



N. 71 - 2010

## Centro de Documentación / Documentation Center

### Objetivos/ Objectives

Identificar y atender las necesidades de información, adquisición, organización, almacenamiento, generación, uso y difusión de la información en salud pública veterinaria y proveer recursos bibliográficos técnicos-científicos al equipo de profesionales de la unidad y a los usuarios externos.

Identify and take care of the needs of information, acquisition, organization, storage, generation, use and diffusion of the information in veterinary public health and provide technical scientific bibliographical resources to the professional staff of the unit and to the users external.

### Temas de interés general / Subjects of general interest

#### Situación de salud en las Américas: indicadores básicos 2009



En la actualidad, las enfermedades crónicas no transmisibles alcanzan proporciones epidémicas en las Américas y contribuyen substancialmente a la mortalidad general y la carga de enfermedad en la Región. Ellas son el resultado de complejos y dinámicos procesos de salud socialmente determinados, incluyendo las transiciones demográfica y epidemiológica. Alguna vez caracterizadas como un asunto propio de poblaciones de edad avanzada en países de alto ingreso, las enfermedades crónicas no transmisibles, hoy en día, afectan a las poblaciones más jóvenes, pobres y de países de bajo ingreso en América Latina y el Caribe.

Los medios para prevenir y controlar muchas de las enfermedades no transmisibles están bien establecidos y los países de alto ingreso—seguidos por los de ingreso medio—están mostrando importantes avances en cuanto a su prevención y control. Los países de bajo y más bajo ingreso se enfrentan al doble desafío de acomodar mejor sus escasos recursos tanto para el control de las enfermedades transmisibles y no transmisibles, como para reducir la mortalidad infantil y materna.

Entre las enfermedades crónicas no transmisibles, las enfermedades cardiovasculares son una causa principal de morbilidad y mortalidad en las Américas, afectando de manera creciente a poblaciones en edad laboral y, por tanto, contribuyendo desproporcionadamente a la pérdida de años potenciales de vida saludable y de productividad económica. Esta situación es reconocida como un problema de salud pública mayúsculo y creciente; sin embargo, es menos reconocida la contribución de las desigualdades sociales como determinante de la mortalidad prematura debida a enfermedades cardiovasculares en la Región.

A fin de capturar la atención del público y los gobiernos, esta publicación incluye un análisis

exploratorio de la relación entre la mortalidad prematura debida a enfermedad cerebrovascular (ECeV) y algunos determinantes potenciales de la desigualdad socio-económica, al nivel ecológico.

El mapa temático presentado en la portada de este folleto ilustra la distribución por quintiles de la mortalidad prematura proporcional debida a enfermedad cerebro-vascular en los países y territorios de las Américas.

El material presentado en este folleto ha sido compilado, preparado y revisado por el equipo regional de la OPS y funcionarios en los ministerios de salud.

#### **Text in Spanish**

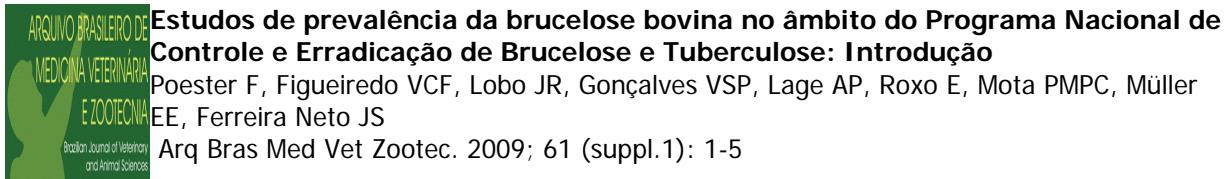
[http://new.paho.org/hq/index.php?option=com\\_content&task=view&id=1878&Itemid=1723&lang=es](http://new.paho.org/hq/index.php?option=com_content&task=view&id=1878&Itemid=1723&lang=es)

