Clostridium Botulinum Who

Prevent, evaluate, and manage diseases that can be acquired in tropical environments and foreign countries with The Travel and Tropical Medicine Manual. This pragmatic resource equips medical providers with the knowledge they need to offer effective aid, covering key topics in pre- and post-travel medicine, caring for immigrants and refugees, and working in low-resource settings. It's also the perfect source for travelers seeking quick, easy access to the latest travel medicine information. Dynamic images illustrate key concepts for an enhanced visual understanding. Evidence-based treatment recommendations enable you to manage diseases confidently. This eBook allows you to search all of the text, figures, images, and references from the book on a variety of devices. Highlights new evidence and content surrounding mental health and traveling. Covers emerging hot topics such as Ebola virus disease, viral hemorrhagic fevers, the role of point-of-care testing in travel medicine, and antibiotic-resistant bacteria in returning travelers and students traveling abroad. Includes an enhanced drug appendix in the back of the book.

An in-depth resource addressing the ecology of Clostridium botulinum which affects the degree of food contamination, and its control in various foods. The text summarizes worldwide data on this organism in food and the environment and the principles of its control in specific foods and products. Biomedical Aspects of Botulism contains the proceedings of an International Conference on the Biomedical Aspects of Botulism, held at Fort Detrick, Frederick, Maryland on March 16-18, 1981. Organized into eight parts, this book begins with a discussion on the structure, structure-function relationships, and oral toxicities of the various botulinal toxins. Subsequent
chapters focus on the cellular and subcellular effects of this toxin; a model to account for toxin-induced blockage of transmitter release; and approaches for dealing with and utilizing the botulinal toxins. Some chapters discuss the involvement of specific bacteriophages in the toxigenicity of Clostridium botulinum, types C and D; properties and qualitative aspects of tetanus and botulinal toxins; and human and animal botulism, including infant botulism and shaker foal syndrome. Selected aspects of the development of toxoids, an insight into the anticipated development of bacterial products, and the epidemiologic characteristics of botulism in the United States are also presented. The book ends with the trends in the therapy of botulism. This volume will serve as a valuable reference to those in the fields of bacteriology, biochemistry, immunology, neurophysiology, pathology, pharmacology, and toxinology. This book will also be helpful both to physicians and veterinarians who need a single source on the biomedical aspects of botulism.

Three days in Madison have thoroughly modified my view on clostridial neurotoxins. While still realizing the numerous activating, modifying and protective inputs, I cannot judge the meaningfulness of the meeting impartially. Neither may the reader expect a complete summary of all presentations. Collected in this volume, they speak for themselves without requiring an arbiter. Instead I shall write down my very personal opinions as a researcher who has studied clostridial neurotoxins for nearly 25 years. Comparable conferences have been rare during this time. A comprehensive symposium on C. botulinum neurotoxins has been organized at Ft. Detrick. International conferences on tetanus have been held regularly under the auspices of the World Health Organization. One or maximally two days of these meetings have been devoted to tetanus toxin and its actions whereas the sponsor and the majority of the participants have been
interested mainly in epidemiology, prevention and treatment of tetanus as a disease (see refs. 5,6). Some aspects of clostridial neurotoxins have been addressed in the context of bacterial toxins, in particular in the biennial European workshops. 1-3,7,8 The Madison meeting differed from the previous ones in three aspects. First, it covered both tetanus and botulinum neurotoxins. The fusion was justified because of their huge similarities in primary structure, in their mode of action and in their cellular targets. Second, the meeting was not limited to toxins but drew some lines on which modern neurobiology might proceed.

