Vector Borne Pathogens International Trade And Tropical Animal Diseases Annals Of The New York Academy Of Sciences

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Medicine and Emerging Infectious Diseases E-BookEmerging and Reemerging Viral PathogensPublic HealthHuman Health and the EnvironmentArthropod Borne DiseasesA Toolkit for Integrated Vector Management in Sub-Saharan AfricaMicrobial Threats to HealthBats (Chiroptera) as Vectors of Diseases and ParasitesMosquito-borne Diseases

The Emergence of Zoonotic Diseases

It is well known that several climatic, environmental and socio-demographic changes that have occurred in the last years are some of the most important causes for the emergence/resurgence of vector-borne diseases worldwide. Global change can be defined as the impact of human activity on the fundamental mechanisms of biosphere functioning. Therefore, global change includes not only climate change, but also habitat transformation, water cycle modification, biodiversity loss, synanthropic incursion of alien species into new territories, or introduction of new chemicals in nature. On this respect, some of the effects of global change on vector-borne diseases can be currently evaluated. Globalization has enabled the movement of parasites, viruses and vectors among different countries, or even at intercontinental level. On this regard, it is important to note that the increase of imported malaria cases in different Southern European countries has led to the re-appearance of autochthonous cases of disease transmission. Moreover, the used tire trade, together with global warming, have facilitated the introduction, spread and establishment of potential Dengue

tropical vectors, such as Aedes aegypti or Aedes albopictus in temperate areas. Consequently, recently the first Dengue indigenous cases in the last decades have been reported in different Southern areas of North America and Europe. Furthermore, habitat modification, mainly deforestation and transformation of aquatic environments, together with the changes in thermal and rainfall patterns, are two of the key factors to explain the increasing incidence of Leishmaniasis and several tick-borne diseases. The aim of this Research Topic is to cover all related fields with the binomial vector-borne diseases / global change, including basic and applied research, approaches to control measures, explanations of new theories, opinion articles, reviews, etc. To discuss these issues, a holistic and integrative point of view is necessary, which only would be achieved by the close and active participation of specialists on entomology, parasitology, virology and epidemiology. Our objective is to use a systems approach to the problem of global change and vector-borne diseases. To achieve this ambitious goal and to comply with a demand of first-rate scientific and medical interest, we are very keen on asking for the participation of multiple contributors.

Skin and Arthropod Vectors

This book describes the demographic and clinical patterns of Zika infection and evaluates the risk of it spreading to Europe. It reflects the hands-on experience of the author, who as a physician, was faced with the first-ever cases reported in Europe.

Providing essential background information on the viral vector, it addresses the various symptoms after infection, and places them in the epidemiological context of past outbreaks. The book addresses the needs of physicians attending patients with infectious diseases, including infectious-disease specialists, pediatricians, internal medicine specialists, general practitioners, obstetricians, tropical medicine and travel medicine specialists, preventive medicine and public health specialists, microbiologists, biologists and vectorial control specialists. It raises clinicians' and travel health clinics' awareness of the evolution of Zika virus outbreaks and the affected areas so that they can include this infection in their differential diagnoses for travelers from those areas.

Insect Biotechnology

Globalization of the food supply has created conditions favorable for the emergence, reemergence, and spread of food-borne pathogens-compounding the challenge of anticipating, detecting, and effectively responding to food-borne threats to health. In the United States, food-borne agents affect 1 out of 6 individuals and cause approximately 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths each year. This figure likely represents just the tip of the iceberg, because it fails to account for the broad array of food-borne illnesses or for their wide-ranging repercussions for consumers, government, and the food industry-both domestically and internationally. A One Health approach to food safety may hold the promise of harnessing and integrating

the expertise and resources from across the spectrum of multiple health domains including the human and veterinary medical and plant pathology communities with those of the wildlife and aquatic health and ecology communities. The IOM's Forum on Microbial Threats hosted a public workshop on December 13 and 14, 2011 that examined issues critical to the protection of the nation's food supply. The workshop explored existing knowledge and unanswered questions on the nature and extent of food-borne threats to health. Participants discussed the globalization of the U.S. food supply and the burden of illness associated with foodborne threats to health; considered the spectrum of food-borne threats as well as illustrative case studies; reviewed existing research, policies, and practices to prevent and mitigate foodborne threats; and, identified opportunities to reduce future threats to the nation's food supply through the use of a "One Health" approach to food safety. Improving Food Safety Through a One Health Approach: Workshop Summary covers the events of the workshop and explains the recommendations for future related workshops.