#### **Text in English**

[http://new.paho.org/hq/index.php?option=com\\_content&task=view&id=1878&Itemid=1724&lang=en](http://new.paho.org/hq/index.php?option=com_content&task=view&id=1878&Itemid=1724&lang=en)

### **Informaciones disponibles en formato electrónico / Information available in electronic format**

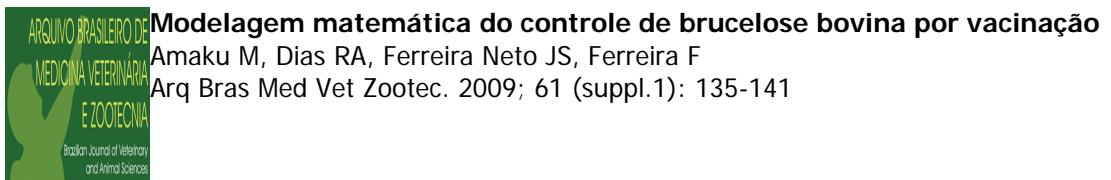
#### **Brucelosis Bovina/Bovine Brucellosis**



As estratégias de combate à brucelose bovina são bastante conhecidas e, até o momento, os resultados são divergentes. No Brasil, o Ministério da Agricultura, Pecuária e Abastecimento (MAPA) implementou, em 2001, o Programa Nacional de Controle e Erradicação da Brucelose e Tuberculose. Conhecer a situação epidemiológica da brucelose no início de um programa de controle permite: 1 - escolher as melhores estratégias de controle em função da frequência e padrão de distribuição da doença na população e 2 - acompanhar o programa com a finalidade de promover correções e evitar o desperdício de tempo e de recursos. Em razão disso, é necessário realizar estudos para dar suporte à escolha das melhores estratégias para os vários estados e regiões brasileiras e criar um mecanismo racional de verificação da efetividade das ações implementadas. Para tanto, o MAPA estabeleceu um Termo de Cooperação Técnica com a Faculdade de Medicina Veterinária da Universidade de São Paulo e envolveu também a Faculdade de Agronomia e Veterinária da Universidade de Brasília. Até o momento, foram concluídos os estudos de 15 unidades federativas, cujos resultados são apresentados nos artigos subsequentes. Além disso, há um 16º artigo que explora o impacto da vacinação de bezerras com a B19 na redução da prevalência da brucelose.

#### **Text in Portuguese**

<http://www.scielo.br/pdf/abmvz/v61s1/a01v61s1.pdf>



As fêmeas bovinas, por sua importância na transmissão e na manutenção da brucelose, constituíram o alvo dos inquéritos do Programa Nacional de Controle e Erradicação da Brucelose e da Tuberculose Animal. Com base em informações obtidas em unidades federativas onde foram realizados inquéritos sorológicos e observadas prevalências de animais acima de 2%, elaborou-se um modelo para simular a dinâmica da brucelose em rebanhos bovinos formados exclusivamente por fêmeas, analisando o efeito de estratégias de vacinação. Para baixa cobertura vacinal, da ordem de 30%, o tempo para reduzir a

prevalência a 2%, valor adotado como referência, pode ser longo, aproximando-se do dobro do tempo necessário para uma cobertura mais alta, de 90%. De acordo com o modelo, o tempo para reduzir a prevalência a 1% ou 2%, que permitam passar à fase de erradicação, pode chegar a uma década. Recomenda-se a intensificação do esforço para a vacinação de fêmeas, procurando atingir alta cobertura vacinal.