From beach encounters, aquaculture perils, and processed-food poisoning to snake bites and biological warfare, natural toxins seem never to be far from the public's sight. A better understanding of toxins in terms of their origin, structure, structure-function relationships, mechanism of action, and detection and diagnosis is of utmost importance to human and animal food safety, nutrition, and health. In addition, it is now clear that many of the toxins can be used as scientific tools to explore the molecular mechanism of several biological processes, be it a mechanism involved in the function of membrane channels, exocytosis, or cytotoxicity. Several of the natural toxins have also been approved as therapeutic drugs, which has made them of interest to several pharmaceutical companies. For example, botulinum neurotoxins, which have been used in studies in the field of neurobiology, have also been used directly as therapeutic drugs against several neuromuscular diseases, such as strabismus and blepherospasm. Toxins in combination with modern biotechnological approaches are also being investigated for their potential
use against certain deadly medical problems. For example, a combination of plant toxin ricin and antibodies is being developed for the treatment of tumors. The great potential of natural toxins has attracted scientists of varying backgrounds—pure chemists to cancer biologists—to the study of fundamental aspects of the actions of these toxins.

Clostridium Botulinum: A Practical Approach to the Organism and its Control in Foods

With the world’s growing population, the provision of a safe, nutritious and wholesome food supply for all has become a major challenge. To achieve this, effective risk management based on sound science and unbiased information is required by all stakeholders, including the food industry, governments and consumers themselves. In addition, the globalization of the food supply requires the harmonization of policies and standards based on a common understanding of food safety among authorities in countries around the world. With some 280 chapters, the Encyclopedia of Food Safety provides unbiased and concise overviews which form in total a comprehensive coverage of a broad range of food safety topics, which may be grouped under the following general categories: History and basic sciences that support food safety; Foodborne diseases, including surveillance and investigation; Foodborne hazards, including microbiological and chemical agents; Substances added to food, both directly and indirectly; Food technologies, including the latest developments; Food commodities, including their potential hazards and controls; Food safety management systems, including their elements.
and the roles of stakeholders. The Encyclopedia provides a platform for experts from the field of food safety and related fields, such as nutrition, food science and technology and environment to share and learn from state-of-the art expertise with the rest of the food safety community. Assembled with the objective of facilitating the work of those working in the field of food safety and related fields, such as nutrition, food science and technology and environment - this work covers the entire spectrum of food safety topics into one comprehensive reference work. The Editors have made every effort to ensure that this work meets strict quality and pedagogical thresholds such as: contributions by the foremost authorities in their fields; unbiased and concise overviews on a multitude of food safety subjects; references for further information, and specialized and general definitions for food safety terminology. In maintaining confidence in the safety of the food supply, sound scientific information is key to effectively and efficiently assessing, managing and communicating on food safety risks. Yet, professionals and other specialists working in this multidisciplinary field are finding it increasingly difficult to keep up with developments outside their immediate areas of expertise. This single source of concise, reliable and authoritative information on food safety has, more than ever, become a necessity. This essential, authoritative handbook provides clear, accurate coverage of zoonoses — diseases that can spread from animals to humans. The consistent format helps you quickly locate key information, such as how each disease affects the host, how it is spread, how it is
treated, and necessary safety precautions. It also discusses the importance of educating animal owners about the public health implications of zoonoses and how to prevent them from spreading. Clear, concise coverage helps you respond quickly when presented with diseases that could potentially spread between patients, clients, and staff in the veterinary clinic. Each disease entry begins with a chart of its potential morbidity (the rate of incidence of a disease) and mortality (death rate), giving you at-a-glance access to the chance of contracting the disease and the severity of the disease if contracted. Clinically relevant coverage includes information on the etiology (bacterial, viral, parasitic, etc.), most common nonhuman hosts, transmission modes, course of the disease, clinical signs in animals and humans, diagnostic tests, prevention, and general advice. Essential information on preventing the spread of disease helps you educate clients about how to protect themselves and their animals from zoonoses. Coverage of diseases such as mad cow disease, West Nile virus, rabies, and anthrax, prepares you to answer client questions about diseases that are in the public eye.

Botulism is a severe neuroparalytic disease, caused by consumption of minute quantities of botulinum neurotoxin (BoNT) in a contaminated food, or by development of toxin by toxigenic spores in the intestine of susceptible infants and adults. The severity, onset time, and duration of botulism are largely dependent upon dose and BoNT type, and because of its rarity, symptoms may be misdiagnosed. BoNTs formed by Clostridium botulinum and rare strains of C. baratii and C. butyricum are responsible for the majority of human botulism cases. C. botulinum presents a particular challenge to food
Clostridium botulinum produces a toxin which causes the severe, often fatal illness, botulism. It is a potential hazard associated with a wide range of both ambient stable and chilled foods. Foodborne botulism still occurs all around the world. As new outbreaks are reported implicating yet more food types and food processes, so the food industry needs to regularly review processes and product characteristics to assure safety.

