Quiz Questions

Dr. John Carr

1. Coliform mastitis in sows is a result of:

a. Endotoxic effects of bacterial septicemia
b. Bacterial colonization and tissue necrosis following ascending infection
c. Serotype-specific *Klebsiella pneumoniae* endotoxemia and septicemia
d. Endotoxic effects of ascending localized infection from a variety of coliform bacteria
e. Endotoxemia secondary to diet-induced gastrointestinal stasis and constipation

1. Answer

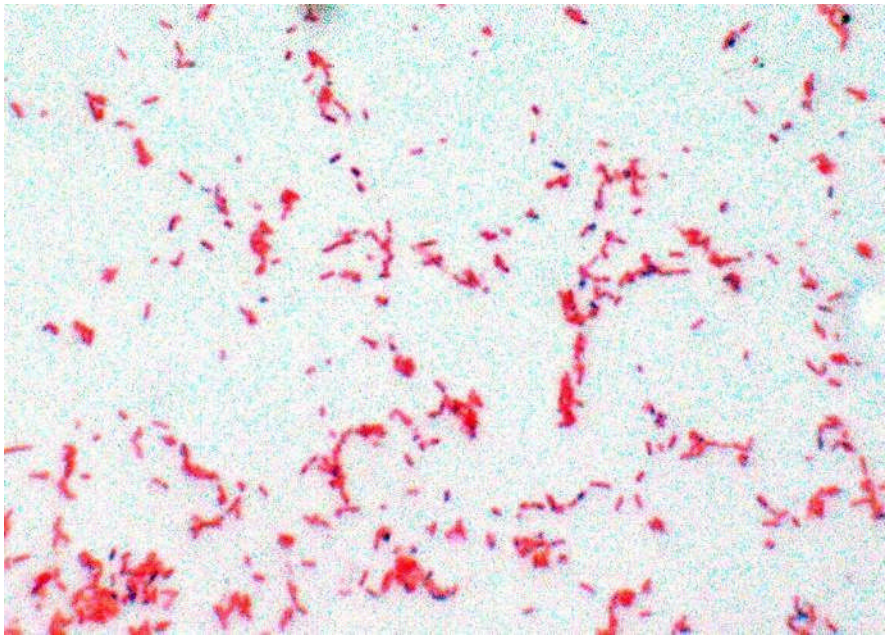
d. Bacterial colonization is not involved, nor is *K. pneumoniae* endotoxemia serotype specific.

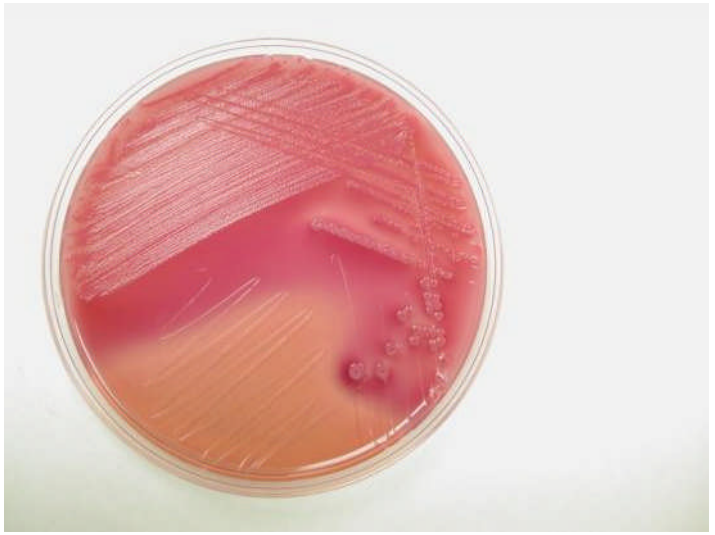
2. Therapy for acute coliform mastitis in sows might logically include any of the following **except:**

a. Penicillin
b. Prednisolone
c. Flunixin
d. Glucose and electrolytes for the piglets
e. Oxytocin

2. Answer

a. Coliform bacteria are not sensitive to penicillin.





3. Concerning swine erysipelas, which statement is most accurate?

a. Soil is the most important reservoir for the causal organism.
b. Over 30% of healthy animals harbor the causal organism in lymphoid tissue.
c. Both modified-live and killed bacterins effectively prevent chronic erysipelas arthritis.
d. Vegetative endocarditis is a pathognomonic postmortem finding in acute swine erysipelas.
e. Sulfonamides and aminoglycosides are most effective in chronic erysipelas therapy.