#### Text in Portuguese

<http://www.scielo.br/pdf/abmvz/v61s1/a17v61s1.pdf>

#### Estomatitis Vesicular / Vesicular Stomatitis



#### Development of a blocking ELISA using a recombinant glycoprotein for the detection of antibodies to vesicular stomatitis New Jersey virus

Heo EJ, Lee HS, Jeoung HY, Ko HR, Kweon CH, Ko YJ

J Virol Methods 2009 Dec

A recombinant glycoprotein (R-GP) of vesicular stomatitis New Jersey virus (VSV-NJ) was expressed in insect cells by a baculovirus system. Its utility as a diagnostic antigen in a blocking ELISA was investigated as an alternative to the current native GP extracted from VSV-NJ. With the cut-off value of 73% inhibition, the R-GP ELISA exhibited 99.1% specificity for naive sera from cattle and horses. It did not cross-react with VSV-Indiana (VSV-IN) positive sera and differentiated from foot-and-mouth disease and swine vesicular disease. Taken together, this is the first report that the R-GP has a potential to be used as a diagnostic antigen in place of the native GP for the detection of antibodies to VSV-NJ in cattle and horses.

#### Text in English (article in press)

#### Fiebre Aftosa / Foot-and-Mouth Disease



#### Differences in the virulence of two strains of Foot-and-Mouth Disease Virus Serotype A with the same spatiotemporal distribution

García-Nuñez S, König G, Berinstein A, Carrillo E

Virus Res. 2010 Jan; 147 (1): 149-52

During the 2000-2001 epidemic of Foot-and-Mouth Disease Virus (FMDV) in Argentina, two FMDV serotype A viruses were identified among others. Since different pathogenic properties between these virus strains were noticed in cattle, we evaluated several biological properties and features of FMDV A/Arg/00 and FMDV A/Arg/01 in order to compare these viruses in terms of virulence and pathogenicity. Our results indicate that FMDV A/Arg/00 grows less efficiently than FMDV A/Arg/01, exemplified by smaller sized plaques, retarded one-step growth curves and overall low viral yields. Also, FMDV A/Arg/00 displayed the lowest specific infectivity in suckling mice requiring 50-fold more infectious particles than FMDV A/Arg/01 to generate a LD<sub>50</sub> in suckling mice. Finally, FMDV A/Arg/00 did not cause death in adult C57Bl/6 mice even at high doses (10<sup>7</sup>-10<sup>6</sup>PFU) whereas FMDV A/Arg/01 resulted lethal in doses as low as 10<sup>2</sup>PFU. Overall, we were able to demonstrate that these virus strains differ from each other in terms of virulence and pathogenicity.

#### Text in English



#### Foot-and-mouth disease viral loads in pigs in the early, acute stage of disease

Murphy C, Bashiruddin JB, Quan M, Zhang Z, Alexandersen S

Vet Rec. 2010 Jan; 166 (1): 10-4

The progress and pathogenesis of foot-and-mouth disease virus (FMDV) was studied in infected pigs by

observing the development of clinical signs in two separate experiments. Viral loads were determined by real-time quantitative RT-PCR in the liver, spleen, cervical lymph node, mandibular lymph node, retropharyngeal lymph node, soft palate, pharynx, tonsil, tongue and skin (coronary band area). Tissue samples were collected from both inoculated and contact-infected pigs at several time points during infection, and blood samples were collected to assess viraemia and its relationship to tissue viral load. Virus first appeared in the lymph nodes, followed by viraemia and then clinical signs. The results suggested that FMDV accumulated in lymphoid tissue up to six hours after infection, in the tissues drained by the mandibular lymph node and tonsil and then disseminated throughout the body where epithelial cells were the favoured sites of replication.

#### Text in English



#### Strategies for differentiating infection in vaccinated animals (DIVA) for foot-and-mouth disease, classical swine fever and avian influenza

Uttenthal A, Parida S, Rasmussen TB, Paton DJ, Haas B, Dundon WG  
Expert Rev Vaccines 2010 Jan; 9 (1): 73-87

The prophylactic use of vaccines against exotic viral infections in production animals is undertaken exclusively in regions where the disease concerned is endemic. In such areas, the infection pressure is very high and so, to assure optimal protection, the most efficient vaccines are used. However, in areas considered to be free from these diseases and in which there is the possibility of only limited outbreaks, the use of Differentiation of Infected from Vaccinated Animals (DIVA) or marker vaccines allows for vaccination while still retaining the possibility of serological surveillance for the presence of infection. This literature review describes the current knowledge on the use of DIVA diagnostic strategies for three important transboundary animal diseases: foot-and-mouth disease in cloven-hoofed animals, classical swine fever in pigs and avian influenza in poultry.