Investing to Overcome the Global Impact of Neglected Tropical Diseases

Recent research on skin immunity and the skin microbiome reveals the complexity of the skin and its importance in the development of immunity against arthropod-borne diseases. In diseases such as malaria, borreliosis, leishmaniasis, trypanosomiasis, etc., the skin interface has been shown as an

essential site for pathogens to hide from the immune system, and as a potential site of persistence. Only very few vaccines have been successfully developed so far against these diseases, likely because of an insufficient understanding on the development of skin immunity against pathogens. Skin and Arthropod Vectors expands our knowledge on the role of the skin interface during the transmission of arthropod-borne diseases and particularly its immunity. This work may support researchers who strive for developing more efficient diagnostic tools and vaccines. It also gives scientists and advanced students working in related areas a better insight on how humans and animals are attractive to arthropods to develop better repellents, or to set up transgenic arthropods. Offers the only compilation of research focusing on both the skin interface and arthropod vectors, with contributions from international experts Advances research in the effort toward generating more effective diagnostic tools and vaccines focusing on the skin interface Can also serve as supplemental material for dermatology lectures or specialized lectures on medical entomology and skin immunity

Leishmaniasis

Up to now, the global burden of illness and deaths caused by foodborne disease has never been quantified. In order to fill this data vacuum, the World Health Organization (WHO) together with its partners launched in 2006 the Initiative to Estimate the Global Burden of Foodborne Diseases. After an initial consultation, WHO in 2007 established a Foodborne

Disease Burden Epidemiology Reference Group (FERG) to lead the initiative. Six taskforces were established under FERG, focusing on groups of hazards or aspects of the methodology. These taskforces commissioned systematic reviews and other studies to provide the data from which to calculate the burden estimates. This report is an outcome of a decade of work by WHO key partners and a number of dedicated individuals. Some additional findings--which cannot be integrated into this report--will be published and user-friendly online tools made available separately. This report and related tools should enable governments and other stakeholders to draw public attention to this often under-estimated problem and mobilize political will and resources to combat foodborne diseases.

Biology of Disease Vectors

New emerging diseases, new diagnostic modalities for resource-poor settings, new vaccine schedules all significant, recent developments in the fast-changing field of tropical medicine. Hunter's Tropical Medicine and Emerging Infectious Diseases, 10th Edition, keeps you up to date with everything from infectious diseases and environmental issues through poisoning and toxicology, animal injuries, and nutritional and micronutrient deficiencies that result from traveling to tropical or subtropical regions. This comprehensive resource provides authoritative clinical guidance, useful statistics, and chapters covering organs, skills, and services, as well as traditional pathogen-based content. You'll get a full understanding of how to

recognize and treat these unique health issues, no matter how widespread or difficult to control. Includes important updates on malaria, leishmaniasis, tuberculosis and HIV, as well as coverage of Ebola, Zika virus, Chikungunya, and other emerging pathogens. Provides new vaccine schedules and information on implementation. Features five all-new chapters: Neglected Tropical Diseases: Public Health Control Programs and Mass Drug Administration; Health System and Health Care Delivery; Zika; Medical Entomology; and Vector Control – as well as 250 new images throughout. Presents the common characteristics and methods of transmission for each tropical disease, as well as the applicable diagnosis, treatment, control, and disease prevention techniques. Contains skills-based chapters such as dentistry, neonatal pediatrics and ICMI, and surgery in the tropics, and service-based chapters such as transfusion in resource-poor settings, microbiology, and imaging. Discusses maladies such as delusional parasitosis that are often seen in returning travelers, including those making international adoptions, transplant patients, medical tourists, and more.

Global Health Impacts of Vector-Borne Diseases

This open access book identifies and discusses biodiversity's contribution to physical, mental and spiritual health and wellbeing. Furthermore, the book identifies the implications of this relationship for nature conservation, public health, landscape architecture and urban planning – and considers the

opportunities of nature-based solutions for climate change adaptation. This transdisciplinary book will attract a wide audience interested in biodiversity, ecology, resource management, public health, psychology, urban planning, and landscape architecture. The emphasis is on multiple human health benefits from biodiversity - in particular with respect to the increasing challenge of climate change. This makes the book unique to other books that focus either on biodiversity and physical health or natural environments and mental wellbeing. The book is written as a definitive 'go-to' book for those who are new to the field of biodiversity and health.

Integrated Vector Management

Arthropod borne diseases cause enormous morbidity and mortality in most countries, mostly in those situated in tropical areas, but also in temperate regions. This book provides organized information on all arthropod related diseases, to prevent suffering and deaths, for medical students and professionals. Since arthropod borne diseases are present in many regions of the world and can even surprise professionals and lays in non-endemic regions, like malaria in UK and Canada, the author and its many expert collaborators are sure that it will be essential in all hospitals, clinics and medical libraries around the world. As arthropod borne diseases of domesticated animals are very numerous and in some cases related to human diseases, they are also included in the book.

PESTS AND VECTOR-BORNE DISEASES IN THE LIVESTOCK INDUSTRY.

Pathogens transmitted among humans, animals, or plants by insects and arthropod vectors have been responsible for significant morbidity and mortality throughout recorded history. Such vector-borne diseases â€" including malaria, dengue, yellow fever, and plague â€" together accounted for more human disease and death in the 17th through early 20th centuries than all other causes combined. Over the past three decades, previously controlled vector-borne diseases have resurged or reemerged in new geographic locations, and several newly identified pathogens and vectors have triggered disease outbreaks in plants and animals, including humans. Domestic and international capabilities to detect, identify, and effectively respond to vector-borne diseases are limited. Few vaccines have been developed against vector-borne pathogens. At the same time, drug resistance has developed in vector-borne pathogens while their vectors are increasingly resistant to insecticide controls. Furthermore, the ranks of scientists trained to conduct research in key fields including medical entomology, vector ecology, and tropical medicine have dwindled, threatening prospects for addressing vector-borne diseases now and in the future. In June 2007, as these circumstances became alarmingly apparent, the Forum on Microbial Threats hosted a workshop to explore the dynamic relationships among host, pathogen(s), vector(s), and ecosystems that characterize vector-borne diseases. Revisiting this