3. Answer

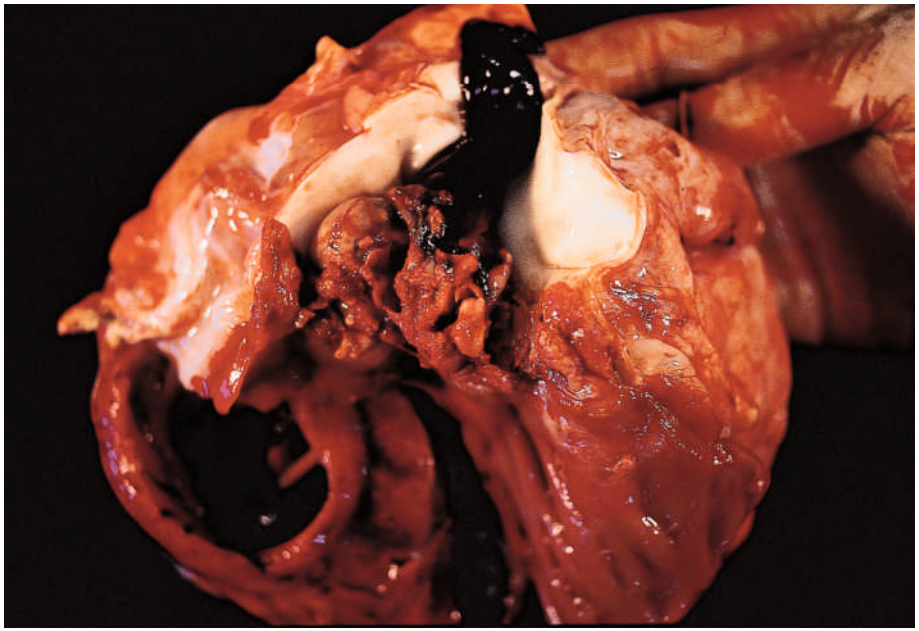
b. Chronic forms of erysipelas are not prevented with vaccine and are not responsive to therapy. Endocarditis is a chronic sequela and may be due to other agents as well.

4. Concerning swine erysipelas, which statement is most accurate?

a. It is characterized by proliferative, nonsuppurative synovitis; penicillin provides effective treatment.
b. It is characterized by degenerative, suppurative osteoarthritis; erysipelas antiserum and dipyrone are effective.
c. It is characterized by vegetative endocarditis and proliferative synovitis; prednisolone and gentamicin are effective.
d. It is characterized by fibrinous tenosynovitis and osteomalacia; there is no practical treatment.
e. It is characterized by unilateral coxofemoral suppurative osteoarthritis; surgical drainage is effective.

4. Answer

a. It does not involve bone, and penicillin therapy is effective.



5. Osteoporosis with pathologic fractures:

a. Occurs primarily in fast-growing castrates at 6 months of age
b. Is primarily due to dietary calcium deficiency in lactation diets
c. Is most prevalent to young, heavily lactating sows following weaning
d. Is a breed- and age-specific problem in ages sows of the white breeds.
e. Can be avoided by maintaning a 2:1 ratio of phosphorus to calcium in all swine diets.

5. Answer

c. The recommended calcium to phosphorus ratio is from 1.2:1 to 1.5:1. It is not associated with any one breed. It is not related solely to calcium. It is rare in growing pigs.

6. Excessive salt in swine diets may result in:

a. Meningitis caused by sodium intoxication
b. Decreased feed consumption
c. Ascites and hypochloremia
d. Renal calculi
e. Chronic diarrhea

