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

En la primera semana de Junio fue lanzado el Boletín Informativo de la Biblioteca Virtual (BVS) en Inocuidad de los Alimentos, que surge como una fuente de información estratégica para atender a las necesidades técnico científicas de los profesionales del área.

In the first week of June it was launched the Virtual Library (VHL) Food Safety Bulletin, that emerges as a strategic source of information to attend the technical and scientific needs of the professionals in the area.

http://bvs.panalimentos.org/local/File/Bol1bvs_inocuidad.pdf

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Fiebre aftosa / Foot and Mouth Disease

Quantifying the risk of localised animal movement bans for foot-and-mouth disease
Schley D, Gubbins S, Paton DJ

The maintenance of disease-free status from Foot-and-Mouth Disease is of significant socio-economic importance to countries such as the UK. The imposition of bans on the movement of susceptible livestock following the discovery of an outbreak is deemed necessary to prevent the spread of what is a highly contagious disease, but has a significant economic impact on the agricultural community in itself. Here we consider the risk of applying movement restrictions only in localised zones around outbreaks in order to help evaluate how quickly nation-wide restrictions could be lifted after notification. We show, with reference to the 2001 and 2007 UK outbreaks, that it would be practical to implement such a policy provided the basic reproduction ratio of known infected premises can be estimated. It is ultimately up to policy makers and stakeholders to determine the acceptable level of risk, involving a cost benefit analysis of the potential outcomes, but quantifying the risk of spread from different sized zones is a prerequisite for this. The approach outlined is relevant to the determination of control zones and vaccination policies and has the potential to be applied to future outbreaks of other diseases.

Text in English

Thermostable foot-and-mouth disease virus as a vaccine candidate for endemic countries: a perspective
Hegde NR, Maddur MS, Rao PP, Kaveri SV, Bayry J
Vaccine 2009 Apr; 27 (16): 2199-201

Foot-and-mouth disease (FMD) is the most contagious and economically burdensome disease of animals. The disease affects all cloven-footed animals, and is endemic in Africa, Asia and South America, with frequent incursions into Europe. The development of potent new generation vaccines for FMD has been the subject of intense research during the last few decades. A recent report by Mateo et al [12] on engineering FMDV to achieve increased thermostability is of great interest for vaccination programmes.

Text in English

Influenza Aviar / Avian Influenza

Diagnosis and strain differentiation of avian influenza viruses by restriction fragment mass analysis
Michael K, Harder TC, Mettenleiter TC, Karger A

Outbreaks of highly pathogenic avian influenza (HPAI) among poultry as well as wild birds are of continuing major public concern, not only because of high economical losses but also due to lethal infections in humans. Control of the infection relies on rapid detection and identification of the causative virus strain which is carried out currently primarily by real-time RT-PCR and DNA sequencing. In a pandemic, however, the analysis of very large numbers of samples may become necessary within a short period. A method is described for the characterisation of avian influenza virus (AlV) subtypes by restriction fragment mass fingerprint (RFMF) analysis. Amplified genomic fragments encoding the
pathogenicity-determining region of the hemagglutinin gene were digested with a cocktail of restriction enzymes, and the restriction fragments were assayed by mass spectrometry. Characteristic spectra with sequence coverage ranging from 75 to 100% were obtained for a panel of 27 isolates representing 18 relevant serotypes. Three marker masses were identified that are highly specific for strains of the H5N1 virus. Within the H5N1 serotype, discrimination of individual strains was possible by detailed evaluation of the spectra. The procedure described is rapid, inexpensive and compatible with automation.

