

## **ABSTRACT HIGHLIGHTS FOR MEDIA**

**(Embargoed 16 May 2009, 08:30 GMT/09:30 BST/11:30 EEST)**

### **RAPID DIAGNOSTICS**

#### **Molecular diagnostic tools changing the face of medicine**

Molecular tools to diagnose infectious bugs are changing the face of medicine. A new molecular technique can detect a wide range of viruses that cause influenza. The scientists tested the effectiveness of the tool to detect virus in children and found that it is highly selective and sensitive in identifying a dozen different viruses. Such a tool can reduce diagnostic testing, decrease antibiotic usage (by narrowing down the right organism) and reduce hospital stays.

[Abstract Number O500: Molecular detection of 12 viruses and subtypes by Luminex respiratory viral panel in respiratory specimens from children (*USA*)]

#### **Molecular tests could assist in swifter and more accurate diagnosis and treatment**

Bacteria growing in normally sterile fluids of the human body are often hard to detect using conventional methods. Now, with molecular tools at hand, scientists are testing whether such approaches can aid in identifying these bugs, which can lead to swifter and more accurate diagnosis and treatment. They collected 1,247 clinical samples and performed 1,370 tests using polymerase chain reaction (PCR) assays and found that they were able to detect organisms that have been difficult to grow using conventional tools. The investigators said that the economical and clinical impact of such a diagnostic strategy needs to be assessed.

[Abstract Number P1830: Usefulness of PCR on normally sterile body fluids for the detection of fastidious bacteria : (*Switzerland*)]

#### **Improving diagnosis of respiratory infections**

Patients showing up with signs of a respiratory infection may benefit from a new assay that detects a range of pathogens, including *Streptococcus pneumoniae* to influenza A and B. Teams in Finland are now testing the accuracy of such a test, which calls for a simple swab sample from the nose or throat. This study suggests that it is simple and inexpensive and works well enough to identify an offending bug and allow physicians to more accurately prescribe medicines that target the identified organism.

[Abstract Number P1909: Novel multianalyte point-of-care test for pathogen-specific diagnosing of respiratory infections (*Finland*) ]

#### **Improving detection of respiratory viruses in infants**

The use of a new PCR-DNA microarray assays to detect 17 respiratory viruses was tested in infants hospitalized for acute bronchiolitis in a hospital in France. It worked better than standard tests to identify infection and the scientists believe the new assay would be of major interest for the development of future therapeutic and preventive strategies to fight against the viral causes of bronchiolitis.

[Abstract Number P1936: Clinical evaluation of a new commercial PCR-DNA microarray system for simultaneous detection of 17 respiratory viruses in French infants hospitalized for acute bronchiolitis (*France*)]

**Rapid one-step detection method for human bocavirus**

Swedish scientists are developing a rapid laboratory test to detect a newly identified respiratory pathogen called human bocavirus. In early studies, it appears to identify antigens developed in response to the infectious respiratory bug but more work is needed to prove it could be widely used on clinical samples. The bocavirus seems to travel with other viruses and thus has been hard to isolate.

[Abstract Number O249: Rapid one-step antigen detection method for human bocavirus (Finland/Sweden)]

**Molecular screening improves detection of bacterial gut infections**

Molecular approaches to identify pathogens in the gastrointestinal tract appear much more sensitive than traditional methods that are not very good at detecting infectious bugs in the gut. Scientists used a new molecular screening approach on more than 10,000 stool samples and found that the detections of bacterial enteric pathogens (in the gastrointestinal tract) increased from 9.6% to 15%. Such tools could provide microbiologists with a better detection method. The scientists said that these molecular methods could expand to include the detection of viruses, parasites and other bacterial invaders.

[Abstract Number P1327: Improved detection of bacterial gastro-intestinal pathogens using molecular screening (Netherlands)]

**New test shows rapid detection and identification of tick-borne pathogens**

A new molecular test seems more powerful than standard polymerase chain reaction (PCR) tools in identifying tick-borne pathogens from a variety of human tissues. The investigators tested 198 samples from whole blood, 20 from cerebrospinal fluid and one from plasma that had been submitted to the laboratory for testing for *Ehrlichia* species of tick-borne bacterial invaders. They used PCR and electrospray ionization mass spectrometry to determine the genetic signature of these bacterial tick-borne organisms. This could be a much easier and more sensitive assay - and the entire analysis is done within 5 hours.

