

The Veterinarian's Role in Food Safety

Veterinary Bulletin - Agriculture, Fisheries and Conservation Department

Authors: Dr. Barry BOUSFIELD and Dr. Richard BROWN

I. Introduction

Veterinarians (Vets) and Food Safety: A Word Association

It is common in the English language to come across word associations. For example, the word cat is often associated with the word mouse or the word dog. The word soldier is associated with the word army. When you read the word vet, you will very likely associate that name with cats or dogs. This is because the word vet conjures up the image of a person who treats sick animals such as dogs or cats.

The World Organisation for Animal Health (OIE)

"Most reported outbreaks of foodborne disease are due to contamination of foods with zoonotic agents, often during primary production. Veterinary services play a key role in the investigation of such outbreaks, all the way back to the farm and in formulating and implementing remedial measures once the source of the outbreak has been identified. This work should be carried out in close collaboration with human and environmental health professionals, analysts, epidemiologists (流行病學家), food producers, processors and traders and others involved."

Associations indicate the way we think about the world we live in. For example, what person would you think of if you were asked to consider cooked meat ready to eat? It is most likely you would think of a cook, or a waiter, or the farmer who produced the food. It is very unlikely that you would associate a vet with meat that is on a plate of food that you are about to eat. It is a simple fact that most people do not associate meat on a plate with vets. This way of thinking would be correct about hundred years ago, but the world has changed since then. Vets now have many links with much of the meat you have eaten and will continue to eat. This is because vets in the world are closely involved with food of animal origin. They are also closely involved in many products of animal origin.

Chinese Academy of Agricultural Science

"In the fight against foodborne zoonoses (由食物引致的人畜共通傳染病), efficient surveillance systems, and risk assessment and management systems should be established. Moreover, constructive dialogue and collaboration between public health workers, veterinarians and food-safety experts is essential to develop effective prevention and control strategies.

"A Brief Review of Foodborne Zoonoses in China (Epidemiol. Infect., Page 1 of 8. Cambridge University Press 2011)"

World Veterinary Association

“Veterinarians are present at every link in the chain and have the knowledge and expertise to audit the standards of animal health, animal welfare and public health from “stable to table”. Safe food can only be produced if healthy, clean, residue and stress free animals are delivered to the slaughterhouse where a dedicated inspectorate, headed by a veterinarian, can ensure that high standards of animal welfare and food safety are maintained. This assurance should apply to all products of animal origin throughout the processing and marketing stages.”

The World Organization for Animal Health (OIE)

“The OIE will continue to publicise and promote the fundamental role of the Veterinary services in the area of food safety, both on-farm and at the abattoir level, notably by constantly collaborating with the Codex Alimentarius Commission (CAC) (國際食品法典委員會) in order to develop standards, guidelines and recommendations that are in harmony.”

II. The ‘From Farm to Fork’ Concept

This article describes the process of following the food of animal origin from the farm where the animal is born through to the dinner plate and on to your fork. By the time you finish reading this article you may be surprised to note that nowadays the vet is integral to this process.

One of the ways to understand this ‘new’ idea is to follow the ‘from farm to fork’ process shown in the following photographs.



(1) Pig farm



(2) Slaughterhouse
(Photography by Chong Fat)



(3) Food processing factory



(4) Transport of product after inspection



(5) Restaurant
(Photography by Wing)

From farm to fork through slaughterhouse, processing and transport.

One of the main aims and advantages of developing such a 'new' and 'holistic' concept is that in the event of a problem developing, such as a food 'poisoning' incident, the food, its processing and its source can more easily be traced, investigated and effectively corrected.

II. (a) Food Safety at the Farm Level Animal Welfare

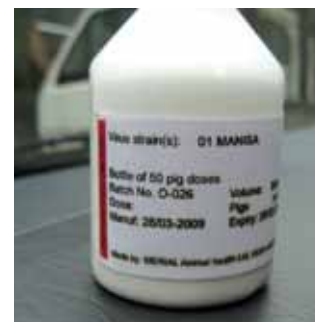
It is often said that good animal welfare equates to good food safety.

