Santé
et Services sociaux
Québec

With the participation of :
• Ministère de l'Emploi, de la Solidarité sociale et de la Famille

NOTICE ON RISK OF *SALMONELLA* INFECTION THROUGH THE HANDLING OF EGGSHELLS AND EGG BOXES IN CHILDCARE ESTABLISHMENTS

Salmonellosis is an infection caused by bacteria of the genus Salmonella, the most frequent ones in North America being Salmonella typhimurium and Salmonella enteritidis. Infection in humans may be asymptomatic or may cause gastroenteritis, with the sudden onset of fever, chills, stomach pain, diarrhoea (occasionally with traces of blood), nausea, and vomiting at times. The illness usually lasts from two to five days. It may give rise to complications (including dehydration, septicaemia or blood infection, and, more infrequently, arthritis, meningitis and death). The most vulnerable people are young children, the elderly and individuals with a chronic debilitating disease.

Salmonella is mainly transmitted through food (for example, raw eggs and undercooked meat and poultry) and hands or objects contaminated by human or animal feces. The period of contagion can last from several days to about six weeks or for as long as the bacteria are present in the feces. People, especially young children, can be carriers for several months. The infection is diagnosed through the clinical picture, epidemiological history (history of ingestion of suspect foods, contact with contaminated people or objects), and feces and blood cultures. Treatment varies according to symptoms. Antibiotics are prescribed in serious cases or those where complications are likely. Note that antibiotic treatment will not stop the diarrhoea sooner; in fact it may prolong the excretion of the bacteria in the feces and may also lengthen the period during which the person is a carrier.

In the past ten years or so, Salmonella enteritidis has been associated most often with the consumption of poultry and eggs. Infections due to this bacterium have become a growing problem and it has caused many salmonellosis outbreaks around the world, particularly in Canada. From 1999 to 2000, in Québec, 4359 cases of salmonellosis (560 of them caused by Salmonella enteritidis) were recorded in the National Notifiable Disease Reporting System. Of this number, 836 cases occurred in children under the age of five. Fourteen patients said they worked in childcare, and 127 of the sick children attended a childcare establishment. However, although some cases were associated with the consumption of eggs or poultry, nothing has shown contaminated objects to be responsible for a clinical case.

Eggs are often eaten in childcare establishments. Whole eggs or hollow ones are also used in craft and decoration activities (for Easter for example), as are egg boxes. Does this type of exposure present a potential risk for the transmission of Salmonella? To what extent is transmission possible and what are the public health recommendations to minimize or control the risk?

It is a recognized fact that scrambled eggs, broken eggs or contaminated eggshells can contaminate surfaces and objects (including egg boxes) and therefore represent a potential risk of infection. The risk however is limited to the time Salmonella can survive on an inert surface. It doesn't survive more than a few days, and probably less than 24 hours, unless conditions are humid or otherwise favourable. In Canada, current regulations dictate that Grade A eggs are washed and disinfected. This practice considerably reduces contamination of shells and the containers used to store and distribute eggs.

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Given these considerations, the Comité de prévention des infections dans les centres de la petite enfance du Québec (CPICPEQ) is of the opinion that the risk of *Salmonella* infection in the childcare setting through eating eggs is comparable to that of the general population if the eggs are raw or undercooked. As for the handling of eggshells and egg boxes, the risk exists but is very small and can be virtually eliminated by following some fairly simple instructions.

Here are the CPICPEQ's recommendations to control the transmission of *Salmonella* in childcare establishments.

To prevent infection through the consumption of eggs:

- Be sure to cook sufficiently eggs and foods containing eggs such as omelettes, meringues and French toast;
- Follow refrigeration and conservation instructions;
- Wash hands thoroughly with soap and water before and after preparing foods;
- Wash carefully with soap and water and then disinfect containers, utensils and work surfaces used in handling raw eggs.

To eliminate the risk of infection through handling eggshells and egg boxes:

- Wash eggshells and boxes with soap and water; if the boxes are made of cardboard, discard ones that are visibly soiled and store the others for at least three days before using them;
- It is preferable to use Grade A egg boxes;
- Only let adults blow into eggs to hollow them out;
- Wash hands thoroughly with soap and water after the craft or decorating activity.

To control *Salmonella* infections:

- Exclude the person who is ill until symptoms (diarrhoea) have disappeared;
- If the person must handle food, allow her to return to the establishment when symptoms have disappeared, provided basic rules of hygiene are observed;
- Strengthen hygiene measures, including hand washing, and check diaper changing technique;
- Every day, wash with soap and water and then disinfect (with a solution of one part Javel water and ten parts water) the materials used by the children, particularly toys;
- Organize the work in such a way that cooks do not have to change diapers or help children use the toilet;
- Notify health professionals (CLSC, public health department) of any circumstances associated with the presence of *Salmonella* or any diarrhoea outbreak in the childcare establishment;
- Cooperate with health professionals and strictly follow public health recommendations.