Routine immunization schedule: Update 2004

The Infectious Diseases and Immunization Committee of the Canadian Paediatric Society (CPS) regularly reviews the recommendations of Health Canada's National Advisory Committee on Immunization (NACI) for the routine immunization of infants, children and adolescents. It also reviews the provincial and territorial immunization protocols. Discrepancies between what the NACI recommends and what each province and territory makes available for children and youth has been highlighted previously by members of this committee and the CPS (1-5). This note provides an update for physicians and other health care professionals on changes related to NACI recommendations (Table 1) and to the provision of vaccines by each province and territory in Canada (Table 2) (6-12).

The committee again makes a plea that all infants, children and adolescents in Canada have equal access to all NACI recommended vaccines for routine use, and that a harmonized national schedule be developed. Living in a 'have not' region should not dictate whether a child or youth has access to a 'routine' NACI recommended vaccine, nor should a move from one jurisdiction to another put a child or youth at increased risk for missing a vaccine because of regional variations in vaccine schedules.

As of fall 2003, the four 'newer' NACI recommended vaccines (varicella [9], meningococcal conjugate [10], pneumococcal conjugate [11] and adolescent pertussis [12]

vaccines) were added or will be added to the schedules in some provinces and territories, albeit in many instances only for high-risk children. Table 3 summarizes these 'newer' vaccine additions by province and territory. As can be seen, none of the provinces or territories has a program for all of the 'newer' vaccines. Alberta comes closest, but does not yet fund adolescent and adult pertussis vaccines. In one territory (Yukon) and one province (Manitoba), three of the four 'newer' vaccines (varicella, meningococcal conjugate and pneumococcal conjugate vaccines) have not been added for routine use, although consideration is being given in Manitoba to add these for those at high risk of disease or complications.

Considering that the NACI recommended the varicella vaccine for routine use in infants and children in 1999 (9), it is disconcerting that by 2003 only five of the 13 provinces and territories had implemented a routine use program, particularly since the available refrigerator stable product simplifies storage and delivery issues (13). While the NACI recommendation for adolescent and adult pertussis vaccine is relatively new (September 2003 [12]), it is heartening to see that, as of November 2003, seven of the 13 provinces and territories have included this vaccine in the routine adolescent vaccination schedule.

TABLE 1
National Advisory Committee on Immunization's recommended immunization schedule for infants, children and youth

Age at vaccination	DTaP	IPV	Hib	MMR	dTap or Td	HepB (3 doses)	V	PC*	MC**
Birth									
2 months	X	X	X					X	X
4 months	X	X	X					X	X
6 months	X	X	X					X	X
12 months				X			X		X
18 months	X	X	X	X or 4-6 years				X	
4-6 years	X	X		X or 18 months					
14-16 years					X				X

*Pneumococcal conjugate vaccine (PC): doses at two months, four months and six months followed by one dose at 12 months to 15 months (11). **Meningococcal conjugate vaccine (MC): if started at two months, three doses; if started at four months to 11 months, two doses; if started at 12 months or later, one dose (10) (includes older children and adolescents). DTaP Diphtheria, tetanus, pertussis (acellular) vaccine, infant/child type; dTap Tetanus and diphtheria toxoid, acellular pertussis, adolescent/adult type; HepB Hepatitis B vaccine; Hib Haemophilus influenzae type b conjugate vaccine; IPV Inactivated polio vaccine; MMR Measles, mumps, rubella vaccine; Td Tetanus and diphtheria toxoid, adult type; V Varicella vaccine. Data from references 6,7,9-12

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TABLE 2
Routine immunization schedule for infants, children and youth: Provincial/territorial practices in Canada

