ANTIMICROBIAL RESISTANCE

**Antibiotic Resistance by *E. coli* and *K. pneumoniae* Rising Throughout Europe**

Effective antimicrobial therapy in Europe is fast losing ground to the pathogenic bacteria *Escherichia coli* and *Klebsiella pneumoniae*, according to a new continent-wide study. Based on data collected from 33 countries by the European Antimicrobial Resistance Surveillance System (EARSS), the study found that resistance to three antibiotics used against the pathogens has increased significantly over the past four years in multiple countries. Drug resistance has proven especially problematic in southeastern Europe. The study suggests that combined resistance to all three antibiotics is likewise increasing and may be the biggest danger, threatening community and hospital-based care throughout the continent.

[Abstract Number O127: Rapid increase of antimicrobial resistant Gram-negative pathogens in Europe (pan-European)]

**Among Hospitalized Children in Ghana, a Surge in Bacterial Multidrug Resistance**

Six bacterial pathogens isolated from children in a rural Ghana hospital all showed strong resistance to a majority of tested antibiotics, according to a troubling new study. More than 80 percent of non-typhoid *Salmonella enterica* isolates collected from blood samples, for example, were resistant to the antibiotics ampicillin, cotrimoxazole, and chloramphenicol. This major emergence of multidrug-resistant bacterial strains could place additional medical and economic stress on healthcare providers in Africa and highlights the need for effective surveillance and prevention strategies.

[Abstract Number O395: Massive emergence of multidrug-resistant Enterobacteriaceae in blood culture isolates of children in Ghana (Germany)]

**Meningitis Pathogen Overcoming Penicillin in Turkey**

*Streptococcus pneumoniae* is quickly gaining resistance to penicillin in Turkey, according to a new analysis of the rate at which the bacterial pathogen blamed for meningitis, pneumonia and other invasive infections is evading commonly prescribed antibiotics. Overall, the study found that more than one in four bacterial isolates collected from cerebrospinal fluid were penicillin-resistant, surging from a 7.7 percent resistance rate in 2003 to 57.1 percent in 2008. From blood samples, the same study found that the rate of resistance to erythromycin has increased gradually, while resistance to tetracycline and fluoroquinolones has not yet shown a steady uptick.

[Abstract Number P1685: Trends in antimicrobial resistance in invasive isolates of *Streptococcus pneumoniae* in Turkey (2003-2008)]

**Humans in Australia Likeliest Reservoir for Bacterial Pathogen**

In Australia, humans are the likeliest source of a related group of pathogenic *Escherichia coli* strains that can infect both humans and dogs, a new analysis concludes. Known for their resistance to the antibiotic fluoroquinolone, nearly 60 percent of the bacterial samples showed resistance to four or more drugs, regardless of whether they were isolated from human or canine blood. Moreover, molecular
tests suggest that these multidrug-resistant *E. coli* strains can be readily exchanged between humans and dogs, and that both hosts may be unwitting participants in the emergence and spread of one of these bacterial family members around the world.

[Abstract Number P759: Molecular analysis of fluoroquinolone-resistant extra-intestinal *Escherichia coli* isolates from dogs and humans in Australia (Australia and USA)]

**Raw South American Poultry Not to Blame for Common UK Pathogen**

A new study suggests that raw chicken imported from South America to the UK can act as a reservoir for pathogenic types of *E. coli* rarely seen in the clinic, but that the meat does not harbour more clinically dominant strains of the bacteria. Researchers had postulated that the spread of an increasingly common *E. coli* strain in the UK is being aided either by human-to-human contact and travel, or by a globally distributed food. Based on a molecular and genetic analysis, the study concludes that raw poultry likely can be excluded as a suspect for the latter possibility.

[Abstract Number P1616: Imported raw chicken meat as a potential reservoir for ESBL-producing *Escherichia coli* in the UK (UK)]

**CONTROLLING INFECTIONS AND OUTBREAKS**

**Nurses Beat Docs in Hand Hygiene, Despite Uneven Compliance in ICUs**

Nurses outperformed doctors in complying with good hand hygiene practices amid highly variable rates among European intensive care units (ICUs), according to a new study. Trained research nurses observed staff members in 13 ICUs in eight countries and recorded compliance rates ranging from 7 percent to 88 percent. On average, nurses scored the best, while doctors also trailed auxiliary nurses and other healthcare workers in their compliance rates. Almost half of the missed hygiene opportunities involved the use of gloves, primarily before conducting a task requiring a germ-free area or after potential contact with body fluids. Early data from 10 ICUs, however, suggests that compliance rose after introduction of a program to improve hand hygiene.

