



Pet pigs are being seen more frequently in practice

Pet pig medicine

1. The normal pig

JOHN CARR AND ARLEN WILBERS



John Carr graduated from Liverpool in 1982. After a spell in general practice in Liverpool and Dumfries, he returned to Liverpool in 1988, where he was the Leverhulme resident in pigs. He then spent some time teaching pig medicine in the UK and USA. He is a senior lecturer at Murdoch University in Australia.

PET pigs are related to the Vietnamese potbellied pig, but many are also crossbred with commercial breeds such as the Large White, which can result in interesting body colour combinations. Some owners keep rare breeds, which helps to preserve genetic diversity. All pet pigs are the same species as commercial pigs – *Sus scrofa* – and this also includes the European wild boar. Management of pet pigs is subtly different from that of commercial pigs, and this should be borne in mind when dealing with these animals. This article describes how to handle and examine the pet pig, highlighting the normal parameters for these animals, and outlines the measures that can be implemented to prevent disease. An article in the next issue will discuss problems commonly encountered in pet pigs.

PIGS AS PETS

Pigs can make great pets for the entire family, as they are generally extremely intelligent, can be trained to do most tricks that dogs can perform, are easy to toilet train and usually very clean. Pigs can be helpful and comforting pets for elderly people, as they do not jump up in the same way as dogs. They also provide comfort and companionship for children with learning difficulties,

as these animals do not need constant attention. In addition, as pigs are omnivores, they are willing to be fed vegetables and fruits by children, which can have dietary and health benefits for both child and pig alike.

The basic biology of pet pigs is identical to that of commercial pigs. However, one interesting variation is that the Vietnamese potbellied pig (as well as several other Asian breeds) reaches puberty at four months of age – some two months before commercial pigs. By two



Arlen Wilbers has been a large animal practitioner for the past 21 years in Quakertown, in the USA. He has been treating potbellied pigs for 18 years, and sees over 600 pet pigs for routine care as well as medical and surgical visits. He holds a DVM from the Virginia Polytechnic Institute.



Pigs are very affectionate and social creatures, and make good pets for both children and elderly people. They come in all shapes and sizes, including some fancy species that have a great deal of hair and tassels, such as the Kune Kune from New Zealand (above right)



In Practice (2008)
30, 160-166

years of age, male pigs have developed large and sharp tusks, and can become extremely aggressive and dangerous, and this should be taken into account if a male pig is to be considered as a pet. Ideally, male pet pigs should be castrated at about 10 days of age.

It should be noted that pigs can be very destructive animals. They will kill trees in the garden and destroy lawns. If a pig has access to the house, all cupboards should be fitted with childproof locks, as pigs will open any small door or drawer.

HANDLING AND EXAMINATION

Pigs can be difficult to handle and can be extremely vocal when examined. However, with a degree of patience, they can be examined in the same way as any other small animal. They are normally assessed on their backs, so clients should be encouraged to place the pig on its back as a form of 'playing' to accustom it to this position in case it needs to be examined clinically. Some clients also 'train' their pet pigs to play with an anaesthetic mask, which is helpful if the animal ever requires anaesthesia.

The clinician should obtain a good history of the pig, including information about recent disease problems or if a sow has had a litter. Some pet pigs may live in a group (sounder) at home and so other in-contact pigs may present with the same clinical signs.

The examination involves assessing the pig's normal behaviour, locomotion and response to its owners. Details about the animal's eating, urination and defecating patterns should be obtained, and samples collected and submitted for haematology and biochemistry, if necessary (see tables on page 164); note, there are some subtle differences between pet pigs and commercial pigs (see Straw and others 2006).

NORMAL TEMPERATURE, RESPIRATION AND PULSE RATES OF PET PIGS

	Rectal temperature*	Respiratory rate (breaths per minute)	Pulse rate (beats per minute)
At birth	39.0°C	40-50	200-250
During suckling	39.2°C	30-40	80-110
At weaning	39.3°C	25-40	80-100
Pregnant sow or boar	38.6°C	15-20	70-80
During farrowing	39.0-40.0°C	40-50	80-100
During lactation	39.1°C	20-30	70-80

*It is not unusual for pet pigs to have a slightly lower rectal temperature if they are calm and relaxed when being examined

Examination of a cooperative pig



Make contact both vocally and physically. Assess the body condition and check the breathing rate



Take the rectal temperature and examine the external genitalia



Palpate the lumbar muscles, hindlegs, abdomen and mammary area



Some pigs may allow auscultation, but this is generally unrewarding



Check the head of the pig for any discharges from the nose, eyes or mouth



Take care when handling the head, as some pigs may try to bite



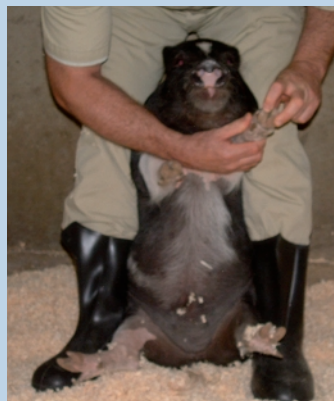
Examine the feet while the pig is standing