topic in September 2014, the Forum organized a workshop to examine trends and patterns in the incidence and prevalence of vector-borne diseases in an increasingly interconnected and ecologically disturbed world, as well as recent developments to meet these dynamic threats. Participants examined the emergence and global movement of vector-borne diseases, research priorities for understanding their biology and ecology, and global preparedness for and progress toward their prevention, control, and mitigation. This report summarizes the presentations and discussions from the workshop.

Current Topics in Tropical Emerging Diseases and Travel Medicine

This book contains 20 chapters, which are divided into 5 sections. Section 1 covers different aspects of insecticide resistance of selected economically important plant insect pests, whereas section 2 includes chapters about the importance, development and insecticide resistance management in controlling malaria vectors. Section 3 is dedicated to some general questions in insecticide resistance, while the main topic of section 4 is biochemical approaches of insecticide resistance mechanisms. Section 5 covers ecologically acceptable approaches for overcoming insecticide resistance, such are the use of mycoinsecticides, and understanding the role of some plant chemical compounds, which are important in interactions between plants, their pests and biological control agents.

From Monsoons to Microbes

Vector-Borne Diseases - Recent Developments in Epidemiology and Control utilizes the unique capabilities of open-access publishing to share exciting developments in the biology, diagnosis, and treatment of diseases spread by arthropods. From malaria to dengue to leishmaniasis, the diseases addressed in this book continue to present threats to the life and well-being of millions around the world. The international cast of writers published here provide specific insight into a full spectrum of diseases spread by insects and their close relatives.

Emerging pests and vector-borne diseases in Europe

This toolkit for integrated vector management (IVM) is designed to help national and regional program managers coordinate across sectors to design and run large IVM programs. It is an extension of earlier guidance and teaching material provided by WHO: Handbook for integrated vector management, Monitoring and evaluation indicators for integrated vector management, Guidance on policy-making for integrated vector management and Core structure for training curricula on integrated vector management. The toolkit provides the technical detail required to plan, implement, monitor and evaluate an IVM approach. IVM can be used when the aim is to control or eliminate vector-borne diseases and can also contribute to insecticide resistance management. This toolkit provides information on where vector-borne

diseases are endemic and what interventions should be used, presenting case studies on IVM as well as relevant guidance documents for reference. The diseases that are the focus of this toolkit are malaria, lymphatic filariasis, dengue, leishmaniasis, onchocerciasis, human African trypanosomiasis and schistosomiasis. It also includes information on other viral diseases (Rift Valley fever, West Nile fever, Chikungunya, yellow fever) and trachoma. If other vector-borne diseases appear in a country or area, vector control with an IVM approach should be adopted, as per national priorities. Malaria, as one of the most important vector-borne diseases in sub-Saharan Africa, is the main focus of this document. Programs targeting other vector-borne diseases can learn from the experiences gained from malaria vector control and presented here.

Insecticides Resistance

This is a multi-authored book concerning the perceived threat and recorded increase of emerging pests and vector-borne diseases affecting man and animals in Europe.Historically, Europe suffered from numerous pests and vector-borne diseases, including yellow fever, malaria, plague and typhus. Introduction of hygienic measures, drugs and vector control caused the disappearance of many of these diseases from Europe. In the (sub)tropics, however, many of these diseases still thrive, causing serious health problems for humans and animals. Increased trade, leading to animal and human movement and climate change cause reason to assume that several of these

diseases might become re-established or allow 'new' diseases and pests to be introduced in Europe. The recent outbreaks of bluetongue virus in North-western Europe highlights this concern, requiring an effective surveillance systems for the early detection of pests and vector-borne diseases.In 24 chapters this book provides examples of the most likely pests and diseases affecting man and animals in Europe, with emphasis on ecological factors favouring these diseases and methods for prevention and intervention. The authors are recognized experts in specific fields. All chapters are peer reviewed.

Who Estimates of the Global Burden of Foodborne Diseases

This is a multi-authored book concerning the perceived threat and recorded increase of emerging pests and vector-borne diseases affecting man and animals in Europe.Historically, Europe suffered from numerous pests and vector-borne diseases, including yellow fever, malaria, plague and typhus. Introduction of hygienic measures, drugs and vector control caused the disappearance of many of these diseases from Europe. In the (sub)tropics, however, many of these diseases still thrive, causing serious health problems for humans and animals. Increased trade, leading to animal and human movement and climate change cause reason to assume that several of these diseases might become re-established or allow 'new' diseases and pests to be introduced in Europe. The recent outbreaks of bluetongue virus in North-western Europe highlights this concern, requiring an effective

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Global Health Impacts of Vector-Borne Diseases

