CEDOC Informativo/Newsletter

N. 95 - Junio/June 2011

Centro de Documentación / Documentation Center

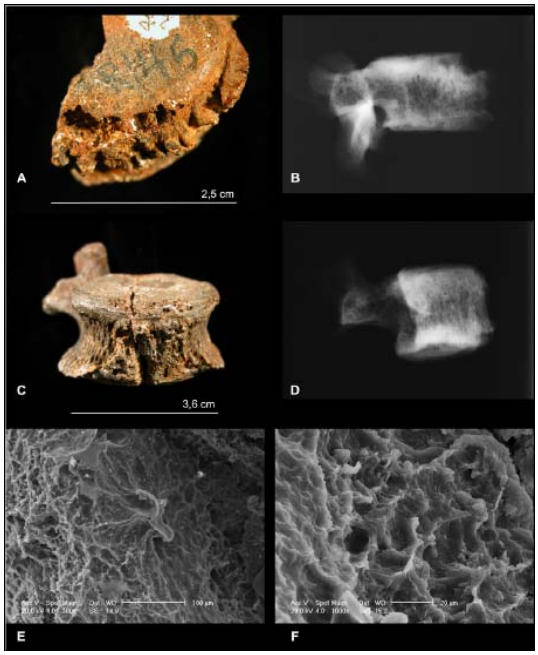
Objetivos/ Objectives

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

Australopitecus con brucelosis hace 2,4 millones de años



Al parecer nuestro gusto por la carne se puede rastrear hasta uno de nuestros parientes más antiguos: el ***Australopithecus africanus***. Según un estudio, publicado en *PLoS ONE*, se descubrió una infección bacteriana en una vértebra fósil de australopiteco que normalmente se suele contraer al comer carne o productos lácteos.
Según el autor principal del artículo, Ruggero D'Anastasio, se trataría de la muestra fósil más antigua de una enfermedad infecciosa en un hominino.
La enfermedad descubierta es la **brucelosis**. Y fue descubierta en un fósil de ***A. africanus*** descubierto

en los años 70 en las cuevas de Sterkfontein, Sudáfrica. Son dos vértebras, datadas en 2,4 millones de años, pertenecientes a un macho de edad avanzada, que presentaban lesiones puntuadas visibles.
En un principio se había pensado que se trataba de algún daño propio de la edad avanzada, pero luego de someter el fósil a rayos X y escaneo electrónico, D'Anastasio descubrió detalles suficientes para sugerir que la mejor explicación para esa lesión es la brucelosis.
Esta enfermedad produce síntomas similares a la gripe, en humanos, pero si llega a los músculos o a los huesos producen un daño similar al visto en las vértebras de australopiteco.
Es imposible determinar cómo contrajo el australopiteco esta enfermedad, pero en la actualidad esas enfermedades suelen provenir de un ungulado, como por ejemplo caballos, cabras, cebras o antílopes. Se puede transmitir a través de la leche de estos animales, o al consumir carne de ellos.

D'Anastasio R, Zipfel B, Moggi-Cecchi J, Stanyon R, Capasso L. Possible Brucellosis in an Early Hominin Skeleton from Sterkfontein, South Africa. PLoS ONE 2009; 4 (7): e6439
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0006439

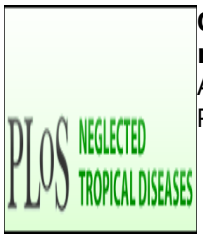
Informaciones disponibles en formato electrónico / Information available in electronic format

Brucelosis / Brucellosis

Desarrollo y evaluación de un protocolo serológico de fluorescencia polarizada en el estudio de anticuerpos contra *Brucella* spp en humanos
Sánchez-Villalobos A, Urdaneta-Fernández M, Rubio-Fuenmayor E, Molero-Saras G, Luzardo-Charris C, Corona-Mengual C
Invest Clin. 2011; 52 (1): 48-57

In order to show the development and scope of a serological analysis method based on fluorescence polarization assay (FPA) from a drop of blood obtained by the capillary technique, a Brucella antibody assay was performed on a group of 321 high-risk workers. The results were compared with data from the analysis of blood serum by FPA and a competitive enzyme immunoassay (ELISA-c). The number of concordance was 318 (99.06%), and discordant 3 (0.93%), which were negative in serum by fluorescence polarization (FPAs) and ELISA-c, but positive with capillary FPA (FPAc). The comparative results FPAc were: sensitivity 100%; specificity: 99.05%; positive predictive value 66.67%; negative predictive value 100.0%; false positive rate: 0.95%; false negative rate: 0%; accuracy: 98.0%; odds ratio: 203.00. The youden J for both FPA methods was 0.667. The identification was considered reliable and the correlation of both procedures, FPA and ELISA-c, was no statistically different (P > 0.05%), which allows to highly recommend the study implementation of **human brucellosis** with capillary blood as a preliminary method.
Text in Spanish
http://sites.google.com/site/revistaano2011al2020/home/invest-clin-52-1-2011

