

the incidence rate calculations. Case-fatality rates are the percentage of HDTP cases who died.

Results: Overall, the observed rate of HDTP in Brazil has shown a downward trend averaging 4.5 per 1000 residents in 2003, and 3.9 in 2007. Children <1 year old had the highest reduction in rates of HDTP, from 47 per 1000 in 2003 to 36.4 in 2006. Brazilians 80+ years old had the next highest incidence rates, averaging about 23 to 27 HDTPs per 1000 residents during the study period. CFRs related to HDTP have increased steadily over time, averaging 2.9% in 2003, and 4% in 2007. With the exception of the <1 year old age-group, CFRs increased with age, and in the 80+ age group averaged between 16% and 18%. In age groups under 5 years, CFRs have declined slightly between 2003 and 2007. In all other age-groups, particularly the ones 30 years and older, CFRs have generally risen.

Conclusion: As expected, the highest rates of HDTP were observed in the extremes of age, very young and old. While a slight reduction has been observed in HDTP rates, CFRs have progressively risen during this same period particularly for adults aged 80+. Pneumonia remains an important health problem in Brazil.

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Meningococcal meningitis epidemic in Arua district North West of Uganda

M. Busuulwa

Medical Epidemiologist, Kampala, US, Uganda

Background: Meningitis due to *Neisseria meningitidis* has an epidemic potential and a high case fatality rate. On 3rd September 2008, a meningitis epidemic was reported in Arua district health office, in north western Uganda. The objective of the investigation was to confirm the meningitis epidemic, identify the causative agent, risk factors and assess the district response capacity to handle the epidemic.

Methods: Community based cross-sectional study. We purposively selected cases, their families, District health team & local leaders for interview. Cerebral spinal fluid samples were drawn from cases and sent to Central Public Health Laboratory of Ministry of Health to isolate the causative agent. Frequencies and distributions of cases with respect to age groups and affected communities with EPIINFO 2006 were done.

Results: A total of 44 cases were detected and 10 deaths occurred to meningitis. The Case Fatality Rate was 22.7%: highest CFR (46.2%) occurred in those above 30years. Age range was 3months to 65years. The causative agent for this meningitis epidemic was identified to be *Neisseria meningitidis* type A with latex rapid test. 70.5% of the cases were

gitis in the previous outbreak of meningitis. Sleeping in poorly ventilated huts and overcrowding: 3-5 huts with 7-10 people/family cluster were risk factors to this meningitis.

Conclusion: Highest case fatality rate occurred amongst persons who are over 30 yrs old. Overcrowding, staying in poorly ventilated huts and lack of previous vaccination were thought to be predisposing factors to this meningitis epidemic.

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The study of epidemiological data of the mumps and the effect of MMR vaccine in the Albanian children

H. Hoxha^{1,*}, A. Simaku², E. Kallfa-Foto³, G. Lito³, R. Petrela³, E. Thartori¹

¹ *University Hospital Center "Mother Theresa", Tirana, Albania*

² *Institute Public Health, Tirana, Albania*

³ *University Hospital Center Mother Theresa Tirana, Albania, Tirana, Albania*

Background: Up to March 2005 in our country mumps was endemic diseases with every year epidemic and the children were unvaccinated for these diseases. From March to September 2005 was made a massive MMRII vaccination for the children under 7 years and from this year this vaccine was included in our routine national program vaccination. The incidence of this diseases in years 2003 was 72.9/100000 habitants and in 2007,2008 were respectively 26.9 and 2.6/100000

The aim of the study: was to show the epidemiological data of the mumps and his complications in Albanian children and to show the effect of the MMRII vaccine in the decrease of the incidence of this diseases in Albania.

Methods: This is a retrospective study. In this study were unrolled 147 children admitted in our hospital from January 2003 to December 2008. The children were the age from 18 months to 14 years old. For each children were studied the sex, the age, the season, origin, complications, length of the hospitalization and the status of the vaccination. All the patients admitted in the hospital before March 2005 were unvaccinated.

Results: The average age was 6.3, 96 cases or 65.3% were 5-14 years old followed by 1-4years old with 47 cases or 31.9%, predominantly male patients with 112 cases or 76.19%, 105 cases or 71.43% were admitted in the spring and summer seasons, there is not any difference for origin. We saw these complications: neurological manifestations in 61 cases or 41.5%, pancreatitis 24 cases or 16.3%, orchitis 18 cases or 12.2% mainly in the patients up 12 years old, tonsillitis and maxillitis 28 cases 19.1%. The spread of the patients by years was shown in the following table:

Years	2003	2004	2005	2006	2007	2008
No of cases	16 or 10.89%	36 or 24.5%	61 or 41.5%	23 or 15.6%	9 or 6.12%	2 or 1.36%

<30 years and the male to female ratio was 1:2. Characteristically, it was discovered that the epidemic occurred in the area which had missed vaccination against menin-

Conclusion: The majority of the cases was happen in the summer and spring, the male suffer more often from this diseases and the neurological manifestation were seen more often as other manifestations. In the last 2 years, the vaccine

against mumps have reduce very much the incidence of this diseases in our country.

