

**Conclusion** In order to identify more rapidly a wide variety of mycobacteria, the PCR-restriction fragment length polymorphism analysis of *hsp65* procedure was applied. The PRA test among NTM isolates indicated that the most frequent mycobacterial strains were *M. kansasii*, *M. goodii*, *M. marinum*, *M. chelonae*, *M. scrofulaceum* and *M. gastri*. Our results showed that this method in comparison with classical methods is rapid and accurate enough for the identification of mycobacterial species from LJ culture isolates.

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#### MOLECULAR CHARACTERISTICS OF METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS ISOLATED FROM CHINESE CHILDREN

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**Objective** The present study aim to investigate the molecular characteristics of methicillin-resistant *Staphylococcus aureus* (MRSA) isolates from Chinese children in seven city.

**Method** A total of 134 MRSA isolates were collected from eight hospitals. Multilocus sequence (MLST), staphylococcal chromosomal cassette mec (SCCmec) and spa typing were analyzed. The Panton-Valentine leukocidin (pvl) gene was also detected.

**Result** Overall, 16 sequence types (STs) were obtained, and CC59 (51.7%) was found to be the most prevalent, which including ST59 and ST338, followed by ST239 (16.4%). SCCmec type II, III, IV and V were identified in this study. SCCmec type IV was the most predominant type at 50.0%, followed by SCCmec type V at 23.9% and III at 23.9%. SCCmec subtypes IVa, IVc, and IVg were found among the SCCmec type IV strains, IVa was the main subtype at 77.6%. Twenty-six spa types were also identified, the predominant type was t437 (47.8%). The prevalence of pvl genes and the SCCmec type of the strain were relevant, the pvl gene positive rate was higher in SCCmecIV and V-type strains than in SCCmecII and III-type strains (58.6% vs. 14.3%,  $P < 0.05$ ); there was a significant difference between them. In the strains isolates from pneumonia and SSTIs, ST59-MRSA-IVa (t437) was the predominant clone.

**Conclusion** The result indicates that MRSA isolates in Chinese children are largely associated with the ST59-MRSA-IV (t437) and ST239-MRSA-III (t037) clone.

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#### COLONIZATION OF METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS WITH HIGH-LEVEL RESISTANCE TO MUPIROCIN IN KOREAN CHILDREN

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Increased mupirocin use has been considered as a major cause to develop mupirocin resistance among MRSA isolates. High-level mupirocin resistance (HLMR) is associated with decolonization failure, but fortunately most MRSA have showed low-level mupirocin resistance (LLMR). Recently, we became aware of markedly high prevalence of clinical isolates with HLMR among Korean children. We investigated the proportion of HLMR isolates and mupirocin use between children (less than 18 years) and adult patients.

A total of 1134 MRSA (213 children and 921 adults) isolates were identified from two university hospitals in 2010–2011. Antimicrobial susceptibility testing was firstly performed by using the Vitek 2 instrument (bioMérieux, Marcy l'Etoile, France). The *mupA* genes were detected by polymerase chain reactions.

Overall, 38% of isolates collected from children showed HLMR, whereas 3.4% showed HLMR in adults. Children revealed only one LLMR isolate (0.4%), and adult patients had 80 LLMR isolates (8.6%). This tendency was also observed, when the patients were

divided into two groups under intensive care units or outpatient settings. A total of 4,009 mupirocin prescriptions were dispensed at our institutions during 2006. Afterward, there were 4,760, 5,250, 6,416, and 8,038 prescriptions from 2007 to 2010, respectively. But, prescription rates of mupirocin did not significantly differ between children and adults. In children with MRSA isolates, the presence of previous admission, prolonged hospitalization, and mupirocin use did not contribute to mupirocin resistance. In Korean children, the rate of HLMR in the MRSA isolates was very high and it was not associated with increased mupirocin use.

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#### EPIDEMIOLOGY OF POLIOMYELITIS AND MANAGEMENT OF ACUTE ASCENDING FLACCID PARALYSIS (AAFP) IN PAEDIATRIC INTENSIVE CARE UNIT (PICU) IN ALGERIA

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**Background and Aims** As part of the implementation of National plan for the eradication of poliomyelitis, disease surveillance and management of cases of AAFP are key strategies of this program.