This book gathers contributions by 16 international authors on the phenomenon “bats,” shedding some light on their morphology, the feeding behaviors (insects, fruits, blood) of different groups, their potential and confirmed transmissions of agents of diseases, their endo- and ectoparasites, as well as countless myths surrounding their lifestyle (e.g. vampirism, chupacabras, batman etc.). Bats have been known in different cultures for several thousand centuries, however their nocturnal activities have made them mysterious and led to many legends and myths, while proven facts remained scarce. Even today, our knowledge of bats remains limited compared to other groups in the animal kingdom. Also, their famous ability to avoid collisions with obstacles during their nightly flights with the help of a sophisticated and unique system using ultrasound waves (which are transmitted and received) is as poorly studied as birds finding their way from continent to continent. In recent times, where globalization transports millions of people and goods

from one end of the earth to the other, there are increased risks posed by agents of diseases, as a result of which bats have received increasing attention as potential vectors. These suppositions are based on their proven transmission of viruses such as rabies. In dedicated chapters, the book addresses the following topics: • The world of bats • The astonishing morphology of bats • Bats as potential reservoir hosts for vector-borne diseases • Bat endoparasites • Macroparasites – ectoparasites • Glimpses into how bats fly • Blood-licking bats • Vampirism in medicine and culture • Chupacabras and “goat milkers” • Myths on candiru As such, this book provides a broad range of information for all non-experts interested in biological topics, but also for people working in this field, as well as physicians and veterinarians who are confronted with clinical cases, and for teachers and students interested in expanding their knowledge of biology and of past and present cultures.

Vector-Borne Diseases

Vector-borne infectious diseases, such as malaria, dengue fever, yellow fever, and plague, cause a significant fraction of the global infectious disease burden; indeed, nearly half of the world's population is infected with at least one type of vector-borne pathogen (CIESIN, 2007; WHO, 2004a). Vector-borne plant and animal diseases, including several newly recognized pathogens, reduce agricultural productivity and disrupt ecosystems throughout the world. These diseases profoundly restrict socioeconomic status and development in countries

with the highest rates of infection, many of which are located in the tropics and subtropics. Although this workshop summary provides an account of the individual presentations, it also reflects an important aspect of the Forum philosophy. The workshop functions as a dialogue among representatives from different sectors and allows them to present their beliefs about which areas may merit further attention. These proceedings summarize only the statements of participants in the workshop and are not intended to be an exhaustive exploration of the subject matter or a representation of consensus evaluation. Vector-Borne Diseases : Understanding the Environmental, Human Health, and Ecological Connections, Workshop Summary (Forum on Microbial Threats) summarizes this workshop.

Zika Virus: What Have We Learnt Since the Start of the Recent Epidemic?

The considerable number of viral infectious disease threats that have emerged since the beginning of the 21st century have shown the need to dispose global and coordinated responses to fight properly and efficiently against them. Severe acute respiratory syndrome (2003), avian influenza in humans (2005), A(H1N1) pandemic influenza (2009), Middle East respiratory syndrome coronavirus (MERS-CoV) (2012 onward) and Ebola virus disease (2014-2015) are some of the most important examples. The latest emerging and devastating threat was Zika virus, an arbovirus that provoked more than 500,000 suspicious cases in the Americas in 2016 and notable

processes of social and medical alarms due to the evidence of a causal link between Zika virus and several congenital injuries, like microcephaly, as well as due to its association with neurological disorders such as Guillain-Barré syndrome in adults (PAHO, 2017). In the framework of this global response and multistrategic approach, the purpose of this Research Topic is to provide updated information and novel researches about control strategies, encompassing virological, entomological and epidemiological data, in order to reach the triad of protagonists of transmission cycles (virus, mosquitoes and humans).

Viral Infections and Global Change

The book provides a fascinating overview about current and sophisticated developments in applied entomology that are powered by molecular biology and that can be summarized under a novel term: insect biotechnology. By analogy with the application of powerful molecular biological tools in medicine (red biotechnology), plant protection (green biotechnology) and industrial processing (white biotechnology), insect biotechnology (yellow biotechnology) provides novel tools and strategies for human welfare and nutrition. Insect Biotechnology has emerged as a prospering discipline with considerable economic potential, and encompasses the use of insect model organisms and insect-derived molecules in medical research as well as in modern plant protection measures.

Vector-Borne Pathogens

This book gathers contributions by 39 international specialists on well-known but neglected mosquito-borne diseases. The authors highlight pathogens that are increasingly being spread worldwide by various mosquito species, a situation worsened further by migration and tourism. The book addresses significant agents of diseases like AIDS, dengue, Zika virus, malaria and even cancer, and the risk of transmission via mosquito-related vectors. In addition, it examines important means of preventing the outbreak of related diseases by using insecticides and/or repellents. A particular focus is on the unique and sophisticated mouthparts of bloodsucking species, which allow them to feed on blood in an undisturbed manner, and by means of which agents of disease can enter potential human and animal hosts. In brief, the book provides a broad range of information for a wide readership, including graduates, teachers and researchers in the fields of parasitology, virology, tropical medicine and microbiology, as well as practitioners and healthcare officials.

