

## Listeriosis awareness among pregnant women and their health care providers in British Columbia

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In 2008, a pregnant female in her 30s presented to a British Columbia hospital with a stiff neck, fever, back pain, and headache at 21 weeks' gestation. She went into premature labor and delivered a stillborn baby the following day. *Listeria monocytogenes* was isolated from her blood and the placenta. This previously healthy woman had made changes to her diet which she felt would improve her baby's health, including eating more dairy. Three weeks prior to her illness, she had consumed queso blanco (a fresh, soft cheese, often unpasteurized). In hospital, she learned that queso blanco is a food that pregnant women should avoid due to the risk of listeriosis associated with unpasteurized dairy products and soft cheeses. Although she had been counseled about food during her pregnancy, she was not aware of *Listeria* or its potential risk to her and her baby. This case highlights a gap in the awareness of high-risk foods and listeriosis and preventive actions that can be taken by pregnant women. The information provided to pregnant women by health care providers needs to be targeted and clear.

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*Listeria monocytogenes* is a bacterium transmitted by contact with infected animals through vertical transmission or by eating contaminated food (see the **Figure**). *Listeria* can be found in raw foods, such as meats and produce, as well as in processed refrigerated foods (e.g., soft cheeses and cold cuts). These processed products are a unique concern as, unlike most bacteria, *Listeria* can survive on refrigerated foods and tolerate humid and salty environments. *Listeria* are killed by pasteurization and cooking.<sup>1</sup> The incubation period ranges from 3 to 70 days, with a median of 3 weeks.<sup>2</sup> Symptoms include fever, myalgias, headache, and diarrhea; serious cases of meningoenzephalitis and sepsis can be fatal. The case fatality rate among nonpregnant adults is 20%.<sup>3</sup> Pregnant women, the elderly, and immunocompromised individuals are at increased risk of infection. In pregnant women, outcomes such as miscarriage, stillbirth, or illness in the newborn may occur.<sup>2</sup>

In BC between January 2002 and May 2008, 70 cases of listeriosis were reported; seven individuals (10%) were pregnant, four of whom (57%) had a miscarriage or stillbirth and six (86%) reported consumption of high risk foods, demonstrating a possible lack of awareness of listeriosis risks.

An American study concluded that pregnant women were unfamiliar with *Listeria* and few received information about food safety from their health care providers while pregnant.<sup>11</sup> In Australia, over 57% of pregnant women surveyed had an incomplete knowledge of high-risk foods and 25% continued to consume foods such as deli meats and paté.<sup>12</sup> These studies and others<sup>13,14,15</sup> identified that the informa-

tion available on food safety and listeriosis during pregnancy was insufficient and better resources should be developed and incorporated into routine counseling by health care providers.

Similar gaps have been identified in food safety counseling by BC health care providers during pregnancy. Interviews were conducted with health care providers in BC, including public health nurses, obstetricians, midwives, and family physicians from March to May 2008 to learn about their awareness, practices, and needs. All of the health care providers were aware of listeriosis and provided information

**Figure. Recommendations to decrease risk of listeriosis in pregnant women.<sup>2</sup>**

### Decreasing the risk of listeriosis in pregnant women

- Avoid unpasteurized and soft cheese (e.g., Brie, Camembert, feta, blue-veined, Mexican-style fresh cheeses).<sup>4,5</sup>
- Avoid unpasteurized milk.<sup>6</sup>
- Avoid nondried deli meats (e.g., cold cuts) and hot dogs, or cook to steaming hot before eating.<sup>7,8</sup>
- Avoid refrigerated paté and meat spreads or consume canned or shelf-stable products.<sup>9</sup>
- Avoid refrigerated smoked seafood and fish (e.g., smoked salmon) unless cooked thoroughly, or consume canned or shelf-stable products.<sup>10</sup>
- Consume perishable ready-to-eat foods\* as soon as possible.
- Thoroughly cook all meat.
- Wash raw produce.
- Wash all surfaces, utensils, and hands after handling uncooked food.
- Separate raw meats from fresh produce and ready-to-eat foods\* during food storage and preparation.
- Avoid contact with sick or dead farm animals.

\*Ready-to-eat foods are foods that do not require any further preparation before consumption, except washing/rinsing, thawing, or warming.

on food and nutrition to their patients during pregnancy; however, they did not all provide counseling on food safety or specific listeriosis risks. Health care providers felt that their limited or inconsistent knowledge of listeriosis risk factors was a significant barrier. Health care providers wanted better information for themselves and resources that they could share with pregnant women. Further work by BCCDC is planned to develop these resources.

Pregnant women identify their health care providers as a credible source of information and rely on them to provide them with accurate advice. Health care providers should counsel their pregnant patients about the risks associated with listeriosis. Most cases of listeriosis in pregnancy could be prevented by avoiding consumption of certain foods and contact with certain animals, as well as proper food preparation (see the **Figure**). Ongoing work in BC will lead to the development of improved materials to assist both health care providers and pregnant women in addressing food safety risks during pregnancy.

For more information on listeriosis please visit:

- [www.bccdc.org/topic.php?item=108](http://www.bccdc.org/topic.php?item=108)
- [www.bchealthguide.org/healthfiles/hfile75.stm](http://www.bchealthguide.org/healthfiles/hfile75.stm)
- [www.hc-sc.gc.ca/hl-vs/iyh-vsv/food-aliment/listeria-eng.php](http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/food-aliment/listeria-eng.php)

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