

Plagas), el cual se concibe como un sistema de control que considera el medio ambiente en el que vive la plaga, su dinámica poblacional, previendo consecuencias ecológicas y económicas, seleccionando métodos de control para reducir las poblaciones por debajo del daño económico, de salud animal y salud pública. Por medio de una campaña de Educación Sanitaria que comprende mil quinientas charlas y demostraciones de métodos a más de quince mil ganaderos y estudiantes se ha logrado concientizar al productor ganadero para que no elimine las especies benéficas en sus fincas.

CO.65 SUSCEPTIBILITY OF *MYOTIS LUCIFUGUS* TO HETEROLOGOUS AND HOMOLOGOUS RABIES VIRUSES.

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Rabies virus (RV) maintenance in bats is not well understood. *Eptesicus fuscus*, *Myotis lucifugus*, and *Tadarida brasiliensis* are the most common bat species in the US. These colonial bat species also have the most frequent contact with humans and domestic animals. However, the *Lasiurus noctivagans*/*Perimyotis subflavus* (*Ln/Ps*) RV is associated with the majority of human rabies virus infections in the United States and Canada. This is of interest because the *L. noctivagans* and *P. subflavus* bat species are more solitary bats with less frequent human interaction. Our interest was to determine the likelihood of a colonial bat species becoming infected with and transmitting a heterologous RV. To determine the potential of heterologous RV infection in colonial bat species, *M. lucifugus* bats were inoculated with a homologous or one of two heterologous (*E. fuscus* and *L. noctivagans*) RV. Additionally, to determine if the route of exposure influenced the disease process, bats were inoculated either intramuscularly (i.m.) or subcutaneously (s.c.) with a homologous or heterologous RV. Bats were observed for 6 months. Survivors were challenged i.m. with a homologous RV and observed for an additional 6 months. Our results demonstrate intramuscular inoculation results in a more rapid progression of disease onset as compared to a significantly longer incubation time in bats inoculated s.c. Additionally, cross protection was not consistently achieved in bats previously inoculated with a heterologous RV following a six month challenge with a homologous RV. Finally, bats that developed rabies following s.c. inoculation were significantly more likely to shed virus in their saliva and demonstrated increased viral tissue tropism. In summary, bats inoculated via the s.c. route are more likely to shed virus thus increasing the potential for transmission.

CO.66 CDC'S GLOBAL DISEASE DETECTION PROGRAM AND THE INTERNATIONAL HEALTH REGULATIONS: PROVIDING EARLY WARNING TO CDC FOR HUMAN RABIES OUTBREAKS

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In 2003, the spread of SARS alerted public health leaders that novel pathogens could be transmitted along international travel routes with unprecedented speed. With the realization that an outbreak anywhere in the world was a potential threat to virtually all countries, the United States Congress in 2004 authorized the appropriation of funds to establish a Global Disease Detection

(GDD) program, based at the CDC, with the aim of promptly detecting and mitigating the consequences of emerging threats. The GDD program provides a platform to develop and strengthen global capacity to rapidly detect, identify, and contain emerging infectious disease and bioterrorist threats in line with the International Health Regulations (IHR), which entered into force in June 2007 and legally requires all signatory nations to establish systems to detect and respond to new disease threats. The GDD program was subsequently selected by WHO as a key partner to help implement the IHR (2005) for its 194 member states and in 2009 was designated a WHO Collaborating Center for Implementation of IHR National Surveillance and Response Capacity. A significant component of GDD is the GDD Operations Center (GDDOC), an epidemic intelligence unit which uses novel, event-based surveillance techniques to provide CDC programs with a single source of reliable, comprehensive, and high quality information on international disease outbreaks, and provides logistical and financial support to CDC programs for emergency deployments to international outbreaks. Technological advances have revolutionized the way information is accessed, and event-based surveillance provides a mechanism for the organized and rapid collection and verification of information about events that are a risk to public health, particularly with regard to emerging zoonoses, which countries sometimes cannot or do not report to the global public health community. A re-emerging, global zoonosis that the GDDOC actively monitors is rabies in both animals and humans. Since 2009, the GDDOC has supported provided epidemiologic, logistical, or financial support to CDC's Rabies Program for emergency deployments to the Dominican Republic, Peru, Ecuador, and Kenya to mitigate outbreaks of human rabies associated with canine and vampire bat rabies. Because of the GDDOC's work to actively identify and report rabies-related event-based surveillance data to CDC's Rabies Program, CDC is better positioned to respond to a request for technical assistance by the affected country and establish core capacities in compliance with IHR.