6. Answer

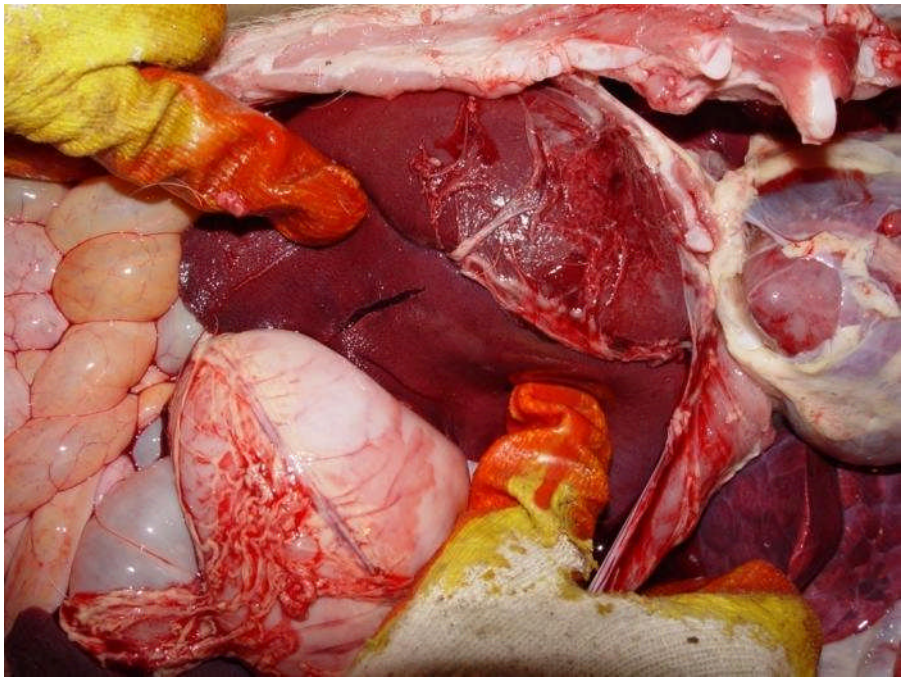
b. It can cause encephalitis, not meningitis. The other answers listed are not associated with salt.

7. Mulberry heart disease:

a. Is limited to pigs on diets containing more than 12% fat.
b. Is a peracute oxidative crisis with primary cardiac and hepatic lesions
c. Is precipitated by encephalomyocarditis infection enzootic in the sow herd
d. Results in congestive heart failure in chronically affected animals
e. Is a component of porcine malignant hypothermia syndrome

7. Answer

b. Fat levels never reach 12% in diets. No chronic form is recognized. The other choices listed are not associated with mulberry heart disease.



8. Rectal prolapse can be repaired but carries certain risks. Concerning this surgery, which statement is most accurate?

a. Replacement and retention with a purse-string may lead to tenesmus and abortion.
b. Insertion of a tube into the rectum with a rubber band may cause rectal stricture.
c. Clostridial infections and gangrene are often fatal side effects of rectal prolapse.
d. All methods of repair may lead to rectal stricture.
e. Vaginal prolapse is a common sequela of rectal prolapse repair.

8. Answer

d. Postoperative rectal stricture is a possible sequela.

9. Necropsy of a 9-week-old pig reveals a fibrinopurulent exudate on the liver and heart. The most likely causes of this finding are:

a. Salmonella septicemia and *Mycoplasma hyorhinis* infection

b. *Haemophilus parasuis* and *M. hyorhinis* infections

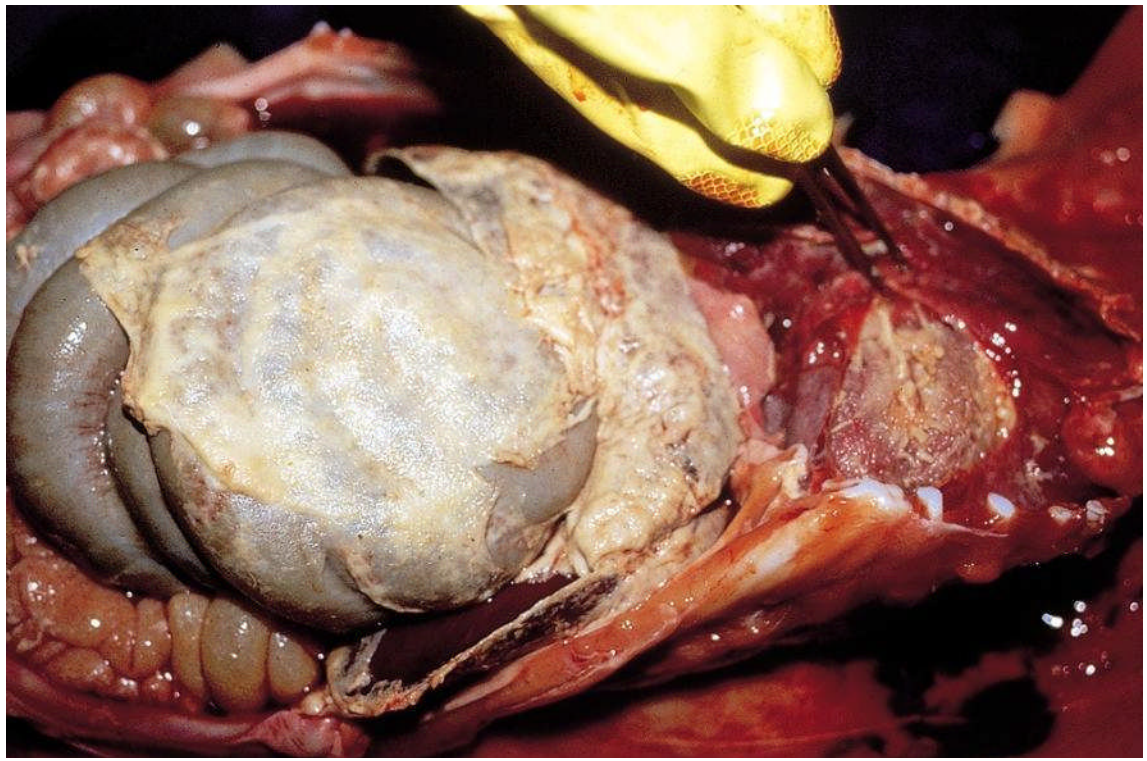
c. *Actinobacillus pleuropneumonia (Haemophilus parahaemolyticus)* and *Mycoplasma hyosynoviae* infections