[Abstract Number O45: Rapid detection and identification of tick-borne pathogens directly from clinical samples using PCR and electrospray ionization mass (USA)]

**New test to help with diagnosis of extrapulmonary TB**

Scientists have developed a molecular test to identify the pathogens that cause tuberculosis and focal complications of brucellosis. Conventional microbiological tests were compared to the results using a polymerase chain reaction (PCR) assay and scientists reported that they were able to use this simple test to confirm a diagnosis of extrapulmonary tuberculosis or brucellosis. They blindly tested blood samples from 25 patients with extrapulmonary tuberculosis, 18 others with brucellosis and other problems that were initially thought to involve these infectious organisms. They report now that this PCR test is sensitive in detecting these pathogens and offers a promising approach for the diagnosis of these conditions.

[Abstract Number P1322: Development and application of a multiplex polymerase chain reaction assay for rapid differential diagnosis between extrapulmonary tuberculosis and focal complications of brucellosis (Spain)]

**Meningitis detected sooner by investigators in the Netherlands**

When meningitis is suspected, hospitals can turn to new molecular tests to identify half a dozen viruses that can infect the central nervous system. Scientists have tweaked the test, called the MeningoFinder, to reduce contamination risk and arrive at the results much sooner. They tested the alternate approach and proved that it

worked. Such real-time detection shows great potential in fast and easy screening of clinical samples for infectious pathogens, the investigators said.

[Abstract Number O48: Multiplex real-time assay for the detection of 7 viruses causing infections of the central nervous system (*Netherlands*)]

## **ANTIMICROBIAL RESISTANCE**

### **Signs of decreasing resistance trends in MRSA in Europe**

*S. aureus* continue to defy the most potent antibiotics, and resistance has been reported in some parts of the world to be as high as 50%. But a new study conducted by the European Antimicrobial Resistance Surveillance System (EARSS) - that has kept tabs on MRSA infections since 1999 - has identified a new trend: the rates of resistance is going down in some parts of Europe. That is good news, offering hope that resistance to specific antibiotics does not have to be a permanent, escalating trend.

[Abstract Number O36: Decreasing trends in MRSA in Europe]

### **Multi-drug-resistant *E. coli* found to be on the rise in Europe**

Antibiotic resistance is on the rise according to data analyzed from the European Antimicrobial Resistance Surveillance System (EARSS). In 2006, the majority of invasive *E. coli* isolates were still responding to the common antimicrobials such as the fluoroquinolones, aminoglycosides or third generation cephalosporins. A year later, the surveillance team tested 43,000 *E. coli* clinical isolates and found that resistance to fluoroquinolones has markedly increased – from 5% to 30%. And more than half of all *E. coli* isolates was resistant to one or more of the four classes tested (53%). For the first time, most of the European *E. coli* isolates showed resistance to one or more of the antibiotics commonly used for treatment. As a result, the choice of empirical treatment for invasive *E. coli* infections becomes more difficult.

[Abstract Number O31: The majority of European invasive *E. coli* isolates is resistant to one or more antibiotics commonly used for treatment (Pan-European)]

### **Study shows treatment of *E. coli* infections in ICU's may need to be reconsidered**

Doctors turning to standard antibiotics to treat *E. coli* infections on intensive care units may need to reconsider their treatment strategy. A new study conducted in almost 50 intensive care units throughout Germany found an alarmingly high increase in *E. coli* resistant to ampicillin and other antibiotics commonly used to fight this nasty infection. The scientists looked at 16,576 *E. coli* isolates cultured between 2001 and 2007 and found that 32% of the samples were resistant to current antibiotics. And the incidence climbed over the six year period. Based on the findings, the scientists recommended switching to other antimicrobials to counteract this resistance.

[Abstract Number O33: Resistant *Escherichia coli* on the rise? Data from the project Surveillance of Antimicrobial Use and Antimicrobial Resistance in Intensive Care Units (SARI); 2001-2007 (*Germany*)]

### **Urinary tract infection may be an important reservoir of *E. coli* resistance to antibiotics**

*E. coli* is a ubiquitous organism that can lay dormant in the body or wreck havoc. Investigators in the UK collected *E. coli* isolates from 295 healthy volunteers and 295 isolates collected from clinical urine samples. To test the prevalence of antibiotic resistance, they exposed the isolates to a number of antibiotics and measured the

organism's resistance patterns. They report that the isolates from the clinical urinary samples were more resistant to the treatments. Almost 60% of the isolates were resistant to at least one antibiotic and 24% resistant to two or more. By contrast, the *E. coli* samples from healthy individuals were much lower – 43% for one antibiotic and 9% for more than one. The finding suggests that the urinary tract may be an important reservoir of *E. coli* resistance.