Enfermedade de Chagas / Chagas Disease



Community participation in chagas disease vector surveillance: systematic review
Abad-Franch F, Vega MC, Rolón MS, Santos WS, Rojas de Arias A
PLoS Negl Trop Dis. 2011 Jun; 5 (6): e1207

BACKGROUND: Vector control has substantially reduced **Chagas disease** (ChD) incidence. However,

transmission by household-reinfesting triatomines persists, suggesting that entomological surveillance should play a crucial role in the long-term interruption of transmission. Yet, infestation foci become smaller and harder to detect as vector control proceeds, and highly sensitive surveillance methods are needed. Community participation (CP) and vector-detection devices (VDDs) are both thought to enhance surveillance, but this remains to be thoroughly assessed.
METHODOLOGY/PRINCIPAL FINDINGS: We searched Medline, Web of Knowledge, Scopus, LILACS, SciELO, the bibliographies of retrieved studies, and our own records. Data from studies describing vector control and/or surveillance interventions were extracted by two reviewers. Outcomes of primary interest included changes in infestation rates and the detection of infestation/reinfestation foci. Most results likely depended on study- and site-specific conditions, precluding meta-analysis, but we re-analysed data from studies comparing vector control and detection methods whenever possible. Results confirm that professional, insecticide-based vector control is highly effective, but also show that reinfestation by native triatomines is common and widespread across Latin America. Bug notification by householders (the simplest CP-based strategy) significantly boosts vector detection probabilities; in comparison, both active searches and VDDs perform poorly, although they might in some cases complement each other.
CONCLUSIONS/SIGNIFICANCE: CP should become a strategic component of ChD surveillance, but only professional insecticide spraying seems consistently effective at eliminating infestation foci. Involvement of stakeholders at all process stages, from planning to evaluation, would probably enhance such CP-based strategies.
Text in English
http://www.plosntds.org/article/info%3Adoi%2F10.1371%2Fjournal.pntd.0001207

Fiebre Aftosa / Foot and Mouth Disease

Detection of foot-and-mouth disease virus in the breath of infected cattle using a hand-held device to collect aerosols
Christensen LS, Brehm KE, Skov J, Harlow KW, Christensen J, Haas B
J Virol Methods. 2011 Jun

Exhaled air of individual cattle infected experimentally with foot-and-mouth disease virus (FMDV) was sampled to assess the feasibility of a rapid, non-invasive general screening approach for identifying sources of FMDV infection. The air sampler used was a handheld prototype device employing electrostatic particle capture in a microchip chamber of 10–15 _L and was shown to effectively capture a high per-centage of airborne microorganisms. The particles were eluted subsequently from the chip chamber and subjected to real-time RT-PCR. Sampling exhaled air for as little as 1 min allowed the detection of FMDV in cattle infected experimentally. Detection in exhaled air from individual cattle was compared to FMDV detection in serum and saliva for 3 different strains of FMDV (O1/Manisa/69, C/Oberbayern/FRG/1960 and SAT1/Zimbawe/1989). Detection of FMDV in exhaled air was possible for all strains of FMDV used for experimental infection but the period that detection was possible varied among the strains. Detection in exhaled air generally peaked on day 2–4 post infection. The perspectives of monitoring for FMDV in the breath of infected cattle are discussed in the context of real-time epidemiological contingencies
Text in English (article in press)

Influenza Aviar / Avian Influenza

Extensive geographic mosaicism in avian influenza viruses from gulls in the northern hemisphere
Wille M, Robertson GJ, Whitney H, Bishop MA, Runstadler JA, Lang AS.
PLoS One. 2011; 6 (6): e20664