#### Text in English

#### Ganadería / Livestock



#### La larga sombra del ganado: problemas ambientales y opciones

FAO, 2009

El análisis en profundidad sobre los diferentes y considerables impactos del sector pecuario mundial en el medio ambiente que se presenta en este documento ha sido titulado deliberadamente *La larga sombra del ganado* buscando la manera de llamar la atención de los técnicos y del público en general sobre la gran responsabilidad que la producción animal tiene en el cambio climático, en la contaminación atmosférica, en la degradación de la tierra, del suelo y del agua, y en la reducción de la biodiversidad. El propósito no ha sido sencillamente culpar al rápido crecimiento y a la intensificación del sector pecuario a escala global por los daños producidos al medio ambiente, sino más bien el de alentar la toma de medidas decisivas en las esferas técnicas y políticas orientadas a la mitigación de estos daños. Por consiguiente, la evaluación detallada de los diversos impactos medioambientales del sector se relaciona con el perfil de la acción técnica y política adoptada para mitigar dichos impactos.

La evaluación se basa en el trabajo de la Iniciativa para Ganadería, Medio Ambiente y Desarrollo (LEAD, por su sigla en inglés). Esta iniciativa, coordinada por la División de Producción y Sanidad Animal e integrada por numerosas partes interesadas, fue constituida con el fin de dar respuesta a las consecuencias ambientales derivadas de la producción pecuaria, especialmente a la luz del aumento de la demanda de productos alimenticios de origen animal y de la creciente presión sobre los recursos naturales. La Iniciativa LEAD reúne un amplio rango de centros de investigación y desarrollo, así como

también a personas interesadas en las interacciones entre la producción pecuaria y el medio ambiente.

#### **Text in Spanish**

<ftp://ftp.fao.org/docrep/fao/011/a0701s/a0701s00.pdf>

#### **Influenza – Modelos Animales / Influenza – Animal Models**



##### **Animal models for the preclinical evaluation of candidate influenza vaccines**

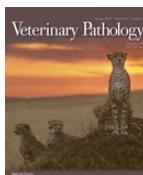
Bodewes R, Rimmelzwaan GF, Osterhaus AD

Expert Rev Vaccines 2010 Jan; 9 (1): 59-72

At present, new influenza A (H1N1) 2009 viruses of swine origin are responsible for the first influenza pandemic of the 21st Century. In addition, highly pathogenic avian influenza A/H5N1 viruses continue to cause outbreaks in poultry and, after zoonotic transmission, cause an ever-increasing number of human cases, of which 59% have a fatal clinical outcome. It is also feared that these viruses adapt to replication in humans and become transmissible from human to human. The development of effective vaccines against epidemic and (potentially) pandemic viruses is therefore considered a priority. In this review, we discuss animal models that are used for the preclinical evaluation of novel candidate influenza vaccines. In most cases, a tier of multiple animal models is used before the evaluation of vaccine candidates in clinical trials is considered. Commonly, vaccines are tested for safety and efficacy in mice, ferrets and/or macaques. The use of each of these species has its advantages and limitations, which are addressed here.

#### **Text in English**

#### **Influenza Aviar / Avian Influenza**



##### **Emerging and reemerging influenza virus infections**

Shinya K, Makino A, Kawaoka Y

Vet Pathol. 2010 Jan; 47 (1): 53-7

Influenza A virus infection occurs in many species. Wild waterfowl harbor the widest variety of influenza A viruses and serve as a constant reservoir for the emergence of new viruses. Highly pathogenic avian influenza, or "fowl plague," has been a known poultry disease for more than 130 years. It continues to emerge and reemerge, but global changes in trade and poultry production have expanded the impact and geographic range of these outbreaks. One subtype of highly pathogenic avian influenza, H5N1, has infected poultry on several continents as well as many people, leading to a human disease that is markedly different from seasonal influenza and that is associated with high mortality.