[Abstract Number P1210 : Prevalence of antimicrobial resistance and antimicrobial resistance genes among Escherichia coli from healthy volunteers and patients with urinary tract infection (UK)]

### **Control of *Klebsiella* infection needed now more than ever in Greece and beyond**

There's a new resistant bug in Greece and scientists are worried that its appearance means that hospitals have to be more vigilant in protecting against this organism. Reports about the isolation of a resistant strain of *Klebsiella pneumoniae* in France and Sweden showed that the two patients identified had been hospitalized in Greece. Based on these cases, scientists retrieved isolates from 40 Greek hospitals that were collected over a three-month period in early 2008. They identified 92 cases of the organisms from 13 hospitals. About 80 of the isolates appeared to be from the same strain and were linked to 12 of the hospitals. The investigators caution that this "spread imposes the urgent need for implementing infection control practices in the affected hospitals."

[Abstract Number O349: Emerging infections due to KPC-2 producing *Klebsiella pneumoniae* in hospitals in GreeceP (Greece)]

### **Emergence of resistant strains of *Klebsiella pneumoniae* cause for concern in**

As cited above, the emergence of resistant strains of *Klebsiella pneumoniae* worries infectious disease experts. Scientists in Norway present the first seven cases of this strain. They are also watching with worry that these organisms will become more prominent as a source of hospital-acquired infections.

[Abstract Number 0348: Emergence of KPC-producing *Klebsiella pneumoniae* in Norway is associated with hospitalization abroad, nosocomial transmission and sporadic urinary tract infections in outpatients (Norway)]

### **First case of multidrug-resistant *Klebsiella pneumoniae* found in Italy worries scientists**

Public health officials worry that common infectious organisms are growing resistant to available antibiotics and that this trend will lead to the development of more strains. A team in Italy report the first case of multi-drug resistance in *Klebsiella pneumoniae*, a finding that they believe is worrisome given that this bug is now spreading across various geographic regions.

[Abstract Number P1681: Emergence of multidrug-resistant *Klebsiella pneumoniae* producing KPC-type carbapenemase,(Italy)]

## **ANTIBIOTICS**

### **Are fears of overusing antibiotics founded?**

Antibiotic resistance is a major concern in medicine. While it has been shown that organisms exposed to repeated antibiotics become resistant and threaten treatment response, a new study looking at antibiotic use over a 10-year period in an out-patient setting showed that there was no increase in antibiotic resistance. The scientists looked at the percentage of isolated organisms resistant to a number of

antibiotics and calculated the resistance pattern to changes in the antibiotics that were prescribed between 1998 and 2007. The study needs replication but it raises the question about the fears of overusing antibiotics.

[Abstract Number P754: Ten years of antibiotic consumption in ambulatory care: trends in prescribing practice and antibiotic resistance in Austria (*Austria*)]

### **Public health campaigns on how to take antibiotics show success**

Have you swallowed all of your antibiotics? Most patients don't -- and this has led to the very serious problem of antibiotic resistance. Organisms win out if there is not adequate levels of medicine to fight them. Public health campaigns – nationally and regionally – have emerged in the last decade to address this problem, but do they work? An international team of public health officials identified 22 campaigns to improve outpatient antibiotic use and tried to figure out whether they were effective, and if so, why. Most of them (17) were organized by health authorities on public funds. Two campaigns were sponsored by the pharmaceutical industry.

Virtually all of the campaigns targeted doctors and the public, using young children with upper respiratory infections to drive home the importance of taking the complete number of pills prescribed. Nine of the campaigns led to a reduction in antibiotic prescriptions and two others showed improvements in adhering to the schedule. The researchers are hoping that these campaigns can be tailored to deliver information that works in strengthening adherence.