[Abstract Number O464: Hand hygiene compliance in 13 European intensive care units (Netherlands)]

**A-Twitter Over Swine Flu: How Social Media Can Aid Disease Surveillance**

A new study suggests that Twitter and other social media sites hold great promise as early warning systems for disease outbreaks like last year’s swine flu epidemic and as outlets for public health information. Although traditional surveillance systems are well established, researchers are increasingly investigating the potential for user-generated content from social networking sites to provide information such as affected individuals’ locations and activities. From an extensive search through Twitter posts during last year’s swine flu outbreak, the study’s researchers found more than 1 million tweets describing flu-related illnesses and symptoms over a four-month period. In nearly 2,900 instances, the posts included the actual sentence, “I have swine flu.”

[Abstract Number P1891: The potential of Twitter for early warning and outbreak detection (UK)]

**Vaccination and Education Boost Antibiotic Susceptibility of Meningitis Pathogen Among French Children**

A vaccination scheme targeting *Streptococcus pneumoniae* and an educational campaign on the prudent use of antibiotics helped drive down the bacterial pathogen’s drug resistance among French children in day care centres, a new study
suggests. The study, which randomly sampled children in two centres several times between 1999 and 2008, also found that fewer children carried the pneumonia and meningitis-linked bacteria after the vaccination and education programs commenced. The authors conclude that such successes, however, could be threatened over the long run by inappropriate antibiotic prescriptions.

[Abstract Number O155: Nasopharyngeal carriage of *Streptococcus pneumoniae* non-vaccine serotypes among children attending day-care centres in France: 1999-2008 after the introduction of the 7-Valent (France)]

**Wearing Gloves Can Reduce Good Hand Hygiene Among Healthcare Workers**

Glove use can lead to poorer hand hygiene, according to a new study of healthcare workers in 20 hospitals in England and Wales. The question of whether wearing gloves actually reduces hygiene compliance had yielded mixed conclusions in previous studies, but the large observational study found a significant association. Modelling suggests that even a small uptick in compliance could lead to large reductions in the transmission of pathogens. The authors therefore suggest that interventions focused on reducing unnecessary glove use and on ensuring sufficient hand hygiene before and after appropriate glove use could produce a significant reduction in the spread of infection within hospitals.

[Abstract Number O467: Glove use in infection control – is this a significant barrier to hand hygiene compliance? (UK)]

**Time-Saving Lab Test IDs Blood-Borne Bacterial Species**

A recently developed laboratory test can identify bacterial species in patients’ blood samples just a few hours after those cultures have tested positive for bacterial growth. Within four hours, the method correctly identified about 91 percent of Gram-positive bacterial species and 98.5 percent of Gram-negative species. The rapid test, known as Matrix-Assisted Laser Desorption/Ionisation Time-Of-Flight Mass Spectrometry (MALDI-TOF MS), could provide a compelling alternative to more time-consuming methods that rely on cultivation and biochemical procedures, according to researchers. As a result, doctors may be able to pursue species-specific treatments more quickly, aiding patients with blood-borne infections and saving money in the process.

[Abstract Number P1792: High-speed blood culture diagnostic with MALDI-TOF MS (Germany)]

**Use of Alcohol-Based Hand Rub on the Rise in Germany**

Hospital personnel in Germany are increasingly using alcohol-based hand rub to maintain good hand hygiene, according to a national surveillance system. Attention to hygiene is essential for preventing hospital-acquired infections, and a variety of intervention strategies in Germany have sought to heighten awareness among health care workers. Since 2007, a programme called HAND-KISS, a component of the German Krankenhaus-Infektions-Surveillance-System (KISS), has been gauging this attention to hygiene with a systematic surveillance of alcohol-based hand rub use among hospitals. From 2007 to 2008, hand rub use rose in all types of hospital units, with a maximum increase of 14 percent in medical and medical-surgical units.