#### **Text in English**

<http://vet.sagepub.com/content/47/1/53.full.pdf+html>

#### **Inocuidad de los Alimentos / Food Safety**



##### **Agentes bacterianos asociados a brotes de Enfermedades Trasmitidas por Alimentos (ETA) en Camagüey Cuba, durante el período 2000-2008**

Barreto Argilagos G, Sedrés Cabrera M, Rodríguez Torrens H, Guevara Viera G

REDVET 2010 Feb; 11 (2)

Para establecer la incidencia de los agentes bacterianos en los brotes de ETA en la ciudad de Camagüey,

se procesó la información recogida en la Sección de Microbiología Sanitaria del Centro Provincial de Higiene, Epidemiología y Microbiología correspondiente al período 2000-2008. De los 187 brotes estudiados a partir de alimentos, en 173 (92,51%) se aislaron bacterias capaces de provocar ETA. *Staphylococcus aureus* (56 %) prevaleció con respecto a *Salmonella* (27%), de la que difiere estadísticamente, y ambos de *Bacillus cereus*, *Aeromonas*, *Vibrio* no O1 y *Escherichia coli*, que, aunque en menores proporciones constituyen un riesgo. *S aureus* y *Salmonella* prevalecieron en productos de repostería, embutidos, ahumados y otros a base de leche, carne, huevos y pescados.

#### Text in Spanish

<http://www.veterinaria.org/revistas/redvet/n020210/021002.pdf>



#### Guidelines for conducting a simulated food recall

Stevens EM

Food Safety Magazine, Dec 2009/Jan 2010

In the area of crisis communications, the most important component is a **crisis communication plan**. In the food and beverage industry, it is singularly the best defense for your company and makes the difference between a poorly and a properly handled crisis. It is always better to be proactive than reactive. The purpose of a food recall simulation is to determine whether your crisis plan works.

#### Text in English

<http://www.foodsafetymagazine.com/article.asp?id=3482&sub=sub1>



#### Happy 50th birthday to HACCP: retrospective and prospective

Sperber WH, Stier RF

Food Safety Magazine, Dec 2009/Jan 2010

As HACCP is still the best available system for managing food safety, the Food Safety Magazine felt it was our duty and obligation to honor its creation and development in this feature.

#### Text in English

<http://www.foodsafetymagazine.com/article.asp?id=3481&sub=sub1>

#### Leptospirosis



#### Monitoring Leptospira strain collections: the need for quality control

Cerdeira GM, McBride AJ, Queiroz A, Pinto LS, Silva EF, Hartskeerl RA, Reis MG, Ko AI, Dellagostin OA

Am J Trop Med Hyg. 2010 Jan; 82 (1): 83-7

The purpose of this study was to perform a 16S sequence-based quality control of two Leptospira strain collections. 16S rRNA gene sequencing was used to verify two Leptospira reference collections provided by the World Health Organization and maintained at a reference laboratory for leptospirosis in Brazil. Among the 89 serovars evaluated, four conflicting strains were identified in one of the collections. Although 16S rRNA gene sequencing cannot identify Leptospira beyond the species level, it is suitable for the identification of contamination and quality control of leptospiral reference collections. This study highlights the importance of the availability of high-quality 16S rRNA sequences in public databases. In addition, it emphasizes the need for periodical verifications and quality control of Leptospira reference collections.