The extremely potent substance botulinum neurotoxin (BoNT) has attracted much interest in diverse fields. Originally identified as cause for the rare but deadly disease botulism, military and terrorist intended to misuse this sophisticated molecule as biological weapon. This caused its classification as select agent category A by the Centers for Diseases Control and Prevention and the listing in the Biological and Toxin Weapons Convention. Later, the civilian use of BoNT as long acting peripheral muscle relaxant has turned this molecule into an indispensable pharmaceutical world wide with annual revenues >$1.5 billion. Also basic scientists value the botulinum neurotoxin as molecular tool for dissecting
mechanisms of exocytosis. This book will cover the most recent molecular details of botulinum neurotoxin, its mechanism of action as well as its detection and application. Tetanus has been known from the very beginning of medical literature since it was first described by Hyppocrates of Cos in the fifth century B.C. For 24 centuries it was considered a neurological disease until the breakthrough of CARLE and RATIONE (1884) who demonstrated its infectious etiology. Following the establishment of purified cultures of Clostridium tetani(KITASATO 1889), FABER (1890), and TIZZONI and CATIANI (1890) demonstrated that the disease is actually an intoxication caused by a proteic neurotoxin. This toxin was shown by BRUSHCHETIINI (1892) to move retroaxonally and to act at the spinal cord level. Soon thereafter VAN ERMENGEN (1897) demonstrated that botulism is also due to intoxication with a protein toxin produced by bacteria of the genus Clostridium. These bacteria and their spores are ubiquitous, and the majority of them do not produce neurotoxins. The selective advantage of producing such potent toxin is still a matter of speculation (see Popoff, this volume). The next major advance was the discovery that tetanus neurotoxin 1 can be converted by formaldehyde treatment to a nonpathogenic but still fully immunogenic form, and that this can be used successfully as a vaccine to prevent tetanus (RAMON and DESCOMBEY 1925). Similar vaccines (toxoids) can be prepared with botulism neurotoxins (see MiDDLEBROOK and BROWN, this volume). The prevention oftetanus by vaccination (see Galatzka and Gasse, this volume) is one of the great successes of basic research coupled with an efficient public medicine service. Clostridial Diseases of Animals is the first book to focus on clostridial diseases in domestic and wild animals, offering a comprehensive reference on
these common diseases. Emphasizing clinical applications, the book offers a complete, in-depth examination of clostridial disease, from pathogenesis, pathology, and microbiology to diagnostic techniques, clinical management, and treatment. Combining pathology and microbiology, a highlight of the book is the high-quality clinical photographs, which are valuable for recognizing disease patterns. The book begins with sections on the pathogenic clostridia and the toxins produced, then covers specific diseases produced by the pathogenic clostridia. Clostridial Diseases of Animals summarizes current understanding of clostridial diseases and discusses important areas of diagnostic uncertainty, making it an essential reference for veterinary clinicians, diagnosticians, pathologists, microbiologists, students, and governmental agencies. Key features Provides a single resource for all aspects of clostridial diseases Presents current, comprehensive information with a focus on clinical relevance Covers each disease in depth, including etiology, epidemiology, clinics, gross pathology, histopathology, diagnostics, diagnostic criteria, prophylaxis, control, and treatment Written by the world-leading experts in the field of clostridial diseases in animals Offers photographs and summary tables to support the concepts discussed in the text and aid in recognition Provides a description of botulism and discusses its
causes, symptoms, diagnosis, and treatment; the threat of its use in bioterrorism; and efforts underway to improve detection and develop a future vaccine. Botulism is a highly fatal disease of man and animals caused by neurotoxins of Clostridium botulinum, the most potent biological toxins known. It is characterized by partial or complete flaccid paralysis of the muscles of locomotion, mastication and deglutition. This work describes important diagnostic methods including new efficient immunoassay and laboratory medium. The medium enabled the isolation of C. botulinum types C and D which are normally extremely difficult to isolate. A swarming character of C. botulinum was reported here for the first time. Cross reaction between tetanus toxin and botulinum anti-toxins (A-F) was reported and interpreted. The bulk of the samples investigated for C. botulinum in this study was from equine grass sickness (EGS) cases and their environment, a disease suspected to be a form of botulism. However, this study has found no link between EGS and botulinum neurotoxins. This book presents a wide overview of the Clostridium botulinum organism alongside the description of food borne botulism and the review of methods used to detect Clostridium botulinum in food. Clostridium botulinum produces extremely potent neurotoxins involved in severe paralytic illness called botulism. Starting from the history of
Clostridium botulinum discovery, international experts on the topic explain the key steps involved in its neurotoxicity. Among the many topics presented is a study on the Botulism hazards from native foods prepared by inhabitants of Arctic regions. Other chapters explore experimental techniques and methods used to detect Botulinum in food, including principles of control of Clostridium botulinum, guidelines and codes of practice. New data or methods used to control Clostridium botulinum presence in meat, fish, in vegetable or in processed food are discussed.