[Abstract Number P777: Public campaigns to improve outpatient antibiotic use in high-income countries (Pan-European)]

### **One in 4 receive inadequate antibiotic treatment**

Public health scientists studied records of 334 patients hospitalized across Europe with *Staphylococcus aureus* bacterial infection and found that more than one in four patients (28%) did not receive adequate antibiotic treatment. Most of the patients with a resistant strain of MRSA were among those who received inadequate treatment. While length of stay was associated with inadequate treatment, it did not lead to an increase in death among the hospitalized patients. But that inadequate treatment kept patients in the hospital longer speaks to the issue of ensuring patients receive an adequate supply of IV antibiotics.

[Abstract Number P765: Adequacy of antimicrobial treatment and outcome of *Staphylococcus aureus* bacteraemia in nine European countries (*Pan European*)]

### **Single dose of antibiotic is as effective as longer course of treatment for chest infections**

One dose of an antibiotic was just as effective as a five day course of a strong antibiotics in treating an acute episode of chronic bronchitis, a finding with tremendous implications in the delivery of any kind of treatment. One pill means people can't forget to take their medicine. The antibiotic is designed in microspheres that allows for a higher dosage in one treatment. This multi-centre study compared the effectiveness of the single dose azithromycin and a five-day trial of moxifloxacin. Patients in the study had at least a 20 pack-year history of smoking and chronic bronchitis. In the preceding year they had at least two exacerbations. The single pill worked just as well as the week-long dose and no one had another relapse over the 9 month follow-up period.

[Abstract Number O212: Single-dose azithromycin microspheres vs 5-day moxifloxacin in Acute Exacerbation of Chronic Bronchitis (*USA*)]

**Large study of antibiotic use across Europe shows which drugs are used, by whom and for what**

Antibiotics are the mainstay in hospitals and scientists can now easily track the number of prescriptions doled out daily to get a sense of how hospitalized patients are treated, and what they are treated for. Scientists collected data from two weeks between May and July 2008 in 50 hospitals throughout Europe. They gathered demographic data on antibiotic prescription, diagnoses and the indications in 25,710 in-patients.

Thirty one percent received an antibiotic during their stay and antibiotics accounted for 90% of all prescriptions written. The study provides a snapshot that will help in tracking changes in specific antibiotics and their use over time. The team also developed and successfully tested an easier recording system using a Palm Pilot and web-based software. Such tools provide a simple way to track quality of care worldwide.

[Abstract Number 0294: The ESAC Point Prevalence Survey of patterns of antibiotic use in 50 European Hospitals in 2008 (*Pan-European/Belgium*)]

**INFECTION CONTROL****World's first national "Clean Your Hands" Campaign reduces MRSA infection by half in the UK**

In 2004, health officials in the UK began the first national "Clean Your Hands" campaign in a global effort to reduce the spread of hospital-acquired infections. Such infections are all too common and result in increases in sickness and death. An independent assessment of the programme during a four year period found that the programme worked well. Alcohol hand rubs were available at bedsides, posters lined hospital walls and patient empowerment materials were provided. At the end of four years, common hospital-acquired infections (meticillin resistant and *S. aureus* bacteraemia) were reduced by half. The patient empowered material was not as effective, but combined soap and alcohol wash use tripled over the study period. The investigators say this model, which was implemented in the UK and Wales, should be adopted by other countries to reduce hospital-acquired infections.

[Abstract Number O140: The success and effectiveness of the world's first national clean your hands campaign in England and Wales 2004-2008: a prospective observational interrupted time-series (*UK*)]

**Hospital-acquired infections can be cut in half by simple measures**

Hospital-acquired infection is a common source of sickness and death. According to a new study by scientists in the Netherlands, taking simple steps -- applying a nasal antibiotic ointment (mupirocin) and providing patients with a medicated soap (chlorhexidine gluconate) following surgical procedures helps reduce the death rate by half. The researchers looked at a range of surgical cases (792 patients in total) and found a difference in mortality between the treated group and those who were not offered these measures. The most benefit was found among cardiovascular patients who had a three-fold decrease in mortality – 2.3% in those who had used the nasal ointment and the medicated soap versus 6.5% in those who hadn't.