[Abstract Number P1516: Increase of alcoholic handrub consumption in 1261 German non-ICU units within one year (Germany)]
DISEASE BURDENS AND TRENDS

Hostile Takeover: The Rise of Community-Acquired MRSA Infections in the U.S.
The worrisome super-pathogen known as methicillin-resistant Staphylococcus aureus (MRSA) has gained considerable ground in the U.S. over a decade, amid a major shift to the community-acquired form of disease. An analysis of surveillance data collected over a 10-year period tallied nearly 825,000 isolates of the S. aureus bacteria collected from inpatient and outpatient settings. MRSA accounted for more than half of the isolates collected in 2007, up from about one-third in 1998. During this surge, the nature of disease also shifted markedly toward community-acquired infections and away from hospital-acquired ones. Of all MRSA-positive samples, the relative share of the community-acquired form tripled, from 22.3 percent in 1998 to 66.1 percent in 2007. The phenomenon was observed in all age groups, patient settings, and geographic regions of the country. The shift, however, was most pronounced among children and young adults, and in samples collected from abscesses and wounds.

[Abstract Number O483: Growing role of community-acquired MRSA infections in the United States: a 10-year trend of replacement and expansion (USA)]

Blood-Borne Infections Rising in Denmark While Mortality Remains High
Cases of blood-borne bacterial infections have increased dramatically within Denmark over the past 15 years, while the mortality rate has improved only for community-acquired infections, a troubling new study concludes. Danish researchers identified 12,500 first-time diagnoses of blood-borne infections, or bacteraemia, within a single county between 1992 and 2006. About 47 percent of the cases involved a community-acquired infection, 37 percent were hospital-acquired, and 16 percent were related to healthcare. Although the disease incidence increased by about 56 percent overall, the 30-day mortality rate fell only slightly among patients with community-acquired bacteraemia, down to about 15 percent. Meanwhile, the death rate remained nearly unchanged for patients with healthcare-related and hospital-acquired bacteraemia, at about 22 percent and 28 percent, respectively.

[Abstract Number P2005: Rising incidence and persistently high mortality of bacteraemia: a 15-year population-based study in Denmark (Denmark)]

Colon-Infected Pathogen Highly Variable but Deadly in European Hospitals
Healthcare-associated infections by the bacterial pathogen Clostridium difficile vary greatly in number throughout Europe, but the infection is associated with high mortality among hospitalized patients, according to a new study. Through extensive lab tests of stool samples from hospitalized patients, the study’s authors found that the frequency of new cases of the colon-infesting pathogen varied widely among hospitals in 34 countries. Even so, most patients matched the established risk profile of an older patient who had one or more co-existing diseases and had recently taken antibiotics. A follow-up analysis revealed that 22 percent of the patients died and that the Clostridium difficile infection factored in four out of every 10 of those deaths. The researchers conclude that a multi-country surveillance scheme will be important in managing this common and potentially life-threatening infection.

[Abstract Number O157: Final results of the first pan-European Clostridium difficile infection survey (pan-European)]
Dangerous Hospital-Acquired Yeast Infections Remain Common in German ICUs
An eight-year examination of bloodstream yeast infections has found no change in the incidence of the life-threatening disease within Germany's intensive care units (ICUs). The presence of fungi or yeast in the blood, known as candidemia, is most often associated with inserting a central venous catheter in critically ill patients in ICUs. The new study, based on data reported to the German Surveillance System for Nosocomial Infections, linked the infections predominantly to the yeast Candida albicans. Candidemia ranks as the fifth most common cause of hospital-acquired primary bloodstream infections, with an estimated mortality rate of 19 percent. Primary candidemia appeared most commonly in university hospitals, as well as in paediatric, surgical and cardiothoracic ICUs.

[Abstract Number O405: Candidaemia in 536 intensive care units, 2001-2008 (Germany)]

Shifting Causes But Steady Numbers for Heart-Related Infections in France
The incidence of infective endocarditis, an inflammation of the heart’s inner lining and valves, has remained relatively stable in France over the past 18 years, according to a new study. The infection’s causative agent, however, is continuing to shift toward the bacterial pathogen Staphylococcus aureus and sharply away from other bacteria classified as group D streptococci. The 2008 follow-up to studies conducted in 1991 and 1999 analyzed hospitalizations for infective endocarditis among a third of the country’s population over a one-year period. More than one in four cases could be attributed to Staphylococcus aureus, while one in eight were attributable to group D streptococci. Intriguingly, more than half of the patients had no known heart valve disease.