CO.67 RESULTS WEBSITE FOR RABIES DIAGNOSTIC CONSULTATION INTO THE HEALTH SERVICES OF COAHUILA, MEXICO.

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Background: Health Services of Coahuila had not a rabies diagnostic laboratory. It was needed to send samples to Nuevo Leon and InDRE to solve this limitation. On April, 2010, the State Authorities established this laboratory that is placed inside the facilities of the State Laboratory of Public Health. On July, 2010 the laboratory formalized operations with the InDRE. The laboratory has 2 employees: a professional diagnostics specialist and a laboratory technician. **Challenges:** Sample shipments for rabies virus monitoring to other states. Extemporaneous reception of other states results. No clear idea about rabies virus circulation and sanitary risk status in the State. Expensive operational costs. Several criteria of rabies PEP based on lab results. The laboratory had not a working algorithm for technical and epidemiological reports as well as for laboratory results. The lab had not a standard protocol to establish a timely diagnostic. **Alternatives of Solution:** To develop a feasibility study for the operation of a rabies diagnostic laboratory and to identify the mechanisms and support elements to establish this laboratory. Review the operative and financial plans and rabies vaccines availability for PEP. Website design for electronic consultation via Internet, to get the timely diagnostic according with the needs and request from the operative units. **Operation:** The Epidemiological surveillance of rabies in the State is

developed in three steps: the pre-analytic step is for the data collection and integration of the file with the support of the sanitary regions that send the samples that could be coming from bitten animals, for monitoring purposes and from wildlife. The Analytical step for the laboratory result and capture of the epidemiological info as well as the laboratory result in the website. Each case is identified with an ID key that could be reviewed by internet for each sanitary region. The post-analytic step is to follow up the results. This is developed by the sanitary regions to develop the recommended prevention and control measurements. All users have an ID key access that is individual and non-transferable, once it is approved by the State Authorities. The website has different access levels and just the rabies laboratory personnel have administrator level for capturing the initial info, modifications and corrections of each case. All the other users, administrative personnel of the central level and the operative personnel of the sanitary regions, have an ID key to consult the lab results. The author wants to thank to the State Authorities and the workforce of the Health Services in Coahuila for the support received for the elaboration and presentation of this paper.

CO.68

ANIMAL BITED AND HUMANE RABIES SURVEILLANCE IN IRAN

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Surveillance system of human rabies in Iran is working with the aim of having no human rabies and 100% access to health services for all the community. Further more, cooperation with veterinary organization and environment protection organization about vaccination of dogs and cats, sampling of suspicious animals and also training the staff and community and attending rabies national committee meetings is performing during the year. Iran has 31 provinces and 386 districts with a different weather condition as Mediterranean weather in the north of Iran and hot and dry weather in the south. As a result the dominant carnivores in the north and North West of Iran are wolves and in other areas of the country it's fox. However, in the whole country jackals are found frequently and have been considered as the reservoir of rabies in the nature. The health center in villages includes health houses with trained staff and in the next level there are rural health centers with a family physician. In the cities there are health posts in the first level and urban health centers in the next level which have physicians; and also there are hospitals in the districts. The complicated disease are referred from health houses and health posts to rural or urban health centers and in necessary to hospitals. In animal bite and rabies control program educational measures in control and prevention has been provided in all levels. In each district there is facilitated prevention and control center for human rabies in one of the urban or rural health centers or hospitals. More than 700 centers for control and prevention of human rabies are performing in 386 districts with 24-hour staff that had been trained about preventing treatment methods. If the cases of animal bite refer to health houses, health posts or health centers the lesion will be washed with water and soap for 15-20 minutes after registration of the patients and they will be referred to preventing treatment center for human rabies to start vaccination and serum therapy if needed. Further more the patients' information will be sent to the district health center to be declared to the preventing treatment center for the follow-up. If the cases of animal bite don't visit the preventing treatment center for rabies they are actively followed-up. In the district health center the information of the patients will be registered in the online portal reporting system. The online information can immediately be seen after registration by the province or national level. In the national level the national guideline for rabies surveillance had been published with cooperation of national rabies committee and they are distributed to all the health centers