Due to limited interaction of migratory **birds** between Eurasia and America, two independent **avian influenza** virus (AIV) gene pools have evolved. There is evidence of low frequency reassortment between these regions, which has major implications in global AIV dynamics. Indeed, all currently circulating lineages of the PB1 and PA segments in North America are of Eurasian origin. Large-scale analyses of intercontinental reassortment have shown that viruses isolated from Charadriiformes (gulls, terns, and shorebirds) are the major contributor of these outsider events. To clarify the role of gulls in AIV dynamics, specifically in movement of genes between geographic regions, we have sequenced six gull AIV isolated in Alaska and analyzed these along with 142 other available gull virus sequences. Basic investigations of host species and the locations and times of isolation reveal biases in the available sequence information. Despite these biases, our analyses reveal a high frequency of geographic reassortment in gull viruses isolated in America. This intercontinental gene mixing is not found in the viruses isolated from gulls in Eurasia. This study demonstrates that gulls are important as vectors for geographically reassorted viruses, particularly in America, and that more surveillance effort should be placed on this group of **birds**.
Text in English
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3115932/pdf/pone.0020664.pdf

Inocuidad de los Alimentos / Food Safety

The relationship between lay and technical views of Escherichia coli O157 risk
Strachan NJ, Hunter CJ, Jones CD, Wilson RS, Ethelberg S, Cross P, Williams AP, Macritchie L, Rotariu O, Chadwick D
Philos Trans R Soc Lond B Biol Sci. 2011 Jul; 366 (1573): 1999-2009

Here, we bring together and contrast lay (accessible primarily through social science methodologies) and technical (via risk assessment and epidemiological techniques) views of the risk associated with the **Escherichia coli** O157 pathogen using two case study areas in the Grampian region of Scotland, and North Wales. Epidemiological risk factors of contact with farm animals, visiting farms or farm fields and having a private water supply were associated with postcode districts of higher than average **disease** incidence in the human population. However, this was not the case for the epidemiological risk factor of consumption of beef burgers, which was independent of **disease** incidence in the postcode district of residence. The proportion of the population expressing a high knowledge of E. **coli** O157 was greatest in high-incidence **disease** districts compared with low-incidence areas (17% cf. 7%). This supports the hypothesis that in high-**disease**-incidence areas, residents are regularly exposed to information about the **disease** through local cases, the media, local social networks, etc. or perhaps that individuals are more likely to be motivated to find out about it. However, no statistically significant difference was found between high- and low-incidence postcode districts in terms of the proportion of the population expressing a high likelihood of personal risk of infection (10% cf. 14%), giving a counterintuitive difference between the technical (epidemiological and quantitative microbiological risk assessment (QMRA)) and the lay assessment of E. **coli** O157 risk. This suggests that lay evaluations of E. **coli** O157

risk reflect intuitive and experience-based estimates of the risk rather than probabilistic estimates. A generally strong correspondence was found in terms of the rank order given to potential infection pathways, with environment and **foodborne** infection routes dominating when comparing public understanding with technical modelling results. Two general conclusions follow from the work. First, that integrative research incorporating both lay and technical views of risk is required in order that informed decisions can be made to handle or treat the risk by the groups concerned (e.g. the public, policy makers/risk managers, etc.). Second, when communicating risk, for example, through education programmes, it is important that this process is two-way with risk managers (e.g. including Food Standards Agency officials and communications team, public health infection control and environmental health officers) both sharing information with the public and stakeholder groups, as well as incorporating public knowledge, values and context (e.g. geographical location) into risk-management decisions.
Text in English

Leishmaniasis

Structures, targets and recent approaches in anti-leishmanial drug discovery and development
Seifert K
Open Med Chem J. 2011; 5: 31-9

Recent years have seen a significant improvement in available treatment options for **leishmaniasis**. Two new drugs, miltefosine and paromomycin, have been registered for the treatment of visceral **leishmaniasis** (VL) in India since 2002. Combination therapy is now explored in clinical trials as a new treatment approach for VL to reduce the length of treatment and potentially prevent selection of resistant parasites. However there is still a need for new drugs due to safety, resistance, stability and cost issues with existing therapies. The search for topical treatments for cutaneous **leishmaniasis** (CL) is ongoing. This **review** gives a brief overview of recent developments and approaches in anti-leishmanial drug discovery and development.
Text in English
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3103891/pdf/TOMCJ-5-31.pdf

Vaccine candidates for leishmaniasis: A review
Nagill R, Kaur S
Int Immunopharmacol. 2011 May

Leishmaniasis is a diverse group of clinical syndromes caused by protozoan parasites of the genus Leishmania. The clinical manifestation of the disease varies from self-limiting cutaneous lesions to progressive visceral disease. It is estimated that 350million people are at risk in 88 countries, with a global incidence of 1-1.5million cases of cutaneous and 500,000 cases of visceral **leishmaniasis**. The key control measures mainly rely on early case detection and chemotherapy which has been hampered by the toxicity of drugs, side-effects and by the emergence of drug resistance in parasites. Control of reservoir host and vector is difficult due to operational difficulties and frequent relapses in the host. Therefore, the development of effective and affordable vaccine against **leishmaniasis** is highly desirable. Although considerable progress has been made over the last decade in understanding immune mechanisms underlying potential candidate antigens, including killed, live attenuated parasites, crude

