Monitoring competence in hospitals is key to reducing MRSA
MRSA is unevenly spread through Europe, and in hospitals within European countries, and understanding the reasons why it is low in some areas could provide lessons in learning how to reduce MRSA incidence. Through detailed questionnaires from 223 hospitals in 29 European countries, this project found that lower levels of MRSA were found in hospitals which undertook daily surveillance for MRSA and analysed the cause of infection. For instance, hospitals that regularly assessed the competence of healthcare workers’ ability to draw blood through catheters in the veins, had lower levels of MRSA. Clearly, having policies on process is not enough – ensuring competency is just as important.

[ProgNr O267: European epidemiology of MRSA bacteraemia: effective prevention requires more than just good hospital policies]

Saving the NHS money
How to cut costs – and not compromise patient care - in the UK’s NHS is a million dollar question. The NHS cares for 51 million, employs more than 1.3 million and deals with a million patients every 36 hours. The UK government aims to save £20 billion (4%) through greater efficiency by the end of 2014-15. Blackpool Teaching Hospitals offers an example of how this can be done. The 844-bed teaching hospital with two tertiary centres is due to save £50 million over the next 3-4 years. By significantly reducing hospital-acquired infections such as C difficile and MRSA, and other hospital-related conditions such as patient falls and pressure ulcers, the hospital was able to close a 24-bed ward, and save £970,000.

[ProgNr R2534: Dear Director of Finance of NHS Hospital: It is possible to close beds and realize savings from reduction in healthcare associated infections!]

Vitamin D deficiency doesn’t always affect bone infections
We know that vitamin D is important for healthy bones, and so researchers investigated whether vitamin D deficiency would make for a slower recovery from osteoarticular (ie, relating to bones and joints) infections. They studied 159 patients with bone or joint infections, and found that while vitamin D deficiency was common in this group, supplementation with the vitamin had no effect on treatment success.

[ProgNr P2042: Baseline vitamin D deficiency is not associated with poor clinical outcomes in osteoarticular infections]

A rapid test for zoonotic infections
Zoonoses are infectious diseases that can be spread from animals to humans or vice versa. For instance, in Europe, these could be salmonella or listeria infections. Identifying these infections quickly and accurately is important in stopping the spread further and in treating patients quickly. This study shows that using mass
spectrometry to identify zoonotic bacteria such as Campylobacter, Salmonella or Listeria, was a good alternative to conventional methods using laboratory slides. [ProgNr P2341: Use of the MALDI-TOF method for the identification of bacterial zoonotic agents]

New markers of inflammation
This assessed the diagnostic and prognostic value of C-reactive protein (CRP) and procalcitonin (a peptide) as markers of inflammation – studying their value in sepsis, in this instance. Through a literature search between January 2004 and January 2010, researchers found that the diagnostic value of procalcitonin was better. For the diagnosis of sepsis, severe sepsis and septic shock was 80% for sensitivity and 73% for specificity, whereas CRP had 87% sensitivity and 45% specificity. Prognostic value for adverse medical outcome – death and/or ICU admission - was higher in procalcitonin (85%/73%) than in CRP (76%/74%). [ProgNr 2192: Diagnostic and prognostic value of procalcitonin and C-reactive protein: systematic review]

Screening pregnant women for vaginal infections
Morbidity and mortality rate among pregnant women in rural regions of developing countries are on the rise. Often, this results from undiagnosed gynaecological infections that become dangerous in pregnancy. Infections such as candidiasis and trichomoniasis can contribute to the transmission of HIV/AIDS by reducing the burden on the immune system, can also lead to low birthweight and pre-term delivery. This study screened 1500 pregnant women at an antenatal clinic in Abakaliki, Nigeria, between March and October 2010. 326 (22%) women had asymptomatic co-infection of candida and trichomonas, while 412 (27.5%) and 355 (24%) women had asymptomatic candidiasis and trichomoniasis as single infection respectively. [ProgNr P1010: Asymptotic co-infection of candidiasis and vaginal trichomoniasis among pregnant women in southeastern Nigeria]

Infected roast pork in Hong Kong
Foodies in Hong Kong may want to steer clear of the roast pork – there’s a 50% chance it will be infected with Staphylococcus aureus bacteria, which causes severe food poisoning. A test of roast pork samples from 50 different outlets showed that 48% were positive for the bacteria. What’s more, two of the samples had MRSA – and high rates of MRSA have been found in pork carcasses in Hong Kong. [ProgNr P1077: Contamination of Retail Samples of Roasted Pork (Sui Mei) in Hong Kong]

Tracking the source of malaria in Spain
To understand why some patients develop severe malaria, researchers retrospectively analysed factors linked to malaria between February 2003 and June 2011 in a tertiary hospital in the south of Spain. In 60 of the 63 cases analysed, malaria had been acquired in sub-Saharan Africa. Most of these cases were Plasmodium falciparum malaria.
Links between Chagas disease and obesity/diabetes
Fat tissue is a target for the T cruzi parasite that causes Chagas disease, hinting at a link between the infection and metabolic disease. This study of 776 patients in Latin American people, mostly from Bolivia, showed that those who had antibodies against T cruzi also had higher cholesterol levels, and higher glycaemia and triglycerides (markers of blood sugar). These higher levels of indicators of metabolic syndrome suggests a link between parasite infection and metabolic disease.

