

# Vaccines for the 21st Century Taking Canada to the Next Level

**The issue:** Vaccination has saved more lives over the past century than any other health-care intervention. Its effectiveness and low cost have made it essential to maintaining public health. Interest in vaccine research and development has intensified recently for several reasons:

- A dearth of vaccines for several major diseases;
- A lack of new antibiotics to fight infections;
- Threats from emerging infectious diseases and bioterrorism;
- New uses for vaccines (e.g. to prevent and to treat cancer);
- Renewed interest in global health; and
- A need to maintain national capacity.

**The response:** Canadian Institutes of Health Research (CIHR) Institute of Infection and Immunity (CIHR-III) has made Vaccines of the 21st Century a research priority. To prepare a strategic plan, the Institute surveyed researchers and representatives from vaccine-related organizations. Highlights of survey results include:

**Research strengths:** Canada has a history of making significant contributions to vaccine research and development. These accomplishments have saved lives, decreased human suffering and reduced health-care costs. Strengths exist in early discovery research including methods to deliver and enhance immune responses to vaccines. Epidemiology, vaccines for special groups and vaccine evaluation research are also strong areas in Canada.

**Challenges and recommendations:** Survey respondents identified several challenges and made suggestions on how CIHR and partners can facilitate vaccine research and development.

Challenges	Recommendations
Research efforts need to be better coordinated.	Organize and facilitate vaccine research workshops and foster communication among stakeholders.
Vaccine research and development is costly.	Create partnerships to drive research and development, and encourage industry to support these activities.
Vaccines for many diseases and new formulation/delivery methods are needed.	Support basic research, strategic research initiatives and innovative training programs. Improve the grant application/review process.
The public lacks accurate knowledge about the safety and efficacy of vaccines.	Support behavioural, social and ethics research, and knowledge translation.
There is a gap between basic research and Phase I/II clinical trials.	Partner with industry and create new funding mechanisms to bridge the gap.
There are many clinical research questions that require public funding.	Provide additional and ongoing support for pre-clinical and post-licensure trials.

**Next steps:** CIHR-III will use the survey results – which will be distributed to stakeholders in vaccine research and development and immunization – to develop an action plan and build partnerships for the Vaccines of the 21st Century research priority. These activities will take vaccine research and development in Canada to the next level and, ultimately, improve health and well-being in Canada and around the world.