[Abstract Number P2004: Continuing changing profile of infective endocarditis – results of a repeat one-year population-based survey in France, 2008 (France)]

INFECTION SURVEILLANCE AND INTERVENTION

Anti-Fungal Drug Safe and Promising Against Invasive Aspergillosis
An investigational drug designed to treat the serious fungal infection known as invasive aspergillosis is safe and effective at high doses, according to a phase II study by German researchers. Invasive aspergillosis is caused by inhaling mould spores, and can progress quickly, especially among immunocompromised patients. The failure of treatment in up to half of all cases and the disease’s mortality rate of at least 30 percent have both underscored the need for new approaches.

Researchers tested the safety and effectiveness of four increasingly high doses of a new drug called caspofungin in 46 patients with proven or probable aspergillosis and other underlying diseases. Patients tolerated doses up to 200 milligrams once daily for 28 days, while the disease completely or partially responded to the drug in more than half of the cases. According to the authors, the trial’s 12-week mortality rate of 24 percent is better than anything previously reported, reflecting favourably on the drug’s promise.

[Abstract Number P878: A phase II dose escalation study of caspofungin for invasive aspergillosis (Germany)]
Using a Combined Approach to Track a Stealthy Killer

Spanish researchers have linked multiple cases of sudden unexplained death in adults and infants to the *Pneumococcus* pathogen, a common cause of community-acquired pneumonia and meningitis in adults. Because most sudden unexplained deaths occur beyond the hospital or soon after a stricken patient arrives in the emergency room, the study examined how often *Pneumococcus* might be involved and how best to test for its presence in forensic samples collected after a patient’s death. In 377 cases, about one-third involving infants, the researchers found that 44 deaths could be directly attributable to a pneumococcal infection, though a majority of those cases also involved co-occurring diseases. Confirming the identity of *Pneumococcus* also required a combination of molecular tests and bacterial cultures.

[Simpler May Be Better for Some MRSA Screens]

Public health officials in the Netherlands may need to rethink how they screen for methicillin-resistant *Staphylococcus aureus* (MRSA). A new study suggests that current recommendations requiring samples be taken from multiple body sites may yield only limited benefits while incurring higher costs than a test that relies on a sample from a patient’s nostrils for signs of the germ. In the study of more than 1,700 patients, a rapid diagnostic test backed up by swabbing for bacteria at multiple sites caught only a handful of false-negative cases that the less involved method missed. The modest gain in sensitivity, however, incurred an additional €148.55 to €161.78 per patient, leading the authors to question the overall benefit in places where MRSA incidence is low.

[Inexpensive New Test Can Detect Drug Resistance in Leprosy]

An easy and affordable molecular test could provide an important new tool for gauging the resistance of leprosy to antibiotics in endemic countries. Since the early ‘80s, doctors have used a multidrug therapy to treat leprosy. Resistance to both first-line and second-line drugs, however, also has been documented for many years. The causative agent, *Mycobacterium leprae*, cannot be grown on its own in the lab, requiring extensive and expensive molecular tests to gauge its drug resistance. The study’s researchers therefore developed a new commercial test, called GenoType LepraeDR, to simplify the process. The test is based on analyzing the bacterial DNA regions implicated in the organism’s resistance to three antibiotics. Compared to the existing methods, the new technique performed just as well, suggesting its potential as a cheaper replacement.

[Danish Docs Responding to Rise in Staph Infections with More Drugs and Tests]

Primary health care providers in Denmark are trying to keep pace with a recent rise in *Staphylococcus aureus* infections by doling out more antibiotic prescriptions and growing up more cultures to test for signs of the pathogen, a new study suggests. By the end of the 12-year study period, doctors had doubled the rate at which they collected bacterial specimens, and had given out more than 2.5 times as many Staph-specific prescriptions. Other data may help explain that spike in attention, including sharply rising rates of Staph isolated from children between 1997 and 2002.
Cases associated with the skin disease impetigo likely also contributed to the rise, as did increases in specimens collected from wounds in adult and elderly patients.

[A]bstract Number O342: *Staphylococcus aureus* skin and mucosa infections in primary healthcare in Denmark: a 12-year population-based study (Denmark)

**Harnessing Technology to Fight Bloodstream Infections**

A cutting-edge electronic recordkeeping system has helped a hospital in the UK gather critical information about catheter-linked bloodstream infections. Catheters account for one-third of all bloodstream infections after two days in a hospital setting. To address this high rate, Blackpool Victoria Hospital in the UK initiated a comprehensive containment programme beginning in 2008. As part of that effort, the hospital used existing technology to launch a central venous catheter “e-register” in May 2009, which records the specifics of each catheter insertion. The system alerts microbiologists when insertions are linked to positive bacterial cultures, and provides valuable feedback to the hospital’s clinical teams.