Seed-borne plant virus diseases

In the struggle against vector-borne diseases, it is critical that we bridge the gap between vector control workers on the ground (practitioners) and public health planners and administrators. Limited guidance is available from the Centers for Disease Control and the World Health Organization, but reference books are scarce. Public Health Entomology comprehensively examines vector-borne disease prevention, surveillance, and control from a

governmental and public health perspective with worldwide application. Divided into two sections, the book begins with a historical account of the early beginnings of pest control and public health. Next, it outlines the concepts, design, and implementation of a sound public health entomology program. The second section provides an overview of some of the most common public health pests that are found globally. Copious photos and line drawings accentuate the text, along with textboxes and sidebars. Author Jerome Goddard designed and implemented the vector control program along the Mississippi Gulf Coast after Hurricane Katrina. His ability to communicate his knowledge and experience to public health professionals and the general public make this book an essential resource for preventing disease from these vector-borne threats.

Improving Food Safety Through a One Health Approach

Emerging and Reemerging Viral Pathogens: Applied Virology Approaches Related to Human, Animal and Environmental Pathogens, Volume Two presents new research information on viruses and their impact on the scientific community. It provides a reference book on certain viruses in humans, animals and vegetal, along with a comprehensive discussion on interspecies interactions. The book then looks at the drug, vaccine and bioinformatical strategies that can be used against these viruses, giving the reader a clear understanding of transmission. The book's end goal is to create awareness that the appearance of

newly transmissible pathogens is a global risk that requires shared/adoptable policies for prevention and control. Covers most emerging viral disease in humans, animals and plants Provides the most advanced tools and techniques in molecular virology and the modeling of viruses Creates awareness that the appearance of new transmissible pathogens is a global risk Highlights the need to adopt shared policies for the prevention and control of infectious diseases

Global change and human vulnerability to vector-borne diseases

What can sharks teach us about our immune system? What can horseshoe crabs show us about eyesight? The more we learn about the ocean, the more we realize how critical these vast bodies of water are to our health and well-being. Sometimes the ocean helps us, as when a marine organism yields a new medical treatment. At other times, the ocean poses the threat of coastal storm surges or toxic algal blooms. From Monsoons to Microbes offers a deeper look into the oceans that surround us, often nurturing yet sometimes harming humankind. This book explores the links among physical oceanography, public health, epidemiology, marine biology, and medicine in understanding what the ocean has to offer. It will help readers grasp such important points as: How the ocean's sweeping physical processes create long-term phenomena such as El Nino and short-term disastrous events such as tsunamis--including what communities can do to prepare. What medicines and nutritional

products have come from the ocean and what the prospects are for more such discoveries. How estuaries work--where salt and fresh water meet--and what can go wrong, as in the 7,000 square mile "dead zone" at the out-flow of the Mississippi River. How the growing demand for seafood and the expansion of ocean-going transport has increased our exposure to infectious agents--and how these agents can be tracked down and fought. Why "red tides" of toxic algae suddenly appear in previously unaffected coastal areas, and what happens when algal toxins find their way into our food supply or the air we breathe. The book recommends ways we can implement exciting new technologies to monitor the physics, chemistry, and biology of the ocean to recognize change as it happens. From the impact of worldwide atmospheric warming to the significance of exotic bacteria from submarine hydrothermal vents, the ocean has many depths left to explore.

Vector-Borne Diseases

Zoonotic diseases represent one of the leading causes of illness and death from infectious disease. Defined by the World Health Organization, zoonoses are â€œthose diseases and infections that are naturally transmitted between vertebrate animals and man with or without an arthropod intermediate.â€ Worldwide, zoonotic diseases have a negative impact on commerce, travel, and economies. In most developing countries, zoonotic diseases are among those diseases that contribute significantly to an already overly burdened public health system. In

industrialized nations, zoonotic diseases are of particular concern for at-risk groups such as the elderly, children, childbearing women, and immunocompromised individuals. The Emergence of Zoonotic Diseases: Understanding the Impact on Animal and Human Health, covers a range of topics, which include: an evaluation of the relative importance of zoonotic diseases against the overall backdrop of emerging infections; research findings related to the current state of our understanding of zoonotic diseases; surveillance and response strategies to detect, prevent, and mitigate the impact of zoonotic diseases on human health; and information about ongoing programs and actions being taken to identify the most important needs in this vital area.

Vector Biology, Ecology and Control

Tropical emerging diseases pose a significant risk for the circulation of old and new pathogens in areas previously unknown, also implying the possibility of new morbidities and mortalities and new consequences for naïve populations. Globalization, migration and travel are key factors for tropical diseases, and represent the need for integration of tropical medicine, travel medicine and epidemiology in the understanding of such complex situations. Neglected tropical diseases such as leprosy or Chagas disease, arboviral diseases, HIV, Ebola, and arenaviral infections are just a few examples. This book tries to update significant epidemiological and clinical research in many aspects with a multinational

perspective.

