resource for helping to predict and prevent future influenza epidemics. However, so far, few have been reported with regard to estimating numbers of cases or identifying trends of influenza types.
Objective: To estimate the numbers of cases and identified type specific trends of pandemic influenza H1N1 (A(H1)pdm) and other virological-types (A(H1), A(H3) and B) in Japan from 2010 to 2012, by using data from the infectious disease surveillance system.
Methods: Two sources of weekly information from the infectious disease surveillance system are available; the reported influenza cases from sentinels in each prefecture and the proportions of different virological-types of influenza that were identified. Our study period was from week 36 (September 6) of 2010 to week 18 (May 6) of 2012. The weekly numbers of influenza cases were estimated, assuming that the sentinel samples in each prefecture had been selected randomly. The estimated numbers of influenza cases were multiplied by the weekly fraction of each virological-type identified, to calculate the numbers of pandemic influenza H1N1 and other virological-type cases. Results include the estimated numbers and their 95 % confidence intervals (95 % CI).
Results: The estimated number of cases of influenza types during September 2010 to May 2011 (in thousands) is as follows; A(H1)pdm: 6484 and 28, A(H1): 1 and 38, A(H3): 4126 and 10888,and B: 3009 and 5336 respectively. We found that different peak weeks were observed in the pandemic in 2010: A(H1)pdm:1405 (95 % CI 1332–1477) (in thousands) in week 4), seasonal influenzas A(H3):364 (95 % CI: 319-409) in week 5 and B:357 (95 % CI 307–407) in week 11). Different peak patterns were also observed in seasonal influenza in season 2011: (A(H3):1744 (95 % CI 1644–1844) in week 5 and B:559 (95 % CI 493–624) in week 10). Overall, the weekly trends showed that the pandemic influenza H1N1 was dominant in the 2010 season and the seasonal influenza types, A(H3) and B were dominant in the 2011 season.
Conclusion: We used the routinely collected data by the influenza surveillance system in Japan to estimate the numbers of pandemic influenza H1N1 (A(H1)pdm) and other virological-type cases in 2010/2011 and analyzed the type-specific trends. This type of analysis will be useful for predicting the future outbreaks of influenza in Japan.

P-228

Ongoing hepatitis A outbreak in Bijeljina, Bosnia and Herzegovina, August 2012–April 2013

Topic: Diseases - Infections
Presenter: Zoran Dakic

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Background: On 17 January 2013 Epidemiological service of Bijeljina (ES) declared hepatitis A outbreak. Bijeljina is a town and municipality with about 120,000 inhabitants, located in the north-east of Bosnia and Herzegovina, on a borderline with Croatia and Serbia. In the past 20 years, the epidemiological situation of infectious intestinal diseases in this area was generally stable. Despite numerous challenges for public health, since 1992 there were no cases of hepatitis A.
Objectives: Aim of this report is to describe hepatitis A outbreak in Bijeljina and the measures taken in order to suppress it.
Methods: In the Bosnian governing entity Republic of Srpska (RS) hepatitis A is notifiable disease in accordance with Law on protection of population against infectious diseases. Case definition of communicable diseases in this Law corresponds to EU case definitions. However, specific guidelines for handling cases of hepatitis A do not exist.
Results: Epidemiological service of the Health center Bijeljina reported to the RS Institute of Public Health hepatitis A outbreak in Bijeljina, on 17 January 2013. A total of 28 cases (16 females and 12 males) were reported until 02 April 2013. Age distribution: the youngest case was 7 years old, the oldest one 70 years old. The most affected age group was of 0–14 years with 29.7 % number of cases. The first notified case was a child from the Roma population, who got sick in August 15, 2012. After this, 5 more hepatitis A cases were registered from the same population (21 % of total number). ES performed disinfection of houses and the immediate environment of patients also as disinfection of kindergartens and school facilities and other collective accommodation buildings. Monitoring of drinking water quality from the waterworks and affected households was intensified. Vaccines and immunoglobulin against hepatitis A are not available in RS.
Conclusions: According to epidemiological data -most probable routes of transmission were indirect contact. Lessons learned from this outbreak demonstrated the weak points for possible future outbreaks in this area: unresolved infrastructure issues, poor hygiene practices of certain parts of the population, a very modest level of hygienic conditions in the most of public institutions, restaurants and often passive work of inspection services. Considering fact that one of the countries in the region (Croatia) this year will become EU member state, there is an obvious need for the establishment and improvement of institutional relations in public health at the regional and interstate level.

P-229

Treatment outcomes in Pulmonary Tuberculosis and associated factors worldwide: a systematic review and meta-analysis

Topic: Diseases - Infections
Presenter: Ana Costa Veiga

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Background: Tuberculosis (TB) is the second leading cause of death from an infectious disease in the world. The Global Plan to Stop TB 2011-2015 recommends a treatment success rate of 87 % by 2015 as a target. Monitoring treatment success and its factors is therefore a key issue in TB control programmes.
Objectives: To describe treatment success rates in pulmonary TB cases and to identify factors associated with unsuccessful treatment outcomes, according to ad-hoc studies.
Methods: A systematic review of articles published between 2000 and 2012 was made, following the MOOSE guidelines (Meta-analysis of Observational Studies in Epidemiology Group). Online bibliographic databases PUBMED and WEB OF KNOWLEDGE were searched to identify relevant papers. Treatment outcomes corresponded to WHO categories. Factors associated with unsuccessful outcomes explored were divided into: sociodemographic (age, sex), disease-related (co-morbidities), behavioral (drug and alcohol abuse) and treatment-related (directly observed therapy-DOT). Random-effect meta-analysis was used to estimate a combined success rate and pooled odds ratios (OR).