Text in English

Industrial food animal production and global health risks: exploring the ecosystems and economics of avian influenza
Ecohealth 2009 May

Many emerging infectious diseases in human populations are associated with zoonotic origins. Attention has often focused on wild animal reservoirs, but most zoonotic pathogens of recent concern to human health either originate in, or are transferred to, human populations from domesticated animals raised for human consumption. Thus, the ecological context of emerging infectious disease comprises two overlapping ecosystems: the natural habitats and populations of wild animals, and the anthropogenically controlled habitats and populations of domesticated species. Intensive food animal production systems and their associated value chains dominate in developed countries and are increasingly important in developing countries. These systems are characterized by large numbers of animals being raised in confinement with high throughput and rapid turnover. Although not typically recognized as such, industrial food animal production generates unique ecosystems-environments that may facilitate the evolution of zoonotic pathogens and their transmission to human populations. It is often assumed that confined food animal production reduces risks of emerging zoonotic diseases. This article provides evidence suggesting that these industrial systems may increase animal and public health risks unless there is recognition of the specific biosecurity and biocontainment challenges of the industrial model. Moreover, the economic drivers and constraints faced by the industry and its participants must be fully understood in order to inform preventative policy. In order to more effectively reduce zoonotic disease risk from industrial food animal production, private incentives for the implementation of biosecurity must align with public health interests.

Text in English (article in press)

Infection and replication of avian influenza H5N1 virus in an infected human
Virus Genes 2009 May

The highly pathogenic avian influenza H5N1 viruses usually cause severe diseases and high mortality in infected humans. However, the tissue tropism and underlying pathogenesis of H5N1 virus infection in humans have not been clearly elucidated yet. In this study, an autopsy was conducted to better understand H5N1 virus distributions in tissues of infected humans, and whether H5N1 virus can replicate in extrapulmonary tissues. We found that the lungs had the higher viral load than the spleen, whereas no detectable viruses in tissues of heart, liver, kidney, large intestine, small intestine, or brain. Specifically, the viral load was higher in the left lung (7.1 log10 copies per ml) in relation to the right lung (5.7 log10 copies per ml), resulting in more severe pathological damage in the left lung, and lung tissues contained both positive- and negative-stranded viral RNA. However, there existed a low level of H5N1 viruses in the spleen (3.8 log10 copies per ml), with the absence of positive-stranded viral RNA. Our results indicate that replication of H5N1 viruses mainly occurs in the lungs, and the degree of lung damage is highly correlated with the viral load in the lungs. The low-load viruses in the spleen might be introduced through blood circulation or other ways.

Text in English (article in press)
A novel influenza A (H1N1) virus has spread rapidly across the globe. Judging its pandemic potential is difficult with limited data, but nevertheless essential to inform appropriate health responses. By analyzing the outbreak in Mexico, early data on international spread, and viral genetic diversity, we make an early assessment of transmissibility and severity. Our estimates suggest that 23,000 (range 6,000-32,000) individuals had been infected in Mexico by late April, giving an estimated case fatality ratio (CFR) of 0.4% (range 0.3% to 1.5%) based on confirmed and suspect deaths reported to that time. In a community outbreak in the small community of La Gloria, Veracruz no deaths were attributed to infection, giving an upper 95% bound on CFR of 0.6%. Thus while substantial uncertainty remains, clinical severity appears less than that seen in 1918 but comparable with that seen in 1957. Clinical attack rates in children in La Gloria were twice that in adults (<15 years-of-age: 61%, &ge;15: 29%).

Three different epidemiological analyses gave R0 estimates in the range 1.4-1.6, while a genetic analysis gave a central estimate of 1.2. This range of values is, consistent with 14 to 73 generations of human-to-human transmission having occurred in Mexico to late April. Transmissibility is therefore substantially higher than seasonal flu, and comparable with lower estimates of R0 obtained from previous influenza pandemics.

Text in English (article in press)
http://www.sciencemag.org/cgi/rapidpdf/1176062v2.pdf
Supporting online material for article
http://www.sciencemag.org/cgi/data/1176062/DC1/1

Unexpectedly, swine-origin influenza A (H1N1) virus (S-OIV, informally known as swine flu) appeared in North America at the very end of the 2008-2009 influenza season and began to spread internationally. As the world mobilizes for a potential pandemic, this article summarizes the developments in diagnosis, treatment, and prevention.