d. Bacterial septicemia and aflatoxicosis

e. *M. hyorhinis* and *M. hyosynoviae* infections

9. Answer

b. Fibrin is not present with *Salmonella* septicemia and aflatoxicosis. The piglet's age is not consistent with *M. hyosynoviae* infection.



10. Which internal parasite of swine is most likely to cause hematochezia?

a. Eimeria
b. Oesophagostomum
c. Trichuris
d. Ascaris
e. Balantidium coli

10. Answer

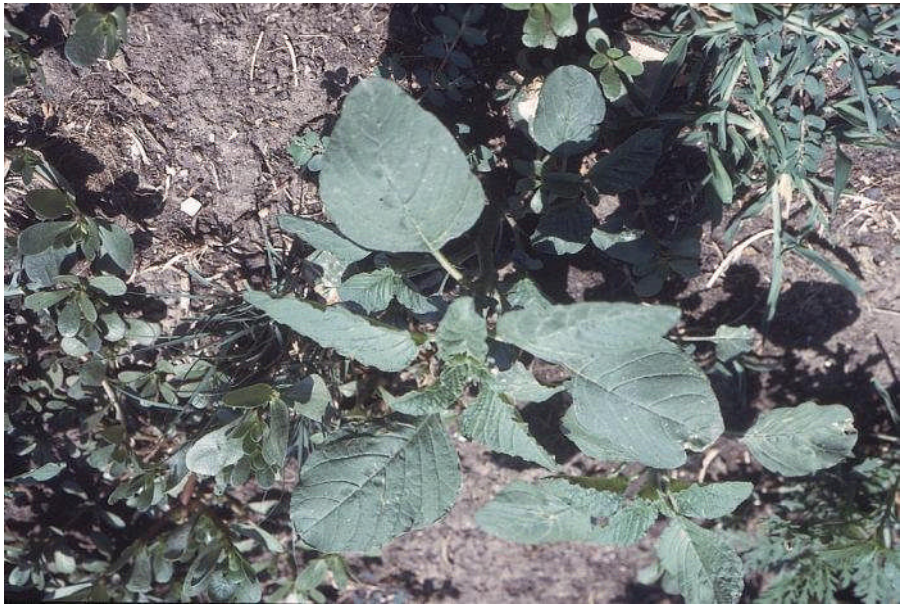
c. The other parasites listed do not cause blood in the stool.

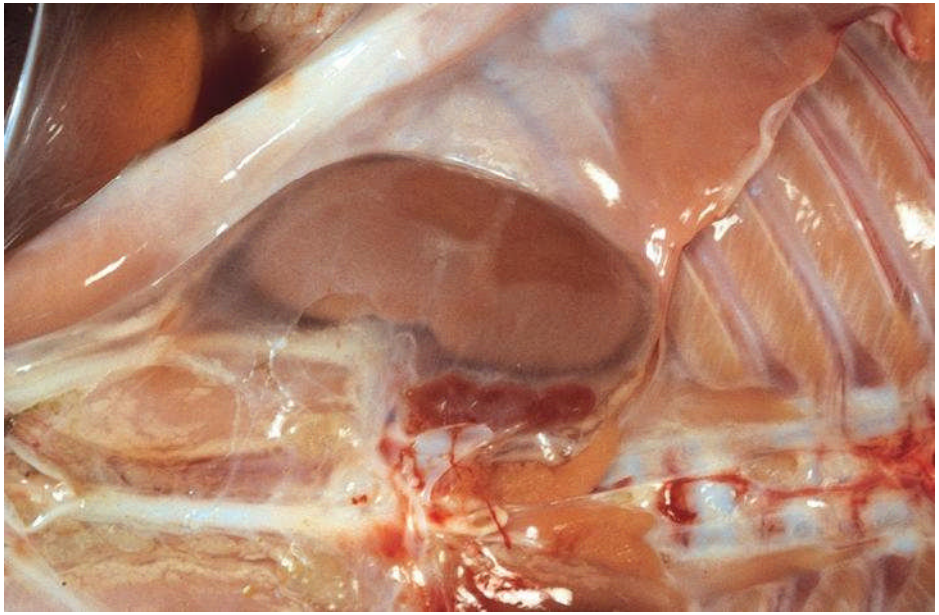
11. Perirenal edema on necropsy of recently purchased, pastured feeder pigs is most suggestive of:

