Our mission is to promote and protect the health of Canadians through leadership, partnership, innovation and action in public health – Public Health Agency of Canada

For additional copies, contact:

Publishing and Depository Services Public Works and Government Services Canada Ottawa, Ontario K1A 0S5

Telephone: 613-941-5995 or 1-800-635-7943 Fax: 613-954-5779 or 1-800-565-7757 E-mail: publications@pwgsc.gc.ca Web: http://publications.gc.ca

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of the Minister of Public Works and Government Services, Ottawa, Ontario K1A 0S5

© Her Majesty the Queen in Right of Canada, represented by the Minister of Public Works and Government Services Canada, 2006

Catalogue No. HP40-3/2006E ISBN 0-660-19392-2

Canadian Immunization Guide

Seventh Edition – 2006

Published by the Public Health Agency of Canada Infectious Disease and Emergency Preparedness Branch Centre for Infectious Disease Prevention and Control under the authority of the Minister of Public Works and Government Services Canada

Également disponible en français sous le titre *Guide canadien d'immunisation*

Text prepared by the National Advisory Committee on Immunization

- Message from the -

Chief Public Health Officer Public Health Agency of Canada

The seventh edition of the *Canadian Immunization Guide* was developed by the National Advisory Committee on Immunization (NACI), with the support of the Immunization and Respiratory Infections Division, Public Health Agency of Canada, to provide updated information and recommendations on the use of vaccines in Canada. The Public Health Agency of Canada conducted a survey in 2004, which confirmed that the *Canadian Immunization Guide* is a very useful and reliable resource of information on immunization.

The seventh edition of the *Guide* will also be available on the NACI Web site at www.naci.gc.ca. New or updated recommendations from NACI are published in the Canada Communicable Disease Report (CCDR) and are also available on the NACI Web site.

If you have suggestions or comments on the *Guide* please send them to us at NACI@phac-aspc.gc.ca.

To promote health and protect Canadians from vaccine-preventable disease, I encourage parents, guardians, and adults to maintain their children's immunizations up to date and all adults to be immunized according to NACI recommendations.

Producing such a publication was possible through the dedication and voluntary time commitment on the part of those involved. I would like to extend my sincere thanks to the members, liaison members, and ex-officio members of NACI for completing this very important resource. I would also like to take this opportunity to acknowledge their invaluable contribution and continued commitment in providing ongoing advice and recommendations on vaccine use in Canada.

Dr. David Butler-Jones, MD Chief Public Health Officer of Canada

Preface

The seventh edition of the *Canadian Immunization Guide* contains numerous changes from the 2002 version. Every chapter has been thoroughly reviewed and updated as required, taking into consideration the input received from the user survey conducted in 2004.

Three new chapters have been added: Principles of Combination Vaccines, Principles of Vaccine Interchangeability, and Immunization of Persons New to Canada.

Some key changes from the 2002 Canadian Immunization Guide are:

- Each disease-specific vaccine chapter is prefaced with a notation about major changes.
- The *Vaccine Safety* chapter replaces the *Adverse Events* chapter and includes more information.
- The Vaccine Administration Practices chapter replaces the Immunization *Techniques* chapter and incorporates more detail.
- The Communicating Effectively About Immunization chapter replaces Talking with Patients About Immunization, focusing on the principles of risk communication.
- The *Benefits of Vaccines* chapter replaces the *Cost Benefit* chapter and covers the benefits of vaccines to health.
- The *General Considerations* chapter includes a table listing all vaccines approved for use in Canada, based on product availability as of May 2006.
- The *Immunization of Patients in Health Care Institutions* chapter incorporates the recommendations for acute-care and long-term care institutions.
- The *Immunization for Adults* chapter has been expanded to include recommendations for health care workers and specific risk situations.
- The chapter on *Immunization of Persons with Neurologic Disorders* has been expanded with recommendations related to adults.
- The recommendations for travellers are integrated into one chapter.
- The *Lyme Disease Vaccine* chapter was discarded, since there is currently no vaccine available against this disease in Canada.

In an effort to keep the *Guide* user friendly, we developed a standard template to present the information in the Active Immunizing Agents sections with a summary of key changes since the publication of the previous edition. We

also used different colors for each part of the *Guide* and included a condensed version of the Table of Contents on the back cover for easier reference. Look for a new and improved on-line version available in HTML format with direct links to updates in each section of the *Guide*.