[A]bstract Number P1445: Central venous catheter and catheter-related bloodstream infections surveillance: an innovative use of 20th century technology for 21st century solutions (UK)

**Mixed Marks for Molecular Test of Bloodstream Infections**

A new molecular test has proved its mettle in specifically detecting the presence of community-acquired bloodstream infections, but has performed poorly at sensitively predicting the pathogens involved, throwing its usefulness into doubt. The test, known as SeptiFast, has been marketed as a way to detect 25 bacterial and fungal pathogens in blood samples within 6 hours. Swedish researchers who evaluated the test for a full year at an infectious diseases clinic found that it scored well at initially pointing out a bloodstream infection. But the study found serious shortcomings in the test’s ability to sensitively and positively predict involvement of five bacterial pathogens, leading the researchers to conclude that it should not be routinely used as currently configured.

[A]bstract Number P1831: Evaluation of a commercial multiplex PCR (SeptiFast) in the aetiological diagnosis of community-acquired bloodstream infections (Sweden)

**DISEASE MECHANISMS AND RISK FACTORS**

**Nine Swiss Women Infected by Contaminated Permanent Makeup Ink**

Researchers have traced a 2009 outbreak afflicting nine Swiss women to a single tattoo artist who used ink for permanent eyebrow makeup contaminated with *Mycobacterium haemophilum*. The new report is the first to link the bacterial pathogen, known for causing infections in skin, joints, bones, and lungs, to permanent makeup ink. Doctors referred the women to an infectious diseases outpatient clinic because of the patients’ inflamed eyebrow lesions and intense, localized infections that appeared several weeks after the makeup ink was applied. The clinic’s researchers used a genetic analysis of the pathogen’s unique RNA sequence to help diagnose the cases. All patients required multidrug therapy, and several required surgery.

[A]bstract Number O146: *M. haemophilum* outbreak among 9 Swiss women after permanent make-up of the eyebrows (Switzerland)

**Unwanted Souvenirs: Swedes Abroad More Likely to Bring Back Drug-Resistant Bacteria**
Swedes who travel abroad may return with more than just trinkets. A small study has found that travel to developing countries can lead to an eight-fold increase in the risk of being colonized by a diarrhoea-causing pathogen associated with bacterial resistance. Among 230 study volunteers who were travelling beyond Scandinavia, researchers tested for the presence of antibiotic-resistant microbes known as Enterobacteriaceae. Including the familiar *Salmonella* and *E. coli* species, these variants produce an enzyme offering protection against a large class of antibiotics. Before travelling, only four percent of the volunteers were colonized with the microbes. Afterward, however, that number jumped to nearly one in three. Of the new bacterial colonists identified, *E. coli* was the most common, and colonization was most frequent after visits to India and Egypt.

[Abstract Number O397: High frequency of faecal colonization with ESBL-producing Enterobacteriaceae among Swedish persons after travelling (Sweden)]

**Study of Nuns and Monks: Chickenpox Exposure May Not Prevent Shingles**

Exposure to the chickenpox virus in children may be of little help to adults hoping to ward off shingles, according to a new study of cloistered nuns and monks in France. Previous studies had suggested that being repeatedly exposed to the varicella zoster virus that causes chickenpox might protect adults against the related skin disease known as shingles, or herpes zoster. But French researchers found that 920 nuns and monks with little or no exposure to children were less likely to have the painful skin condition than their counterparts in the general population, suggesting that infected children may offer only weak protection, at best.

[Abstract Number P1215: Impact of varicella zoster virus exposure on frequency and age of onset of herpes zoster in France: Mona study (France)]

**Persistence of Candida infections Linked to Variations in Two Immune Mediators**

Researchers have linked tenacious bloodstream infections by *Candida* yeast to specific variations in the genetic sequences of two molecules that help govern immune system responses. The new genetic analysis, according to its authors, may help doctors tailor better treatment strategies for patients with the often life-threatening and hospital-acquired condition. To gauge the role of molecules known as cytokines – which act as chemical messengers to help mediate the immune system’s response – researchers analyzed variations in single letters of DNA along the genetic sequences of six cytokine genes. Variations in two genes, *IL-10* and *IL-12B*, were significantly associated with the 15 percent of *Candida* cases in which infections persist.