a. *Stephanurus* infection
b. Peracute edema disease
c. *Amaranthus* toxicity
d. *Phytolaca* toxicity
e. Carbamate toxicity

11. Answer

c. This finding is seen with pigweed (oxalate) toxicity.





12. In normal, fertile boars, the volume of the sperm-rich portion of an ejaculate is:

a. 2 to 10 ml in boars of all ages
b. Over 750 ml in boars of all ages
c. 25 to 50 ml in young boars
d. Over 125 ml in mature boars
e. Related to gel-fraction volume and unrelated to fertility

12. Answer

d. The normal range is 70 to 150 ml in young boars and over 125 ml in mature boars.

13. In swine, prostaglandin is **not** effective in:

a. Inducing abortion
b. Stimulating libido in boars
c. Synchronizing estrus
d. Synchronizing parturition
e. Terminating pseudopregnancy

13. Answer

c. Prostaglandin does not induce luteinization until 12 or more days after ovulation.

14. As you stand in a damp, hot, poorly ventilated nursery barn, you recall that environmental conditions may markedly affect the transmission and expression of swine respiratory conditions. Considering the poor ventilation, you tell the owner that he should install several fans to:

a. Remove animal-generated heat from the barn
b. Remove toxic gases, especially ammonia, from the barn
c. Pull needed oxygen into the barn
d. Remove water-laden air from the barn
e. Prevent accumulation of carbon dioxide and carbon monoxide in the barn

14. Answer

d. The primary purpose of exhaust fans is to remove water-laden air.

15. At what age do pigs develop the ability to produce antibodies?

a. As fetuses, at about day 70 of gestation
b. At birth
c. 3 to 5 days after birth
d. 2 weeks after birth
e. As embryos, during the first month of embryonic life

15. Answer

a. Immunocompetence develops at 70 days of gestation, though in the absence of antigenic stimulation in utero (the normal case) piglets are born without antibody.

16. How do pigs normally acquire passive immunity?

a. Through the placenta before birth
b. Through vaccination with an inactivated vaccine in the first few months of life
c. Through absorption of maternal antibodies in colostrum as neonates
d. Through vaccination with a live vaccine in the first few months of life
e. Through ingestion of the sow’s feces as neonates

16. Answer

c. There is no transfer of antibody across the placenta. The other methods listed **do not** produce passive immunity.

17. Which of the following is most likely to cause a sow to abort her entire litter?

a. Treatment with dexamethasone between 30 and 40 days of gestation
b. Ovariectomy
c. Death of two out of 10 fetuses
d. Death of five out of 10 fertilized eggs
e. Death of three out of 10 embryos

17. Answer

b. Maintenance of pregnancy is totally dependent on an intact corpus luteum in the ovaries. Death of the fetuses without placentitis and resultant prostaglandin release does not cause abortion. Corticosteroids are relatively ineffective in inducing abortion in pigs.

18. Paratyphoid nodules are associated with what disease of swine?

a. Proliferative enteritis
b. Salt poisoning
c. Swine dysentery
d. Salmonellosis
e. Intestinal tuberculosis

18. Answer

d. Paratyphoid nodules in the liver are clusters of histiocytes amid foci of acute coagulative hepatocellular necrosis caused by salmonellae.