As stated by Federation of Veterinarians of Europe (FVE) "Public health, animal health and animal welfare are indeed interrelated and require a holistic approach. As an example of this, stressed animals are more likely to develop diseases, which will require veterinary treatment. However, this may increase the presence of residues in the animal produce, which in turn may affect public health. This example highlights the link between animal welfare, animal health and public health." (1)

The FVE go on to say "the farmer's responsibility to ensure that his product is uncontaminated by herbicides, pesticides, and veterinary medicinal products, and to ensure that risks associated with animal health, animal welfare or zoonotic disease are controlled, can only be effectively achieved through a specifically designed animal health plan. These plans must be drawn up in conjunction with the producer's veterinarian who can provide reassurance to customers." (2)

Medicine Use

On every livestock farm there will be a farmer trying to raise animals or birds. Vets who visit the farms will be guiding the farmer in his use of medicines for any animals that get sick. They will want to make sure that he uses the right medicine for the right species and the correct dose. For example, in Hong Kong, farmers are advised to use foot and mouth disease (FMD) vaccine, which contains and matches the specific strains of virus that are present in the territory at the time.



Foot and Mouth Disease vaccine used in Hong Kong



Antibiotic Permit issued to farmers

Furthermore, they will be advising the farmer to ensure that he has records of what drugs he uses on the farm and which individual animals receive these drugs. One of the most important reasons for this is to ensure that any animal, which is sent to slaughter, has drug residues below the permitted limit before it is slaughtered. This period is known as the "withdrawal period (停藥期)". Withdrawal periods are typically around two to three weeks. However, for some drugs the withdrawal period can be as short as 12 hours and for others as long as many months.

Vets will also want to assist and advise the farmer in the use of antibiotics because of the risk this has in developing resistance to

antibiotics. Bacteria that are resistant to antibiotics represent a risk to future generations of animals, which may get sick. If the bacteria are very resistant to antibiotics, there may be no medicines available to the farmer for him to treat a sick animal. It is also possible, in certain circumstances that these resistant bacteria could reach a slaughterhouse or a market, causing meat or milk to become contaminated, which in turn may cause antibiotic resistance to be transferred to the consumers of such products.

In view of the above, the uses of antibiotics on farm animals in Hong Kong is controlled. Farmers are allowed to buy only specified injectable antibiotics and the permit on page 3 is a photocopy of such.

Animal Feed

Vets will also have interest in the food the animals consume. This is because, if the animal feed is incorrect or toxic, it will affect the health of the animals, and in some cases, the toxin in the animal feed can be absorbed by the animal and then passed on to the consumer in the milk, meat or eggs produced.

Dioxins, heavy metals such as lead and mercury, polychlorinated biphenyls (PCBs), dichlorodiphenyltrichloroethane (DDT) (滴滴涕) radionuclides (radioactivity), salmonella, and the prion (朊毒體) causing bovine spongiform encephalopathy (BSE) are well known examples of contamination in animal feed.



Officials entering animal feed store for inspection



Animal feeds for chicken available for inspection

In these cases, if there is a problem, the vet will try to find and remove the source of the toxin. Checks will be made for a period on the animals, their milk, meat, eggs etc., to make sure that the level of the toxin present is below international safety standards.

Examples of similar control processes are those that are stated in the European Union (EU) Feed Hygiene Regulation (183/2005) 1.⁽³⁾ The Regulation came into force on 1 January 2008 and applies to livestock farms and arable farms that grow, use or sell crops for use as animal feed. Such farms have to follow basic hygiene procedures in relation to the feed they use or grow and have to ensure that hazards are properly controlled. They must also provide a statement of compliance to their local authority.⁽⁴⁾



For instance, in Demark, farmers are advised to buy certified salmonella-free feed and similar requirements are known, for laying hens, to avoid salmonella (沙門氏菌) or say dioxin (二噁英) entering the food chain in eggs.⁽⁵⁾

Public demonstration in Germany highlighting the dangers of dioxin in food
(Photo: Andreas Praefcke)

Animal and Zoonotic Disease

Vets are trained to recognize disease. Diseases of great interest to them are zoonoses, which are diseases that can affect both animals and man (See the Veterinary Bulletin Volume 1 Issue No.1).

If a vet suspects zoonoses, such as tuberculosis (TB), is on a farm, he will want to take certain steps. The first two steps will be to confirm the diagnosis and control the disease outbreak. The third will be to make sure that the disease does not enter the food chain, in this case, through the milk or through the meat. In the picture below, a vet is checking through a tuberculin skin test, whether the animal is suffering from TB or not.



Testing of a dairy cow
for Tuberculosis

In the picture below, local chickens about to be marketed are being bled to check for the absence of the zoonotic avian influenza H5N1 infection; this is very much a vet directed process.