The aim is participation in the national program for poliomyelitis, eradication and to determine the efficacy of intravenous immunoglobulin (IG) for treatment of AAFP.

**Methods** From September 1994 to February 2012, 176 cases of AAFP were identified and supported in our PICU. Since January 2008, 25 children were treated by IG. The parameter studied were: age, gender, autonomic disorders, albuminocytologic dissociation of CSF after lumbar puncture, artificial ventilation, average time of stay, and mortality.

**Results** In this series, no case of poliomyelitis has been diagnosed by the Pasteur Institute of Algeria. Since 2008, use of IG seems to improve the mortality. 8% in the overall series ( $n = 176$ ) vs 4% in the group treated with immunoglobulins ( $n = 25$ ). All deaths are related to the existence of severe neurovegetative disorders. The need in ventilation and the duration of stay does not appear to be influenced by the use of the "IG".

**Conclusion** The eradication of poliomyelitis is a national goal to declare the Algeria zone free of polio by the WHO.

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#### INFANT MORTALITY FROM INFECTION OVER 2 DECADES: LESS GBS AND MENINGOCOCCUS, BUT DOUBLING OF DEATHS IN VERY PRETERM INFANTS

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**Background** Infection is an important cause of neonatal/infant mortality. Antenatal care, neonatal intensive care and immunisation practices affect infectious mortality, but no good data show how these deaths have changed over time. Understanding this will help direct future medical priorities.

**Objective** To evaluate changes in neonatal/infant mortality from infection over 2 decades (1988–2008) in a geographical population.

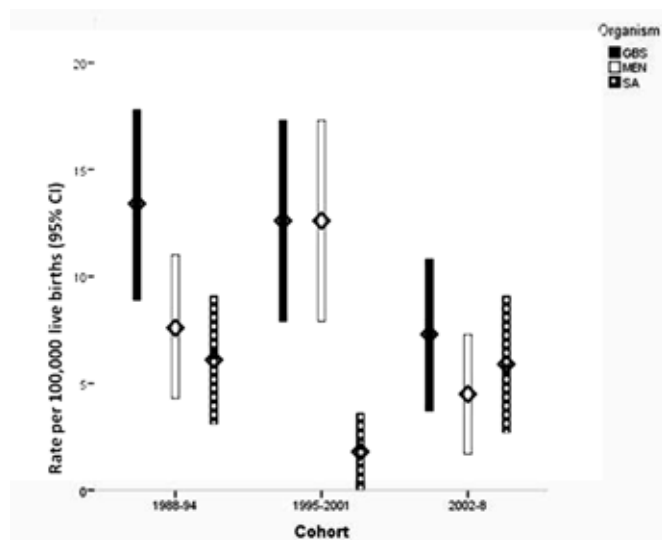
**Design and Methods** We used a population database (Perinatal Mortality Survey, Northern region UK) and reviewed infant deaths coded as infection. Proportional contribution to deaths, pathogens identified and risk factors were analysed. To demonstrate changes over time, three 7-year epochs were created.

**Results** 625 deaths from infection were identified. Absolute numbers of deaths fell with time but the proportion from infection increased. Significantly preterm infants were increasingly represented in successive epochs.

Abstract 276 Table 1

Deaths from infection % (infectious/ total deaths)	1988–1994	1995–2001	2002–2008
Neonatal (<29 days)	11% (139/1242)	13% (116/869)	15% (106/685)
Neonatal (<29 days)	16% (121/780)	17% (75/431)	19% (68/359)
Total infant deaths (0–364 days)	13% (260/2022)	15% (191/1300)	17% (174/1044)
Proportion of infectious deaths <28w gestation	18%	15% (191/1300)	44%

Deaths from GBS fell, and a fall in meningococcal (MEN) infections follows universal immunisation (1999). Infections from staphylococcus aureus (SA) were unchanged.



Abstract 276 Figure 1

**Conclusions** Despite better care and immunisations, the proportion of infant mortality from infections has increased. Term infants have benefited from changes in management but preterm infants have not, and deserve urgent prioritisation.

