Respiratory diseases of swine cause major economic losses. In many cases, respiratory disease losses are not recognized because death losses are low and reduced feed efficiencies are the primary effect.

The major infectious organisms currently associated with swine pneumonias are *Mycoplasma hyopneumoniae*, *Pasteurella multocida*, *Bordetella bronchiseptica*, *Hemophilus pleuropneumoniae*, *Hemophilus parasuis*, swine influenza and pseudorabies viruses. Other disease conditions such as salmonella, streptococcus may cause pneumonia as a secondary problem. Roundworm and lungworm migration may intensify the severity of pneumonia by their movement through lung tissues.

A brief description of the major swine pneumonia diseases will be given. Each disease will be treated as a singular event, but the diseases usually occur together—producing a more severe problem than when alone.

*Mycoplasma* pneumonia of swine (MPS), also known as virus pig pneumonia (VPP), or enzootic pneumonia is a chronic disease of growing finishing swine. The causative agent, *Mycoplasma hyopneumoniae*, is a small bacteria found only in swine. Exposure to this organism is estimated as high as 65 to 80 percent for all U.S. swine.

Clinical signs are a dry, persistent cough, labored breathing and slow or uneven growth. Pigs are infected by aerosol transmission (fine misty particles as a result of breathing, sneezing, coughing) from their mothers or by other

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Respiratory Diseases
Respiratory diseases of swine cause major economic losses in the form of reduced feed efficiencies. A key to preventing respiratory diseases is clean, dry housing with adequate ventilation and air space per pig.

pigs when grouped at weaning. Severity of signs may depend on the presence of secondary infectious agents and environmental conditions.

Treatment of mycoplasmal pneumonia is centered on reducing the effects of secondary bacterial infections and reduction of lung lesion development. Tylosin, lincomycin tiamulin, sulfonamides and tetracyclines—administered either by injection or orally—will reduce lesion development. Control of economic losses involves feeding growth-promoting levels of the above drugs and improving environmental conditions.

Prevention requires a complete break between infected and uninfected herds. Movement of swine between herds is dangerous. The specific-pathogen-free (SPF) management scheme, embryo transfers, and artificial insemination are all relatively safe methods of adding breeding stock to MPS-free herds.

**Pasteurella Infections**

Pasteurella pneumonias are common secondary pneumonia infections following MPS, Bordetella, influenza and environmental stresses. *Pasteurella multocida* occurs in apparently healthy swine but is rarely the initiating factor in pneumonia. Spread is by aero-
sol transmission from pig to pig.

Cold, damp, poorly ventilated, drafty, or overcrowded conditions make Pasteurella infections more serious. Clinical signs of pasteurellosis include a sudden onset of coughing, fever of 104° to 107°F, labored breathing and poor growth affecting a large percentage of the group.

Tetracyclines and sulfonamides in feed or water will reduce clinical severity of an outbreak. Individual animal treatment by injection may be needed for severely affected pigs.

Control of Pasteurella infections involves improved environment, reducing dust and aerosol bacterial contamination, treatment of visibly affected pigs, reducing stocking rate, adequate nutrition, and parasite migration control. Vaccines currently available may reduce the severity of lesion development but do not prevent disease.

HPP or Hemophilus pleuropneumoniae (parahemolyticus) causes a sudden to chronic pneumonia in pigs generally from 30 lbs. to adult. When it is first introduced into a group of swine, common signs are sudden death without signs of coughing, labored breathing, high temperatures—104° to 107°F, listlessness and loss of appetite. Some pigs die with a bloody froth coming from their mouth. Mortality can range from 5 to 50 percent of a group.

As the disease becomes more chronic, the sudden deaths are reduced but the chronic cough, labored breathing, slow growth and lung adhesions become more prominent. Sudden changes in temperature or management can cause a reappearance of the acute form. Spread of infection is by aerosol droplets from infected swine.

**Treating Acute HPP**

Treatment of acute HPP requires immediate action. The bacterium generally is susceptible to penicillin or tetracyclines injected at the higher treatment levels. Besides medical treatments, efforts should be made to increase ventilation rates, reduce numbers of pigs/air space, and avoid adding new animals until the disease is controlled.

After the sudden deaths are controlled, high levels of sulfas or tetracyclines given orally may help increase feedlot performance. Preventive measures including vaccination or oral medication are indicated.
Hemophilus parasuis is a common bacteria of the respiratory tract. It has been identified as producing inflammation of the lung cavity lining (pleuritis), intestinal cavity lining (peritonitis) and the joints.