Could bacteria hitch a ride in travellers’ noses?
Frequent travellers often drive the spread of infections from one country to another. It’s feasible that people who travel often to the tropics might collect virulent strains of Staphylococcus aureus in their nasal passages and spread them once back home in Europe. After studying over a mixed group of 1000 travellers and non-travellers, researchers found that travel did not seem to increase the import of S aureus, though more investigation of nasal bacteria could confirm this.

Audit suggests antibiotics are overprescribed for upper respiratory infections
In 2011, 99 general practitioners in Scotland contributed data on the medicines they prescribed for acute infections over a week. In 68% of cases, GPs prescribed antibiotics, and upper respiratory tract infections (URTI) accounted for over 60% of those. About half of those with an URTI were prescribed antibiotics, which suggests that in general GPs are overprescribing to this group, and it is being flagged as an area for concern.

Animal model shows how our bodies become invaded by bacteria
Mucous membranes such as in the nose, or internal ones such as the stomach or bladder, are microbes’s gateways into our bodies. Studying how this happens is difficult in the lab, but this study shows how a mouse model could advance our understanding. The researchers connected explanted organs to a specially constructed device to keep the membranes oxygenated, and studied the way that germs interacted with the membranes. They studied the infection of the bladder with E coli, the small intestine with Salmonella, and the large intestine with Entamoeba histolyticum. E coli intracellular bacteria were far more motile than previously believed. The team also observed the way that E coli induces an immunosuppressive effect.
Travellers a major source of drug-resistance bacteria
Travellers may bring more back home with them than souvenirs – a new study shows that travellers consistently brought home new strains of infection or multidrug-resistant strains of bacteria with them. The study looked at 259 patients in an intensive care unit in a Zurich hospital, who had just returned home sick, to see whether they had either methicillin resistant Staphylococcus aureus (MRSA), Extended-Spectrum Beta-Lactamase producing bacteria (ESBL) or multiresistant gram-negative bacteria (MR-gram negative). 6 patients (17.7%) had at least bacterial strain and 9 (3.5%) were infected. Most patients had the bacteria in their skin or respiratory tract. Patients who had these bacteria were also much more likely to have a longer stay in the ICU, and death rates were higher in these patients. [ProgNr P1154: Multiresistant bacteria obtained from returning travellers: incidence, characteristics, influence on clinical outcome]

Better diagnostic tools don’t eliminate over-prescription of antibiotics
Health authorities are continually trying to ensure a more prudent use of antibiotics, but doctors sometimes prescribe antibiotics because of the difficulty of identifying whether an infection is viral or bacterial. A test to identify an infection before diagnosis, therefore, could prevent the drugs being prescribed needlessly. This study looked at what effect a Rapid Antigen Diagnostic Test to identify acute pharyngitis would have on the prescribing behaviour of 369 self-employed GPs in Southeastern France. While the availability of the test cut prescriptions by 44%, 34% of GPs did not use it in acute pharyngitis, and 13% prescribed an antibiotic despite a negative test result. On further investigation, researchers found that such non-compliance with guidelines was associated less reading of medical journals, less benefits/risks discussion with patients about vaccinations, and more perception that clinical examination was sufficient to prescribe antibiotics. The doctors said they didn’t want to use the test because of time it takes and their perception that clinical examination was sufficient to decide whether to prescribe an antibiotic. [ProgNr P1763: Perceptions and attitudes of French General Practitioners towards rapid antigen diagnostic tests in acute pharyngitis using a randomised case-vignette study: a cross-sectional study]

Tick-borne virus found in Switzerland
In 2009, a national survey demonstrated for the first time the presence of tick-borne encephalitis virus (TBEV) in two sites Raron and Salgesch in Valais, southern Switzerland. This study confirmed the presence of ticks in those sites, and identified it in other sites nearby, suggesting the emergence of new risk areas. Blood donors will also be tested to see whether they have been infected. [ProgNr P2010: Survey on tick borne encephalitis in Canton Valais (Switzerland)]

Cytomegalovirus impairs immunity in old age
Cytomegalovirus can affect the immune system’s response to other infections, and this study shows that this may result from the virus’s effect on the immune’s T cells. T cells fight infections, and memory T cells ‘remember’ how to fight a bacteria or virus from previous infections; CMV produces a massive pool of memory T cells. In
this study, older mice infected with CMV showed significantly reduced antiviral T cell responses, compared with younger mice. The researchers suggest that this could be because of increased competition between CMV-specific memory T cells and any new immune response after infection or immunisation of aged individuals. The results demonstrate for the first time in a mouse model that CMV-infection impairs immunity in old age.

[ProgNr P2035 : An example of collateral damage: Cytomegalovirus infection and immune senescence]