Bleeding a chicken for H5N1 testing in Hong Kong

Furthermore, once the birds are found to be free of any evidence of the H5N1 virus, they are permitted to be marketed under the following movement permit; this is to ensure that only H5N1 negative birds are sent and housed in the market.

II. (b) Food Safety at the Market Level

Food animal markets, world wide, are well known for spreading disease from farm back to farm or further down the “farm to fork” food chain. Therefore this is an area where additional measures are sometimes required such as “rest days” during which markets are kept empty while they are thoroughly cleansed.

香港政府 | 0177 2110001
Permit No.

漁農自然護理署
AGRICULTURE, FISHERIES AND CONSERVATION DEPARTMENT
漁業發展處
FISHERIES MANAGEMENT PERMIT

本署特此准許： 批出 准許如下種雞：—
Permission is hereby granted to: 批出 准許如下種雞：—

Farm / Hatchery of Origin 原產地/ 孵化場	
種雞 / 孵化場編號 LAL / HC: 001	持牌人 / 持牌人 License / Certificate holder: 何志強
種雞數目 No. of Chickens: 200	種雞 / 孵化場日期 Date of Introduction: 11/14/11 年齡 Age: 1233
Farm of Destination 目的地/ 農場	
種雞 LK: 1000	持牌人 License: 何志強
運出日期 (DD/MM) Date of Movement (dd/mm): 11/14/11	

註 明事項

1. 此項准許只准准許將種雞運往指定目的地。 This number of chickens of farm of destination should only transport to farm specified after receive from farm of origin.
2. 運往目的地之種雞必須健康。 在運往目的地前，必須先將種雞作健康檢查。 The chicken carrying is need to be healthy when the permit first be issued or healthy health check with negative result.
3. 種雞必須在指定目的地健康檢查。 在運往目的地前，必須先將種雞作健康檢查。 在健康檢查中，若發現有種雞有健康問題，則該種雞必須在指定目的地健康檢查。 If chicken are not from a healthy farm when permit first issuing healthy health check, no chicken may have the formed permit without give result evidence for 90 days of having the permit.
4. 運往目的地之種雞必須健康。 在運往目的地前，必須先將種雞作健康檢查。 The chicken carrying is need to be healthy when the permit first be issued or healthy health check with negative result.
5. 此項准許只准准許將種雞運往指定目的地。 在運往目的地前，必須先將種雞作健康檢查。 This number of chickens of farm of destination should only transport to farm specified after receive from farm of origin.
6. 運往目的地之種雞必須健康。 在運往目的地前，必須先將種雞作健康檢查。 The chicken carrying is need to be healthy when the permit first be issued or healthy health check with negative result.

11/14/11
何志強
漁農自然護理署
Dr. CHUK Shiu-wing (何志強)
For Director of Agriculture, Fisheries and Conservation

Veterinary signed H5N1 Movement Control Permit of chickens in Hong Kong

In Singapore, the USA and Europe specific ‘public health’ vets routinely inspect live food animal markets for signs of ill health, contamination and poor welfare.



Poultry market closure and cull after the discovery of H5N1 in Hong Kong



Poultry market in Hong Kong



Rest Day and Cleansing of a Hong Kong Wholesale Poultry Market

A related example is the European practice found in the UK, where government vets routinely inspect livestock auction markets and where animal health officers (AHO), under their direction, are stationed at the auction usually for the whole day of the market. If an AHO detects a problem that requires professional attention; he will call a government vet or private vet to attend to the case.

For example, if a cow has an accident and breaks a leg he may call out a private vet to carry out immediate euthanasia (人道毀滅) on welfare grounds.

II. (c) Food Safety at the Slaughterhouse Level

The World Organization for Animal Health (OIE)

“Control and/or reduction of biological hazards of animal and public health importance by ante- and post-mortem meat inspection are a core responsibility of Veterinary Services.”

As defined by the Encyclopedia Britannica; “ante-mortem inspection (宰前檢驗) identifies animals not fit for human consumption. Here animals that are down, disabled, diseased, or dead are removed from the food chain and labeled “condemned.” Other animals showing signs of being sick are labeled “suspect” and are segregated from healthy animals for more thorough inspection during processing procedures. Post-mortem inspection (宰後檢驗) of the head, viscera, and carcasses helps to identify whole carcasses, individual parts, or organs that are not wholesome or safe for human consumption.”



Cattle available for inspection during transport

Animals or birds are often transported directly from the farm to slaughterhouse. In this process, vets have many different roles.