[Abstract Number O409: Functional IL-10 and IL-12B polymorphisms are associated with persistent Candida spp. bloodstream infection (Netherlands and USA)]

**Highly Active Pumps May Help Pneumonia Pathogens Flush Away Antibiotics**

*Pseudomonas aeruginosa* isolates collected from patients with hospital-acquired pneumonia harbour highly active genes for pumps that flush antibiotics from bacterial cells, a new study has found. That anti-drug gene activity rises even further during the course of treatment, suggesting that these efflux pumps, as they’re known, should be targeted to overcome the pathogen’s defences and boost the success of therapy. Drug resistance is a constant worry during therapy for life-threatening infections such as hospital-acquired pneumonia. Earlier detection of this excess anti-drug gene activity, then, also may steer doctors toward other treatment options that are less easily beaten.
H1N1 INFLUENZA VIRUS

Tamiflu Most Effective As Sole Therapy Against H1N1 Flu Virus
The antiviral drug Tamiflu may work better on its own than in combination with Relenza against the H1N1 influenza strain implicated in the 2009 global pandemic, according to a clinical study by French researchers. Their randomized, placebo-controlled, double blind study of 541 flu patients found that oseltamivir, marketed as Tamiflu, performed the best among three treatment options in reducing the number of viral particles and shortening flu symptoms – to an average of 3 days. The drug not only outperformed zanamivir, better known as Relenza, but also dropped in effectiveness when both drugs were taken together – a curious phenomenon leading the authors to recommend further study.

Pandemic Flu Strikes Thailand's Young More Often
Thai patients infected with the pandemic strain of H1N1 influenza were younger than patients infected with seasonal influenza in 2009, according to a new study. The pandemic strain also resulted in a high frequency of diarrhoea, more instances of pneumonia, and a higher death rate, suggesting its increased severity. Researchers examining lab-confirmed flu cases among patients at King Chulalongkorn Memorial Hospital during the summer found that those with H1N1 were 29 years old, on average, compared with an average age of 37 for the seasonal flu.

High H1N1 Flu Mortality in Cancer Patients Suggests Need for Prompt Treatment
Faster treatment with anti-flu drugs and better reinforcement of vaccination programs may be necessary to protect cancer patients from succumbing to influenza A (H1N1), a new study suggests. Researchers in Brazil studied 24 hospitalized cancer patients who tested positive for the H1N1 virus during the 2009 pandemic, and found a high number of cases in young patients and an overall mortality rate of 21 percent. Nearly half of the patients required mechanical ventilation. Among the five who died, two never received Tamiflu (oseltamivir) while the other three didn’t receive drug therapy until eight or more days after being admitted to the hospital.

Pandemic Flu Hits Hardest in Lower Respiratory Tract
The pandemic H1N1 flu virus of 2009 primarily affects the lower respiratory tract of patients, similar to the characteristics of the H5N1 “bird flu” virus, a new study suggests. Patients with chronic lung disease, the authors warn, are at higher risk and should do what they can to protect themselves from infection. The study evaluated 239 patients diagnosed with H1N1 influenza, including 118 who were admitted to a hospital and 121 who were given Tamiflu and sent home. Fever and cough were the most common symptoms, while cough, muscle pain and sore throat symptoms were
among the longest lasting. Overall, however, symptoms that involved the lower respiratory tract took the longest to resolve.

[Abstract Number P1098: Dynamics of clinical symptoms in a case with pandemic influenza A (H1N1) (South Korea)]

IDENTIFYING NEW VIRUSES

Significant Levels of New Respiratory Viruses Found in Young Belgian Children

The recently discovered human metapneumovirus and human bocavirus have both been found in significant numbers among children with respiratory tract infections, according to a new study. The viruses were especially prevalent in children under the age of 4, and found during four successive winters in Belgium between 2005 and 2008. Of the more than 200 samples collected from children and tested for the presence of viral DNA, more than one in ten were positive for the metapneumovirus. Meanwhile, nearly two in ten tested positive for the human bocavirus and 3 percent tested positive for both viruses.