#### Text in English

## Rabia / Rabies



### An outbreak of bat-transmitted human rabies in a village in the Brazilian Amazon

Mendes Wda S, Silva AA, Neiva RF, Costa NM, Assis MS, Vidigal PM, Branco Mdos R, Leite Mda G, Rios JM, Martins JO, Waquin Neto SJ  
Rev Saude Publica 2009 Dec; 43 (6): 1075-7

During 45 days without electrical power, 57 individuals (8.7% of the population) from the village of Antônio Dino (municipality of Turiaçu, Northeastern Brazil) were attacked by bats and 16 died from human rabies. The aim of the study was to analyze the factors associated with bat attacks and the development of human rabies. Of the 46 individuals, who suffered bat attacks, 36 (78.3%) were under 17 years of age. The risk factors associated with bat attacks were age under 17 years, having observed bats inside the bedroom and having been without electrical power in the house. Age under 17 years and having been without electrical power in the house were factors associated with human rabies.

#### Text in English

<http://www.scielosp.org/pdf/rsp/v43n6/21.pdf>



### Low genetic diversities of rabies virus populations within different hosts in Brazil

Kobayashi Y, Suzuki Y, Itou T, Carvalho AA, Cunha EM, Ito FH, Gojobori T, Sakai T  
Infect Genet Evol. 2009 Dec

The low rates of nonsynonymous evolution observed in natural rabies virus (RABV) isolates are suggested to have arisen in association with the structural and functional constraints operating on the virus protein and the infection strategies employed by RABV within infected hosts to avoid strong selection by the immune response. In order to investigate the relationship between the genetic characteristics of RABV populations within hosts and the virus evolution, the present study examined the genetic heterogeneities of RABV populations within naturally infected dogs and foxes in Brazil, as well as those of bat RABV populations that were passaged once in suckling mice. Sequence analyses of complete RABV glycoprotein (G) genes showed that RABV populations within infected hosts were genetically highly homogeneous whether they were infected naturally or experimentally (nucleotide diversities of 0-0.95x10(-3)). In addition, amino acid mutations were randomly distributed over the entire region of the G protein, and the nonsynonymous/synonymous rate ratios (d(N)/d(S)) for the G protein gene were less than 1. These findings suggest that the low genetic diversities of RABV populations within hosts reflect the stabilizing selection operating on the virus, the infection strategies of the virus, and eventually, the evolutionary patterns of the virus.

#### Text in English (article in press)

## Salud Pública Veterinaria / Veterinary Public Health



### Essential veterinary education in food safety, food hygiene and biosecurity: a global perspective

Wall PG

Rev sci tech Off int Epiz. 2009; 28 (2): 493-501

A big challenge for veterinary educators is to stimulate interest in public health medicine and make the curriculum interesting, and relevant, to veterinary students. Veterinary public health encompasses many areas, including zoonosis control, food safety, animal health and biosecurity, animals as sentinels of environmental hazards and the contribution of animal waste to pollution of food and water, so there is

no shortage of ammunition for the veterinary educator in the competition for students' attention. Veterinary educators, not the students, will have failed if graduates complete their studies without being convinced of the importance and relevance of veterinary public health.

#### **Text in English**

<http://www.oie.int/boutique/extrait/06wall493502.pdf>



#### **One World – One Medicine – One Health: emerging veterinary challenges and opportunities**

Osburn B, Scott C, Gibbs P

Rev sci tech Off int Epiz. 2009; 28 (2): 481-486

The interdependence of humans, animals, and their environment has never been more important than now. The most prominent issues putting pressure on global health today include the dramatic emergence and spread of zoonotic diseases, contamination of food, water and soil, bioterrorist events, and degradation of resources and habitats. Current global health challenges have prompted a call for more holistic, collaborative, action-oriented approaches toward the goal of logical and practical solutions. Veterinarians have pivotal obligations, opportunities, and contributions to make in enhancing public health, recognising and responding to zoonotic disease transmission, maintaining food and water quality, and promoting wildlife and ecosystem health.