[Abstract Number O141: Effect of peri-operative mupirocin and chlorhexidine on mortality in nasal carriers of *Staphylococcus aureus* (*Netherlands*)]

**Screening all hospital admissions reduces MRSA by 70%**

Public health officials trying to stave off outbreaks or epidemics of MRSA (methicillin-resistant *Staphylococcus aureus*) have discovered that it is hard to manage the spread of a virus when it doesn't always cause symptoms. So they turn to surveillance strategies in an attempt to keep the life-threatening organism at bay. In a new study, scientists have shown that universal admission surveillance and decolonization capturing 85% of possible MRSA isolation days had a dramatic impact by reducing 70% of all in-hospital infections from MRSA. This strategy could help reduce the spread of disease and save lives. Other screening techniques take too long to identify high-risk patients and test to see if they were exposed to MRSA.

[S330: MRSA: Universal screening! (USA)]

**New electronic game helps teach children about infection**

Kids are bugging out with a new electronic game on microbes. e-bug teaches elementary school children about organisms that lurk inside our bodies and in the environment. Now, young people can learn about antibiotics and why it's so important to swallow every single pill. And why washing hands prevents the spread of bugs from one person to the next. Scientists are currently testing to see what the children are learning and whether the time spent playing will result in behaviour changes.

[Abstract Number P1679: e-Bug: evaluation of the e-Bug educational pack in England, France and the Czech Republic (UK)]

**Bacteria is affected by different Seasons**

Scientists have discovered that seasonal temperature differences play a critical role on life in the intensive care unit. A team of German researchers looked at the bugs that show up over almost a decade and found that the density of the pathogens have their own seasonal dance: for example, the density of *P. aeruginosa*, *E. coli* and *A. baumannii* were significantly higher in autumn than in winter. Interestingly, gram-positive organisms did not vary by temperature or time of year. The finding has implications for treatment and infection control.

[Abstract Number P1454: Seasonal variation in the incidence of Gram-negative bacteria in intensive care units (Germany)]

**Clean sink initiatives in hospital prove successful in reducing infections**

Adding an extra cleaning agent is a powerful solution to knocking out organisms that take up residence in hospitals and threaten to make people sick. Scientists in the UK tested the germ-fighting benefits of introducing another cleaner in reducing aerobic bacteria from sink surfaces. It has been shown that bacteria that lurk on surfaces can serve as a vehicle for contamination. They introduced another cleaner on two hospital wards, using it to clean ten separate surface areas. The enhanced cleaning led to a 32.5% reduction in levels of microbial contamination. And more important, there was a 26.6% reduction in new staph infections (MRSA) that have grown resistant to current microbial medicines. This study is proof that clean sink initiatives will have a critical hand in reducing infections.

[Abstract Number P1644: Measuring the effect of enhanced cleaning in a UK hospital: a prospective cross-over study (UK)]

**Testing the most effective screening methods**

A collaborative team from the UK and Australia are testing screening methods to identify MRSA (methicillin-resistant *Staphylococcus aureus*) in an attempt to stave off this serious infection. The scientists studied several screening tools and found small

but significant differences. Such information is critical in designing hospital protocols to identify MRSA and reduce patient days spent in a hospital, as well as protecting against the spread of infection.

[Abstract Number O135: Model-based assessment of the effectiveness and cost-effectiveness of methicillin-resistant *Staphylococcus aureus* infection control programmes in the intensive care unit (*UK & Australia*)]

#### **Four year study shows water fountains pass on bacteria in hospitals**

Soda fountains in hospitals may be serving up some nasty bugs. One hospital in Germany has spent four years testing water samples from 51 different soda fountains and found that 14% of the samples had excessive numbers of bacteria that could cause problems. The hospital collected 358 samples between 2004 and 2008 and found a range of bacteria. The rate of colonization dropped over the four year period, which they suspect could be due to replacing charcoal filters with particle filters. The study highlights the need for continued surveillance as well as standard cleaning, disinfection and maintenance.

[Abstract Number P863: Use of soda fountains in hospitals: four-year surveillance of daily routine (*Germany*)]

#### **Spanish study shows fungi in air of operating theatres cause illness after heart surgery**

Patients undergoing heart surgery may be at risk for serious airborne fungal infections, according to this new study. A team of scientists in Spain identified 11 patients over an 18-month period admitted to the intensive care unit following heart surgery. They had invasive aspergillosis, a life-threatening fungal infection. All the cases were linked to 4 peaks of abnormally high airborne levels of the fungus – even in those areas equipped with standard HEPA filters designed to trap such organisms. The study highlights the risk of airborne fungal infections and should lead to techniques to reduce such outbreaks.