Emerging pests and vector-borne diseases in Europe

This report repositions a group of 17 neglected tropical diseases on the global development agenda at a time of profound transitions in the economies of endemic countries and in thinking about the overarching objectives of development. In doing so it reinvigorates the drive to prevent control eliminate or eradicate diseases that blind maim and disfigure making life miserable for more than a billion people. Undetected and untreated several almost invariably kill. The burden of these diseases is further amplified by the fact that many require chronic and costly care underscoring the economic as well as the health benefits of preventive chemotherapy and early detection and care. The report brings a new dimension to long-term thinking about the future approach to these diseases. For the first time it sets out financing needs options and targets for meeting WHO Roadmap goals by 2020 but also for reaching universal coverage of all people in need by 2030. The report makes one investment case for cost-effectiveness and a second investment case where equity is the focus. It sets targets for ending catastrophic health expenditures and as part of the drive to strengthen health systems for getting services closer to where people live.

Biodiversity and Health in the Face of Climate Change

A timely exploration of the impact of global change on theemergence, reemergence, and control of vector-borne and zoonoticviral infections From massively destructive "superstorms" to rapidly rising sealevels, the world media is abuzz with talk of the threats tocivilization posed by global warming. But one hazard that is rarelydiscussed is the dramatic rise in the number and magnitude oftropical virus outbreaks among human populations. One need onlyconsider recent developments, such as the spread of chikungunyaacross southern Europe and dengue in Singapore, Brazil, and thesouthern United States, to appreciate the seriousness of thatthreat. Representing a major addition to the world literature on thesubject, Viral Infections and GlobalChange explores trends of paramount concern globally,regarding the emergence and reemergence of vector-borne andzoonotic viruses. It also provides up-to-date coverage of both theclinical aspects and basic science behind an array of specificemerging and reemerging infections, including everything from WestNile fever and Rift Valley fever to zoonotic hepatitis E and humanbunyavirus. Important topics covered include: ulstyle="line-height: 25px; margin-left: 15px; margin-top: 0px; font-family: Arial; font-size: 13.333333969116211px;" Epidemiology, molecular pathogenesis, and evolutionarymechanisms Host-pathogen interactions in an array of viral infections The impact of climate change on historical viral outbreaks The roles of socioeconomics, human behavior, and animal andhuman migrations The growing prevalence of drug and pesticide resistance The introduction of microbes and vectors through

increasedtransboundary travel Spillover transmissions and the emergence of viraloutbreaks Detecting and responding to threats from bioterrorism andemerging viral infections Predictive modeling for emerging viral infections Viral Infections and Global Change is anindispensable resource for research scientists, epidemiologists,and medical and veterinary students working in ecology,environmental management, climatology, neurovirology, virology, andinfectious disease.

Vector-borne Pathogens

Pathogens transmitted among humans, animals, or plants by insects and arthropod vectors have been responsible for significant morbidity and mortality throughout recorded history. Such vector-borne diseases â€" including malaria, dengue, yellow fever, and plague â€" together accounted for more human disease and death in the 17th through early 20th centuries than all other causes combined. Over the past three decades, previously controlled vector-borne diseases have resurged or reemerged in new geographic locations, and several newly identified pathogens and vectors have triggered disease outbreaks in plants and animals, including humans. Domestic and international capabilities to detect, identify, and effectively respond to vector-borne diseases are limited. Few vaccines have been developed against vector-borne pathogens. At the same time, drug resistance has developed in vector-borne pathogens while their vectors are increasingly resistant to insecticide controls. Furthermore, the

ranks of scientists trained to conduct research in key fields including medical entomology, vector ecology, and tropical medicine have dwindled, threatening prospects for addressing vector-borne diseases now and in the future. In June 2007, as these circumstances became alarmingly apparent, the Forum on Microbial Threats hosted a workshop to explore the dynamic relationships among host, pathogen(s), vector(s), and ecosystems that characterize vector-borne diseases. Revisiting this topic in September 2014, the Forum organized a workshop to examine trends and patterns in the incidence and prevalence of vector-borne diseases in an increasingly interconnected and ecologically disturbed world, as well as recent developments to meet these dynamic threats. Participants examined the emergence and global movement of vector-borne diseases, research priorities for understanding their biology and ecology, and global preparedness for and progress toward their prevention, control, and mitigation. This report summarizes the presentations and discussions from the workshop.

Public Health Entomology

Infectious diseases are a global hazard that puts every nation and every person at risk. The recent SARS outbreak is a prime example. Knowing neither geographic nor political borders, often arriving silently and lethally, microbial pathogens constitute a grave threat to the health of humans. Indeed, a majority of countries recently identified the spread of infectious disease as the greatest global problem they confront.

Throughout history, humans have struggled to control both the causes and consequences of infectious diseases and we will continue to do so into the foreseeable future. Following up on a high-profile 1992 report from the Institute of Medicine, Microbial Threats to Health examines the current state of knowledge and policy pertaining to emerging and re-emerging infectious diseases from around the globe. It examines the spectrum of microbial threats, factors in disease emergence, and the ultimate capacity of the United States to meet the challenges posed by microbial threats to human health. From the impact of war or technology on disease emergence to the development of enhanced disease surveillance and vaccine strategies, Microbial Threats to Health contains valuable information for researchers, students, health care providers, policymakers, public health officials. and the interested public.