Initially vets may be involved in checking the health and welfare of the animals at some of the stages of transport to the slaughterhouse and once there, in the ante-mortem inspection prior to slaughter.

In most developed countries ante- and post-mortem meat inspection at the slaughterhouse is carried out (or audited) by vets; as they are regarded as the most, if not only, competent and qualified persons to do such inspections (or audits). In these countries, specific veterinary postgraduate meat and poultry inspection courses and qualifications are offered.

For example, the United States Department of Agriculture (USDA) requires that a vet be on site at a slaughterhouse at all working times and that personnel handling, herding, stunning, moving, transporting, or otherwise

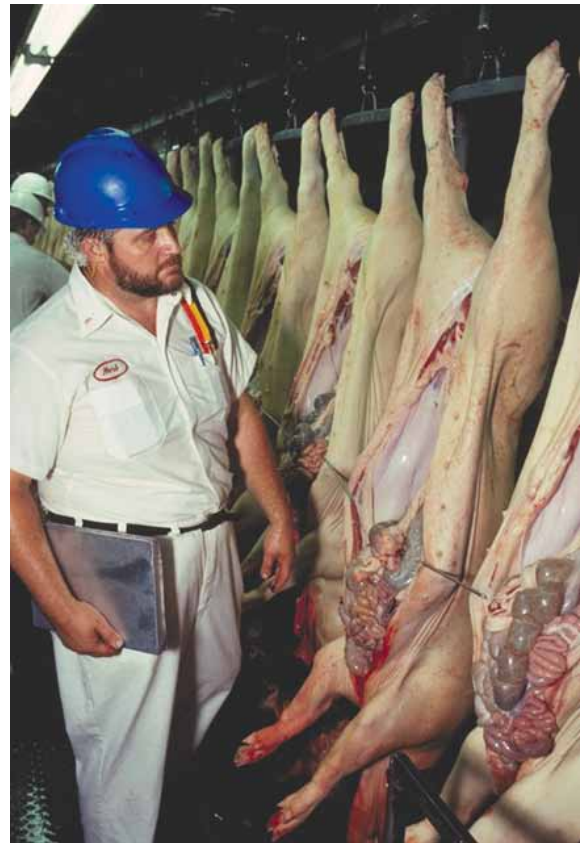


A government vet performing ante-mortem inspection on live pigs being unloaded at the Sheung Shui Slaughterhouse in Hong Kong

working with live animals be patient, considerate, competent, and familiar with USDA guidelines. Requirements similar to this occur in Macau, Mainland China and Singapore.

A high general level of hygiene in a slaughterhouse is vital. It is, for example, important to make sure that there is no contamination (particularly of bacterial origin) between 'unclean' parts of a carcass such as stomach contents and the meat, which people will actually eat.

The box below outlines an additional example of separating 'clean' and 'unclean' parts. In BSE endemic countries there are additional hygiene requirements, i.e. the separation of Specified Risk Materials (SRM) from the rest of the carcass in the prevention of the spread of BSE. The Department of Agriculture and Food of Eire (Ireland) states that "Veterinary Inspection staff carries out continuous detailed inspections to ensure that no SRM gets in to the food chain." ⁽⁶⁾



Meat inspection of pig carcasses by USDA official
(Source from <http://www.usda.gov/oc/photo/99cs0694.htm>)

Department of Agriculture and Food of Eire (Ireland)

The following portions of animals are designated as SRM and are excluded from the human food and animal feed chains:

- the skull, brain, eyes, tonsils and spinal cord of cattle over 12 months and the intestine from the duodenum to the rectum of bovine animals of all ages;
- the skull, brain, eyes, tonsils and spinal cord of sheep and goats that are over twelve months of age or that have one permanent incisor erupted through the gum and the spleen of sheep and goats of all ages.

These materials are isolated on slaughter of the animals, permanently stained and removed directly to a specially dedicated rendering plant, where they are rendered and the resultant meat and bonemeal and tallow are stored pending destruction by incineration.

Drug and Chemical Residue Checks

Traditional meat inspection procedures have now had modern additional checks added in order to safeguard the public. These checks are to look for substances such as growth promoters, hormones, antibiotics or chemicals used legally or illegally in the production of the meat; with the aim of significantly reducing the risk of the public consuming meat with harmful chemicals.