[Abstract Number O244: Outbreak of invasive aspergillosis in an intensive care unit for major heart surgery. The case for abnormally high levels of airborne *Aspergillus conidia*: presence of similar genotypes in air and clinical samples (*Spain*)]

#### **Study shows air con in cars helps those with weakened immune systems**

Driving with air conditioning may be good for your health, especially if you have a weakened immune system. A team of German scientists sampled the air in a number of cars on 32 occasions, counting the number of microorganisms inside and out. They compared air samples when the air conditioning was off and on and found an 81% reduction in the number of organisms when the air con was on. The reduction in the number of mold spores was even higher. The amount of microorganisms found were not enough to make people sick, but they could be more susceptible with a compromised immune system.

[Abstract Number P1673: Microbiological quality of air conditioning systems in cars (*Germany*)]

#### **Food proved to be the source of infection in hospitals**

Public health officials identified the first hospital-acquired outbreak from a food source of ESBL-producing\* bacteria (*Klebsiella pneumoniae*). Following the identification of two patients with ESBL-producing *Klebsiella pneumoniae* on a medical ward of a teaching hospital in Spain, samples were collected to look for fecal material in units all over the hospital, including the kitchen.

From June-October 2008, 153 colonized/infected patients were identified. 21% (32 patients were infected). In the kitchen, up to 35% of studied surfaces or foods were contaminated. Six out of 44 (14%) of asymptomatic food handlers were found to be fecal carriers. One of the kitchen washing rooms was responsible for the persistence of the outbreak over time. Food was the vehicle for massive spread of the organism throughout the hospital. The study should provide some food for thought in thinking about new routes of hospital-acquired infections.

\*ESBL producing bacteria are resistant to some antibiotics used to treat infection making it more difficult to treat patients effectively.

[Abstract Number P849: Food-borne nosocomial outbreak due to ESBL-producing *Klebsiella pneumoniae* (SHV-38). *Epidemiology and successful control (Spain)*]

### **Understanding differences between how patients become infected**

People who come in contact with health care employees exposed to infectious organisms are at risk for contamination but a new study suggests that the bugs are different than the ones that put hospitalized patients at risk. Spanish researchers conducted a multi-centre study in 15 public hospitals and identified 822 episodes. Separating the hospital-acquired bloodstream infections from community-acquired and health care-acquired infections, the epidemiologists were able to show that chronic renal failure and liver disease was more frequently associated with the health-care acquired infections. The infecting bugs were also different. The study highlights the importance in understanding how patients became infected so that it can guide prevention and treatment efforts.

[Abstract Number 0180: Nosocomial, community and health care-associated bloodstream infections in Spain (*Spain*)]

### **Infection risks from food in mental health setting**

In one day, 100 people in a state institution in Slovenia for the mentally impaired came down with a stomach bug. Over the next three days, the outbreak felled 407 out of 580 residents and 15 of 350 staff members. The culprit - bean salad. The outbreak led to 39 resident hospitalizations and 50 residents (12.3%) were still harbouring salmonella enteritidis two months later. This study highlights the magnitude of a food-borne outbreak – the attack rate was 70% - and the serious consequences that should warrant constant vigilance. Many of the patients could not follow recommendations, such as handwashing, that may have protected them in the days of the outbreak.

[Abstract Number: P1431: Food-borne Salmonella enteritidis outbreak in a mental health institution (*Slovenia*)]

## **TREATMENT**

### **New drug may help reduce deaths from severe septicemia**

Sepsis is triggered by the body's abnormal immune response to infection and can be deadly. Many laboratories are trying to identify agents that could work to block this rogue inflammatory attack. This team of investigators have used a caspase inhibitor that blocks cell death to double survival in septic animals. 38% of the animals would normally survive sepsis but the number rose to 88% when the animals received the caspase inhibitor. The scientists suspect that the medicine helped the immune system clear the bacteria from the bloodstream.

[Abstract Number O354: Evaluation of a novel small molecule caspase inhibitor, VX-166, as a potential therapy for sepsis (*UK*)]

### **Face to face treatment sees better results**

People in the throes of a serious staphylococcal infection will have a better outcome if they have a formal infectious disease consult. This is usually not done, but scientists who followed the year-long course of patients with MRSA infection found that mortality was significantly lower in those who had a face-to-face consult. Normally, infectious disease doctors telephone in the results. This study – over a 10 year period – showed that mortality was halved by the in-person consult. The reason: more effective initial antibiotic therapy in those who had a consult.

