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Book review — Boekresensie

Salmonella in domestic animals

Edited by C Wray and A Wray

2000. CABI Publishing, Wallingford and New York, 400 pp., hard cover, £95 (US\$175). ISBN 0 85199 261 7.

This is the first English language book with *Salmonella* as its sole topic for more than 40 years, and covers the enormous changes in this field during those years. The chief editor, Clifford Wray, was Weybridge's *Salmonella* researcher for very many years, and this book is a fitting climax to his career.

Salmonella is important for us as veterinarians in all our varied endeavours – private practitioners see it regularly in their patients and the public health aspects are crucial for hygienic food production and legislation to control outbreaks. Intensification of animal production has caused a world-wide increase in outbreaks of *Salmonella*. *Salmonella* infections can vary from peracute septicaemia to inapparent infections resulting in some cases in lifelong carriers. *Salmonella* is very persistent in the environment, and has been shown to survive for 6 years in faeces on various building materials.

The first few chapters discuss the taxonomy and virulence mechanisms of *Salmonella*. The taxonomy, based on DNA analysis, has resulted in the correct nomenclature becoming cumbersome, so the old nomenclature has mostly been used in the book. It has been calculated that *E. coli* and *Salmonella* diverged from a common ancestor 120–160 million years ago. *Salmonella* was associated with reptiles, then acquired genes mediating cell invasion, and thus became a mammalian pathogen. A good understanding of virulence mechanisms, as well as host susceptibility, is essential, to ensure proper control of the diseases caused. *Salmonella* invades the intestinal wall and multiplies in the gut-associated lymphoid tissue, and can either remain there, resulting in a carrier, or spread further via the lymphatic system, resulting in septicaemia. Resistance to antibiotics and the implications thereof are discussed in Chapter 6.

The next seven chapters are each devoted to a thorough discussion of *Salmonella* infections in chickens, turkeys, ducks, cattle, pigs, sheep, horses, dogs and cats. Each chapter is divided into sections such as epidemiology, clinical findings, pathogenesis, *post mortem* lesions, diagnosis, treatment, control and vaccination, each written by an expert in that field.

Chapter 15 is particularly important for veterinarians working in public health and regulatory positions. Each type of food such as milk, meat, eggs, and other sources of *Salmonella* is discussed,

and control measures recommended. *Salmonella enteritidis* for example, can be present in eggs in the absence of faecal carriage. Fatty foods are more dangerous for man, as *Salmonella* is protected against the effect of stomach acid by fat. *Salmonella* survives well in water, as long as the temperature is not too high, or the levels of organic substances excessive. *Salmonella* can multiply in sterile sea water, but is usually eliminated in normal sea water by protozoa. It lives longest in estuarine water. This impacts on the treatment of slurry and the recycling of waste water. Spread of *Salmonella* is traditionally by rodents, but insects such as cockroaches, birds and other animals can also do so. A whole chapter is devoted to animal feeds and, their handling, storage and treatment.

The second last section is devoted to the control of the disease. A chapter describes the use of probiotics in animal rearing, and gives useful pointers about the use of probiotics in general. Vaccination of food animals and the various vaccines available are assessed. Vaccines targeting host-specific serovars such as *S. dublin* are much more successful than those for species that are not host-specific and more important in food poisoning outbreaks. The epidemiology chapter is good on general epidemiology as well, moving away from Koch's postulates to a more modern approach.

The last few chapters cover laboratory aspects of isolation, rapid detection, serotyping, serology and molecular typing, and would be of value to laboratory personnel, so that they can interpret their findings correctly.

The only quibble is with the Index, which does not consistently list the serovars, making it difficult to locate specific serovars such as *S. hadar*.

International standards dictate that animals and foodstuffs be free of *Salmonella*, and as South Africa is increasingly participating in international trade, these norms should be implemented by us as well.

This book should be on the bookshelf for constant consultation by veterinarians in all fields.

M M Henton

ARC - Onderstepoort Veterinary Institute
Pretoria