The picture on the right shows an inspector collecting the urine of a pig that may contain traces of an illegal substance, such as Clenbuterol (鹽酸克倫特羅) or Salbutamol (沙丁胺醇).



Clenbuterol residue checking in a Hong Kong slaughterhouse

Clenbuterol is called a “beta-2-agonist” and when fed to livestock it assists growth and increases the proportion of lean meat produced. People may suffer nervousness, fast heart rate, muscle tremors (肌肉不自主顫動) and other symptoms after eating meat containing the illegal use of this chemical.

Checking for residues is not a static matter. There are constant changes; evolving problems and new matters have to be addressed. No matter what the source of food is. In the last few years, there have been many different problems with residues in food. Melamine (三聚氰胺) in milk, malachite green (孔雀石綠) in fish, caponizing hormones in birds, growth hormone in feed lot cattle are examples.

In theory the list of chemicals or drugs that animals could be tested is unending. This list could include any of the drugs produce by the pharmaceutical industry. However, one has to be practical about this. An example of a list of the most relevant, from the point of view of risk to the public, is shown in the table below.

Drug Types Tested in Pigs Slaughtered in Hong Kong in 2010			
Amoxicillin	Ampicillin	Bacitracin	Benzylpenicillin
Carabadox	Ceftiofur	Chloramphenicol	Chlortetracycline
Clenbuterol	Cloxacillin	Colistin	Danofloxacin
Dicloxacillin	Dienoestrol	Diethylstilboestrol	Dihydrostreptomycin
Dimetridazole	Doxycycline	Enrofloxacin	Erythromycin
Flumequine	Furaltadone	Furazolidone	Gentamicin
Hexoestrol	Kitasamycin	Ivermectin	Lincomycin
Neomycin	Oxolinic acid	Oxytetracycline	Salbutamol
Spectinomycin	Streptomycin	Sulfonamides	Tetracycline
Tiamulin	Trimethoprim	Tylosin	Virginiamycin

Different countries have different ways of addressing these evolving challenges. In the USA the majority of government vets involved with food matters are employed by the Food Safety and Inspection Service (FSIS) of the US Department of Agriculture (USDA). However, many vets are also employed by the Food and Drug Administration's (FDA) Centre of Veterinary Medicine (CVM).



The logo of Center for Veterinary Medicine

The US FDA's Center for Veterinary Medicine (CVM) regulates the manufacture and distribution of food additives and drugs that will be given to animals. These include animals from which human foods are derived, as well as food additives and drugs for pet (or companion) animals. CVM is responsible for regulating drugs, devices, and food additives given to, or used on, over one hundred million companion animals, plus millions of poultry, cattle, swine, and minor animal species.

This is the official CVM Logo. This logo appears on various published items and other printed material authorized by the Center for Veterinary Medicine.

II. (d) Food Safety in Food Processing

Veterinary involvement in food processing is seen mainly in the inspection of food factories, particularly in Europe, Australia and New Zealand, which export large quantities of meat, milk, cheese and yoghurt abroad.

Vets in Hong Kong originally had little involvement in food processing; however, recently they have had a greater involvement. This was because countries importing food products from Hong Kong were worried about serious animal and bird diseases being allowed to pass through the production process and then into their country. One example of this was the importing country's requirement for veterinary inspection to ensure that meat was deboned and cooked to avoid foot and mouth disease virus from surviving the manufacturing process and being imported (the virus survives for a long time in bone marrow). Another example was the requirement for veterinary inspection to ensure moon cakes were cooked to a certain temperature and specified time in order to reduce the risk of Newcastle disease virus, Salmonella, and other serious pathogens passing through the manufacturing process.

In addition, vets in Hong Kong have also inspected food-processing facilities in countries which export food of animal origin to Hong Kong. One example of this was the inspection of a Canadian facility, to ensure that the spinal cord and other relevant body parts were removed from a carcass prior to its meat being export in order to reduce the risk of BSE. Another example was the inspection of an Australian facility, to investigate the source of bacterial contamination of imported ice cream into Hong Kong.

II. (e) Food Safety in the Storage and Transport of Food

Traditionally, food inspectors are involved in the inspection of the retail side of the food process. However, vets do have a great interest in how food of animal origin is stored prior to going to retailers. This is an area where, if one is not careful, mistakes can occur. In this respect, it is important that batches of food are kept separate from each other and are clearly marked and identified with their movements recorded.