19. In 1-day-old piglets diarrhea that is nonhemorrhagic and produces no obvious lesions at necropsy is most likely caused by:

a. Cocidiosis
b. Overnutrition (milk scours)
c. *Escherichia coli* infection
d. Cold environment
e. Rotaviral infection

19. Answer

c. The signs described are typical of *E. coli* infections. Coccidiosis produces visible gut lesions and does not occur until 5 days of age. Rotavirus infections cause villus atrophy and are less common at 1 day of age. Overnutrition is unlikely at 1 day of age and in piglets nursing naturally (as opposed to those given milk replacer). Cold per se does not cause scours, but it does reduce piglet resistance.

20. In 5-day-old piglets antimicrobials are very effective in treatment of:

a. Colibacillosis complicated by rotaviral infection
b. Infection with Lelystad virus (porcine reproductive and respiratory syndrome)
c. Coccidiosis
d. Acute clostridial enteritis
e. Acute transmissible gastroenteritis

20. Answer

a. The primary viral diseases listed are not responsive to antimicrobial treatment. There is no effective treatment for coccidiosis or clostridial infection. Colibacillosis generally responds to antibacterial treatment.

21. Which skin disease is associated with high mortality?

a. *Sarcoptes scabiei* var. *suis* infestation
b. Pityriasis rosea
c. *Staphylococcus hyicus* infection
d. Swine pox infection
e. dermatomycosis

21. Answer

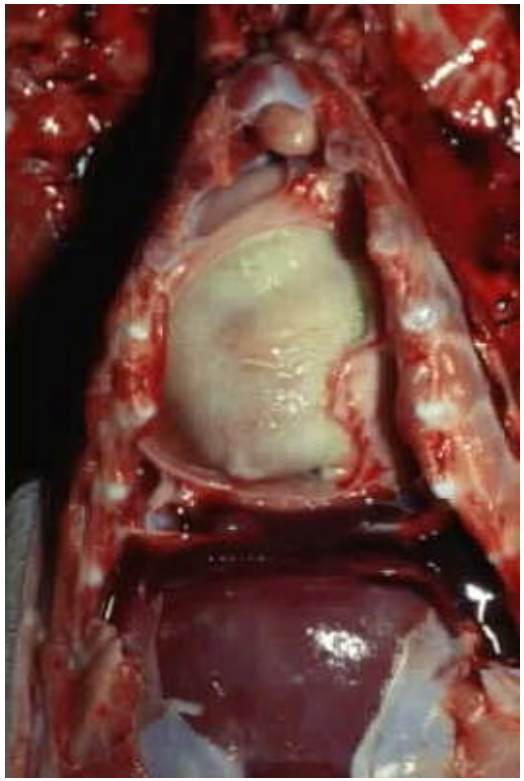
c. Greasy pig disease causes mortality of 20% to 80%.

22. What is the etiologic agent in Glasser's disease?

a. *Streptococcus suis* type II
b. *Haemophilus parasuis*
c. *Actinobacillus pleuropneumoniae*
d. *Haemophilus somnus*
e. *Actinobacillus suis*

22. Answer

b. *H. parasuis* causes Glasser's disease



23. The species responsible for most of the diseases observed in swine is:

a. *Escherichia coli*
b. *Homo sapiens*
c. *Bordetella bronchiseptica*
d. *Actinomyces pyogenes*
e. *Pasteurella multocida*

23. Answer

b. Inappropriate management (housing, environment, nutrition, scheduling) produces conditions under which the prevalence of disease increases.

24. Which of the following is not a zoonotic disease?

a. Pseudorabies
b. Erysipelas
c. Brucellosis
d. Salmonellosis
e. *Streptococcus suis* type II infection

24. Answer

a. Humans cannot contract pseudorabies from infected pigs.

25. In swine, death of all of the embryos on day 10 after fertilization results in:

a. Delayed return to estrus
b. Pseudopregnancy
c. Return to estrus at a regular interval
d. Endometritis and anestrus
e. Cystic ovaries and nymphomania

25. Answer

c. Before embryo implantation at day 13 to 15, the effect of embryonic death is similar to that seen with no fertilized ova.

26. Which disease is most common in newborn piglets?

a. Hypoglycemia
b. Iron deficiency
c. Streptococcal meningitis
d. Middle ear infection
e. Congenital tremors

26. Answer

e. The other conditions listed require time to develop.

27. *Salmonella choleraesuis* infection is:

a. Identical to disease caused by *Salmonella typhimurium* and cannot be distinguished except by isolation of the organism
b. Asymptomatic in swine but poses a major health threat to people working with affected pigs
c. Mainly expressed as an enteric infection, whereas *S. typhimurium* infection is typically expressed as septicemia
d. Primarily spread to susceptible swine through ingestion of poorly cooked garbage
e. Likely to produce septicemia and pneumonia

27. Answer

e. *S. typhimurium* infection is primarily an enteric disease whereas *S. choleraesuis* infection is a serious, potentially devastating, systemic disease of swine.