Newborn to 18 months

Provinces and Territories	DTaP/IPV/Hib (2, 4, 6 and 18 months)	Hepatitis B*	MMR (2 doses required) (months)	Varicella	Meningococcal conjugate	Pneumococcal conjugate
British Columbia	X	2, 4 and 6 months	12, 18		12 months	2, 4, 6, and 18 months
Alberta	X		12	12 months	2, 4, 6 months	2, 4, 6, and 18 months
Saskatchewan	X		12, 18		high risk and/or close contacts	2, 4, 6 and 18 months
Manitoba	X		12	high risk	high risk	high risk
Ontario	X		12		close contacts	2, 4, 6 and 18 months
Quebec	X		12, 18		12 months	high risk
New Brunswick	X	2, 4 and 12 months	12, 18		high risk	
Nova Scotia	X		12	12 months	high risk	high risk
Prince Edward Island	X	2, 4 and 15 months	15, 18	12 months	12 months, high risk	high risk
Newfoundland and Labrador	X		12, 18			2, 4, 6 and 18 months
Yukon	X	2, 4 and 12 months	12, 18			
Northwest Territories	X	0, 1 and 6 months	12, 18	12 to 18 months		
Nunavut	X	0, 1 and 9 months	12, 18	12 months		2, 4, 6, and 15 months

19 months to 12 years

Provinces and Territories	DTaP/IPV (4 to 6 years)	Hepatitis B (three doses in grade)	MMR second dose if not at 18 months	Varicella	Meningococcal conjugate and quadrivalent (A,C,Y,W135)	Pneumococcal conjugate and PS
British Columbia	X	6			grade 6, high risk	high risk
Alberta	X	5	4-6 years	grade 5 for 1 year	high risk, close contacts	high risk
Saskatchewan	X	6			high risk, close contacts	conjugate less than 2 years, PS for other high risk
Manitoba	X	4	4-6 years	high risk	high risk	high risk
Ontario	X	7	4-6 years		close contacts	conjugate for less than 2 years, PS for other high risk
Quebec	X	4				high risk
New Brunswick	X	4			high risk	
Nova Scotia	X	4	4-6 years	5 years, high risk	high risk	high risk
Prince Edward Island	X	3			high risk	high risk
Newfoundland and Labrador	X	4				conjugate for high risk less than 2 years, PS for other high risk
Yukon	X	4		5 years		
Northwest Territories	X	4				
Nunavut	X	4				

13 to 18 years

Provinces and territories	Td, dTap or Td/IPV	Meningococcal conjugate and quadrivalent (A,C,Y,W135)	Pneumococcal PS
British Columbia	dTap	high risk: conjugate and quadrivalent	high risk PS
Alberta	Td	high risk: conjugate and quadrivalent	high risk PS
Saskatchewan	dTap	high risk: conjugate and quadrivalent; close contacts: conjugate or quadrivalent	high risk PS
Manitoba	dTap	high risk: conjugate and quadrivalent	high risk PS
Ontario	dTap	close contacts: conjugate or quadrivalent	high risk PS
Quebec	Td	high risk: quadrivalent	high risk PS
New Brunswick	Td	high risk: conjugate and quadrivalent	high risk PS
Nova Scotia	Td	high risk: conjugate and quadrivalent	high risk PS
Prince Edward Island	dTap	conjugate: catch up grade 9; high risk: conjugate and quadrivalent	high risk PS
Newfoundland and Labrador	dTap	high risk: quadrivalent	high risk PS
Yukon	Td/IPV	high risk: quadrivalent	high risk PS
Northwest Territories	dTap	high risk: quadrivalent	high risk PS
Nunavut	dTap	high risk: quadrivalent	high risk PS

*All provinces and territories recommend routine hepatitis B (Hep B) vaccination to start at birth for all infants born of Hep B infected mothers. DTaP Diphtheria, tetanus, pertussis (acellular) vaccine, infant/child type; dTap Tetanus and diphtheria toxoid, acellular pertussis, adolescent/adult type; Hib Haemophilus influenzae type b conjugate vaccine; IPV Inactivated polio vaccine; MMR Measles, mumps, rubella vaccine; PS Pneumococcal polysaccharide; Td Tetanus and diphtheria toxoid, adult type. Data from references 6 to 8

TABLE 3
Availability of 'newer' National Advisory Committee on Immunization recommended vaccines by province and territory in Canada