Results: From the 225 articles initially identified, 24 were considered for full-text review on the basis of the inclusion criteria. 17 of these approached determinants for successful outcomes and 7, for unsuccess. Successful outcomes included cured patients (8 articles) and cured plus completed treatment cases (16 articles).

Success rates reported ranged from 49.6 to 92.8 % and their pooled estimate was of 79.0 % (95 % CI 76.0–81.8 %). 7 showed success rates above 85 %, and only 5 presented a success above 87 %, 3 of which were institution-based. Studies with the highest rates (>87 %) included new pulmonary patients only.

A random-effect model was used, as studies did not share a common effect size ($Q = 1550.81$; $p = 0.000$; $I^2 = 98.5$ %). No possible effect of publication bias was found (Begg's test, $p = 0.206$; Egger's tests, $p = 0.744$). None of the studies was removed, based on a sensitivity analysis.

Meta-analysis was conducted only for age and sex, due to the limited number of studies focusing on other factors. Unsuccesses were significantly associated with male sex (OR 1.22, 95 % CI 1.06–1.40). Age did not appear as a relevant factor.

Conclusions: Treatment success varied widely and only 1/5 of the studies evinced success rates above the 87 % WHO recommended threshold for pulmonary TB. Diversity of the studies regarding risk factors identified made it difficult to analyze their association with unsuccessful outcomes; male sex was the most commonly identified factor. Most programs performance need to be closely followed and improved.

P-230

Are vets at zoonotic risk for hepatitis E virus from pets?

Topic: Diseases - Infections
Presenter: João Rodrigo Mesquita

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Background: The discovery of autochthonous hepatitis E in industrialized countries has substantially changed our understanding about this viral infection. Nowadays it is recognized that hepatitis E virus (HEV) infection has two distinct epidemiological profiles, one of large outbreaks and epidemics observed in developing countries mainly transmitted via faecally-contaminated water and caused by genotype 1, the other seen in industrialized countries, characterized by sporadic cases of hepatitis, associated to zoonotic transmission and mainly due to genotype 3. Autochthonous infections have been linked to the consumption of undercooked pork or game meat and also to the direct contact to infected swine. Although the full range of species that are reservoirs for HEV is still unknown, serologic studies have shown the presence of antibodies against HEV (anti-HEV) in dogs and cats suggesting HEV circulation in these animals. However, until now, no concern on the potential zoonotic risk of pets have been seen.
Objectives: Hence, the aim of the present work was to evaluate the potential zoonotic transmission of HEV from dogs and cats by studying the HEV seroprevalence in the occupationally exposed pet veterinarians and matched general population.
Methods: A total of 483 sera (363 from vets and 120 from general population) were studied for the presence of IgG anti-HEV using a commercial ELISA kit (Wantai Biological Pharmacy Co., Beijing, China). A Chi square test for homogeneity of proportions (SPSS 13.0, SPSS Inc., Chicago, IL, USA) was used to compare the differences between the two studied populations.
Results: The HEV seropositivity in veterinarians and general population was 9.92 % (36/363) and 13.33 % (16/120), respectively. No statistically significant difference ($p = 0.2311$) was found between these two seroprevalences. Within the veterinarians group, history of owning dogs (adjusted odds ratio [OR] 15.34, 95 % confidence interval [95 % CI] 4.15–56.7, $p < 0.001$) and experiencing needlestick injury with sharps contaminated with dog blood (OR 12.99, 95 % CI 3.42–49.36, $P < 0.001$) were found to be risk factors for HEV seropositivity. No statistical association was found with any of the other variables (age, sex, district, years in practice, history of owning cats and needlestick injury with sharps contaminated with cat blood).
Conclusions: Overall, this study shows that veterinarians are not at higher risk for zoonotic transmission of HEV from pets when comparing to general population. To our knowledge this is the first work studying the occupational risk of pet veterinarians to the potential zoonotic transmission of HEV from dogs and cats.

P-231

Seroepidemiological survey of Toxoplasma gondii in wild boar, Portugal, 2012: a Public Health risk

Topic: Diseases - Infections
Presenter: João Rodrigo Mesquita

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Background: Toxoplasma gondii is an important zoonotic pathogen with worldwide distribution that is known to cause abnormalities in the newborn or even abortion after primary infection during pregnancy. Human foodborne infection occurs by ingestion of food or water contaminated with sporulated Toxoplasma oocysts or tissue cysts, upon consumption of raw or undercooked meat. Although *T. gondii* infection is of limited clinical importance in wild boar, when infected, these animals pose as a source of infection for people if their meat is eaten undercooked.
Objective: The purpose of the present work was to access the risk of human infection via meat consumption by estimating the seroprevalence of T. gondii in wild boars hunted in Portugal.
Methods: Blood (97) samples were taken from wild boars killed during the hunting season 2011/2012 from four sampling sites of the north of Portugal. Data regarding collection site, animal gender and age was collected. Sera diluted at 1:20 were tested for immunoglobulin G antibodies to T. gondii, using the modified agglutination test (MAT). A cut-off titre of 20 was chosen to maximize both sensitivity and specificity of the test. Multivariate logistic regression models were performed for risk factor analysis using "Epicalc" package in the R software (R 2.13.1).
Results: Overall, 20 (20.6 %) out of the 97 animals were seropositive for *T. gondii* IgG antibodies. Adult age (adjusted odds ratio [aOR] = 18.48, 95 % confidence interval [CI] 13.89, 180.44) and the