Text in English
http://www.ccjm.org/content/76/6/337.full.pdf+html

Towards a sane and rational approach to management of Influenza H1N1 2009
Gallaher WR
Virol J. 2009 May; 6 (1): 51

ABSTRACT: Beginning in March 2009, an outbreak of influenza in North America was found to be caused by a new strain of influenza virus, designated Influenza H1N1 2009, which is a reassortant of swine, avian and human influenza viruses. Over a thousand total cases were identified with the first month, chiefly in the United States and Mexico, but also involving several European countries. Actions concerning Influenza H1N1 2009 need to be based on fact and science, following recommendations of
public health officials, and not fueled by political, legal or other interests. Every influenza outbreak or pandemic is unique, so the facts of each one must be studied before an appropriate response can be developed. While reports are preliminary, through the first 4 weeks of the outbreak it does not appear to be severe either in terms of the attack rate in communities or in the virulence of the virus itself. However, there are significant changes in both the hemagglutinin and neuraminidase proteins of the new virus, 27.2% and 18.2% of the amino acid sequence, from prior H1N1 isolates in 2008 and the current vaccine. Such a degree of change qualifies as an “antigenic shift”, even while the virus remains in the H1N1 family of influenza viruses, and may give influenza H1N1 2009 significant pandemic potential. Perhaps balancing this shift, the novel virus retains more of the core influenza proteins from animal strains than successful human influenza viruses, and may be inhibited from its maximum potential until further reassortment or mutation better adapts it to multiplication in humans. While contact and respiratory precautions such as frequent handwashing will slow the virus through the human population, it is likely that development of a new influenza vaccine tailored to this novel Influenza H1N1 2009 strain will be essential to blunt its ultimate pandemic impact.

Text in English
http://www.virologyj.com/content/pdf/1743-422x-6-51.pdf

Inocuidad de los Alimentos / Food Safety

Designing effective messages for microbial food safety hazards
Jacob C, Mathiasen L, Powell D
Food Control 2009 May

Despite numerous food safety information campaigns and educational efforts, microbial foodborne illness remains a significant source of human disease. New food safety messages transmitted using new media are required to enhance food safety from farm-to-fork. A review of the literature reveals that targeting a segment of the population and understanding knowledge, attitudes, and perceptions of the individuals comprising that segment can lead to successful communication of food safety messages. Messages found to be effective are relevant to the target audience, contain reliable information, are rapidly distributed at appropriate times, and are repeated. Those containing information that is easily received and understood have also been found effective. The use of media commonly accessed by today’s consumers is also valuable. Evaluation of the effect of all aspects of food safety messages and media, as measured through observation of recipients’ actions, is required to validate the effectiveness of food safety communications.

Text in English (article in press)

A National Residue Control Plan from the analytical perspective--the Brazilian case
Mauricio Ade Q, Lins ES, Alvarenga MB
Anal Chim Acta. 2009 Apr; 637 (1-2): 333-6

Food safety is a strategic topic entailing not only national public health aspects but also competitiveness in international trade. An important component of any food safety program is the control and monitoring of residues posed by certain substances involved in food production. In turn, a National Residue Control Plan (NRCP) relies on an appropriate laboratory network, not only to generate analytical results, but also more broadly to verify and co-validate the controls built along the food production chain. Therefore laboratories operating under a NRCP should work in close cooperation with inspection bodies, fostering the critical alignment of the whole system with the principles of risk analysis. Beyond producing technically valid results, these laboratories should arguably be able to assist in the prediction and establishment of targets for official control. In pursuit of analytical excellence, the Brazilian government
has developed a strategic plan for Official Agricultural Laboratories. Inserted in a national agenda for agricultural risk analysis, the plan has succeeded in raising laboratory budget by approximately 200%, it has started a rigorous program for personnel capacity-building, it has initiated strategic cooperation with international reference centres, and finally, it has completely renewed instrumental resources and rapidly triggered a program aimed at full laboratory compliance with ISO/IEC 17025 requirements.