Infectious Disease Movement in a Borderless World

Vector-borne infectious diseases, such as malaria, dengue fever, yellow fever, and plague, cause a significant fraction of the global infectious disease burden; indeed, nearly half of the world's population is infected with at least one type of vector-borne pathogen (CIESIN, 2007; WHO, 2004a). Vector-borne plant and animal diseases, including several newly recognized pathogens, reduce agricultural productivity and disrupt ecosystems throughout the world. These diseases profoundly restrict socioeconomic status and development in countries

with the highest rates of infection, many of which are located in the tropics and subtropics. Although this workshop summary provides an account of the individual presentations, it also reflects an important aspect of the Forum philosophy. The workshop functions as a dialogue among representatives from different sectors and allows them to present their beliefs about which areas may merit further attention. These proceedings summarize only the statements of participants in the workshop and are not intended to be an exhaustive exploration of the subject matter or a representation of consensus evaluation. Vector-Borne Diseases : Understanding the Environmental, Human Health, and Ecological Connections, Workshop Summary (Forum on Microbial Threats) summarizes this workshop.

Zika Virus Infection

The twentieth century has seen a remarkable evolution in environmental health and environmental protection concerns and concepts in the United States. Human Health and the Environment: A Turn of the Century Perspective is intended to be a commentary, suitable for a wide audience, on the broad aspects of the relationship between human health and the environment at the turn of the century. Although written from the perspective of a technically advanced society, Human Health and the Environment: A Turn of the Century Perspective addresses the different environments, and human health problems arising from these environments, in third-world and emerging societies. The book is

divided into several sections, including a general introduction and discussion of epidemiological approaches, community pollution problems (air, water, solid waste, radiation), specialized environments (residential, occupational and institutional), consumer products and the food supply, and integrated pest management. It closes with a chapter related to predictions for the 21st century. The approach of Human Health and the Environment: A Turn of the Century Perspective is to examine environmental threats to human health from the perspective of sources and pathways, as well as to examine the scope of human health effects and environmental interventions, including engineering and technical, educational and legislative elements.

Vector-Borne Diseases

Biology of Disease Vectors presents a comprehensive and advanced discussion of disease vectors and what the future may hold for their control. This edition examines the control of disease vectors through topics such as general biological requirements of vectors, epidemiology, physiology and molecular biology, genetics, principles of control and insecticide resistance. Methods of maintaining vectors in the laboratory are also described in detail. No other single volume includes both basic information on vectors, as well as chapters on cutting-edge topics, authored by the leading experts in the field. The first edition of Biology of Disease Vectors was a landmark text, and this edition promises to have even more impact as a reference for current thought and techniques in

vector biology. Current - each chapter represents the present state of knowledge in the subject area Authoritative - authors include leading researchers in the field Complete - provides both independent investigator and the student with a single reference volume which adopts an explicitly evolutionary viewpoint throughout all chapters. Useful - conceptual frameworks for all subject areas include crucial information needed for application to difficult problems of controlling vector-borne diseases

Hunter's Tropical Medicine and Emerging Infectious Diseases E-Book

Emerging and Reemerging Viral Pathogens

Of all the parasitic diseases, leishmaniasis is one of the most diverse, with a variety of manifestations, from relatively minor cutaneous lesions to deadly visceral infections. It is also widespread, causing human disease in the Americas, Asia, Europe and Africa. The environments in which this disease occurs range from desert to tropical jungle to urban habitats. Not surprisingly, the literature on this disease is written in a variety of languages including Portuguese, Arabic, English and French among others. This book provides a synopsis in English of much of the recent research on leishmaniasis, with a focus on the epidemiology, diagnosis and treatment of the disease as described by researchers around the world, but with a focus on the research from Brazil

and the Middle East.

Public Health

Increased international trade has led to growing concern about the more rapid transmission of animal diseases, many of which pose a significant threat to livestock in the United States and elsewhere. In this book a diverse group of scientists and practitioners explore the implications of these developments. The authors examine the connections between vector-borne pathogens and international trade. They describe recent advances in the prevention and control of diseases relative to animals as well as zoonotic disease. Special attention is paid to the eradication of the Bont and other ticks, heartwater disease, bluetongue, and vesicular stomatitis. Finally, implications of these animal diseases are explored in relation to the increases in international trade fostered by GATT and NAFTA. Topics include strategies for control of tick-borne diseases; diagnosis of hemoparasite infection of cattle; research on bluetongue disease; application of risk assessment to international trade in animals and animal products; preharvest food safety; the role of dogs in the transmission of toxoplasma; and risk assessment of disease transmission by bovine embryo transfer.

Human Health and the Environment

Mir S. Mulla joined the faculty of the Entomology Department at the University of California, Riverside in 1956, only two years after the Riverside campus

was established as an independent campus within the University of California system. Prior to his appointment, Mir received his B.S. from Cornell University and then moved to the University of California, Berkeley to pursue his graduate studies. His Ph.D. from Berkeley, awarded in 1955, completed his formal American education which was the purpose of his immigration from his native Kandahar in Afghanistan. In his over 50 years at Riverside, Mir has made an incalculable impact on vector biology both within the United States and in developing countries throughout the world. Within Southern California, Mir's basic and applied research led to the rapid and sustainable control of mosquitoes and eye gnats in the Coachella Valley and so directly enabled this region to grow to the thriving, large community it is today. In 2006 his efforts in facilitating the development of the low desert of southern California were recognized through the dedication of the Mir S. Mulla Biological Control Facility by the Coachella Valley Mosquito and Vector Control District. His success has been so profound that it remains somewhat cryptic to the many who now reside in, visit, and enjoy, this region of California, oblivious to the insect problems that severely restrained development until Mir and his students ?rst applied their expertise many decades ago.