[Abstract Number O337: Detection of human bocavirus and human metapneumovirus by real-time PCR in children with respiratory tract infections during four successive winter periods in Belgium (Belgium)]

Horseshoe Bats Harbour High Levels of SARS Virus and Recombination in China

China’s horseshoe bats are an important reservoir for the SARS virus and a possible source for a recombined version associated with the country’s cat-like civets, a new study suggests. Severe acute respiratory syndrome (SARS), a potentially lethal disease caused by a coronavirus, emerged from China’s Guangdong Province in 2002 and 2003. Although researchers had since detected the coronavirus in bats, the new study sought more clarity on the evolution and origins of SARS by testing 1401 horseshoe bats from Guangdong Province and Hong Kong over four years. Researchers also tagged more than 500 of the bats and sequenced the complete genomes of 10 viral strains circulating among the different populations.

The study found the SARS coronavirus in more than 9 percent of tested horseshoe bats, though the animals appeared symptom-free. The bats can likely act as reservoirs for genetic recombination among a variety of viral strains within their migratory range. The frequent viral recombination among the winged mammals, the authors conclude, may have figured prominently in the transmission across species – including civets – that led to the initial emergence of the disease in humans.

[Abstract Number O543: Eco-epidemiology and complete genome comparison of bat SARS coronavirus in China reveal bats as reservoir for frequent recombination (China)]

Iran’s Widespread Crimean-Congo Hemorrhagic Fever Potentially from Pakistan

Crimean-Congo hemorrhagic fever has become one of Iran’s most important causes of viral hemorrhagic fever over the past decade and may have spread from adjoining Pakistan, a new study suggests. Crimean-Congo hemorrhagic fever, a tick-born viral disease with a high death rate, re-emerged in Iran in 1999. Provinces such as Sistan and Baluchestan, the country’s most infected, have faced the disease annually ever since, while disease severity and mortality seem to vary by geography. Sistan and Baluchestan Province borders endemic areas of Afghanistan and Pakistan, and a genetic examination suggests the virus now in Iran may have originated in Pakistan.
Kidney Transplant Aids Colonization and Evolution of Murky Viral Family
A poorly understood viral strain readily colonized a kidney transplanted into a patient whose blood already contained the virus, a new study concludes. The blood-borne virus, part of the Anelloviridae family, also rapidly evolved after the transplant, when doctors suppressed the patient’s immune system to prevent organ rejection. The members of this recently discovered virus family, characterized by the prototypical torque teno virus, hold debatable implications for their infected hosts. Nevertheless, the new study suggests that in an immunocompromised host, the virus can readily diversify.

Anti-Tick Pesticides Ward Off Crimean-Congo Haemorrhagic Fever Virus
Agricultural fields at high risk for harbouring livestock with ticks infected by Crimean-Congo haemorrhagic fever virus should be disinfected with tick repellents and temporarily taken out of use for pasturing, a new study recommends. Treating livestock with acaricides, or tick and mite-killing pesticides, can be an effective deterrent against ticks infected with the virus in endemic areas. Crimean-Congo haemorrhagic fever can sporadically jump to humans, causing sudden and severe fever associated with bleeding. Genetic rearrangements of the virus may occur when ticks are infected more than once and viral variants may move over large distances when migratory animals or birds are infected or carry virus-laden ticks. The study suggests, however, that ticks should be the primary focus of intervention.

Hantavirus Circulating Within Two Mice Species in Hungary and Croatia
At least two types of hantavirus are circulating at significant levels within mice in Hungary and northern Croatia, a new study concludes. Hantavirus, a life-threatening disease often characterized by a severe fever, bleeding, and kidney damage, is carried by yellow necked and striped field mice. One virus type, Dobrava, is associated with a more severe form of disease while the Saaremaa type appears to cause a milder illness. Of 130 mice examined for signs of the hantavirus between 2005 and 2007, 10 were infected with one type or the other, leading the researchers to urge more investigations.

NEW SCREENING AND TREATMENT METHODS
Re-emergence of West Nile in Italy Aided by Mutation Tied to Virulence, Outbreaks
A 2008 re-emergence of the West Nile virus in northeast Italy, characterized by severe meningoencephalitis, has been abetted by a genetic alteration associated with virulence in birds, a rapid geographic spread, and human outbreaks. Ten years after West Nile virus first broke out among horses in Italy’s Tuscany region, the virus returned to infect both horses and humans in the country’s Veneto and Emilia
Romagna regions, with 12 human cases tallied in 2008 and 2009. An analysis of the viral genome revealed that the new isolate was evolutionarily related to samples collected from infected horses in 1998 and to other more recent European strains. But the new isolate also included mutations that may aid infections in birds, among other benefits to the virus.

