

Please read this bit first

The HPCSA and the Med Tech Society have confirmed that this clinical case study, plus your routine review of your EQA reports from Thistle QA, should be documented as a “Journal Club” activity. This means that you must record those attending for CEU purposes. Thistle will **not** issue a certificate to cover these activities, nor send out “correct” answers to the CEU questions at the end of this case study.

The Thistle QA CEU No is: **MT00025**.

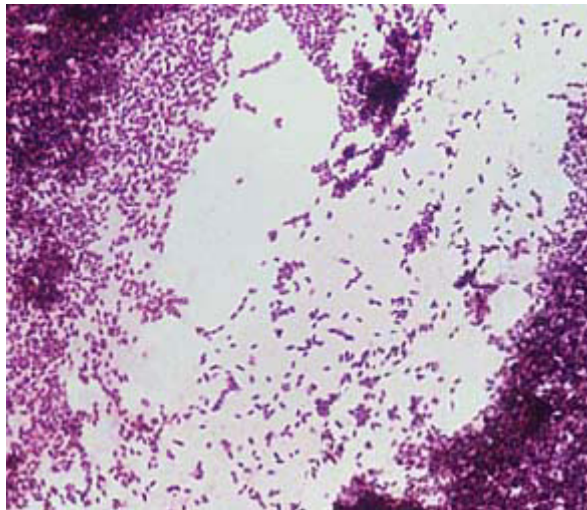
Each attendee should claim **THREE** CEU points for completing this Quality Control Journal Club exercise, and retain a copy of the relevant Thistle QA Participation Certificate as proof of registration on a Thistle QA EQA.

Cycle 23 Organism 9:

Listeria monocytogenes

Listeria monocytogenes is a Gram-positive rod-shaped bacterium. It is the agent of **listeriosis**, a serious infection caused by eating food contaminated with the bacteria. The disease affects primarily pregnant women, newborns, and adults with weakened immune systems.

Listeriosis is a serious disease for humans; the **overt form** of the disease has a mortality greater than 25 percent. The two main clinical manifestations are sepsis and meningitis. Microscopically *Listeria* species appear as small, Gram-positive rods, which are sometimes arranged in short chains.



Listeria monocytogenes Gram Stain

Listeria monocytogenes is reportedly carried in the intestinal tract of 5-10% of the human population without any apparent symptoms of disease. The true incidence of listeriosis in humans is not known, because in the average healthy adult, infections are usually asymptomatic, or at most produce a mild influenza-like disease. Illness is most likely to occur in pregnant women, neonates, the elderly and immuno-compromised individuals, but apparently healthy individuals may also be affected. In 1981, there was an outbreak that involved over 100 people in Canada. Thirty-four of the infections occurred in pregnant women, among whom there were nine stillbirths, 23 infants born infected, and two live healthy births. Among 77 non pregnant adults who developed overt disease, there was nearly 30% mortality. The source of the outbreak was coleslaw produced by a local manufacturer.

Listeria monocytogenes is presumably ingested with raw, contaminated food. A peculiar property of *L. monocytogenes* that affects its food-borne transmission is the ability to multiply at low temperatures. The bacteria may therefore grow and accumulate in contaminated food stored in the refrigerator. So it is not surprising that listeriosis is usually associated with ingestion of milk, meat or vegetable products that have been held at refrigeration temperatures for a long period of time.

Although *Listeria* is actively motile by means of peritrichous flagella at room temperature (20-25 degrees), the organisms do not synthesize flagella at body temperatures.



Listeria monocytogenes Scanning EM showing Flagella

If diagnosed early enough, antibiotic treatment of pregnant women or immuno-compromised individuals can prevent serious consequences of the disease.



Listeria monocytogenes Scanning EM

CPD Questions:

1. Why is it difficult to measure the true incidence of listeriosis in humans?
 2. Why are pregnant women in the "high risk" category for this infection?
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