### 277 DIAGNOSING *KINGELLA KINGAE* OSTEOARTICULAR INFECTIONS IN YOUNG CHILDREN VIA SPECIFIC OROPHARYNGEAL SWAB PCR

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**Background** Diagnosing osteoarticular infections (OAI) caused by the increasingly recognized pathogen, *K. Kingae*, in young children remains challenging. The purpose of this study was to investigate whether specific oropharyngeal swab PCR could predict *K. Kingae* OAI in this population.

**Methods** A total of 123 children aged 6 to 48 months, presenting atraumatic osteoarticular complaints were prospectively enrolled. All were clinically evaluated, underwent hematologic and radiological investigations. Blood and oropharyngeal swab samples were tested with a *K. kingae* specific PCR assay. OAI was defined as the presence of pathogenic bacteria in bone, joint or blood samples, or magnetic resonance imaging consistent with infection despite negative microbiology. Positive culture or PCR for *K. kingae* in blood, bone or synovial fluid confirmed OAI due to this pathogen.

**Results** Forty children met the OAI case definition; 30 had *K. kingae* OAI, one had OAI due to another organism, and 9 had no

microbiologic diagnosis. All 30 oropharyngeal swabs from the patients with *K. kingae* OAI, and 8 swabs from the 84 patients without OAI or with OAI caused by another organism, were positive. The sensitivity and specificity of oropharyngeal swab PCR for *K. kingae* OAI were 100% and 90.5%, respectively; positive and negative predictive values were 78.9%, and 100%, respectively.

**Conclusions** Detection of *K. kingae* DNA in oropharyngeal swabs from children presenting clinical findings of OAI is highly predictive for *K. kingae* OAI. This test represents thus a valuable diagnostic tool, which could improve the recognition of OAI in young children.

### 278 INTERLEUKIN AND NEUROTROPHIC FACTOR PLASMA EXPRESSION ARE RELATED TO DISEASE SEVERITY IN CHILDREN WITH INFLUENZA A (H1N1) VIRUS INFECTION

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**Background and Aims** In the last years the world has been facing a new pandemic caused by a H1N1 influenza virus, showing particular virulence in children. Cytokines and neurotrophic factors seem to play an important role in severity and progression of this infection. In our study we evaluate cytokine (IL-1b and IL-6) and neurotrophic factor [Nerve Growth Factor (NGF), Brain Derived Neurotrophic Factor (BDNF), and Glial Derived Neurotrophic Factor (GDNF)] expression and their association with clinical-laboratory findings and outcome of children with H1N1 influenza virus infection.

**Methods** We performed a prospective observational clinical study on 15 children with H1N1 influenza virus infection and 15 controls with lower respiratory tract infection (LRTI). Cytokines and neurotrophic factor plasma levels were measured using an immunoenzymatic assay.

**Results** Significantly higher plasma levels of IL-1b, IL-6, NGF and BDNF were demonstrated in all patients with H1N1 infection respect to controls, while GDNF plasma levels did not undergo significant variations in the two groups. IL-6, NGF and BDNF expression was also significantly correlated with some laboratory and clinical findings, such as fever, cough, specific radiological lesions, and platelet count. No correlation was found between interleukin and neurotrophic factor expression and final outcome.

**Conclusions** H1N1 virus infection induces an early and significantly up-regulation of both interleukins (IL1b and IL-6) and neurotrophic factors (BDNF and NGF) respect to LRTI patients. The overexpression of these molecular markers is likely to play a neuro-immunomodulatory role in H1N1 infection and may contribute to airway inflammation and disease severity and progression.

### 279 ANTIOXIDANT EFFECTS OF N-ACETYLCYSTEINE IN A NEONATAL RAT MODEL OF NECROTIZING ENTEROCOLITIS

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**Background and Aim** Hypoxia and ischemia appear to play an important role in the pathogenesis of necrotizing enterocolitis (NEC) which is related to oxygen-derived free radical formation. This study was designed to evaluate the role of oxidative stress and potentially beneficial effects of N-acetylcysteine (NAC) in a neonatal rat model of NEC.