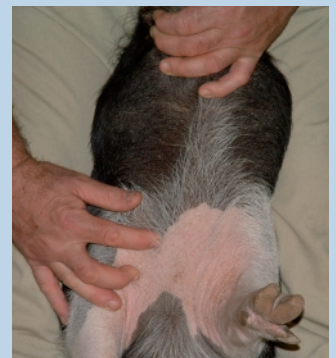
Examine the forelegs by grasping them firmly. This is likely to cause the pig to object vocally



Place the pig on its rear and hold its back with your knees



Palpate the limbs, starting at the top and working down towards the feet



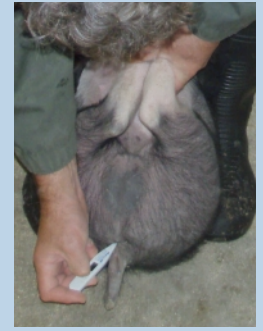
Collect any samples, as required. Blood samples can be obtained from the jugular vein, with the pig held in the sitting position

Examination of an uncooperative pig

An uncooperative pig has to be restrained by moving it from the sitting position onto its back where it will generally stop struggling. A full clinical examination can then begin, starting at the rear of the pig and working towards the front of the animal. The client should be informed that pigs may vocalise loudly. It may therefore be advisable for both the veterinary surgeon and client to wear ear protectors. Foot trimming can also be carried out with the pig placed on its back, particularly with the client's help.



(left) Walk backwards and lower the pig between your legs. Support its back with your feet and lower legs. (right) Hold onto the hindlegs and take the animal's rectal temperature



Examine the anus for any discharge and, if necessary, take samples



Examine the external genitalia



Examine the superficial lymph nodes



Examine the left hindleg from the toe to the hip



Examine the right hindleg from the toe to the hip



Examine the caudal ventral body wall and mammary glands



While continuing to hold the pig, carefully turn around to face its head



Support the pig by placing your feet under the animal's shoulder blades (arrow)



Examine the pig's eyes and jaw



Examine the pig's ears



Examine the pig's mouth using a mouth gag



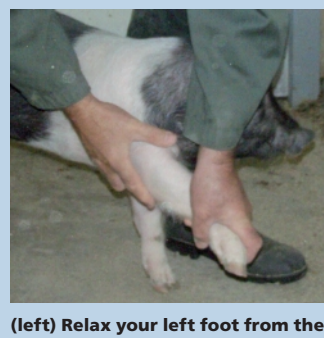
Auscultate the heart and chest



Examine the left and right forelegs



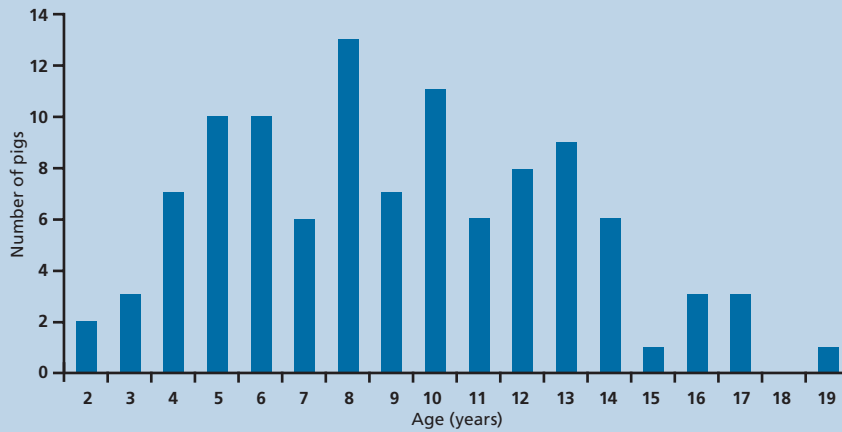
Examine the cranial ventral body wall



(left) Relax your left foot from the pig's shoulder, which will encourage the pig to roll onto its feet. (right) Examine the dorsal body wall as the pig moves away



Mortality in pet pigs



Analysis of 116 pet pig mortalities (Hoyle 2005). If the pigs under one year of age are excluded (10 pigs), the resulting population had an average life expectancy of 7.7 years, with the oldest pig dying at 19 years of age

CAUSE OF DEATH*

Type of condition	%
Idiopathic	6
Circulatory	8
Gastrointestinal	12
Hepatic	5
Immune	3
Infection	3
Neurological	13
Reproductive	16
Respiratory	6
Skeletal	10
Unknown	14
Urinary	4

*From a total of 116 pigs

DISEASE PREVENTION

VACCINATION

Some diseases can be prevented by regular vaccination and routine annual or six-monthly boosters.