28. In a swine herd the prevalence of disease X is 10%. If the test to detect disease X has 90% sensitivity and 80% specificity, what percentage of the pigs in this herd will react positively when tested?

a. 20%
b. 27%
c. 10%
d. 8%
e. 15%

28. Answer

b. Sensitivity is the probability of detecting a positive animal. Specificity is the probability of detecting a known negative. In this herd of 100 pigs, there are 90 true negative and 10 true positive animals (10% prevalence). Of the 10 true positives, nine will be detected as positive (90% sensitivity with one false negative) and 72 of the true negatives will be detected (80% specificity, 18 false positives), for a total of 27 positives.

28. Calcuation

From 100 animals tested

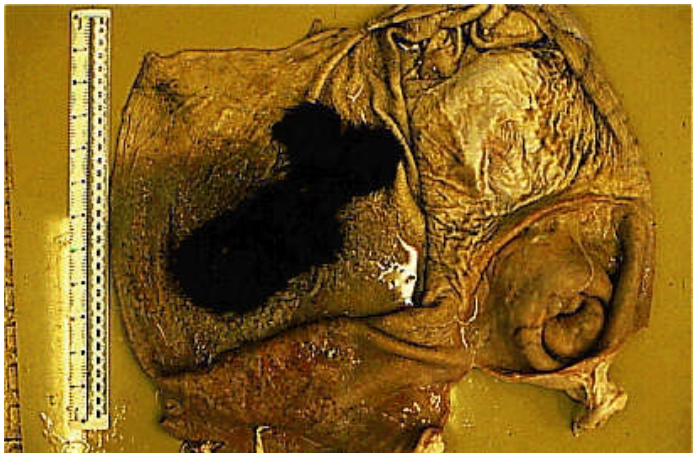
Prevalence (10%)	**Positives +**	**Negatives (-)**
Actual	10	90
True positives detected Sensitivity	9	1
True negatives detected Specificity	18	72
Apparent results	27	73

29. Concerning hairballs (trichobezoars) in swine, which statement is most accurate?

a. Hairballs do not occur in swine because pigs are unable to groom themselves.
b. Hairballs are common in swine and are readily passed through the gastrointestinal tract and excreted in the manure.
c. Hairballs are most commonly found in young or nursing piglets.
d. Most hairballs are not actually composed of hair, but usually of plant fibers derived from the feed.
e. Hairballs occasionally cause death in swine.

29. Answer

e. Hairballs form in pigs that ingest quantities of hair, usually during floor feeding (typical practice with older animals), and may produce metabolic imbalances through vomiting, irritation of the gastric mucosa, and ulceration.

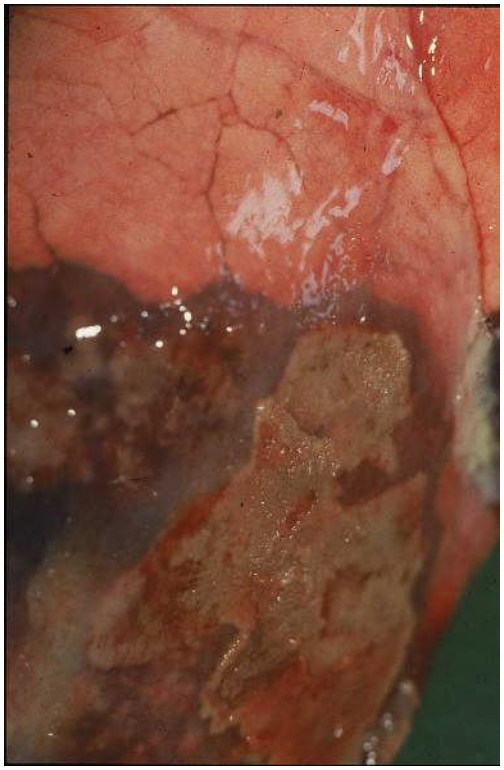


30. Which pathogen survives for the shortest time in the environment?

a. Transmissible gastroenteritis virus
b. *Brachyspira hyodysenteriae*
c. *Pasteurella multocida*
d. *Actinobacillus pleuropneumoniae*
e. Porcine parvovirus

30. Answer

d. Transmissible gastroenteritis virus can survive for up to a year at -4 F. *B. hyodysenteriae* can survive for 2 months in lagoon waste. *P. multocida* can survive for a few weeks, porcine parvovirus for several months, and *Actinobacillus* for only a few days if protected by mucus or other organic material.



