

Teaching of pig vets – where do we go from here?

A personal reflection

Over the 20th century the role of the farm veterinarian has changed dramatically. At the beginning pigs would have received little or no attention from the practicing veterinarians with only a few references in the literature. As the modern science based veterinary profession established itself, all species of animal started to receive veterinary help with farm and companion animals leading the way.

The traditional role of the veterinarian is described as firebrigade where the vet is called up on to treat an individual in an outbreak of disease. For this they have to be available 24 hours a day 365 days a year and local to the farm. In the 1970's the role of preventative medicine became established where specific agents causing disease were recognised. Once the life cycle of the disease agent is understood, specific control measures can be adopted to control and even eliminate the disease from the pig population. This has led to the successful eradication of many diseases from large areas of the pig population notably Hog Cholera (Swine Fever) and Foot and Mouth disease. However, there is still much to be done on a global scale to control even these devastating diseases.

The role of the vet in preventative medicine demands a more detailed knowledge of the veterinary sciences of pathology, microbiology and epidemiology. It obliges vets to specialise within species and be able to develop control strategies that may take months or years to come to fruition. The awareness of biosecurity policies and the understanding of methods of disease spread, resulted in the production of pyramids of health and ultimately to the multisite system of farming. However, despite these improvements in potential disease control, veterinarians and farmers fail to implement and understand the concepts sufficiently to fully realise the benefits.

The advent of industrial farming methods and preventative medicine has allowed for the production of large integrated farms.

Where do we go from here? - health management

I believe the next phase of veterinary development is health management. Many diseases are not economically preventable and most production problems are not disease based, however, the pig's health is compromised. A re-think of the role of the veterinarian is therefore required. The vet must play a more holistic approach to the farm, creating a team environment where health, wellbeing and efficient production are all maximised. The role of the vet in health management demands detailed knowledge of pig animal husbandry/science.

What is the role of the vet on the farm?

I believe I have three major areas of responsibility on the pig farm:

1. To care for the wellbeing/welfare of the pigs
2. To maintain good medicine protocols
3. To help ensure efficient, legal production of consistently high quality pig meat.

Who does the vet work for on the farm?

My own philosophy is:

1. The pig – the vet has to act as the pig's spokesman
2. The consumer – as most pigs are eaten it is an overriding responsibility of the vet to ensure the consumer receives safe healthy wholesome food
3. The government/region – to protect the pigs and other animals in the area from disease outbreaks.
4. The farmer – to enable profitable pig keeping
5. My practice – because we all have responsibilities for the others we work with, the people we employ and our families.

What does the farmer want from the vet?

Each farm/company is different and this is a major dilemma for the aspiring vet especially if the vet pushes too hard to 'improve' the farm.

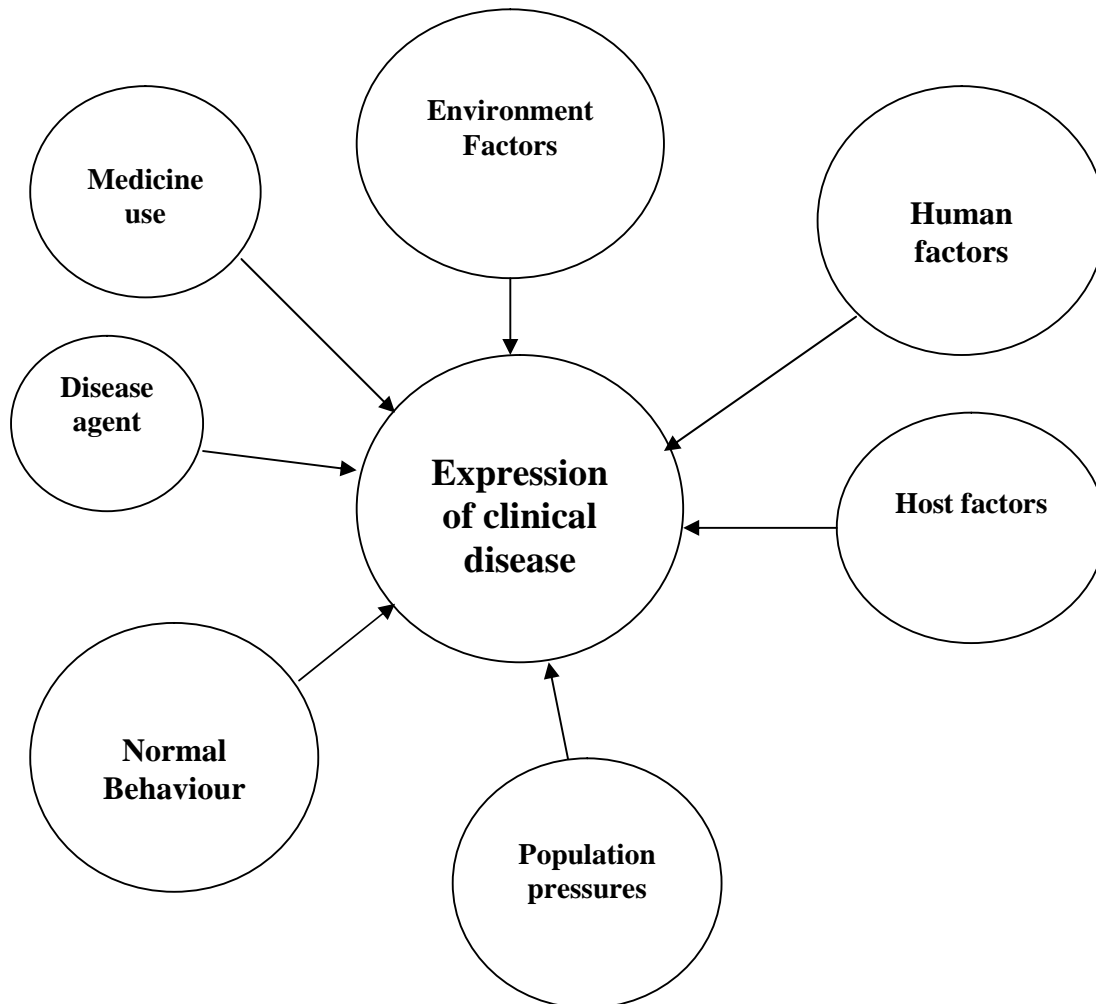
What do my clients say they ask for:

1. Disease recognition
2. A confidant to share concerns
3. An enthusiast to provide information and drive
4. Source of information
5. Second pair of eyes to see common-sense failings
6. Independence of opinion
7. Training resource

Health maintenance

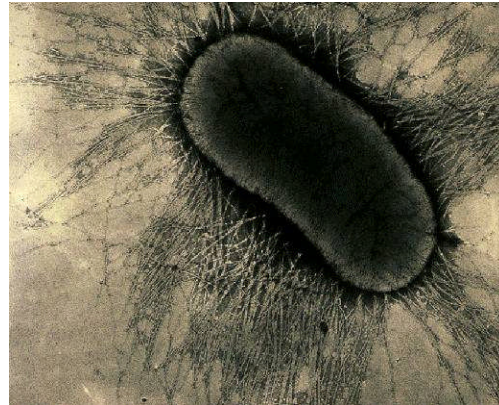
To provide good health maintenance the veterinarian must understand the intricacies of how disease becomes clinically apparent.

Simple model of factors affecting disease expression in a pig



Disease agent

The veterinarian leaving many of today's universities receives only a brief grounding in diseases of the pig and little emphasis is placed on their relative importance and occurrence. However, veterinary training will allow the enthusiast to find information from the numerous texts on diseases of swine



The picture illustrates *Escherichia coli* with fimbriae

Medicine use

A major role for veterinarians is to ensure that medicines are used appropriately. While veterinarians receive training in pharmacokinetics, they receive little or no advice on storage or appropriate use of medicines.

While appropriate medicine use can be learnt in practice, it is disappointing that simple storage measures are ignored. The simple miss-management of a refrigerator can destroy a well-constructed vaccine preventative medicine programme. It is little more than appalling that almost all medicines stored on farms are stored inappropriately



The picture shows a frozen 'fridge.

Environment

The veterinarian has almost no applied knowledge of the pig's environmental requirements. It has even been discussed in the UK to stop teaching animal husbandry/science to undergraduate vets. Management of the health of a population of pigs is primarily about applying animal science.

In order to simplify the environmental requirements the environment can be broken down into four components:

Water

Assessment of the daily water intake requirements, the height of the drinker, flow, types of drinkers to be used has to be made. The veterinarian should be able to dismantle and understand how drinkers work.

The picture shows a water very dirty water bowl. The float cover is raised to reveal the dirty float and contaminated water



Air

The air requirements cover the pig's requirement for ventilation, temperature, humidity, light requirements. A major cause of clinical signs of disease is draughts.

The picture shows a dirty fan which may be less than 40% less efficient than when clean



Floor

The floor and all surfaces which come into contact with the pig. The hygiene, stocking density, floor types, abrasive edges to the floor all require to be checked.

The picture shows a broken floor.



Feed

While the vet may not know the intricacies of nutrition, they should be aware of the type of feed, particle size, covered feeders, type of feeder. Wasted feed can contribute to 6% of costs, this is more than twice the typical veterinary bill!