Occasionally, infections of the brain lining result in meningitis. This infection, known as Glasser’s Disease, is found in pigs from 25 to 100 lbs. and generally follows a stressful situation. Hemophilus parasuis is also recognized as an important organism in swine pneumonias and rhinitis.

Use of tetracyclines, sulfonamides and penicillin by injection have resulted in reduced losses. Preventive techniques generally are not economically feasible because of the sporadic recurrence of the disease.

BB and Cats
Bordetella broniseptica (BB) is an important swine respiratory disease cause. Historically, BB has been identified as a major cause of atrophic rhinitis. Of increasing importance is its role in the pneumonias of pigs 1 to 6 weeks of age.

BB is spread by aerosol transmission from infected to uninfected pigs. Other animals also may spread this organism to pigs and to each other. Cats are recognized as particularly capable carriers because of their desire to cuddle with suckling pigs, under a heat lamp.

Sudden onset of severe coughing, elevated temperature and poor performance are clinical signs of infection. Recovered pigs may show persistent coughing and poor weight gains.

Treatment is by injections of tetracyclines, sulfas, tylosin or lincomycin. Prefarrowing vaccination of sows with Bordetella vaccines may provide colostral protection to the pigs.

Swine influenza virus occurs throughout the year but is most common during the widely changing weather of spring and fall.

Clinical signs in swine are similar to human symptoms. Rapid onset of muscle soreness, lack of appetite, high temperature, hacking cough, and weight loss in a group of growing-finishing swine are the most common signs. Mortality is low unless secondary pneumonias are triggered by this infection.

Treatment of influenza virus is not practical. No vaccines are available. Supportive treatments with sulfa
ANIMAL HEALTH

Atrophie rhinitis is a major economic problem for swine producers, since infected pigs may grow much slower than uninfected pigs. Loss of turbinates (atrophy) may also make it easier for bacteria and dusts to move into the lungs.

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drugs and tetracyclines accompanied by electrolyte solutions can be used to treat secondary infections.

Types of Rhinitis
Rhinitis is an inflammation of the lining of the nasal cavity. There are three distinct clinical rhinitis problems—necrotic rhinitis, inclusion body rhinitis, and atrophie rhinitis.

Necrotic rhinitis (bull nose) is an uncommon disease in modern hog production units. It is caused by invasion of the skin or mouth cavity from Fusobacterium (Sphero phorus) necrophorus. This organism enters a wound or skin break and produces a large abscess area in the jaw. Treatment of these abscesses generally is not successful. Prevention is by improved sanitation, reduction in skin abrasions from sharp flooring material, clean instruments in clipping teeth, and reduction of fighting whenever possible.

Inclusion body rhinitis (cytomegalic virus rhinitis, IBR) of swine is an infectious viral disease. Incidence of the disease is sporadic and quite low.

Clinical signs are respiratory distress caused by plugging of the nasal cavity with a

Respiratory Diseases
thick, stringy material. Suckling pigs most often are infected and may be seen breathing from the mouth. Affected pigs cannot breathe or suckle normally and may die of starvation.

Treatment generally is ineffective. Removing the nasal plugs may give temporary relief. Injectable antibiotics may help reduce secondary infections in the nose and lungs. Because of the sporadic incidence of IBR, preventive measures are not economically feasible.

Atrophic rhinitis is an infectious, chronic inflammation of the nasal turbinate bones. The turbinates are tiny scroll-like bones in the nasal cavity that filter and warm air entering the lungs.

The principal infective agent is Bordetella bronchiseptica (BB). Other organisms—including Pasteurella multocida, Hemophilus parasuis, and IBR virus—have been identified as intensifying agents.

**Major Problem**
Atrophic rhinitis is a major economic problem for swine producers. Infected pigs may grow much slower than uninfected pigs. Loss of turbinates (atrophy) may also increase the opportunity for bacteria and dusts to move into the lungs.

Reduction in growth rate is most notable during the period when turbinate atrophy is occurring. After turbinate destruction stops, growth rate between infected and uninfected pigs may be similar, but infected pigs never regain the lost growth.

Organisms causing turbinate atrophy are spread by aerosol from adults to pigs and by pig to pig transfer.

Treatment of pigs with atrophic rhinitis will not reconstruct the severely damaged turbinate bones. Prevention of atrophy by a combination of vaccination, medication and improvement of environmental management is the best method.

Antibiotic feed additives are used to suppress secondary infections and to improve overall health of the pig. Vaccination of pigs or sows or both to increase immunity has been attempted. Vaccines have reduced, but not eliminated, Bordetella-caused atrophy.

All in, all-out farrowing and nursery management, maintenance of small groups of similar aged pigs and control of concurrent disease will help reduce the significance of swine atrophic rhinitis.