**Text in English**

**Leishmaniasis**

**Decrease of the incidence of human and canine visceral leishmaniasis after dog vaccination with Leishmune ((R)) in Brazilian endemic areas**

Palatnik-de-Sousa CB, Silva-Antunes I, Morgado Ade A, Menz I, Palatnik M, Lavor C

Vaccine 2009 Jun; 27 (27): 3505-12

Leishmune((R)), the first prophylactic vaccine licensed against canine visceral leishmaniasis (CVL), has been used in Brazil since 2004, where seropositive dogs are sacrificed in order to control human visceral leishmaniasis (VL). We demonstrate here that vaccination with Leishmune((R)) does not interfere with the serological control campaign (110,000 dogs). Only 1.3% of positivity (76 among 5860) was detected among Leishmune((R)) uninfected vaccinees. We also analyzed the possible additive effect of Leishmune ((R)) vaccination over dog culling, on the decrease of the incidence of CVL and VL in two Brazilian endemic areas, from 2004 to 2006. In Aracatuba, a 25% of decline was seen in CVL with a 61% decline in human cases, indicating the additive effect of Leishmune((R)) vaccination of 5.7% of the healthy dogs (1419 dogs), on regular dog culling. In Belo Horizonte (BH), rising curves of canine and human incidence were observed in the districts of Barreiro, Venda Nova and Noroeste, while the canine and human incidence of Centro Sul, Leste, Nordeste, Norte, Pampulha and Oeste, started to decrease or maintained a stabilized plateau after Leishmune((R)) vaccination. Among the districts showing a percent decrease of human incidence (-36.5%), Centro Sul and Pampulha showed the highest dog vaccination percents (63.27% and 27.27%, respectively) and the lowest dog incidence (-3.36% and 1.89%, respectively). They were followed by Oeste, that vaccinated 25.30% of the animals and experienced an increase of only 12.86% of dog incidence and by Leste and Nordeste, with lower proportions of vaccinates (11.72% and 10.76%, respectively) and probably because of that, slightly higher canine incidences (42.77% and 35.73%). The only exception was found in Norte district where the reduced human and canine incidence were not correlated to Leishmune((R)) vaccination. Much lower proportions of dogs were vaccinated in Venda Nova (4.35%), Noroeste (10.27%) and Barreiro (0.09%) districts, which according to that exhibited very increased canine incidences (24.48%, 21.85% and 328.57%, respectively), and pronounced increases in human incidence (14%, 4% and 17%, respectively). The decrease of canine (p=-0.008) and human incidences (p=-0.048) is directly correlated to the increase of the number of vaccinated dogs, confirming the additive control effect of Leishmune((R)) vaccination over dog culling, reducing the parasite reservoir, protecting dogs and, in this way, reducing the risk of transmission of VL to humans and becoming a new effective control tool.

**Text in English**

**Leishmaniases in Bolivia: comprehensive review and current status**

García AL, Parrado R, Rojas E, Delgado R, Dujardin JC, Reithinger R


The leishmaniases are protozoan, zoonotic diseases transmitted to human and other mammal hosts by the bite of phlebotomine sandflies. Bolivia has the highest incidence of cutaneous leishmaniasis (CL) in Latin America (LA), with 33 cases per 100,000 population reported in 2006. CL is endemic in seven of the country's nine administrative departments. Visceral leishmaniasis (VL) is comparatively rare and is restricted to one single focus. Most CL cases are caused by Leishmania (Viannia) braziliensis (85%
cases); VL is caused by L. (L.) infantum. Seven sandfly species are incriminated as vectors and Leishmania infections have been detected in several non-human mammal hosts. Transmission is associated with forest-related activities, but recently, cases of autochthonous, urban transmission were reported. Because most cases are caused by L. (V.) braziliensis, Bolivia reports the greatest ratio (i.e., up to 20% of all cases) of mucosal leishmaniasis to localized CL cases in LA. Per national guidelines, both CL and VL cases are microscopically diagnosed and treated with pentavalent antimony.

**Text in English**

**Rabies**

**Approach to management of suspected rabies exposures: what primary care physicians need to know**

Grill AK


OBJECTIVE: To review the role of primary care physicians, in conjunction with local public health units, in the management of suspected rabies exposures and to outline the current guidelines for the administration of rabies postexposure prophylaxis.

SOURCE OF INFORMATION: Published guidelines on the topic of rabies were reviewed and additional articles were identified from key references. Various public health websites were also explored. Most evidence was level II or III.