The picture shows a feeder with holes in the bottom plate. This feeder was placed over slats and was wasting 6 kg of finishing feed a day.



The veterinarian must be aware of acceptable standards and have sufficient equipment available to make an accurate science based assessment of the environment.

The advent of auditing schemes for example, the Pork Quality Assurance (USA) and FAB (UK) provide an outline of minimal requirements. It is however, entrusted by these schemes that the veterinarian is able to critically analyse the environment. The scheme in the UK originates on government requirements laying down minimal

standards based on the EU directive 91/630 implemented by the 1994 Welfare of Livestock Regulations UK.

Two important changes to the UK pig industry have resulted from this legislation

- ◆ the outlawing of confinement systems for sows. This has been implemented.

but the more significant throughout the EU

- ◆ stocking rate legislation. The practicing veterinarian often ignores this. In several cases the local vet has no knowledge of these requirements.

- ◆ minimum 21 day weaning age legislation in many EU countries is ignored and not implemented by the local vet, or excuses why early weaning should be persistently practiced is found. This is contra to the wishes of the public.

Average Liveweight Minimal total space required EU

In the UK and across Europe the following stocking rate requirements are implemented. These have very significant implications for output and therefore profit capability from the farm.

Average liveweight of the group of pigs kg	Minimal Total Space required m ²
Less than or equal to 10	0.15
Less than or equal to 20	0.20
Less than or equal to 30	0.30
Less than or equal to 50	0.40
Less than or equal to 85	0.55
Less than or equal to 110	0.65
Greater than 110	1.00

Human Factors

Many problems which occur on farms are associated with people. Veterinarians must have good communication and people skills to convey information and enthusiasm to farmers and stockpeople. Many reproductive problems are associated with poor understanding of basic biological principles.

Modern farms run on computer programmes. However, these programmes are easily manipulated by the operators. Population veterinarians must be able to analyse and validate computer records. Pig flow modelling is the only way to quickly and efficiently validate records and allow understandable targets for efficient production to be set.

A major role of today's veterinarian is to teach techniques and transfer focused information gathered from other farmers and personal experiences into the current problem occurring on the farm. Veterinarians should receive training in teaching methods and information transfer. Understanding of people management would greatly assist the veterinarian obtaining the most out of the staff and team on the farm.

The veterinarian also plays a role in disease expression. Many diseases can be difficult to diagnose. Most non-pig veterinarians have limited knowledge of pigs and

can easily misdiagnose or completely miss the current problem. The intricacies of modern pig farming means that the local generalist may be of limited value to the farm. Veterinarians are generally poor at realising their own limitations and farmers should be allowed to select veterinarians who can offer the best care, welfare and production advice available.

Host Factors

The genetic make up of the pig has a significant role in disease expression. Historically there have only been a few easily recognised genes which influence disease expression for example, K88-ve receptor pigs and Porcine Stress Syndrome. With the developing understanding of the pig genome genetic manipulation to help improve disease resistance is going to play a major role in the next 20 years. The genetic make up may also make the animal more or less susceptible to environmental factors. A fatter pig is more resistance to temperature variations, but less acceptable to the consumer.

The position of the pig in the group hierarchy may also predilect the animal to disease. The pig at the lower end of the social group may be forced into areas of poor/marginal environment where the pig is subjected to draughts and chilling lowering their immune abilities.

Population pressures

Today's pig farm is an integrated production system. Poor pig flow is a major cause of disease on farms. On any size of unit understanding and manipulating pig flow is essential to the understanding of health management. Variations in pig flow result in repeated overstocking, understocking and the ultimate temptation to break all-in/all-out.

Output records for a 10 sows a week to farrow farm

Week	Number served	Number farrowed	Number weaned
1	16	14	139
2	12	10	100
3	9	7	69
4	10	9	93
5	11	9	91
6	8	6	59
7	15	13	130
8	12	10	101
9	14	12	118
10	9	7	69
11	16	14	140
12	12	10	102
13	9	8	82
14	8	6	60
15	9	7	69
16	10	8	80
Averages		83% Farrowing rate	10 weaned / sow

Implications:

Understanding pig flow is essential to comply with EU stocking rate requirements. It is essential that to maintain customer perceptions of the vet's independence that the veterinarian encourage and coerce farmers to farm within consumer/government guidelines.

Normal behaviour

After nearly 30 years of working with pigs I am amazed how little one understands about the quirks of the animal. Veterinarians need a good grounding in normal expected behaviour patterns.

How often do we make the pig fit the environment?



Small changes to the system to accommodate the pig's needs has revolutionised management and disease control. For example, the use of the chochette/flat packs for insemination coupled with a more sympathetic breeding routine, has allowed the sow to express her sexuality and improve production.