Certain countries do use veterinary supervised inspections of the storage and transport of food. In Singapore, for example, the Agri-Food & Veterinary Authority of Singapore (AVA) has established certain requirements for the handling and processing of meat and fish, through their Wholesome Meat and Fish Act and Sale of Food Acts.⁽⁷⁾

In addition, if food is to move across international borders, it often requires some form of veterinary health certification. This can only be completed by a vet (see the section IV on page 14). Part of the certification will be to ensure not only that the food is correctly handled at the correct temperature, but that it is also of good hygienic quality and safe to eat.

II. (f) Food Safety in the Sale of Food for the Plate and onto Your Fork

Traditionally food retail and the correct handling and cooking of food in the kitchen at restaurants and at home was, in many countries, the responsibility of food inspectors and/or food hygienist and their related bodies. However, in Europe, particularly in France and Germany, vets in the nineteenth and twentieth centuries were integral to the development of food hygiene laws, initially to curb large outbreaks of trichinosis (旋毛蟲病).⁽⁸⁾

The importance of food handling is also highlighted by the fact that the USDA estimates that 85% of food poisoning cases could be avoided if people just handled food properly.⁽⁹⁾ As a result of this, the Centers for Disease Control and Prevention (CDC) (美國疾病控制與預防中心) in the USA, employs veterinary epidemiologists as part of the team to track down and investigate food poisoning cases, and such investigations reach right into the fridges, storerooms and kitchens of restaurants and homes.

The start of this particular veterinary public health involvement can be traced to the aftermath of World War II, where the U.S. Public Health Service's Communicable Disease Center, later named CDC established a veterinary public health unit. James Steele, the first chief public health vet in the CDC, was also active in promoting the veterinary public health unit in the World Health Organization (WHO). Martin Kaplan, another American vet, became the first director of this WHO unit. Both men expanded into the USA and worldwide the traditional European emphasis on veterinary-directed food-safety programs to include investigations into the epidemiology and control of zoonoses.⁽¹⁰⁾

II. (g) Food Safety through “Traceback”

If a food poisoning problem does occur in the retail or domestic cooking area, vets will want to be informed by their public health colleagues about the identity of the suspect food. This is because world wide the opinion is that it is important to check the whole food producing system, as the problem may not be just in the restaurant or at home. (See the first box on page 1)

In particular, they will want to know the batch number, name of the food manufacturer, name of the food and other details to help with identification and traceback. They will then start the “traceback” exercise.

“Traceback” processes and systems were originally developed in the USA and Europe, particularly Scandinavian countries (北歐國家) such Denmark in the 1970’s.



The aim of the traceback exercise is to find out where in the chain the problem has occurred. Did the problem occur at the point of sale in for example a restaurant? If not then did the problem occur at a food storage point? If so, which one and what other foods were stored at the time and at that place? Alternatively, did the problem occur at a processing plant and if so, which one? This is highly relevant for example with ground beef and E. Coli O157 food poisoning. If not these ones, did the problem occur at a food factory? Which one and on what day? What other batches of food from that factory may be affected? If not the food factory, how about the abattoir? If not the abattoir, the livestock transport lorries to the abattoir or finally the farm itself or the feed going into the farm. In this whole traceback process, many professions will be involved not only vets (See the first box on page 1), but if the source looks increasingly likely to be from the farm itself, there is a much greater veterinary involvement compared to other professions.



An animal traceback exercise in Hong Kong

III. Overall Strategy and Advice in Matters Concerning Food Safety

Nowadays most governments in the world have vets advising them on strategic matters concerning food of animal origin as well as other veterinary matters. One of the leading countries being France simply because of the serious food hygiene problems they encountered over 100 years ago. ⁽⁸⁾

An example of this early veterinary role is that meat safety was the main item on the agenda of the Vienna International Conference organized by Austria and Hungary in March 1872. This conference set up the outline of border controls to be used to increase food safety.

China soon followed suit in 1896 when the Ching Dynasty Government approved the building of the Central–Eastern Railway by Russia. Meat was imported from Russia to feed the builders of the railway line. As a consequence in 1903, the Chinese Railway Bureau established a veterinary inspection department whose main task was to inspect this Russian meat. ⁽¹¹⁾

Nowadays the veterinary strategists will use many intellectual tools. Risk assessments, risk analysis, risk communication, risk management, assessment of Hazard Analysis and Critical Control Points (HACCP) (危害分析重要管制點), their own field experience, incident data resources, research data resources and food safety simulations are few examples of these tools.