As we publish this seventh edition of the *Guide* some information is already outdated, which reflects the rapidly expanding environment in the immunization field. This continues to be a challenge for the National Advisory Committee on Immunization (NACI) as more new vaccines are approved for use, new vaccine combinations are developed, the data to be analyzed become more complex, and additional data are available on the immunogenicity and efficacy of vaccines. Updates and new recommendations are published in the Canada Communicable Disease Report and are available at the NACI Web site at www. naci.gc.ca.

As the Chair of the Committee, I would like to gratefully acknowledge the expert contributions of my member, liaison, and ex-officio representative colleagues on the Committee and the support from the Immunization and Respiratory Infections Division, Public Health Agency of Canada. It has been an honor and privilege to work with such a committed group of professionals on an activity that results in guidelines that are so widely incorporated into practice in Canada.

On behalf of the Committee, I would also like to acknowledge the contribution of Dr. Monique Landry and the *Groupe sur l'acte vaccinal du Québec* for the final editing of the Guide's French version.

Dr. Monika Naus Chair National Advisory Committee on Immunization

Preamble

The National Advisory Committee on Immunization (NACI) provides the Public Health Agency of Canada with ongoing and timely medical, scientific, and public health advice relating to immunization. The Public Health Agency of Canada acknowledges that the advice and recommendations set out in this *Guide* are based upon the best current available scientific knowledge and is disseminating this document for information purposes. People administering the vaccine should also be aware of the contents of the relevant package insert(s) or product monograph(s). Recommendations for use and other information set out herein may differ from that set out in the product monograph(s) of the Canadian manufacturer(s) of the vaccine(s). Manufacturer(s) have sought approval of the vaccine(s) and provided evidence as to its safety and efficacy only when it is used in accordance with the product monographs. NACI members and liaison members conduct themselves within the context of the Public Health Agency of Canada's Policy on Conflict of Interest, including yearly declaration of potential conflict of interest.

National Advisory Committee on Immunization

Membership List

Chair

M. Naus BC. Centre for Disease Control Vancouver British Columbia

Vice-Chair

J. Langley IWK Health Centre Halifax, Nova Scotia

Members

S. Dobson Vaccine Evaluation Center Vancouver. British Columbia

B. Duval Institut National de Santé Publique du Québec Beauport, Quebec

I. Embree University of Manitoba Winnipeg, Manitoba

A. Hanrahan Capital Health Region Edmonton, Alberta

K. Laupland University of Calgary Calgary, Alberta

Executive Secretary

S. Deeks Immunization and Respiratory Infections Division and Control Public Health Agency of Canada Ottawa, Ontario

A. McGeer Mount Sinai/Toronto Medical Laboratories Toronto, Ontario

S. McNeil Division of Infectious Diseases Dalhousie University Halifax, Nova Scotia

M.-N. Primeau Université de Montréal Montreal, Quebec

B. Tan Royal University Hospital Saskatoon, Saskatchewan

B. Warshawsky Middlesex-London Health Unit London, Ontario

T. Tam (2004-2006) Immunization and Respiratory Infections Division Centre for Infectious Disease Prevention Centre for Infectious Disease Prevention and Control Public Health Agency of Canada Ottawa, Ontario

Advisory Committee Secretariat

N. Groleau	S. Laforest
Immunization and Respiratory	Immunization and Respiratory
Infections Division	Infections Division
Centre for Infectious Disease Prevention	Centre for Infectious Disease Prevention
and Control	and Control
Public Health Agency of Canada	Public Health Agency of Canada
Ottawa, Ontario	Ottawa, Ontario

J. Rendall Immunization and Respiratory Infections Division Centre for Infectious Disease Prevention and Control Public Health Agency of Canada Ottawa, Ontario