#### **Text in English**

<http://www.oie.int/boutique/extrait/04osburn481486.pdf>



#### **Veterinary medicine, food security and the global environment**

Kelly AM, Marshak RR

Rev sci tech Off int Epiz. 2009; 28 (2): 511-517

The authors focus on the role of veterinary medicine in feeding the nine billion people projected to inhabit the planet by 2050, despite the problems of global warming, political constraints and environmental destruction. Population growth, predominantly urban, will occur mainly in developing countries, at a magnitude comparable to creating a city the size of Los Angeles, the second largest city in the United States of America, every three weeks for the next 40 years. Accompanying this growth will be a greatly increased demand for animal protein. How this burgeoning demand can be met by intensive and extensive systems of animal production is discussed, with particular reference to the immensely important role that the veterinary profession and schools must play.

#### **Text in English**

<http://www.oie.int/boutique/extrait/08kelly511518.pdf>

#### **Eventos / Events**

##### **Workshop for OIE National Focal Points for Animal Production Food Safety**

**9-11 March, 2010**

Buenos Aires (Argentina)

[http://www.oie.int/eng/secu\\_sanitaire/en\\_introduction.htm](http://www.oie.int/eng/secu_sanitaire/en_introduction.htm)

##### **14<sup>th</sup> International Congress on Infectious Diseases (ICID)**

**9-12 March, 2010**

Miami, FL (USA)

<http://www.isid.org/>

**Fifth Session on fthe Commission on Phytosanitary Measures**

22-26 **March**, 2010

Roma (Italy)

[https://www.ippc.int/index.php?id=13330&tx\\_events\\_pi1\[showUid\]=210817&frompage=13330&type=events&L=0#item](https://www.ippc.int/index.php?id=13330&tx_events_pi1[showUid]=210817&frompage=13330&type=events&L=0#item)

**11er Congreso Panamericano de la Leche**

22-25 **Marzo**, 2010

Belo Horizonte (Brazil)

<http://www.congressofepale.com/home>

**Foot and Mouth Disease (FMD) International Symposium and Workshop**

12 – 14 **April** 2010

Melbourne (Australia)

<http://www.fmd2010.com.au/>

**2nd International Symposium Animal Genomics for Animal Health**

31 **May** - 2 June, 2010

Maison de la Chimie, Paris (France)

<https://colloque.inra.fr/agah2010>

**10ª Conferência Sul-americana de Medicina Veterinária – RIOVET**

20-22 **Maio**, 2010

Rio de Janeiro, RJ (Brasil)

<http://www.riovet.com.br/10conf.html>

**9º Simpósio Internacional ABRAPA de Inocuidade de Alimentos**

14-15 **Junho**, 2010

São Paulo, SP (Brasil)

[http://www.abrappa.org.br/simposio\\_9.html](http://www.abrappa.org.br/simposio_9.html)

**International Conference on Emerging Infectious Diseases**

11-14 **July**, 2010

Atlanta, USA

<http://www.iceid.org/>

**37º CONBRAVET – Conbgresso Brasileiro de Medicina Veterinária**

26-30 **Julho**, 2010

Rio de Janeiro, RJ (Brasil)

**4th China International Food Safety & Quality Conference**

1-2 **September**, 2010

Shanghai (People's Republic of China)

<http://www.chinafoodsafety.com/>

**18th World Meat Congress**

27-30 **September**, 2010

Buenos Aires (Argentina)

[http://www.congresomundialdelacarne2010.com/home\\_eng.php](http://www.congresomundialdelacarne2010.com/home_eng.php)

**The Prato Conference on the Pathogenesis of Bacterial Diseases of Animals**

6-9 **October**, 2010

Prato (Italy)

<http://www.vetpath2010.org/>

**26th World Buiatrics Congress**

14-18 November, 2010

Santiago (Chile)

<http://www2.kenes.com/buiatrics2010/Pages/Home.aspx>



**Organización  
Panamericana  
de la Salud**

Oficina Regional de la  
Organización Mundial de la Salud

Salud Pública Veterinaria  
Centro Panamericano de Fiebre Aftosa

**Centro de Documentación / Documentation Center (CEDOC)**

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Health  
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Regional Office of the  
World Health Organization

Veterinary Public Health  
Pan American Foot and Mouth Disease Center