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Objectives: Being unmarried may affect health behaviours, economic resources, and immune response perhaps due to physiological and psychological distress, leading to increased risk of infections. This study examines the association between marital status and risk of hospitalization with pneumonia.

Methods: In this large population-based case-control study we identified adult patients with a first-time pneumonia-related hospitalisation between 1994 and 2008, using health care databases in Northern Denmark. For each case, 10 sex- and age-matched population controls were selected from Denmark's Civil Registration System. We estimated odds ratios (ORs) for pneumonia hospitalisation among persons who were divorced/widowed or never married, as compared to married persons. We used regression analysis to control for a wide range of confounding factors.

Results: The study included 67,162 patients with a pneumonia-related hospitalisation and 671,620 population controls. Among pneumonia cases, 47 % were married, 40 % were divorced/widowed, and 13 % had never been married. As compared with married persons, the unadjusted ORs for pneumonia were 1.34 in divorced/widowed individuals and 1.30 in never married persons, respectively. After adjustment for age, gender, 19 different comorbidities, alcoholism, immunosuppressive treatment, urbanization, and living with small children, the adjusted OR for pneumonia-related hospitalisation among patients who were divorced/widowed was 1.20 (95 % CI 1.17–1.22), as compared to patients who were presently married. Among never married patients, the adjusted OR was 1.33 (95 % CI 1.29–1.37).

Conclusions: Married patients have a clearly decreased risk of being hospitalised with pneumonia, possibly related to more social support, healthier lifestyle or higher education.

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Pulmonary Tuberculosis in Continental Portugal 2000–2010: temporal trends clustering as a tool for control evaluation

Topic: Diseases - Infections

Presenter: Cristiana Areias

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Background: Clustering analysis is a useful tool to detect and monitor disease patterns and, consequently, to contribute for an effective population disease management. Portugal has the highest incidence of Tuberculosis in the European Union (in 2012, 21.6 cases per 100000 inhabitants), although it has been decreasing consistently. Two critical PTB (Pulmonary Tuberculosis) areas, metropolitan Oporto and metropolitan Lisbon regions, were previously identified through spatial and space-time clustering for PTB incidence rate and risk factors. Identifying clusters of temporal trends can further elucidate policy makers about municipalities showing a faster or a slower TB control improvement.

Objectives: To identify clusters of municipalities with high and low temporal trends, in continental Portugal.

Methods: Clustering analysis of spatial variation in temporal trends adjusted for sex (2000–2010) for all Portuguese continental municipalities ($n = 278$) was undertaken using the SaTScan Software. Data were obtained from National Tuberculosis Surveillance System (number of cases of PTB) and from Statistics Portugal (estimated

population). Results were interpreted considering critical areas previously identified.

Results: A global annual decrease of 5.8 % PTB cases was observed. Two clusters of municipalities with increasing trends were identified, one ($n = 3$) including Grândola, Alcácer-do-Sal and Santiago do Cacém, with an annual increase trend of 35.3 % ($p = 0.001$); other ($n = 2$), including Alfândega-da-Fé and Vila Flor, showing an annual increase of 86.9 % ($p = 0.001$).

Four clusters with decreasing trends were identified: a cluster ($n = 29$) comprising all municipalities of the previously identified metropolitan Oporto critical area, with an annual decrease of 7.6 % ($p = 0.001$); a larger cluster ($n = 113$), that included three municipalities of metropolitan Lisbon critical area (Lisbon, Odivelas, Amadora), presenting an annual decrease of 4.2 % ($p = 0.001$); a cluster with two municipalities previously identified in the critical area of metropolitan Lisbon (Almada, Oeiras) with an annual decrease of 5.6 % ($p = 0.01$); and finally a cluster ($n = 9$), comprising Algarve region with an annual decrease of 0.8 % ($p = 0.012$).

Conclusions: Although a global decreasing trend was identified, clusters for both increasing and decreasing trends were found. Clusters of increasing trends showed much pronounced increases, but none of these municipalities were identified as part of PTB critical areas previously identified, and should be cautiously interpreted considering the low magnitude of the number of PTB cases. All municipalities previously identified as part of PTB critical areas were included in clusters with decreasing trends sharper than the national one, with the exception of Lisbon, Odivelas and Amadora. Algarve region cluster showed a very slow decreasing trend. These results may be explained by differences in trends of PTB risk factors or/and the impact of health policies management.

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Introduction of pneumococcal vaccine in children aged 0–5 years in Mangistau, Kazakhstan in 2010–2012

Topic: Diseases - Infections

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Background: Respiratory diseases among children in Kazakhstan, and pneumonia in particular, are among the leading causes of death in children under 5 years. Altogether, there were 33774 cases of pneumonia in children under 5 years in Kazakhstan in 2008 alone. Total number of deaths in children under 5 years in 2008 was 8225 with 1.5 thousand deaths from pneumonia. In 2010, Kazakhstan initiated a vaccination programme for pneumococcal diseases in two of the 14 regions: East Kazakhstan and Mangistau, but the effectiveness of the vaccination has not been studied.

Objective: to assess the effectiveness of the vaccination for pneumococcal diseases in the Mangistau region, Kazakhstan.