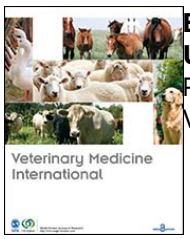
parasites, pure or recombinant Leishmania proteins or DNA encoding leishmanial proteins, as well as immunomodulators from sand fly saliva, very few candidate **vaccines** have progressed beyond the experimental stage. As such there is no vaccine against any form of human **leishmaniasis**. In recent years, however, much interest has been stimulated towards vaccination against **leishmaniasis** focused mainly on cutaneous **leishmaniasis** with fewer attempts against visceral **leishmaniasis**.
Text in English (article in press)

Rabia / Rabies

International interlaboratory trials on rabies diagnosis: An overview of results and variation in reference diagnosis techniques (fluorescent antibody test, rabies tissue culture infection test, mouse inoculation test) and molecular biology techniques
Robardet E, Picard-Meyer E, Andrieu S, Servat A, Cliquet F
J Virol Methods. 2011 Jun

Interlaboratory trials on **rabies** diagnosis were organised in 2009 and in 2010 by the European Union Reference Laboratory (EURL) for **rabies**. In 2009, two panels of virus samples were sent to participating laboratories to compare results on reference diagnosis techniques and on RT-PCR. A single panel was sent in 2010 to test FAT (fluorescent antibody test), RTCIT (**rabies** tissue culture infection test) and RT-PCR techniques. The virus panels included the RABV, EBLV-1, EBLV-2 and ABLV strains. Results revealed that laboratories produced the highest proportion of concordant results using RT-PCR (90.5%) and FAT (87.1%), followed by RTCIT (70.0%) and MIT (35.0%) in 2009 and in FAT (85.0%) and RT-PCR (80.6%) followed by RTCIT (77.3%) in 2010. Errors were only observed in bat strains (i.e. none in the RABV strain) for the RT-PCR or FAT techniques, highlighting the need to improve diagnosis most specifically in such strains. RT-PCR was the technique showing the lowest rate of false negative results in either trial year, while RTCIT and MIT (performed in 2009 only) were the techniques with the lowest proportion of false positive results. Nevertheless, the FAT technique represented a good compromise with both satisfactory sensitivity and specificity, as only a few false positive (1.6% in 2009, 5.8% in 2010) and false negative results (1.6% in both 2009 and 2010) were detected. The analysis of technical questionnaires describing the protocols used by participating laboratories revealed variation in the methods used that may induce inconsistencies in the results. In this study, the number of readers for FAT slide examination was identified as a factor affecting significantly the results of laboratories, suggesting that two independent readers are necessary for routine **rabies** diagnosis. Our findings highlight the need for all **rabies** diagnostic laboratories to improve harmonisation of procedures.
Text in English (article in press)

Tuberculosis Bovina / Bovine Tuberculosis



Bovine tuberculosis and the establishment of an eradication program in the United States: role of veterinarians
Palmer MV, Waters WR
Vet Med Int. 2011; 2011: 816345

The significance of the identification of Mycobacterium bovis as a zoonotic pathogen in 1882 was not initially recognized. After years of research by veterinarians, and other scientists, the importance of M. bovis as a pathogen and the public health ramifications, were appreciated. Veterinarians played pivotal roles in the creation of improved meat and milk inspection, diagnosis of M. bovis infected cattle, and in time, a **bovine tuberculosis** eradication program that would impact every cattle producer in the

country. After overcoming many challenges, the 93-year-long program has decreased disease prevalence from 5% to <0.001%. Today, years of hard work by practitioners, researchers and regulatory officials alike, have yielded a program with a net benefit of almost $160 million per year.
Text in English
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3103864/pdf/VMI2011-816345.pdf

Eventos / Events

Brucellosis 2011, International Research Conference
21-23 **September** 2011
Buenos Aires, Argentina
http://www.aam.org.ar/brucellosis2011/abstract-submission.shtml

Organización Panamericana de la Salud
Oficina Regional de la Organización Mundial de la Salud

Salud Pública Veterinaria
Centro Panamericano de Fiebre Aftosa

Pan American Health Organization
Regional Office of the World Health Organization

Veterinary Public Health
Pan American Foot and Mouth Disease Center

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