

## Cost of HPV vaccine is prohibitive in developing world, Nobel winner says

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**T**he cost of the human papilloma virus (HPV) vaccine must drop to improve access, especially in the developing world, Nobel Prize winner Dr. Harald zur Hausen told a student audience at Carleton University in Ottawa, Ontario, on Oct. 28.

Cervical cancer, the second most frequent cancer among women, kills more than 500 000 women a year, and 83% of cervical cancer cases occur in the developing part of the world, said zur Hausen, who won both a Nobel Prize and a Gairdner Award in 2008 for his discovery that certain HPV viruses lead to cervical cancer. He shared the stage with Dr. Peter Doherty, another dual Nobel and Gairdner winner, as both delivered the Gairdner lecture to more than 200 university and high school students.

“Clearly something needs to be done to reduce the cost” of the vaccine, particularly in those parts of the world that need it most, zur Hausen said in response to a student’s question. According to the Patented Medicines Prices Review Board, the cost of one dose of the vaccine Gardasil in 2006 was \$135 in Canada and higher elsewhere. Typically, three doses of the vaccine are required.

The rate of HPV infection is not very different in the developed than in the developing world, zur Hausen said, but screening programs in the former allow for the discovery of advanced precursor lesions that can be surgically removed.

In Germany, with a population of 40 million, there are 140 000 cone biopsies taken each year, “which in a certain percentage lead to some negative effects,” he said.

No vaccine is without risk, he noted, but in large numbers of women who



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Nobel Prize winners Dr. Peter Doherty (left) and Dr. Harald zur Hausen delivered the Gairdner lecture to students in Ottawa, Ontario.

have been vaccinated to date, the risk is not different from other vaccines “which we apply to small children.”

zur Hausen said there have been a few cases of death after vaccination, but autopsies have not substantiated a link with vaccination.

“In Germany every year 50 people, between 15 to 20 years, die for unclear reasons, quickly, without obvious explanation, and these [deaths] occur everywhere globally,” he said, noting that with widespread vaccination some deaths may occur after, but not be linked to, the vaccination.

Asked how important a medical degree is for biomedical research, zur Hausen said medical training provides an advantage “because you become familiar with the human condition and ... there is the feeling that you could contribute to society by working on health-related problems.”

As well, he noted that funding is

easier to obtain for research on medically oriented issues.

Zur Hausen urged students to “think not on common pathways,” telling them that his original research into the link between HPV and cervical cancer was largely dismissed because the “common wisdom” of the day held that herpes was the culprit. It is now known that 21% of global cancer is linked to infections, he said.

Doherty, originally trained as a veterinary surgeon, sketched his career: a shift to research, originally in the neuropathology of sheep and then into immunology, and finally to his groundbreaking work on virus infections, showing the effect of killer T cells using the many mouse strains that had been developed to study transplantation.

“A lot of innovations come when you train in one field and then cross over to another,” he said, characterizing himself and colleague Rolf Zinkernagel as “a couple of young guys who were totally unknown and out of nowhere and told a whole field what they had been doing. They didn’t necessarily love us for that.”

That groundbreaking immune system research, which led to a 1986 Nobel, came “out of the blue,” in contrast to discoveries made by “taking up a problem and systematically setting out to solve it,” Doherty said.

He advised students to think of the needs of their community and their country, and stressed the need to “build capacity in the directions you want to go in.” Doherty also noted that health care delivery research is undervalued, since it is “not as easy to identify the real players.” — Ann Silversides, *CMAJ*

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