

## NACI update on pertussis vaccination in pregnancy

I am writing on behalf of the National Advisory Committee on Immunization (NACI) in response to the Child Health Update by Drs Gilley and Goldman.<sup>1</sup> The National Advisory Committee on Immunization has published a review of the literature, along with a review of Canadian pertussis epidemiology and recommendations for protecting infants from pertussis. The NACI statement containing this information can be found online.<sup>2</sup> The review concluded that the pertussis vaccine has been shown to be safe and immunogenic in pregnant women. However, the effectiveness of maternal vaccination to prevent severe disease in newborns has not been established, and the potential of maternal vaccination to interfere with infants' immune response to their infant pertussis vaccinations has not yet been defined. Therefore, NACI made the following recommendations.

- Pregnancy is an opportunity to review immunization status and offer pertussis vaccination to pregnant women at 26 weeks of gestation or greater if it has not already been received in adulthood (NACI recommendation, grade A). Immunization should not be delayed until close to delivery, as this might not provide sufficient time for optimal transfer of antibodies to the infant or direct protection of the infant against pertussis.
- Depending on regional epidemics, immunization with the tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine might be offered during pertussis outbreaks (as defined by each jurisdiction) to pregnant women at 26 weeks of gestation or greater irrespective of their immunization histories (NACI recommendation, grade B). Jurisdictions should have the capacity to monitor local epidemics to make a decision to routinely encourage vaccination for pregnant women (NACI recommendation, grade A). Coverage and safety should be monitored (NACI recommendation, grade A).
- However, in view of the current pertussis epidemiology in Canada, NACI does not recommend immunization of all women against pertussis during pregnancy (NACI recommendation, grade E).

—Bryna Warshawsky MDCM CCFP MHSc FRCPC  
London, Ont

### Competing interests

Dr Warshawsky has been a member of the National Advisory Committee on Immunization since June 2004 and served as its Chair from June 2011 to June 2014.

### References

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## Response

We thank Dr Warshawsky for the update on the National Advisory Committee on Immunization position on tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccination in pregnancy in response to our article.<sup>1</sup> Dr Warshawsky is correct that there are no data on how maternal vaccination during pregnancy affects infants' immunologic response to the regularly scheduled acellular pertussis vaccinations at 2 months, 4 months, 6 months, and 18 months. Despite that, since 2012, the US Centers for Disease Control and Prevention Advisory Committee on Immunization Practices has recommended that women receive Tdap boosters with every pregnancy. They recommend vaccination between 27 and 36 weeks, which is the optimal time for antibody transfer.<sup>2</sup> The Advisory Committee on Immunization Practices determined that cocooning alone (vaccination of household members and close contacts) was not sufficient to reduce the number of infant pertussis cases given the severity of the disease in this age group.<sup>3</sup>

A cost-effectiveness model analysis by Terranella et al found that maternal vaccination during pregnancy would prevent more infections, hospitalizations, and infant deaths compared with the postpartum model for 2 reasons: earlier protection of the mother from pertussis, which prevents transmission to the infant; and transfer of maternal antibodies to the infant.<sup>4</sup>

The differences in practices and recommendations between the National Advisory Committee on Immunization and the Centers for Disease Control and Prevention illustrate the subtle differences between Canadian and American practices. That being said, both organizations agree that a pregnant woman should receive a Tdap booster in her late second to

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third trimester if she has not already received one in adulthood.

—Meghan Gilley MD

—Ran D. Goldman MD FRCPC  
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**Competing interests**  
None declared

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## Response to letters about vitamin B12

We thank Drs Rosenberg and Vitou for their letters<sup>1,2</sup> pertaining to our article, "Oral vitamin B12: a cost-effective alternative."<sup>3</sup> We would like to clarify a few of the statements. First, Dr Rosenberg raises the concern that B vitamins increase the risk of cancer and mortality. A systematic review of 12 randomized controlled trials (including the study Dr Rosenberg referenced) that enrolled more than 47 000 patients concluded that B vitamins do not increase the risk of cancer or mortality (and also do not prevent cardiovascular disease).<sup>4</sup>

Next, we do agree with Dr Vitou that some patients who do not have vitamin B12 (VB12) deficiency might feel less fatigued when they receive intramuscular VB12 injections. Of interest, it appears that the only high-level evidence supporting this practice was a small cross-over controlled trial of 28 patients published more than 40 years ago.<sup>5</sup> In this study of relatively young, mostly female, non-anemic patients, both intramuscular VB12 injections and placebo improved general symptoms, including fatigue and overall well-being.

We believe that VB12 therapy should be reserved for patients with documented VB12 deficiency and not for cardiovascular disease prevention, for patients with cognitive impairment,<sup>6</sup> or for patients with general fatigue. Best evidence suggests that VB12 does not increase cancer or mortality rates.

—Michael R. Kolber MD MSc CCFP

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**Competing interests**  
None declared

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## Powerful tool with manageable risks

I am concerned that the April editorial by Dr Ladouceur<sup>1</sup> will leave the impression that when medical data are stored or moved electronically, they cannot be protected, or that clinicians must avoid these technologies to provide appropriate protection. Fortunately, neither is the case.

While physicians are data custodians and have a fiduciary duty to protect clinical information, we are not the owners. Patients own their data.<sup>2</sup> Consequently, patients can be our partners in deciding what risks to their data are acceptable. Using this approach, if a physician wanted to send a picture of a patient's skin lesion to a specialist by e-mail, that physician could explain the risks of the electronic data transfer to the patient and seek his or her consent. If consent were provided and the data were compromised, there would be a degree of protection for the provider in the same manner as for a procedure for which informed consent was obtained, but an adverse outcome occurred.

It is also important to consider the overall structure of health information systems in Canada. Unlike in the Snowden scenario described in the editorial, our system for electronic management of health information is much less mature. This results in it being highly decentralized, with limited linkages between the disparate systems. As a result, a Snowdenlike attack would be exceptionally complex to carry out and thus much less likely. It also creates an opportunity for us to build privacy protection into the system as it matures. This approach is called *privacy by design* and is a robust method that can be applied throughout the life cycle of electronic medical information systems.<sup>3</sup>

While threats to clinical information held and moved in electronic systems certainly exist, they can be mitigated through thoughtful application of policy, procedures, and protective measures. Accomplishing this is essential, as medical information technology is a powerful tool in the practice of safe, effective, and patient-centred family medicine.

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**Competing interests**  
None declared

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