[Abstract Number O302: Formal infectious disease consultation is associated with decreased mortality in *Staphylococcus aureus* bacteraemia (*Australia*)]

### **Allergies to catheters need to be considered**

Doctors taking a routine pre-surgical history on heart patients may want to ask about a history of chemical sensitivity. A new study suggests that people undergoing cardiac surgery may have allergies to the bacterial antiseptic used to coat venous catheters. According to a team of British investigators, three patients in a regional cardiac centre in northwestern England had to be resuscitated right after a central venous catheter was hooked up. The catheter is coated with chlorhexidine to reduce the chance of infection. Tests proved that all three patients had a severe allergic reaction to the bacterial antiseptic. The Food and Drug Administration saw its first case of anaphylaxis to chlorhexidine in 1998. This latest report brings the number of cases to seven. Surgeons should take note that a review of the case notes from these patients revealed that they had minor skin reactions to pre-operative exposure to chlorhexidine.

[Abstract Number O391: Throwing caution to the winds? Three cases of anaphylaxis to chlorhexidine coated central venous catheters from a regional cardiac centre in northwestern England (*UK*)]

## **VACCINES**

### **Flu vaccine in heart disease patients improves outcomes**

Influenza vaccine reduces cardiac events in patients with coronary artery disease, according to a new study that followed heart patients for six months post vaccination. Doctors enrolled 281 patients and randomized them to receive a flu vaccine or a placebo dose. A number of cardiac events were measured over the testing period and they found significantly more heart related problems among those who did not receive the active vaccine. As expected, there were fewer cases of influenza among those who had the vaccine. The investigators, not surprisingly, recommended influenza vaccines early in the season to reduce the risk of infection and the secondary affects on the heart.

[Abstract Number P1418: The Efficacy of Influenza Vaccination in Reducing Cardiovascular Events in Patients with Coronary Artery Diseases - IVCAD Study(*Iran*)]

### **New whooping cough vaccine generates long lasting immunity**

There is no doubt that vaccines have prevented or staved off serious infections and changed the course of history. But it is also now clear that this immune protection is not life-long. A group in Finland conducted the first 10-year follow-up of a cellular booster vaccine to prevent against whooping cough and found that the immune response is still strong in adulthood. Whooping cough, also called pertussis, is a

contagious respiratory tract infection. The first series of vaccinations are given in infancy and then again in adolescence. It was thought that immunity wanes in about 7 years but this study shows that the antibodies to protect people are still present a decade after the adolescent booster.

[Abstract Number 1427: Immunity to pertussis 10 years after acellular booster vaccine in adolescence and response to a second dTpa booster in young adults (*Finland*)]

### **Pneumococcal vaccine reduces pneumonia in children, but emphysema rates require further investigation**

The recommendation for providing pneumococcal vaccinations to children under 5 has led to a substantial reduction in the number of infections and hospitals. A new study that looked at the incidence of pneumococcal pneumonia admissions in the seven years before the routine recommendation and after proved the effectiveness of the vaccine in preventing infection. But the scientists also noticed an increase in emphysema, inflammatory fluid and debris in the pleural space, in children who ended up in the hospital with pneumonia. While there was a 34% decrease in the number of children presenting to the hospital with pneumonia, the rates of emphysema increased anywhere from three to eight times, depending on the age of the child. While emphysema still remains a relatively rare event – 1.6 per 100,000 in 1994 to 4.4 per 100,000 in 2006 – the researchers say that more work is needed to figure out whether the vaccine itself is responsible for the increase in inflammation in the pleural space.

[Abstract Number P1067: Sustained declines in childhood pneumonia hospitalizations and changes in emphysema incidence after introduction of pneumococcal conjugate vaccine in the U.S. (*USA*)]

## **PREGNANCY**

### **Substantially increased risk of infection after a caesarean compared to natural delivery**

Caserean sections continue to increase for a variety of reasons but new studies suggest that surgical delivery may carry a high price: a greater risk of post-partum infection. A new study from a team in Denmark looked at infection rates among women who gave birth between 2001 and 2005 and compared the frequency of urinary tract infections, wound infections and bloodstream infections. Women who had a C-section were twice as likely to have a urinary tract infection (1.5% versus 2.8%) and more than five times at greater risk for wound infections. The majority of these problems occurred after the new mothers were sent home. The scientists said that the need for post-discharge surveillance is critical so that the field can weigh the pros and cons of vaginal versus C-section delivery, and provide women with adequate protections when giving birth by C-section.

