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.

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   |     |            |               |   |     |      |
| 6 months           | X    | X   |     |     |            |               |   |     |      |
| 12 months          | X    |     |     |     |            |               |   |     |      |
| 18 months          | X    |     |     |     | X or 4-6 years |               |   | X   | X    |
| 4-6 years          | X    | X   |     |     | X or 18 months |               |   |     |      |
| 14-16 years        |      |     |     |     |            |               |   |     |      |

*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
### 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 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 | |
| Nova Scotia               | X                                 | 12 | 12 months | high risk |
| Prince Edward Island      | X                                 | 2, 4 and 15 months | 15, 18 | 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 | |
| New Brunswick             | 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 (3 doses in grade) | Hepatitis B second dose if not at 18 months | 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 | PS for other high risk |
| Alberta                   | X                           | 5                                          | 4-6 years, grade 5 for 1 year      | high risk, close contacts | high risk |
| Saskatchewan              | X                           | 6                                          | 4-6 years, high risk, close contacts | high risk, close contacts | conjugate less than 2 years, PS for other high risk |
| Manitoba                  | X                           | 4                                          | 4-6 years, 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 |
| Prince Edward Island      | X                           | 3                                          | 4-6 years, high risk               | high risk |
| Newfoundland and Labrador | X                           | 4                                          | high risk |
| Yukon                     | X                           | 4                                          | 5 years |
| Northwest Territories     | X                           | 4                                          | high risk |
| Nunavut                   | X                           | 4                                          | high risk |

#### 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     | Td/IPV             | high risk: quadrivalent                               | high risk PS    |
| Nunavut                   | Td                 | 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 2 summarizes 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.

### REFERENCES

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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.