Liaison Representatives

Advisory Committee on Causality	Centres for Disease Control and
Assessment	Prevention
B. Law	L. Chapman
Ottawa, Ontario	Atlanta, Georgia
Association of Medical Microbiology and Infectious Disease Canada P. Orr Winnipeg, Manitoba	College of Family Physicians of Canada S. Rechner Hamilton, Ontario
Canadian Association for Immunization	Committee to Advise on Tropical
Research and Evaluation	Medicine and Travel
D. Scheifele	J. Salzman
Vancouver, British Columbia	Vancouver, British Columbia
Canadian Nursing Coalition for	Community and Hospital Infection
Immunization	Control Association
A. Honish	S. Callery
Edmonton, Alberta	Toronto, Ontario
Canadian Paediatric Society	Council of Chief Medical Officers of Health
M. Salvadori	B. Larke
London, Ontario	Whitehorse, Yukon Territory
Canadian Public Health Association J. Carsley Montreal, Quebec	Society of Obstetricians and Gynaecologists of Canada D. Money Vancouver, British Columbia

Ex-Officio Representatives

Biologics and Genetic Therapies Directorate Health Canada F. Hindieh H. Rode Ottawa, Ontario First Nations and Inuit Health Branch Health Canada M. Lem Ottawa, Ontario

Department of National Defence M. Tepper Ottawa, Ontario Public Health Agency of Canada J. Sciberras P. Varughese Ottawa, Ontario

Other contributors

Previous Members, Liaison Members and Ex-Officio representatives who worked on this edition of the Guide while they were active on the committee:

I. Bowmer, Health Sciences Centre, St. John's Newfoundland

G. De Serres, Centre de santé publique de Québec, Beauport, Québec

I. Gemmill, Kingston, Frontenac and Lennox & Addington Health Unit, Kingston Ontario

A. Gruslin, Ottawa Hospital, Ottawa, Ontario (SOGC)

V. Lentini, Department of National Defence, Ottawa, Ontario (DND)

A. McCarthy, Department of National Defence, Ottawa, Ontario (AMMI Canada)

L. Samson, Children's Hospital of Eastern Ontario, Ottawa, Ontario (CPS)

A. Zierler, Safe Kids Canada, Toronto, Ontario

Table of Contents

Part 1 General Guidelines

General Considerations	3
The Benefits of Vaccines	17
National Guidelines for Immunization Practices	22
Communicating Effectively about Immunization	29
Principles of Combination Vaccines	33
Principles of Vaccine Interchangeability	36
Vaccine Administration Practices	38
Storage and Handling of Immunizing Agents	45
Timing of Vaccine Administration	51
Recent Administration of Human Immune Globulin Products	53
Immunization Records	55

Part 2

Vaccine Safety and Adverse Events Following Immunization

Vaccine Safety	59
General Contraindications and Precautions	73
Anaphylaxis: Initial Management in Non-Hospital Settings	80
Anaphylactic Hypersensitivity to Egg and Egg-Related Antigens	85

Part 3

Recommended Immunization

93
96
105
107
113
115
117
131
134
136
144

Part 4 Active Immunizing Agents

Bacille Calmette-Guérin (BCG) Vaccine	149
Cholera Vaccine	158
Diphtheria Toxoid	166
Haemophilus Vaccine	172
Hepatitis A Vaccine	179
Hepatitis B Vaccine	189
Hepatitis Vaccines Combined	205
Influenza Vaccine	209
Japanese Encephalitis Vaccine	221
Measles Vaccine	228
Meningococcal Vaccine	237
Mumps Vaccine	251
Pertussis Vaccine	257
Pneumococcal Vaccine	267
Poliomyelitis Vaccine	277
Rabies Vaccine	285
Rubella Vaccine	298
Smallpox Vaccine	308
Tetanus Toxoid	309
Typhoid Vaccine	317
Varicella Vaccine	327
Yellow Fever Vaccine	343

Part 5 Passive Immunization

Passive Immunizing Agents	353
Immune Globulin (Human)	354
Recommended Usage	354
Measles	354
Hepatitis A	355
Rubella	355
Hepatitis C	355
Safety of Immunoglobulin Preparations	355
Adverse Reactions	356
Contraindications and Precautions	356

Specific Immune Globulins	356
Botulism antitoxin (equine)	357
Diphtheria antitoxin (equine)	357
Hepatitis B immune globulin (HBIg)	357
Rabies immune globulin (RabIg)	358
Palivizumab (RSVAb)	358
Tetanus immune globulin (TIg)	359
Varicella-zoster immune globulin (VarIg)	360
Appendix	
Abbreviations for Products Available in Canada	365
Index	. 367

Comparison of Effects of Diseases and Vaccines