In Hong Kong this work is now mainly carried out by the Centre for Food Safety (CFS) of the Food and Environmental Hygiene Department (FEHD).

They have access and contribute to many national and international early warning and surveillance systems. For example, the USA's PulseNet and FoodNet system, the EU's Rapid Alert System for Food and Feed (RASFF), WHO International Food Safety Authority's Network (INFOSAN) and the Food and Agriculture Organisation's (FAO) Emergency Prevention System for Food Safety (EMPRESS Food Safety). All of these systems are freely available online.

In view of the recent incident at Fukushima in Japan, radiation monitoring of food and animal food has become an important and relevant matter regionally.

Lessons are being learnt from radioactive contamination monitoring which still occurs in the United Kingdom, 25 years after the world's worst nuclear accident at Chernobyl (切爾諾貝爾). Wind and rain carried radioactive material thousands of miles away to the hills of north Wales and Cumbria after the explosion at the plant in 1986.

Sheep from affected areas are still scanned before entering the food chain. In the weeks and months following the accident, more than 5,000 farms were placed under restrictions. Over the years, this number has come down to the current 330 in Wales and 8 in Cumbria, England.



Welsh sheep on uplands: currently some sheep grazing uplands are under restriction while measurements are taken, this has been continuing for over 25 years. *(Photography by Marion Phillips)*

The restrictions mean any sheep and lambs which graze on higher ground there have to be brought down to lower lying areas to allow radiation measurements to decrease, before they can be sold.

According to a farmer in the area, "no-one could have predicted how things have turned out". He said, "Anyone still under restriction would have found it hard to believe that it would still be in place after 25 years".⁽¹²⁾

IV. The Health Certification of Food Animals and Food of Animal Origin

The verb 'to vet' used in the English language is a very distinctive word. It means to check something thoroughly and in detail. Traditionally once a vet has "vetted" an animal or animal product, he can issue a certificate describing what he has found. This certificate is regarded, within the veterinary profession, as an extremely important document, which as far as it is humanly possible reflects the whole truth. Veterinary certificates, since they have to be completed to the highest possible standards, are very useful in facilitating international trade. The importer expects that what is written on the veterinary health certificate is true and believable. It is on these ethical principles that the OIE uses veterinary health certificates to ensure that food that is safe to eat can cross borders (See box below and Veterinary Bulletin Volume No. 1 Issue No.5).

The World Organisation for Animal Health (OIE)

"Certification in relation to animal diseases, including zoonoses, and meat hygiene should be the responsibility of the Veterinary Authority."

"International veterinary health certificates underpin international trade and provide assurances to the importing country regarding the health status of the animals and products imported."

V. Conclusion

According to one of the United Nations Food and Agriculture Organization's recent publications, there still are worldwide significant challenges concerned with food safety. There are many reasons for these new challenges. To give two simple examples, the world trade in agricultural products has increased fivefold since 1950,⁽¹³⁾ and the number of agents causing food borne diseases is likewise increasing.⁽¹⁴⁾

In these new situations, both government and private companies require new mixes of professions and technologists to help them overcome these challenges. It now appears that the veterinarian will be one of those professions to be intimately involved in facing these challenges.

Every profession has its golden age when its work is recognized to be vital to society and how people view the world. Hundreds of years ago, astrologers were one of the most important professions. Government used them to guide them on serious issues of the day. Private people used them to assist them in personal matters. A little later, priests became one of the most powerful professions, again acting at both a government and a private level. Nowadays both astrologers and priests are still present but have not such a great impact on society. In the last century, the impact of engineers,

doctors and technologists has been very great. Most recently, computer professionals have become extremely relevant.

Now with globalization, more processed food, more and more food imports and exports worldwide, greater movement of animal and humans, it appears that it is the turn of the veterinary profession to be one of the most crucial to society. Their work with food of animal origin is an indicator of the influence they now have and will probably have in the future. Vets are not only trained to deal with all mammal species except man but also with birds, fish and exotic animals. They are trained in an extremely wide set of disciplines up to a degree level: examples would be risk assessment, bacteriology, virology, toxicology, immunology and public health to mention a few.⁽¹⁵⁾

At the beginning of this issue, you were asked to consider what word you would associate with vet. It was likely you associated it with dogs, cats, and their health. Now you may perhaps consider associating many foods with the word vet. For hopefully in one sense much of the food you will eat in the future will have been “vetted”. That is to say it will have been thoroughly checked by a vet.