MAIN MESSAGE: Primary care physicians must always consider the risk of rabies when treating patients who have had animal-to-human exposures (e.g., bite, scratch), and if indicated, postexposure prophylaxis must be administered as soon as possible because the infection is fatal once clinical symptoms develop.

CONCLUSION: Human cases of rabies are almost entirely preventable if suspected exposures are identified and managed promptly and properly. Primary care physicians must continue to work together with local public health officials in order to minimize the threat of this deadly virus.

**Text in English**


**Genetic characterization of rabies virus isolated from cattle between 1997 and 2002 in an epizootic area in the state of São Paulo, Brazil**

Carnieli P Jr, Castilho JG, Fahl WD, Véras NM, Timenetsky MD

Virus Res. 2009 May

The biogeographical history of rabies can be reconstructed using molecular data. This work describes the genetic characterization of the Rabies virus variant that circulates in the Desmodus rotundus (vampire bat) population in an epizootic area and is transmitted to herbivorous livestock. The N and G genes of this virus were sequenced, and the phylogenetic trees generated were topologically concordant. Three genetic clusters were identified in the epizootic area and were designated RD1, RD2 and RD3. The results show that the origins of the epizootics in areas RD1 and RD2 were different and that the epizootic in area RD3 was the result of expansion of that in area RD2. The two genes analyzed are conserved, and their identities, which are greater than 98%, were maintained over time and space. The genetic sequences in this study were compared with others retrieved from GenBank, and the high identity of the N and G genes was also shown to be maintained over time and space. The results suggest that the D. rotundus lineages of the Rabies virus from the Atlantic coast of South America are highly conserved.

**Text in English (article in press)**
In order to evaluate the effects of reducing the number of animals used in the NIH mouse protection test for potency determination of inactivated rabies vaccines for human use, a retrospective study of the results obtained in the Brazilian National Control Laboratory, Instituto Nacional de Controle de Qualidade em Saúde (INCQS), was performed, comprising 214 vaccine lots. The INCQS Standard Operating Procedure establishes the use of three vaccine dilutions and 18 animals per dilution, separated into two cages with 9 mice each. The results of the two cages of each dilution were considered as two different groups (C1 and C2), and therefore, for each vaccine lot, three results were obtained: one for the standard test (ST) with 18 mice, one using the C1 cages with 9 mice and another using the C2 cages with 9 mice. The results were evaluated as repeated measures of the same method on the same samples. In this study, the effects of the reduction in: (a) the measurement error and its association with the size of measurement, (b) the agreement between the results using the concordance coefficient of correlation, (c) the agreement of categorized results as "Pass" or "Fail" using the Kappa index, (d) the precision of potency determinations using the 95% confidence interval and (e) the incidence of statistically invalid assays due to non-linearity and non-parallelism were evaluated. It was concluded that the results from the NIH mouse protection test using 9 mice per dilution are in good agreement with the results obtained using 18 mice per dilution. Therefore, nine animals per dilution is a suitable number to meet the statistical requirement for valid assays.

Text in English

Rabies transmitted by vampire bats to humans: An emerging zoonotic disease in Latin America?

Human rabies transmitted by vampire bats reached new heights in Latin America in 2005. A total of 55 human cases were reported in several outbreaks, 41 of them in the Amazon region of Brazil. Peru and Brazil had the highest number of reported cases from 1975 to 2006. In Peru, outbreaks involving more than 20 cases of bat-transmitted human rabies were reported during the 1980s and 1990s. During this period, a smaller number of cases were reported from outbreaks in Brazil. A comparison of data from field studies conducted in Brazil in 2005 with those from the previous decade suggests similar bat-bite situations at the local level. The objective of this study was to review the epidemiological situation and, on the basis of this information, discuss possible factors associated with the outbreaks. Prevention and control measures already recommended for dealing with this problem are also reviewed, and some further suggestions are provided.

Text in English


Eventos / Events

32nd Session of the Codex Alimentarius Commission
29 June - 4 July, 2009
Rome, Italy
http://www.codexalimentarius.net/web/index_en.jsp
Production & Manufacturing of Vaccines
17-18 August 2009
Providence, RI, USA
http://www.healthtech.com/imt/vpd

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