tools of modern medicine. Many pieces of research (including a recent one from McGill University) indicate the MMR vaccine does not increase the risk of autism. "The atypical autism link – and it was a stretch – was with contracting the actual measles disease, not with getting the vaccine that prevents the disease. I hope the Lancet realizes how much damage they've done with that article," Dr. McGeer said.

Vaccines have made the world much safer, and most public health authorities agree that it's unfortunate that a small minority of people actively oppose immunization.

Aggie Adamczyk of the Public Health Agency of Canada says, "Serious side effects are extremely rare. Claims have been made by anti-vaccine books and websites that are false, when considered using the best scientific methods and reviews of studies from around the world. The fact is, it's the diseases vaccines fight that actually pose the serious threats."

The main ingredient in most vaccines is a killed or weakened virus or bacterium, which stimulates the immune system to recognize and prevent future disease. The most common side effects of vaccines are temporary soreness or fever. Only about one in 100,000 people has severe allergic reactions, and there's little evidence linking vaccination with permanent health problems or death. Every batch of vaccine in Canada is tested for safety and quality before it is released for public use.

Both Dr. McGeer and Ms. Adamczyk agree that experience around the world proves that diseases return quickly when fewer people are immunized. For example, in 1994 there were 50,000 cases of diphtheria (resulting in 1,700 deaths) in Russia, after the organized immunization system was suspended. Before then, Russia (like Canada) had only a few cases of diphtheria a year and no deaths. As well, there is a real risk that small outbreaks can turn into large epidemics if most of the community is not protected.

"Vaccines strengthen the immune system and protect children and adults from specific diseases. For example, we know that the measles vaccine is almost 100 per cent effective after two doses – and measles can kill. It kills about three per cent of children who get it. The successful use of vaccines means most parents of young children in Canada have never seen a life-threatening case of diphtheria, polio or even measles. The reality was very different in Canada just 50 years ago. So, considering the low costs and the great benefits, I'm a great believer in public immunization programs," says Ms. Adamczyk.

She adds that while some vaccines in the United States contain a preservative called thimerosal (which has tiny amounts of mercury), the only routine vaccines here in Canada that have it are the hepatitis B and influenza vaccines. While vaccines containing thimerosal likely pose little risk in comparison to the diseases they prevent, the preservative is being phased out of all Canadian vaccines.

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"Vaccines work better in children than in adults because children have stronger immune systems. Some vaccines, though, like tetanus boosters, are still important for adults," Dr. McGeer explains. The only vaccine Dr. McGeer says she personally might avoid is the one against yellow fever, which has known risks. "Even then, if I was working in the South American interior, vaccine would be a safer option than exposure to disease."

A successful vaccination program, like a successful society, depends on the co-operation of individuals to ensure the good of all. But misconceptions about safety could cause a decrease in the number of Canadians immunized against vaccine-preventable diseases such as measles, polio and mumps. This could result in epidemics of diseases seldom seen in developed countries these days. "Remember, you are not safe from a vaccine-preventable disease just because it is uncommon in Canada. Travellers can carry diseases from country to country, and if you're not immunized, you could be at serious risk," Dr. McGeer concludes. ■