[Abstract Number P1432: Increased risk of postpartum infections after caserean section compared with vaginal birth (*Denmark*)]

### **Finnish study shows Hepatitis C in pregnant women is a problem and testing for all mothers should be recommended**

The prevalence of hepatitis C is growing and a new study by Finish investigators suggests that routine testing during pregnancy may be justified to reduce the risk of intrahepatic cholestasis that causes serious itching and elevated serum bile acid levels. The scientists analyzed the results from anti-Hepatitis C Virus antibody testing of almost 45,000 new mothers and found that .05% of them were infected with

hepatitis C. 30% of the women did not even know that they were infected with the virus, which can cause serious liver problems. Among the 145 mothers identified, 10% of them developed intrahepatic cholestasis. The scientists believe that this risk, and the fact that many women get pregnant without knowing that they have been exposed to the hepatitis C Virus, demands routine testing for hepatitis C antibodies during pregnancy.

[Abstract Number O229: Hepatitis C Virus in pregnancy (*Finland*)]

## **GENETICS**

### **Genes affects susceptibility to sepsis**

A genetic marker involved in the body's immune response to infection may help explain why some people are more susceptible to Gram-positive infections. People who develop sepsis are more likely to have a particular variety of the TANK-binding kinase 1 or TBK1, gene. Scientists at Maastricht University Medical Center used genetic markers to study DNA from 350 patients with either Gram-positive or Gram-negative blood cultures. One of the single nucleotide polymorphism, or SNPs, was close to the TBK1, and was associated more often with the Gram-positive cultures. The gene appears to play an important role in trying to defend the body against Gram-positive pathogens.

[Abstract Number O353: Polymorphisms in the promoter region of TANK-binding kinase-1 (TBK1) are associated with Gram-positive bloodstream infections (*Netherlands*)]

### **Genetics leads to greater likelihood of chronic disease in people exposed to the Hepatitis B virus**

Scientists have identified a single nucleotide polymorphism (SNP) that may explain why some people exposed to the hepatitis B virus are more susceptible to chronic disease. Blood samples were collected from 983 people in China, 361 with chronic hepatitis, 256 people infected with the virus who recovered and 366 healthy volunteers. They looked at seven SNPs and found two alleles, or varieties, that are associated with the behavior of the virus. This finding could lead to a genetic test to see whether people exposed to the virus will get better or have a more persistent course of illness.

[Abstract Number P725; A SNP in IFNGR1 promoter is correlated to the susceptibility to chronic HBV infection in Chinese population (*China*)]

## **QUARANTINE**

### **Does quarantine affect patients psychologically?**

Every day hospitals make decisions about whether to quarantine high-risk patients to reduce the spread of infection. But what effect does isolating these sick patients have on their psyche? Apparently it is not as anxiety-provoking as it seems. According to a new study, patients who were quarantined for 24 hours did not seem to be anxious or depressed. In fact, the patients reported feeling safer. Feelings of depression and anxiety did begin to increase after 48 hours. Being aware of a patient's mood is key to helping them cope with the hospital experience in a more positive way.

[Abstract Number O138: Psychological impact of short-term isolation for infection control (*Netherlands*)]

## **MISCELLANEOUS**

### **Patients with elbow prosthetics at more risk of life-threatening infections**

Introducing infections during joint replacement surgery has long been a concern. But most of the focus has been on hip replacement, which carries a 1% risk of infection. A team of Swiss scientists have identified a much higher risk of infection among people who required an elbow prosthetic. A look back on 358 prosthetic cases identified infections in 7% of the patients. Joint infection is characterized by pus, acute inflammation or the growth of infectious organisms in the surrounding elbow tissue. Half of the infections (12 out of 25 patients) occurred within three months of the surgery. Ten others developed symptoms two years later. While a mix of organisms were identified, *Staphylococcus aureus* was the culprit in most cases. The study suggests that life-threatening infections are common among elbow replacements and patients should be made aware of the symptoms so that they seek treatment quickly.

[Abstract Number O389: Characteristics of elbow prosthetic joint infection: a 13-year retrospective analysis of 358 elbow prostheses (*Switzerland*)]