

Pre-weaning mortality in piglets is a critical concern for swine producers as it can significantly impact productivity and economic viability. This article examines the infectious causes of pre-weaning mortality, focusing on both sows and piglets as potential sources of infection. By understanding the various diseases and implementing effective prevention and management strategies, producers can reduce pre-weaning losses and improve the overall health and productivity of their herds.

1. Sow

Diseases in the sow can have significant implications for piglet health and pre-weaning mortality. Various conditions, including systemic diseases such as Porcine Reproductive and Respiratory Syndrome (PRRS), Pseudorabies and Porcine Circovirus (PCV), as well as issues like agalactia, mastitis and death, can affect sow productivity and the overall well-being of piglets. These conditions often manifest in diverse ways, with effects ranging from reduced milk production to behavioral changes that may lead to savaging of piglets.

2. Piglet

Some diseases that can be important contributors to increased pre-weaning mortality are the following:

Neonatal Septicemia

Neonatal septicemia is a severe and often fatal condition in piglets that occurs within the first few days of life. It is characterized by a systemic infection that can be caused by *Streptococcus suis*, *Escherichia coli* (*E. coli*), and *Clostridium perfringens*. Piglets can be infected during birth, through contact with contaminated surfaces or materials or through the ingestion of contaminated colostrum or milk. Clinical signs include weakness and lethargy, a high mortality rate, fever, rapid breathing and skin discoloration.

Neonatal Diarrhea

Neonatal diarrhea is a complex issue that demands a proactive and multifaceted approach to minimize its impact on pig production. It causes economic losses due to increased mortality, reduced growth rates and increased treatment costs. It is predominantly caused by bacterial and viral pathogens. Toxin-producing *C. perfringens* type A, *C. difficile*, pathogenic *E. coli*, and *Salmonella* species are commonly found in the feces by PCR. Rotavirus and Coronavirus (Porcine epidemic diarrhea virus (PEDV) and porcine delta coronavirus (PDCoV)) can be the viral components of neonatal diarrhea. *Coccidium neospora* causes parasitic neonatal diarrhea. These bacteria, viruses and parasites can cause neonatal diarrhea by themselves or in combination.

The first observed clinical sign is watery to pasty feces. Due to the diarrhea, piglets can become dehydrated, characterized by sunken eyes, dry skin and lethargy. Piglets also may become less active, lose interest in suckling and lose weight. In severe cases, diarrhea can lead to high mortality rates.

Arthritis and Meningitis

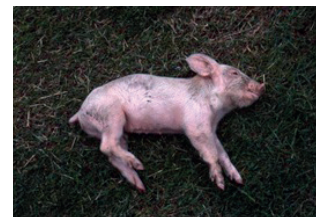
Arthritis and meningitis caused by *Streptococcus suis* or *Haemophilus parasuis* are complex issues that require a combination of preventive measures, prompt veterinary intervention and ongoing management practices to minimize their impact on pig health and productivity.

1. *Streptococcus suis*

This Gram-positive coccus is a normal inhabitant of the upper respiratory tract (especially non-virulent strains) and can easily be found in tonsils. It can also be isolated from the reproductive and gastrointestinal tracts of clinically healthy pigs. Especially types 2, 7 and 9 of *S. suis* are commonly isolated. Disease outbreaks due to *S. suis* infection have often been reported with co-infections of PRRS virus and less often with Swine Influenza or PCV virus.

a. Meningitis

The bacteria can be transmitted vertically from the sow to piglets or horizontally between piglets. Meningitis can lead to neurological signs such as head tilt, tremors and incoordination.



SOURCE: NADIS

b. Arthritis

Streptococcus suis is transmitted from the sow to the piglets during farrowing, through contaminated environments or feed. Arthritis is characterized by lameness, joint swelling and pain, leading to decreased growth rates.



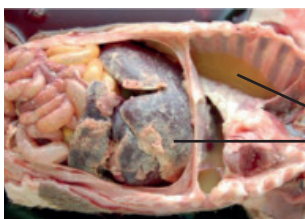
Diagnosis is based on bacterial isolation and serotyping.