Veterinary inspection of moon cake factory



References

- (1) Federation of Veterinarians of Europe. Meat Inspection and the Development of Community Risk Based Food Legislation FVE Response.
http://www.fve.org/news/position_papers/public_health/fve_00_044_amendments_food_hygiene.pdf. Retrieved 15th April 2011.
- (2) Federation of Veterinarians of Europe. Role of the Private Veterinary Practitioner in Food Hygiene Controls on Farm.
http://www.fve.org/news/position_papers/public_health/fve_07_066_role_private_vet_in_food_hygiene.pdf. Retrieved 15th April 2011.
- (3) Hartlepool Borough Council. Feed Hygiene.
http://www.hartlepool.gov.uk/info/788/animal_health_and_welfare/1056/feed_hygiene/1. Retrieved 15th April 2011.
- (4) The Official Journal of the European Union Online. Regulation (EC) No 183/2005 of the European Parliament and of the Council. 2005-laying down requirements for feed hygiene.
http://eur-lex.europa.eu/LexUriServ/site/en/oj/2005/l_035/l_03520050208en00010022.pdf. Retrieved 15th April 2011.
- (5) Monique A. van der Gaag and Ruud B.M. Huirne. Elicitation of expert knowledge on controlling Salmonella in the pork chain.
<http://library.wur.nl/artik/jcns/1782799.pdf>. Retrieved 15th April 2011.
- (6) Teagasc Food Assurance Online (Irish Agriculture and Food Development Authority). Veterinary Checks and Controls in Meat Plants.
http://www.foodassurance.teagasc.ie/FAOL/foodChainControls/foodChainControls/Controls_meatplants.htm. Retrieved 15th April 2011.
- (7) The University of Nottingham. Logistics and Cold Supply Chain Management in Singapore and Asia Pacific
[http://edissertations.nottingham.ac.uk/819/1/Singapore_Food_Logistic_Industrty_-_Dissertation_\(11.12.06\).pdf](http://edissertations.nottingham.ac.uk/819/1/Singapore_Food_Logistic_Industrty_-_Dissertation_(11.12.06).pdf). Retrieved 15th April 2011.
- (8) Zylberman P. Making Food Safety an Issue: Internationalized Food Politics and French Public Health from the 1870s to the Present. The UCL Centre for the History of Medicine.
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC546293/pdf/medhis4801-001.pdf>. Retrieved 15th April 2011.
- (9) Schafer W. and Driessen S. A Quick Consumer Guide to Safe Food Handling. The University of Minnesota.
<http://www.extension.umn.edu/distribution/nutrition/dj5711.html>. Retrieved 15th April 2011.
- (10) eNotes.com. Encyclopedia of Public Health-Veterinary Public Health.
<http://www.enotes.com/public-health-encyclopedia/veterinary-public-health>. Retrieved 15th April 2011.
- (11) 夏紅民。1998。中國的進出境動植物檢疫。中國農業出版社。中華人民共和國。第21頁。
- (12) BBC News. Chernobyl Radiation Checks on Welsh Farms 25 years.
<http://www.bbc.co.uk/news/mobile/uk-wales-north-west-wales-13196041>. Retrieved 1st May 2011.
- (13) Food and Agriculture Organization of the United Nations. Food Quality and Safety.
<http://www.fao.org/worldfoodsummit/english/fsheets/fsafety.pdf>. Retrieved 15th April 2011.
- (14) eNotes.com. Encyclopedia of Public Health- Food-Borne Diseases.
<http://www.enotes.com/public-health-encyclopedia/food-borne-diseases>. Retrieved 15th April 2011.
- (15) Buncic S. Integrated Food Safety and Veterinary Public Health.
<http://bookshop.cabi.org/Uploads/Books/PDF/9780851999081/9780851999081.pdf>. Retrieved 15th April 2011.

Editorial Board:

Editor: Dr. Barry BOUSFIELD, Dr. Richard BROWN, Dr. Mary CHOW and Dr. NG Lip Tet

Proofreader: Dr. Christopher John BRACKMAN and Dr. Veronica LEONG

Chinese editor of specific terms: Dr. Kenny HO and Dr. Michelle YEUNG

Coordinator: Mr. Dominic LEUNG



Agriculture, Fisheries and Conservation Department

Room 708, 7/F Cheung Sha Wan Government Offices, 303 Cheung Sha Wan Road, Kowloon, Hong Kong

Website: www.afcd.gov.hk

Email: tsdiq@afcd.gov.hk