31. The following table lists reproductive performance by parity.

Parity	% of litters	Live pigs per litter	Stillborn per litter	Mummies per litter
1	25	9.7	0.50	0.6
2	17	9.0	0.41	0.4
3	16	10.0	0.53	0.3
4	14	11.2	0.58	0.4
5	11	11.0	0.78	0.2
6	8	10.8	1.00	0.1
7+	9	10.4	1.20	0.2

31. What is your interpretation of the data?

a. Inadequate nutrition of replacement gilts
b. Poor genetic reproductive traits
c. Parvoviral infection
d. Too many old sows in the herd
e. Weaning too early

31. Answer

a. Second-parity females usually produce 0.5 pig per litter more than first-parity sows. However, in highly productive F1 lines of sows that are bred young and not fed adequately in gestation/lactation, body condition drops so that at weaning the sow is in a negative energy balance and ovulates fewer eggs.

32. Concerning atrophic rhinitis, which statement is most accurate?

a. Toxigenic strains of *Pasteurella multocida* type A are the bacteria most commonly associated with severe, progressive atrophic rhinitis.
b. Toxigenic strains of *Bordetella bronchiseptica* are required for initiation of lesions in the nasal turbinates.
c. Toxins produced by strains of *P. multocida* type A diffuse only locally into underlying tissue, whereas toxins produced by strains of *P. multocida* type D may circulate systemically.
d. Dietary calcium-phosphorus imbalance is a prerequisite to bacterial colonization of the nasal mucosa.
e. Toxigenic strains of *P. multocida* type D have poor ability to colonize the nasal mucosa.

32. Answer

e. Infection with *P. multocida* requires compromise of the nasal mucosa to effectively colonize that tissue, such as damage caused by primary *B. bronchiseptica* infection or exposure to irritating gases.

33. The best indication of coliform mastitis in sows is:

a. A positive California mastitis test on milk from two or more glands,
b. Presence of bacteria in milk
c. High somatic cell counts in milk
d. Starvation and hypoglycemia in piglets
e. Udder heat, pain, and reddening

33. Answer

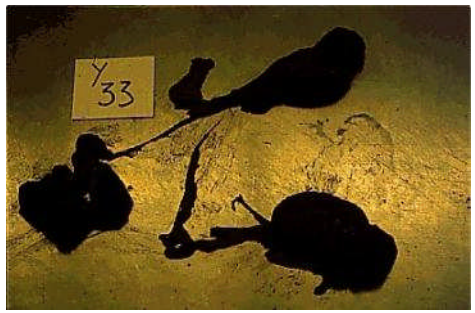
e. Sows normally have bacteria in their milk (>20,000 colony-forming units/ml milk) and somatic cell counts over 4,000,000 cells/ml milk. Starvation may be due to other factors, such as poor pen design and chilling.

34. Infection of the sow during the first half of gestation with porcine parvovirus may lead to:

a. Fetal death and mummification, prolonged gestation, and failure to farrow.
b. Fever and anorexia in sows for 7 to 10 days, with occasional vomiting
c. Congenital anomalies to piglets
d. Fetal resorption, with regular return to estrus
e. Abortion in nearly all infected sows

34. Answer

a. No developmental anomalies have been reported. Abortion is uncommon. If there is increased stillbirth of piglets, it is because of the effect of littermates that died during gestation. This prolongs gestation and/or the farrowing interval. Sows are subclinically affected and do not show systemic signs of illness.



35. Concerning castration in pigs, which statement is least accurate?

a. The scrotal incisions should be made as ventral as possible to allow for drainage.
b. General anesthesia is necessary for castration of older boars.
c. If an inguinal hernia is encountered, it is not advisable to repair the apparently uninvolved side as with the herniated side.
d. Young pigs are best restrained by suspension by the hind legs for routine castration.
e. Pigs tolerate surgical gut suture material better than do other species.

35. Answer

c. Both the herniated and normal sides should be repaired or the intestines may herniate.

36. Farm presents with increased mortality in growing pigs with wasting

- Which of the following is correct
- a. These symptoms occur in PCVAD
- b. PCVII is often associated with these symptoms
- c. Enlarged lymphnodes are associated with this condition
- d. This condition is often associated with PDNS
- e. All of the above

36. Answer

- E. All of the above.