Treatment and prevention

Treatment involves Beta-lactam antimicrobials, and prevention focuses on inhibiting the spread of the bacterium between piglets and herds. Autovaccines can be used to increase immunity against the strain found in the herd though results vary.

2. *Glaesserella (Haemophilus) parasuis* (Glässer Disease)

The bacterium is a commensal organism of the upper respiratory tract of swine that causes a severe systemic disease characterized by fibrinous polyserositis, arthritis and meningitis. Its incidence has increased since the emergence of PRRS syndrome. It is a small, gram-negative bacterium. Clinical signs of Glässer disease are seen in 4 to 8 week old pigs, although the age of affected animals may vary depending on the level of acquired maternal immunity. An acute systemic infection is characterized by the development of fibrinous polyserositis, polyarthritis and meningitis.



Polyserositis

a. Arthritis

Glaesserella parasuis is highly contagious and can spread through respiratory secretions and direct contact. Symptoms are similar to *Streptococcus*: fever, lameness, joint swelling and reduced mobility.

b. Meningitis

Glaesserella parasuis can enter the bloodstream and reach the meninges, causing meningitis. Symptoms include sudden death, depression, fever and neurological signs, particularly under stress and overcrowding.

Treatment and prevention

Glaesserella parasuis is still sensitive to penicillins, ceftiofur, ampicillin, enrofloxacin, erythromycin, tiamulin, tilmicosin, florfenicol and potentiated sulphonamides. Vaccination of piglets or sows can help to prevent the disease.



Greasy Pig Disease

Greasy pig disease, or exudative epidermitis, is a bacterial skin disease that primarily affects young piglets up to about 8 weeks of age.

The infection is caused by *Staphylococcus hyicus*, a Gram-positive coccus considered part of the normal flora of a pig's skin. The stratum granulosum in the epidermis is the main target of the infection. *Staphylococcus hyicus* produce toxins.

The disease is characterized by:

- severe skin lesions, starting as reddening and progressing to the formation greasy, moist areas on the skin.
- the affected areas exude a yellowish-brown exudate.
- fast spreading on the body of the piglet but also within the herd.
- affected piglets are more sensitive to secondary infections.
- the transmission can occur through direct contact with infected pigs or contaminated environments.



Treatment and prevention:

- Antimicrobial resistances is common, so it is important to run a sensitivity test before deciding on the right course.
- Antimicrobial treatment can be given intramuscularly early in the course of the infection.
- Local skin treatments with antiseptic mineral oils can also provide a good response.
- Prevent dehydration of piglets with electrolytes.
- The best method is to prevent skin abrasions by clipping teeth, treating for mange and removing abrasive surfaces.

Coccidiosis

Coccidiosis in piglets is a parasitic disease caused by the protozoan parasite *Eimeria*. The protozoan spreads through the ingestion of sporulated oocysts, which are shed in the feces of infected piglets, or due to unsanitary conditions or overcrowding. Clinical signs include watery to mucoid diarrhea, reduced weight gain, dehydration, reduced activity and sometimes blood in the feces.

Porcine Epidemic Diarrhea Virus (PEDV)

PEDV is a highly contagious viral disease that affects piglets, causing severe diarrhea, dehydration and high mortality rates. The virus belongs to the coronavirus family that specifically infects pigs.

The transmission occurs via different ways:

1. Faecal-oral route through the ingestion of contaminated faecal material.
2. Aerosol way through the air. This contributes to its rapid transmission within and between herds.
3. Fomite way: contaminated equipment, vehicles, clothing and other fomites.

The clinical signs are watery diarrhoea, dehydration and vomiting. It can cause high mortality.

The diagnosis is based on the clinical signs and PCR test in faecal samples.

Prevention and control:

1. Biosecurity measures to prevent the introduction of PEDV into the herd.
2. Isolation of affected piglets to prevent the spread of the virus within the herd.
3. Cleaning and disinfection of facilities, equipment and vehicles.
4. Vaccination with variation of effectiveness.
5. Supportive treatment with fluid therapy.
6. Secondary treatment to avoid bacterial infections.

Conclusion

Infectious factors can increase pre-weaning mortality. Focusing on good biosecurity, early diagnosis and effective management of diseases is necessary to control pre-weaning mortality.



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