Salmonellosis

Salmonella bacteria are widespread in human and animal populations. Some of them can cause disease in pigs.

They multiply mainly in the intestines of young growing pigs but also in some sows. They may be shed in faeces for several weeks or months with no clinical disease. Salmonella in the gut of the pig can contaminate carcasses during the slaughter process and their presence creates potential public health risks from food poisoning.

Of the many serotypes of salmonella that exist, the ones that are most likely to cause clinical disease in pigs are *Salmonella choleraesuis*, and *Salmonella typhimurium* and to a lesser extent *Salmonella derby*. Other "exotic" salmonella serotypes may infect pigs and be shed in the faeces for limited periods but they usually remain sub-clinical. *S. choleraesuis* and *S. derby* are host-adapted to the pig and may be carried for long periods by sows, the former sometimes causing clinical disease in sows (fever, depression, septicaemia, pneumonia, meningitis arthritis and diarrhoea) but rarely in people.

Pigs may become long-term sub-clinical carriers of *S. choleraesuis* and *S. derby*, the organisms surviving in the mesenteric lymph nodes draining the intestine. Many such carriers do not shed the bacteria in faeces unless they are stressed. Pigs may be intermittent or continuous faecal shedders of other serotypes but the carrier state is usually short, weeks or a few months and is self limiting.

*S. typhimurium* and *S. derby* are more likely to cause milder disease, the main sign of which is usually diarrhoea. The serotype most commonly found in pigs, however, is *Salmonella typhimurium* which sometimes is associated with diarrhoea in young pigs but which is also a major cause of food poisoning in people. Some strains have multiple medicine resistance. If it is diagnosed in your pigs you should take hygienic precautions not to become infected yourself. Many other so called exotic types may also be detected in pigs without causing disease.

Remember that *S. typhimurium*, which occasionally can be isolated from pigs, are common causes of food poisoning in people. Salmonellosis can occur at any age but is most common in growing pigs over eight weeks of age. Severe *S. choleraesuis* infection occurs typically at around 12 to 14 weeks. Disease is dose dependent, that is, a relatively large number of organisms are required before clinical signs occur.

**Symptoms**

**Weaners & Growers**
- The acute septicaemia and pneumonia which may occur with *S. choleraesuis* may result in fever, inappetence, respiratory distress, depression, coughing, red skin and poor doing pigs.
- The skin of the extremities (i.e. tail, ears, nose and feet) become blue.
- Foul-smelling watery diarrhoea which may be blood stained, is a common feature.
- Yellow jaundice may result from liver damage and lameness from arthritis.
- Nervous signs resulting from meningitis.
- If untreated, mortality may be high.
- Infections with *S. typhimurium* usually are manifest by diarrhoea.

**Piglets**
- Disease would be uncommon in the piglet and due to passive immunity provided via colostrum.

**Sows**
Clinical signs of *Salmonella choleraesuis* and occasionally *Salmonella typhimurium* infection may include any combination of the following:
- A high temperature.
- Depression.
- Congestion of the ears, snout and tail.
- Pneumonia.
- Loss of appetite.
- Coughing.
- Nervous signs.
- A smelly sometimes bloody diarrhoea.
- Death may occur in the acute phase of the disease.

**Causes / Contributing factors**

- Poor hygiene.
- Overcrowding.
- Stress by moving and mixing.
- Permanently populated houses.
- Contaminated boots and clothing.
- Mechanical means via faeces and the movement of contaminated equipment.
- Vermin and flies.
- Contamination of feed by birds, rats and mice
- Contamination of raw feed ingredients and thus the final product.

**Diagnosis**

The post-mortem lesions are strongly suggestive of *S. choleraesuis*, particularly the generalised pneumonia, the appearance of the lining of the small and large intestine, the congested spleen and multiple small haemorrhages. However, to make a specific diagnosis it is necessary to submit to the laboratory either fresh faecal samples from untreated pigs or where available a dead or live untreated pig.

Severe salmonellosis caused by *S. choleraesuis* can occur alone but it also commonly occurs with classical swine fever (hog cholera) in those countries in which this disease still occurs. In such countries it is important to ensure by serology and laboratory tests that swine fever is not the primary cause (NB. swine fever usually also affects sows and sucking piglets and also causes mummified litters and abortions).

Severe PRRS in herds with endemic EP may give the appearance of salmonellosis, however PRRS also causes abortions, stillbirths and precipitates scouring in piglets.