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Pertussis in Brazil: An overview from 1988 to 2009

D. Leite*, L.C.V. Melo, T.M.I. Vaz, K. Irino

Instituto Adolfo Lutz, São Paulo, Sao Paulo, Brazil

Background: The introduction of pertussis vaccination in the past decades reduced substantially the number of cases; however, despite the high vaccination coverage rates, pertussis is still a major threat to public health all over the world including Brazil. In this study we present an overview of pertussis in Brazil in the last two decades.

Methods: Between 1988 and 2009, the National Reference Laboratory for Pertussis, Instituto Adolfo Lutz, São Paulo, Brazil, received a total of 985 presumptively identified *Bordetella* spp strains, isolated from sporadic cases and/or some pertussis outbreaks. The strains were forwarded by the Regional Laboratories in São Paulo State and by the Central Public Health Laboratories throughout the country. Identification of the species was done by standard methods. Detection of O1 antigen, and the serotyping were done by slide agglutination test using O1, and Fim 2 and Fim 3 antibodies, respectively. Molecular characterization was done by Pulsed Field Gel Electrophoresis (PFGE).

Results: All the 985 strains were confirmed as *Bordetella pertussis* and the most of them belonged to the serotype 1,3. Strains from southeastern states accounted for 67% (660/985), most of them from São Paulo State (646/985; 65.6%). The remaining 325 strains were from south region (147/985, 15%), northeastern states (87/985, 8.8%), north region (48/985, 5%) and central area (43/985, 4.4%). The great majority (81.1%, 799/985) was from children under twelve years of age, and among them 84.4% (675/799) was from infants aged less than six months. Strains from adolescents and adults accounted for 3.2% (32/985) and 8% (78/985), respectively. The age group was unknown in approximately 7.7%. Strains belonging to several PFGE patterns were identified and some were prevalent.

Conclusion: Different *B. pertussis* clones circulate all over the country. These data do not cover all the country, and may represent only a fraction of the actual number of pertussis cases due to the underreporting, despite pertussis is, in Brazil, a reportable disease since 2001. Data on age distribution of pertussis cases may contribute to develop the policy of booster doses of vaccine in adolescents and adults.

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Serogroup B epidemiology in the southern cone of South America. A literature review

L. Da Silva*, M.H. Kyaw

Novartis Vaccines and Diagnostics, Cambridge, MA, USA

Background: The epidemiology of meningococcal disease differs greatly by country and time period. Only passive

surveillance systems for meningococcal disease exist in countries in South America. Thus, little is known about the pattern of serogroup distribution by country in this region. Existing data showed that serogroup B is prevalent worldwide, with various strains and clones causing endemic, sporadic and epidemic disease. Several of these clones are very virulent. Understanding the local and national seroepidemiology of group B meningococcal disease is critical for vaccine formulations and vaccine policies.

Methods: We examined the current disease burden caused by serogroup B in the southern cone of South America, comprised of Brazil, Uruguay, Paraguay, Chile, and Argentina. Clinical data were retrieved following systematic review of the literature by country. The 2008 SIREVA report on invasive disease was also consulted.

Results: Until the late twentieth century, countries in the southern cone had similar disease epidemiology to Latin America as a whole. However, in recent years, this has changed. In Brazil, significant differences in epidemiology can be identified between areas close to other southern cone countries and areas bordering Andean or Caribbean countries. Fluctuations in the proportion of serogroup B versus serogroup C disease have been observed in southern cone countries, yet serogroup B consistently accounted for a significant disease burden throughout the early 21st century. For example, 100% of serotypable meningococcal disease reported in Chile between 1990 and 2003 was attributed to serogroup B, as was 40% to 65% of disease in Brazil. In Argentina, serogroup B consistently accounts for about 60% of invasive meningococcal disease. Even with the emergence of disease caused by Serogroups Y and W-135 in Brazil and Argentina since 2000, serogroup B has remained the cause of a consistent and ongoing public health problem.

Conclusion: Invasive disease caused by meningococcal serogroup B remains an important public health issue in the southern cone countries. An effective vaccine against group B meningococcal is needed to reduce the burden of disease in South America.

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Status of bloodborne pathogen education for injection drug users in Indiana hospital emergency departments

M. Wenger

Indiana State Department of Health, Indianapolis, IN, USA

Background: The problem of the study was to determine the status of bloodborne pathogen education for injection drug users in Indiana hospital emergency departments. Forty-six instruments were returned for a response rate of 43.8%.

Methods: The study was designed to answer the following research questions: (a) Do Indiana hospital emergency departments have written policies on bloodborne pathogen education for injection drug users? (b) To what extent do Indiana hospital emergency departments provide bloodborne pathogen education for injection drug users? and (c) What are the major barriers for Indiana hospital emergency departments in providing bloodborne pathogen education for injection drug users? A valid instrument was developed