Emerging and re-emerging pathogens pose several challenges to diagnosis, treatment, and public health surveillance, primarily because pathogen identification is a difficult and time-consuming process due to the “novel” nature of the agent. Proper identification requires a wide array of techniques, but the significance of these diagnostics is anticipated to increase with advances in newer molecular and nanobiotechnological interventions and health information technology. Human Emerging and Re-emerging Infections covers the epidemiology, pathogenesis, diagnostics, clinical features, and public health risks posed by new viral and microbial infections. The book includes detailed coverage on the molecular mechanisms of pathogenesis, development of various diagnostic tools, diagnostic assays and their limitations, key
research priorities, and new technologies in infection diagnostics. Volume 1 addresses viral and parasitic infections, while volume 2 delves into bacterial and mycotic infections. Human Emerging and Re-emerging Infections is an invaluable resource for researchers in parasitologists, microbiology, Immunology, neurology and virology, as well as clinicians and students interested in understanding the current knowledge and future directions of infectious diseases. Botulinum Neurotoxin and Tetanus Toxin covers the mechanism of action, pathogenesis, and treatment of clostridial neurotoxins. The book is organized into four parts encompassing 18 chapters that discuss the origin, structure, pharmacology, toxicology, immunology, assays, and clinical issues of botulinum and tetanus neurotoxins. The introductory part of the book discusses the discovery and production of neurotoxins in various strains of Clostridium bacteria. This text also describes how specific bacteriophages and plasmids mediate the pathogenicity of some types of Clostridium botulinum and Clostridium tetani. The subsequent part provides an overview of issues related to toxin binding, including toxins that may serve as models for botulinum and tetanus neurotoxins. Discussions on the peripheral and central aspects of poisoning transport in the central nervous system and on the antagonistic drugs for clostridial neurotoxins are provided. The third part of
the book addresses the antibodies against botulinum neurotoxin. Bioassay in mice and highly sensitive immunoassays, such as reversed passive hemagglutination, reversed passive latex agglutination, radioimmunoassay, and enzyme-linked immunosorbent assay, are presented. The concluding part covers the animal models for these toxins and discusses the diagnosis and treatment of botulism and tetanus in human. The clinical use of Clostridium botulinum toxin type A in ocular and neuromuscular disease is also examined. This book will be of value to protein chemists, microbiologists, virologists, pharmacologists, immunologists, and clinicians.

Contents: 'Clostridium botulinum;' 'A paper on infection and toxin formation of clostridium botulinum, type E, in food articles and an evaluation of preventive measures against it.'; 'Gamma radiation of botulinum toxin, type A and B;' 'Type C botulism in men and animals (with special regard to the appearance of the disease in cows and horses).'; 'Milieu conditions influencing the growth and toxin formation of clostridium botulinum with special regard to conditions of vacuum-packed food articles.'; 'Clostridium botulinum - a bibliography.'