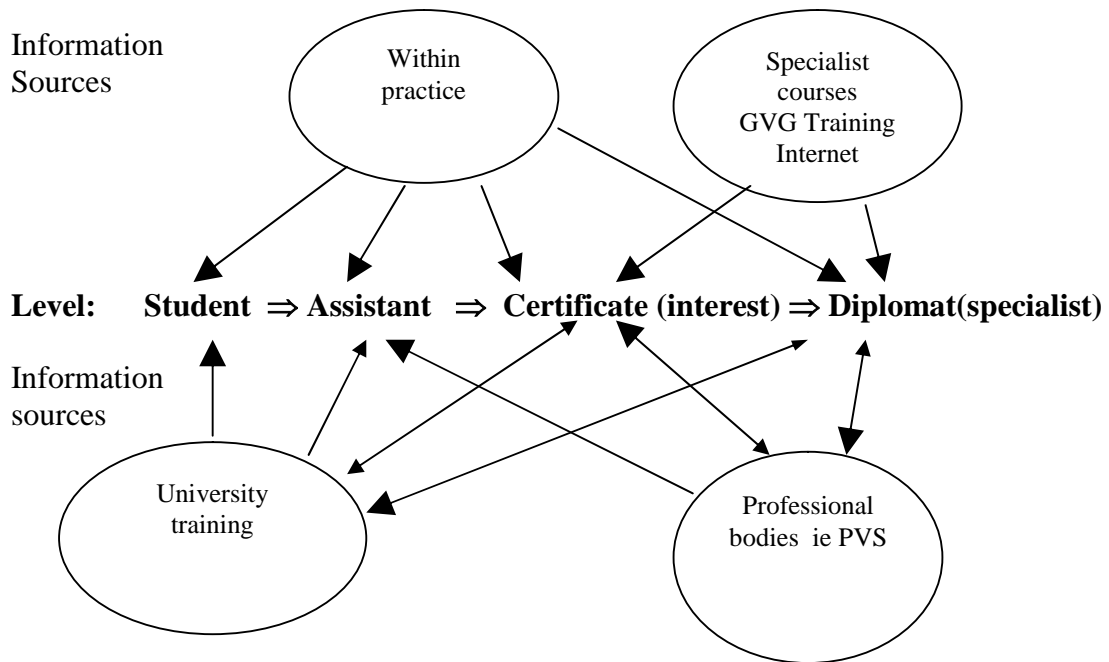
Understanding the behaviour and needs of post-weaned pigs affect feed intake. Good (what is normal?) feed intake post-weaning can significantly increase growth rates resulting in 10-15 days reduction in finishing time, which when combined with less stress, results in healthier pigs moving through the finishing herd.

How to move from student to master?

The young veterinarians cannot expect to leave college equipped with the range of skills discussed. The farmer is also acquiring knowledge skills and requires more specialist knowledge from the farm production team. The training of tomorrow's pig veterinarian requires a team approach from the whole industry. Given the current economic crisis this is difficult for the industry to appreciate. Desperate farmers do not appreciate that a less experienced, perhaps more knowledgeable, young vet, may take more time to make a decision.

The veterinary profession, however, can take a leading role by providing training within its ranks. In the UK a simple but increasingly effective model is developing.

Pathway of training the specialist pig veterinarian in the UK.
 The arrows represent information flow and degree



The within practice area also includes liaison with other professionals, pharmaceutical houses, nutritionists etc. At the Garth Veterinary Group we have 1 afternoon a month set aside where colleagues from other parts of the pig chain are invited to debate their area and interests. The Garth Veterinary Group also provides a unique 2 week advanced course in pig health and production, which has been recognised by the Royal College of Veterinary Surgeons. This has been taken up by a number of vets from all over the world.

This system has been broadly able to by-pass inter-practice professional jealousy and practice economics. As practices specialise and fewer practices have the necessary skills to deal with professional pig farmers it is hoped that this inter-practice professional cooperative development will continue.

Summary – training the vet of tomorrow

A successful pig specialist has got to enjoy the company of pigs and be willing to sacrifice large amounts of personal quality time to acquiring the knowledge to be able to understand how to investigate, let alone, solve problems of pig production. The vet is required to understand not only the traditional disease angle, but more important the pig's; building's and stockperson's requirements and failings, which probably lead to the problem in the first place. As pig treatments increasing rely on applied animal science, the veterinarian has to be aware that they alone are not required to treat the problem, we have no monopoly on health maintenance. If the veterinary profession fails to grasp health maintenance and rely solely on medicine based therapy, the farming community will move away from the veterinarian completely. The increasing globalisation of the pig industry will also lead to new systems of problem solving, through the Internet and video conferencing for example, where distance is not an issue.