Arthropod Borne Diseases

Diseases transmitted by insects continue to have a major impact on human populations. Malaria, dengue, onchocerciasis, sleeping sickness and leishmaniasis

all adversely affect man. Malaria is one of the most important causes of child mortality and reduces economic development in many countries, with agricultural productivity often greatly reduced, as many vectors are active in the wet season favourable for crop production. Vector control is crucial to reduce the extent to which drugs are needed to treat the diseases, as the parasite can become resistant, or the drugs are often too expensive for those living in rural areas and urban slums most affected by these diseases. Chemical control of vectors is often the only method that can reduce vector populations in a disease epidemic, but with vectors developing resistance to insecticides, there is increasing awareness that a single control method is often insufficient and also that chemical control must be integrated where possible with other control measures. In Integrated Vector Management, Graham Matthews covers the main chemical methods of vector control, including the use of indoor residual spraying, space treatments, the use of treated bed nets and larviciding, but also stresses the importance of drainage schemes and improvement of houses to prevent access of indoor vectors, techniques that have largely been responsible for reducing the risk of vector borne diseases in Europe and the USA. This book combines practical information from successful vector control programmes, including early use of DDT, and recent research into a vital resource for all those now involved in combating insect vector borne diseases. Integrated Vector Management is an essential tool, not only for medical entomologists and those directly involved in government health departments, but also for all those who provide the

skills and management needed to operate successful area-wide vector management programmes. Libraries in all universities and research establishments world-wide, where biological sciences, medicine and agriculture are studied and taught should have multiple copies of this important book.

A Toolkit for Integrated Vector Management in Sub-Saharan Africa

Seeds provide an efficient means in disseminating plant virus and viroid diseases. The success of modern agriculture depends on pathogen free seed with high yielding character and in turn disease management. There is a serious scientific concern about the transmission of plant viruses sexually through seed and asexually through plant propagules. The present book provides the latest information along with the total list of seed transmitted virus and viroid diseases at global level including, the yield losses, diagnostic techniques, mechanism of seed transmission, epidemiology and virus disease management aspects. Additional information is also provided on the transmission of plant virus and virus-like diseases through vegetative propagules. It is also well known that seed transmitted viruses are introduced into new countries and continents during large-scale traffic movements through infected germplasm and plant propogules. The latest diagnostic molecular techniques in different virus-host combinations along with disease management measures have been included. The book shall be a good reference source and also a text book to the

research scientists, teachers, students of plant pathology, agriculture, horticulture, life sciences, green house managers, professional entrepreneurs, persons involved in quarantines and seed companies. This book has several important features of seed transmitted virus diseases and is a good informative source and thus deserves a place in almost all university libraries, seed companies and research organizations.

Microbial Threats to Health

This volume, which presents the papers of the general sessions as well as those of two symposia held at the third biennial meting of the Society for Tropical Veterinary Medicine, links the globally important issues of vector-borne pathogens and international trade. Papers show advances in the prevention and control of diseases relative to animals as well as zoonotic disease. Another section of the book deals with eradication of the Bont and other ticks, heartwater disease, bluetongue, and vesicular stomatitis. The implications of these animal diseases are explored in relation to the increase of international trade fostered by the GATT and NAFTA.

Bats (Chiroptera) as Vectors of Diseases and Parasites

The main aim of modern public health is to improve the quality of life and promote health for all. Public health deals with a wide range of individuals and collaborates with various organizations, departments,

and agencies to improve health, forestall disease and promote well-being. The field of public health is constantly evolving in response to the needs of communities and populations that are facing demographic, epidemiological and technological challenges. To overcome these challenges, health professionals need to conduct research to generate evidence-based policies to improve the health of the community. Throughout the course of this book, a number of emerging and re-emerging public health issues from different countries are discussed and attempts are made to illustrate a balanced and evidence-based approach towards tackling major public health problems.

Mosquito-borne Diseases

Modern transportation allows people, animals, and plants--and the pathogens they carry--to travel more easily than ever before. The ease and speed of travel, tourism, and international trade connect once-remote areas with one another, eliminating many of the geographic and cultural barriers that once limited the spread of disease. Because of our global interconnectedness through transportation, tourism and trade, infectious diseases emerge more frequently; spread greater distances; pass more easily between humans and animals; and evolve into new and more virulent strains. The IOM's Forum on Microbial Threats hosted the workshop "Globalization, Movement of Pathogens (and Their Hosts) and the Revised International Health Regulations" December 16-17, 2008 in order to explore issues related to

infectious disease spread in a "borderless" world. Participants discussed the global emergence, establishment, and surveillance of infectious diseases; the complex relationship between travel, trade, tourism, and the spread of infectious diseases; national and international policies for mitigating disease movement locally and globally; and obstacles and opportunities for detecting and containing these potentially wide-reaching and devastating diseases. This document summarizes the workshop.