All age groups

ERYSIPELAS INFECTION

An initial course of two injections, followed by a six-

monthly booster will prevent the appearance of erysipelas infection. Vaccination against this disease is a must for all pig pets, especially those kept outdoors. However, the vaccine does not protect against lameness associated with the condition.

Breeding gilts and sows

PARVOVIRUS

Parvovirus causes very small litters to be born, together with several mummified piglets. Vaccination should be completed before the gilt is bred for the first time. It is not normally required to vaccinate multiparous animals.

PIGLET ENTERITIS

Pregnant gilts/sows should be vaccinated against *Escherichia coli* six and three weeks before farrowing. The farrowing area should be draught-free and clean.

OTHER DISEASES

Numerous other vaccines are available to protect pigs against various diseases. However, these should only be considered when pet pigs are kept in groups of more than six animals. Most of these vaccines are to protect commercial growing pigs. Adult pigs (over 18 months of age) generally only require vaccination against erysipelas. Postweaning multisystemic wasting syndrome (PMWS) has not been seen in pet pigs, but porcine circovirus type 2 (PCV-2), which is involved in the aetiology of PMWS, is frequently isolated. Nevertheless, the use of a PCV-2 vaccine has not been necessary to date.

WORMING

Pigs that live outdoors and those that are exercised outside must be wormed every four to six months. Fresh dung samples should be examined for worm eggs. Worming with an avermectin, which also covers mange, is useful. If protection against mange is not required, benzimidazoles are generally very effective.



Strongyle worm egg

NORMAL HAEMATOLOGY IN PET PIGS

Haemoglobin	100-170 g/litre	White blood cells	5-18 x10 ⁹ /litre*
Haematocrit	0.29-0.46 litre/litre	Neutrophils	10.6-24.0 x10 ⁹ /litre
Erythrocytes	5.1-8.0 x10 ¹² /litre	Lymphocytes	3.7-14.7 x10 ⁹ /litre
Mean cell volume	52-63 fl	Eosinophils	0-2.4 x10 ⁹ /litre
Mean cell haemoglobin	18-22 pg	Basophils	0-0.5 x10 ⁹ /litre
Mean cell haemoglobin concentration	340-380 g/litre	Monocytes	0-2.4 x10 ⁹ /litre
		Platelets	100-900 x10 ⁹ /litre

*Pet pigs may have a lower total white blood cell count when compared with commercial pigs

NORMAL SERUM BIOCHEMISTRY IN PET PIGS

Alanine aminotransferase	19-76 U/litre	Fibrinogen	160-380 g/litre
Albumin	31-43 g/litre	Free bilirubin	0-3.4 µmol/litre
Albumin:globulin ratio	0.6-1.3	Gamma glutamyltransferase	41-86 U/litre
Alkaline phosphatase	36-272 U/litre	Glucose	2.9-5.9 mmol/litre
Amylase	432-2170 U/litre	Glutathione peroxidase	48-135 iu/g haemoglobin
Anion gap	7.5-36 mmol/litre	Iron	9-34 µmol/litre
Aspartate aminotransferase	36-272 U/litre	Lactic acid dehydrogenase	0-11 mmol/litre
Bicarbonate	8-31 mmol/litre	Magnesium	0.5-1.2 mmol/litre
Bilirubin	0.3-4 µmol/litre	Phosphorus	1.49-2.76 mmol/litre
Calcium	1.98-2.87 mmol/litre	Potassium	3.5-4.8 mmol/litre
Chloride	96-111 mmol/litre	Sodium	132-170 mmol/litre
Cholesterol	1.24-2.74 mmol/litre	Total protein	65-90 g/litre
Creatine kinase	120-10,990 U/litre	Triglycerides	0.2-0.5 mmol/litre
Conjunctive bilirubin	0-1.7 mmol/litre	Unsaturated iron-binding capacity	54-99 mmol/litre
Creatinine	110-260 µmol/litre	Urea (nitrogen)	2.10-8.50 mmol/litre

BIOSECURITY












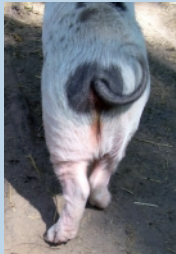
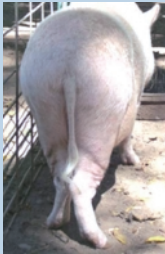

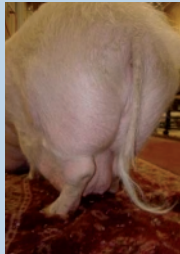









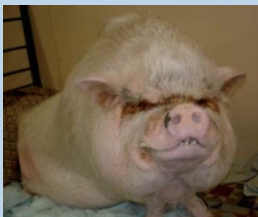
Introducing and mixing a new pig with one already present in the house or garden may result in serious fighting between the two. It is therefore preferable to keep the animals on either side of a wire fence for a day before being placed together, so that they can see and get accustomed to each other. Remove all feed for the next day and, at dusk, spray perfume over each pig and introduce them to each other, providing feed and extra bedding. Sedation may be helpful to assist mixing.