[Abstract Number O551: Epidemiology and molecular characterization of West Nile virus infection in north-eastern Italy (Italy)]

**Anti-Flu Drugs Effective at Reducing Complications**

Anti-flu drugs called neuraminidase inhibitors are effective in lowering flu-related complications both in previously healthy patients and in those deemed to be at high-risk, a new study suggests. Although neuraminidase inhibitors, such as the commonly prescribed Tamiflu and Relenza, are known to reduce the length of symptoms, the new study also sought to clarify their role in reducing flu complications. The analysis of 11 existing clinical trials that had compared neuraminidase inhibitors with a placebo found that the drugs were indeed effective in lowering complications and in reducing the need for antibiotic prescriptions.

[Abstract Number O502: Effectiveness and safety of neuraminidase inhibitors in reducing influenza complications: a meta-analysis of randomized controlled trials (Greece and Spain)]

**Pandemic Flu and Other Respiratory Viruses Quickly Identified by Molecular Tests**

Molecular tests known as PCR-DNA microarrays offer a rapid and accurate way to detect both well-established and newly discovered pathogens linked to flu-like symptoms in infants and adults, a new study suggests. Amid the 2009 influenza A (H1N1) pandemic, French researchers used the DNA microarrays to test for the flu strain and 17 other respiratory viruses in samples collected from the nasal passages of 95 patients. All patients had visited a university hospital with flu-like symptoms. Of the 95 samples, 30 tested positive for H1N1 infection – including a handful of cases involving additional viruses – while 35 others tested positive for the presence of separate respiratory viruses. These molecular tests, the authors suggest, could help in developing reliable weekly epidemiological survey systems for such respiratory viral infections.

[Abstract Number P654: Rapid and sensitive detection of viral infection and co-infections in upper respiratory tract of patients with flu-like illness symptoms using PCR DNA microarray systems (France)]

**Hot on the Case of Crimean-Congo Hemorrhagic Fever in Bulgaria**

Researchers used several molecular tests to successfully confirm the presence of Crimean-Congo hemorrhagic fever in a man bitten by an infected tick in southeast Bulgaria. Over the last decade, the life-threatening disease has emerged or re-emerged in about 30 countries. Bulgaria is among those in an endemic region, with sporadic cases reported every year, and researchers have emphasized the need for quick and accurate diagnoses in order to treat patients and prevent the virus from spreading. In this report, researchers used several molecular techniques based on polymerase chain reaction, or PCR, to confirm the case. In addition, they infected newborn mice with the patient’s blood, effectively passing on the virus. The analysis, they suggest, has allowed them to compare the genetic variability of the virus throughout the region.

[Abstract Number P1402: Crimean-Congo haemorrhagic fever virus, south-eastern Bulgaria: a case report and review (Bulgaria)]
VIRAL DISEASE RISK FACTORS

Risk of Death from Norovirus Increases with Age
Norovirus may be particularly lethal for older patients, regardless of whether they have been chronically ill. A new study by Swedish researchers examined hospitalized patients who tested positive for norovirus – which can lead to a severe gastrointestinal inflammation – in Gothenburg’s Sahlgrenska University Hospital over a 11-month period. The researchers found significant mortality rates among 539 patients between the ages of 60 and 101, both 30 days and 90 days after diagnosis. Patients with at least one underlying condition faced poorer odds of survival, while overall mortality rates increased with age.

[Abstract Number P1168: High mortality following norovirus enteritis in hospitalized elderly patients (Sweden)]

Bone Marrow Transplant Recipients At Risk for Viral Urinary Tract Infections
Among patients who have received bone marrow and other haematopoietic stem cell transplants, a new study suggests that a pathogen known as the BK virus is significantly associated with a urinary tract infection. French researchers found that the prolonged and high-level presence of the BK virus in patients’ blood predicted the development of this infection. Monitoring patients’ blood levels of the BK virus, therefore, could help identify those transplant recipients most at risk for a urinary tract infection. Among 61 studied patients who received bone marrow transplants, 15 subsequently had the BK virus in their bloodstream within a few months. Acute leukaemia was identified as a risk factor for infection, which was associated with sudden and severe graft-versus-host disease and blood in the urine. The study also suggests a potential role for the common cytomegalovirus in promoting BK virus infection.

[Abstract Number P1218: Longitudinal study of BK virus infection in adult allogeneic haematopoietic stem cell transplant (France)]