Methods: The data was collected from medical cards of children under 5 years hospitalized in Regional Hospital for Infectious Diseases in the Mangistau region with diagnosis pneumonia from 2010 to 2012 years.

Results: Pneumococcal vaccine is given to children at ages 2, 4, and 12–15 months. Comparative analysis of the morbidity among

vaccinated children showed that the overwhelming majority of the children hospitalized for pneumonia were not vaccinated. Altogether, 10411 children (65.3 %) in the Mangistau region were vaccinated in 2010–2012. At the moment, we can judge the epidemiological effectiveness of the vaccine in reducing the incidence of pneumonia. According to official data from the 'Health of the population of the Republic of Kazakhstan and activity of the organizations of Health care in 2011' for 2010–2011 years incidence pneumonia of children under 5 years decreased by 20 %—from 12.3 in 2010 to 9.9 in 2011 on 1000 children of this age.

Conclusion: These preliminary results suggest that most of the cases of pneumonia in 2010–2012 among children in the age-group 0–5 years occurred among non-vaccinated children. Moreover, a we observed a reduction on the incidence of pneumonia by 20 % during the first year of implementation of pneumococcal vaccine. Further studies are warranted to study the effectiveness of vaccination of children in Kazakhstan.

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Was it possible to anticipate the intensity of the Madeira's dengue epidemic for the year 2013?

Topic: Diseases - Infections

Presenter: Andreia Costa

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As dengue viruses infect millions of people each year, this disease is considered to be one of the most important infectious diseases in many tropical and subtropical countries. Studies indicate that about 40 % of the world's population lives in countries at risk of dengue infection [1]. Although cyclic, incidences of this disease are increasing and spreading geographically [2]. The dengue virus has been detrimental for the inhabitants of many tropical areas, infecting millions of people worldwide. The dengue epidemic in the Autonomous Region of Madeira, a Portuguese archipelago, was officially declared by the Portuguese Health authorities on October 3rd, 2012.

The goals of this study were: (1) to better understand the evolution of the dengue fever in Madeira and (2) to anticipate its trend/intensity for the year of 2013. This study was challenged by the inexistence of past information; because Madeira is experiencing its first dengue epidemic. Thus, past information regarding outbreaks in other countries was obtained to better understand the behavior of the dengue fever itself. Collection criteria were: outbreak information available (year, serotype, duration, frequency, cases, attack rate, urban attack rate); and information related to infant mortality rate, urban population percentage and population density indicators.

Therefore, 6 regions of the globe were chosen according to the defined criteria aiming at obtaining similar conditions to Madeira in what would concern the dengue spread like climate, temperature and rainy season.

The 6 countries selected were: Cuba, The Bahamas, Guadeloupe, Vietnam (in particular South Vietnam), Australia (in particular Queensland) and Puerto Rico. They all have tropical or sub-tropical climates and their minimum and maximum temperatures do not exceed the interval from 15 to 34 °C.

The dengue attack rates in Madeira were expected to be approximately from 0.8 to 1.3 % (relative to urban population), for clinical cases, and from around 0.4 % (relative to urban population) to 0.7 %, for confirmed cases. Applying this interval attack rate to the population of 0.27 million living in Madeira Island, and taking into account that 0.19 million is urban population, after studying dengue fever trends in these selected countries in previous decades, it was

concluded that, this year (2013), between 2160 and 2470 dengue clinical cases can be expected in Madeira. Up until February 3rd, 2013 there were 2164 diagnosed cases.

This analysis is subjective because information about the dengue trend in other countries is being used to anticipate the trend/intensity in Madeira. Each country reacts to an outbreak in a different way. However, taking into account that the goal of this study was not to have exact numbers for this year for dengue cases (2013), but to find some boundaries for them this study fulfills it and feels adequate. In fact, the prediction of the exact number of cases is really improbable; the presentation of a sound estimate is the most useful tool for the Portuguese health institutions' planning and action.

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Infectious diseases mortality among migrants and host population in five European countries

Topic: Diseases - Infections

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Background: Infectious diseases mortality might differ between migrants and the host population, due to for example a higher prevalence in countries of origin or unequal access to medical care in the host country. Differences in infectious diseases mortality in the native population across the host countries can further influence mortality of migrants living in different countries. Cross country analysis can reveal whether it matters where migrants migrated to. We aimed to describe variation in infectious diseases mortality among migrant groups in comparison to the native population in five European countries.

Methods: We obtained national death and population data from Denmark, France, the Netherlands, Scotland and Spain. In each of the countries, we identified tuberculosis, HIV and other infections deaths (excluding pneumonia). We applied Poisson regression to calculate mortality rate ratios (MRRs) for native population and migrants by host country and sex, adjusting for age in 5-years age groups from 0 to 80+. Migrants were defined on the basis of country of birth and restricted to those with country of birth outside of Western Europe.

Results: Percentage of migrants (defined as above) among the total population in the study samples varied between 1.7 % in Spain and 8.3 % in the Netherlands. The differences between migrants and host population were largest for tuberculosis (without any sex differences) and HIV (stronger differences among women). For other infectious diseases, MMRs for migrant versus host population varied for males between 0.98 (95 % CI 0.82–1.16) in Spain and 1.2–2.2 in Denmark, France, Scotland and the Netherlands. For females the differences