and preventing treatment centers for rabies in Iran. Considering the national rabies committee decisions two types of vaccines including VERO and PCEC and specific human rabies serum are provided and distributed to all the preventing centers for rabies. Based on the table of information received from preventing treatment centers for rabies, in the year 2011 about 135095 cases of animal bite and 7 cases of rabied had been registered. Based on the national guideline of rabies two types of preventing treatment measures are conducted after animal bite which include 3-dose and 5-dose treatment. The rabies control program in Iran is successfully performing due to on time measures.

CO.69

TOWARDS HUMAN RABIES ELIMINATION IN EASTERN EUROPE AND MIDDLE EAST: CURRENT STATUS AND PROSPECTS

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Following the 1st Middle East and Eastern Europe Rabies Expert Bureau (MEEREB) meeting held in Turkey in 2010, the group of rabies experts from 8 participating countries met in June 2012 in Paris, France for the 2nd meeting, together with representatives from the Institute Pasteur and the Global Alliance for Rabies Control to discuss the rabies situation in their respective countries, its evolution, the problems encountered and the solutions. Human rabies, number of animal bites and post-exposure prophylaxis (PEP) administered are notifiable in all MEEREB countries however reliable rabies data in the region still remain scarce especially regarding human rabies reporting. This is even more pronounced in countries that are not part of the Rabies Bulletin Europe. Thanks however to MEEREB members' active participation, a clearer image of the rabies situation in the region is becoming more apparent. Some of MEEREB countries (Croatia and Serbia) have not recorded human deaths from rabies for more than 30 years. However, persistence of rabies in wildlife (foxes) requires constant surveillance and maintenance of a high level of vigilance and public health interventions in order to prevent human rabies cases. In other MEEREB countries rabies is present not only in wildlife but also in dogs, which increases the risk of transmission to humans. In fact, human cases still do occur in these countries. In countries where the incidence of human rabies did not exceed 0.15 per million inhabitants during the last 3 years, the incidence of reported bites and PEP remained stable. In the two countries where the incidence of human rabies is the highest, Kazakhstan and Georgia (0.38-0.52 and 0.67-1.37, respectively), the mean PEP incidence increase rate was of over 15%. In 2011, 0.4% of Kazakh population received PEP. In Georgia, PEP incidence reached 0.9% – the highest known PEP incidence in the world, and 2-50 fold higher than in other MEEREB countries. All MEEREB countries use cell culture vaccines through intramuscular administration. Rabies immunoglobulin (RIG) is locally produced in Croatia, Serbia, and Ukraine. MEEREB participants stated that human rabies transmitted by dogs can be and should be eliminated from the region and discussed requirements to conduct a successful rabies elimination program. Although in all MEEREB countries a legal framework for rabies control exists, most often rabies elimination is not considered as a public health priority. In addition, although some rabies control measures are already in place, there is still a significant disparity among the MEEREB countries as to each country's response to its rabies situation. Furthermore, some of the conditions for successful rabies elimination programs are not met. MEEREB members agreed that reinforced intersectional collaboration and "One Health approach" are the keys for successful rabies control.