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Introduction

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The strong development of science in the nineteenth century prompted the need to develop practical solutions to prevent diseases caused by parasites and bacteria in humans based on the findings of Louis Pasteur, Robert Koch, Rudolph Virchow and Friedrich A. Zenker. It was shown in the 1860s that *Trichinella* was transmitted to humans through contaminated pork meat. Later, many bacterial and other parasitic diseases were shown to transmit to humans through meat. Due to these findings, veterinary medicine grew in importance and it was increasingly demanded that veterinarians be in charge of public health and that the importance of veterinary education be increased in the society. The role of veterinarians became significant in meat inspection. Later, veterinary public health and food hygiene became an essential part of veterinary education. Robert von Ostertag, a German veterinarian, wrote an extensive handbook on meat inspection in 1892 and created the scientific basis for meat inspection. The book was translated into English in 1904. The proportion of meat originating from diseased animals was high in the nineteenth century and the quality of meat was poor. A huge improvement was achieved through the organization of meat inspection and the development of the scientific basis of meat inspection. Meat inspection has been a success story and it has been the most important programme in improving food safety. Huge steps were taken to prevent the transmission of pathogenic organisms and contagious diseases from animals to humans. Meat inspection

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has had a major role in prevention of zoonoses. In addition, meat inspection has been a cornerstone for the development of modern food control.

The scope of meat inspection has been enlarged over the last few decades. The substantial core of meat inspection is public health and consumer protection. Public health issues, such as prevention of the transmission of pathogenic microorganisms and contagious diseases, have been important from the beginning of meat inspection. More recently, detecting residues of chemical substances and veterinary drugs and preventing their occurrence became part of meat inspection. In addition, animal welfare issues have always been key issues and the skilful treatment of animals during transport and slaughter has been an important part of meat inspection. Faults in the transport and handling of animals influence also the quality of meat. Problems related to meat quality are also major issues. The removal of poor quality and adulterated meat from the meat chain and the prevention of contamination of meat with spoilage organisms are part of high-quality meat inspection.

The scope of the work of meat inspection veterinarians ranges from animal welfare issues associated with the transport of animals to the control of meat processing. Training of the official auxiliaries and workers, and administrative and managerial duties, should also be part of the job description of meat inspection veterinarians. Extensive meat inspection training is needed in veterinary education to ensure good theoretical and practical skills to carry out high-quality meat inspection. The presence of full-time meat inspection veterinarians in slaughterhouses is needed for efficient inspection and control.

A lot of different risks can be associated with the intensified modern meat production process. Consumers are more and more interested in the origin of the food they eat. The increase in the knowledge and interest of consumers has had a special focus on meat production. Therefore, meat production and meat inspection should be transparent and should have high ethical operational principles to gain the trust of consumers. In this regard, meat inspector veterinarians have a crucial responsibility and importance.

Strong internationalization and globalization have been a typical trend in the food industry and food trade, including the meat sector. The complexity of the modern meat chain has led also to possibilities for food frauds and unfair competition. During the last two decades many food fraud cases have been reported. These intentional activities are an alarming phenomenon and have caused concern among consumers. Companies that ignore food safety regulations gain, wrongly, a competitive edge over companies that fulfil the regulations.

Modern technical solutions to ensure good meat safety objectives during slaughtering and meat inspection procedures are a cost to companies. On the other hand, food safety problems that attract negative publicity in food production may cause enormous economic losses. A good balance between food safety regulations and control and economic resources for food safety should be achieved. It is also important that meat inspection and control is similar throughout the whole of Europe, ensuring fair competition between companies.

Meat inspection is faced with new challenges. Transmission of pathogenic organisms from animals to humans can be cut off during slaughtering. However, the recognition of different organisms is a very demanding task and needs new modern techniques. New solutions and practices should be continuously developed to improve and ensure meat safety. The changes in meat production should be taken into account in order to make necessary changes in meat inspection procedures. At the same time, the information collected during meat inspection should be recognized and used to improve food safety and the prevention of animal diseases. However, it is obvious that meat inspection is needed in the future and is an essential part of food control.

Meat inspection practices and the content of the meat inspection process have been changed and enlarged due to research and the development of control measures. Due to these changes and the importance of meat inspection, an up-to-date reference is needed for veterinary students and other interested groups to provide an extensive description of meat inspection. Meat inspection procedures are regulated by the European Union and, therefore, the writers of this guide are experts representing many different European countries. The book covers meat inspection from animal transport to the official control at the slaughterhouse. The control of meat processing, which is an important task of meat inspection veterinarians at plants connected to the slaughterhouse, has not been dealt with. The editors hope that the book will attract interest in meat inspection and control, as well as encourage scientific research to improve future meat inspection procedures and food safety.