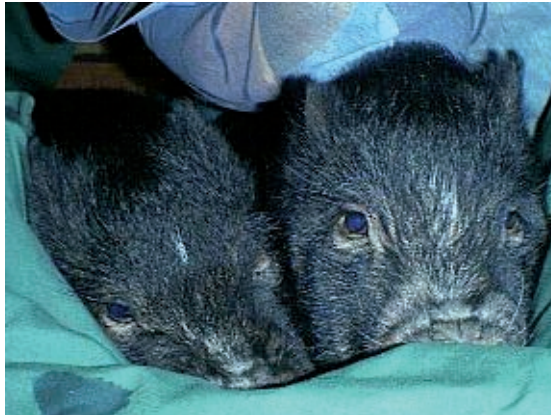


Pet pigs should be accustomed to each other before mixing

Body condition scores

Overweight pigs are extremely common and this can result in serious welfare problems ranging from 'fat blindness' (ie, the eyes are obscured by fat) to increased rates of arthritis. There is no normal weight for a pet pig, but animals should be maintained at a body condition score of 2 to 2.5 from nine months to eight years of age, and at 2.5 to 3 thereafter.

1	2	3	4	5
				
				
				
				
				
<p>Dairy goat shape Ribs can be seen Backbone is obvious Tailhead is higher than the backbone from the side Eyes can be clearly seen</p>	<p>Flat/slab-sided Ribs can be felt Backbone can be felt Tail head is level with the backbone Eyes can be clearly seen</p>	<p>Tube Ribs are felt with difficulty Backbone is rounded Dip apparent in the middle of the back when viewed from the side Tail head is below the backbone when viewed from the rear</p>	<p>Bulbous Ribs cannot be felt Backbone is very rounded Prominent dip in the middle of back when viewed from the side Head is rounded, with the ears separating and recessed into head Eyes seen with difficulty Tail head is recessed into rump Perineal area sags</p>	<p>Bloated tick Distinct double hump to the crown and tail head Tail head is inverted in folds Folds of flesh hang from the head Folds of fat on the head push the ears forward Pig may be fat blind Stomach may touch the ground Legs are held further apart</p>



All new pigs, which must be mange free, should be isolated for six weeks before introduction to established pigs

LEGAL ISSUES

Meat-containing human food waste

To prevent the introduction of foot-and-mouth disease, and classical and African swine fevers, waste meat products (ie, any meat, bones, blood, offal or other part of the carcass of any livestock) must never be fed to pet pigs. This includes any broken or waste foodstuffs (eg, table or kitchen refuse, scraps or waste), which contain or have been in contact with such meat products. For example, bread from a meat sandwich must not be fed to pigs because it has been in contact with meat.

Buying, selling and moving pigs

Owners may need a licence to move a pig from one place

to another. This also includes taking the pig outside the home area for exercise.

Visiting pet shows

An owner wanting to take a pig to a pet show will require a licence. This authorises the movement of the pig to a named show and its subsequent return to the home premises, and the same terms will be applied as for an exercise certificate. It may be a condition of the licence that, on returning home, the animal must be kept separate from other pigs for a period of 21 days. If the pig is to be exhibited at another show or exhibition during this time, a new request has to be made to the licensing centre.

Acknowledgement

The authors would like to thank David Chennells for his help with this article.

Further reading

CARR, J. (2001) Reproductive surgery in the pet pig. *In Practice* **23**, 98-101
CARR, J. (2004) Survey of clinical problems identified in pet pigs in the UK. *Veterinary Record* **155**, 269-271
STRAW, B. E., ZIMMERMAN, J. J., D'ALLAIRE, S. & TAYLOR, D. J. (Eds) (2006) *Diseases of Swine*, 9th edn. Oxford, Blackwell Publishing
HOYLE, R. (2005) Pig mortality study. Proceedings of the 7th Pet Pig Association. Tennessee University, USA, June.
TAYLOR, D. J. (2002) Fancy pigs. In *BSAVA Manual of Exotic Pets*, 4th edn. Eds A. Meredith and S. Redrobe. Quedgeley, BSAVA. pp 116-126
TYNES, V. V., HART, B. L. & BAIN, M. J. (2005) Human-directed aggression in miniature pet pigs. *Journal of the American Medical Association* **230**, 385-389

Further information

■ www.defra.gov.uk
■ www.portec.com.au
■ www.merckvetmanual.com