Provinces and Territories	Varicella	Meningococcal conjugate	Pneumococcal conjugate	Adolescent/adult Pertussis
British Columbia		1 year olds, grade 6 and high risk	2, 4, 6 and 18 months high risk	13 year olds
Alberta	12 months, grade 5	2, 4 and 6 months	2, 4, 6 and 18 months	
Saskatchewan		high risk and close contacts	limited use	14-16 year olds
Manitoba	high risk	high risk	high risk	14-16 year olds
Ontario		contacts of cases	high risk less than 2 years	14-16 year olds
Quebec		12 months	high risk	
Those born between 1980 and 2001 and not immunized in mass campaign in 2001.				
For high risk, 2, 4, 6 months.				
New Brunswick		high risk		
Nova Scotia	12 months	high risk	high risk	
Prince Edward Island	12 months	high risk, 1 year olds, catch up grade 9	high risk	14-16 year olds
Newfoundland and Labrador				14-16 year olds
Yukon				
Northwest Territories	12 and 18 months to 5 years			14-16 year olds

Data from references 6 and 8

Table 2 summarizes of the routine infant, child and adolescent immunization schedules in each of the provinces and territories by age group. This is a particularly important table for caregivers to consult when a child moves to a new jurisdiction because it clearly emphasizes the diversity of programs across the country. The continued marked variations across the country on the timing of the school-age hepatitis B vaccine and the second dose of the measles, mumps and rubella vaccine leave children and youth on the move at increased risk for missed doses. While one can recognize that in the past, different jurisdictions took different approaches based on local customs and practices, there is little scientific evidence to support one schedule over another.

A harmonized national immunization schedule would have great merit because it would reduce the risk of missed doses, further cost savings through larger purchases, and provide more uniform teaching of vaccine schedules for physicians, nurses and families. It would also simplify immunization registries and facilitate the transfer of immunization records across jurisdictions when the child or adolescent moves. The ongoing inertia in moving toward a national immunization strategy is disquieting given the professed support from all quarters for health care reforms that improve access, use resources more efficiently and lead to improved health (14).

Considering these ongoing discrepancies in access and the complexity of schedules across jurisdictions, we need to work to ensure implementation of a national immunization strategy. It must support a harmonized national schedule and guarantee access for all children and youth in Canada to all NACI recommended routine immunizations, regardless of

where they live or what their families can afford to pay. Given that immunizations continue to be one of the most cost-effective preventive health measures available today, such a national strategy would clearly be in the best interest for improved health for all of our children and youth.

The recent seed money of \$45 million over five years to "assist in the pursuit of a national immunization strategy" (15) announced by the federal government in the 2003 budget is a good first step, but it is not sufficient. As noted in *A Report of the National Advisory Committee on SARS and Public Health* October 2003 (16), a national immunization strategy needs to be implemented more quickly and more generously. What is needed is a federal-provincial cooperative agreement that will ensure a stable pool of dedicated resources to allow the purchase, delivery and monitoring of NACI recommended vaccines for all infants, children and adolescents in Canada, regardless of the province or territory in which they live. This is what our children and youth need and deserve – not the patchwork vaccine quilt full of holes that exists today.

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The recommendations in this statement do not indicate an exclusive course of treatment or procedure to be followed. Variations, taking into account individual circumstances, may be appropriate. This article also appears in *Paediatr Child Health* 2003;9(1):17-20.

ERRATUM

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The Canadian Paediatric Society (CPS) would like to apologize for any errors or omissions found in the January/February 2004 Paediatric Infectious Disease Note entitled "Routine immunization schedule: Update 2004." The editors have found that the charts did not accurately report all provincial vaccination programs. In addition, several provinces have added vaccine programs to their respective routine immunization schedules since January. Therefore, the charts have been republished on the CPS Web site at <<http://www.cps.ca/http://www.cps.ca/english/statements/ID/PIDNoteImmunization.htm>> and will be updated regularly with new data as it becomes available.

We apologize for any inconvenience this may have caused.

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