

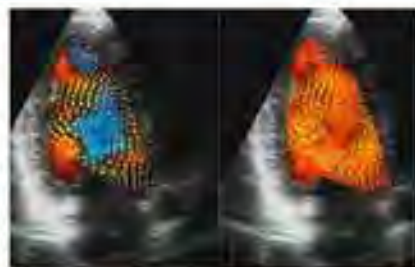
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CARDIOLOGY

7-22

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LABORATORY & INFECTION CONTROL

3-6, 23-27

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The Europe we want

Supporting research, promoting international collaboration and connecting e-health services

Two years ago, following John Dalli's resignation as Commissioner for Health and Consumer Affairs, Tonio Borg was appointed to that role by the Council of the European Commission. About a year ago, the title changed to Commissioner for Health. Soon he will reach the end of his term of office (31 October). Catching up with her impressive fellow Maltese during the 17th European Health Forum in Gastein, EH correspondent *Moirá Mizzi* asked for his views on health in Europe today and what he believes has been achieved in recent years

Bad Gastein in Austria is a health resort, thus the ideal setting to host the 17th European Health Forum in the first days of October this year. Heralded by the slogan *Electing Health – The Europe We Want*, the conference aims to reflect on opportunities and risks for health in light of the outcome of the recent European elections, and to discuss how to maintain and improve the health of European citizens.

After almost two years at the helm of the European Commission for Health, Dr Tonio Borg believes that the one main item that should feature on the conference agenda is the sustainability of our health systems. 'Despite the marked progress in the health sector in recent decades, we cannot put our collective minds at rest about our health systems, no matter which parties, sceptical or otherwise, occupy the European Parliament,' he insists. 'We only have to look at the burden that chronic disease is putting on health budgets in most member states, not to men-



A law graduate, Dr Tonio Borg's many titles have included EU Commissioner for Health, Deputy Prime Minister of Malta, Minister for Foreign Affairs, Minister of Home Affairs, Minister of Justice, EU Commissioner for Malta, Deputy Leader of the Nationalist Party, member of the Barroso Commission and lecturer in public law at the University of Malta.

tion the widening gap in equality in health care in many others, to put us in a constant state of vigilance.'

Dr Borg stresses that, in health matters, Europe still cannot be viewed as a Union unless this state of affairs is addressed. 'We are still devoting only

3% of our expenditure to prevention, when a marginal increase in this budgetary measure could result in such an exponential improvement in our health statistics especially in the low socio-economic groups,' he asserts emphatically. He also stresses

the importance of pushing further the cross-border healthcare strategy including the second eHealth Action Plan 2012-2020, which focuses, amongst other issues, on supporting research, promoting international cooperation and achieving wider

interoperability of e-health services.

According to Dr Borg, one of the major hurdles he faces is his lack of power to change trends. 'My main strategies lie in the use of soft law options and political pressure to raise awareness and get things moving,' he explains. 'While I'm all for allowing subsidiarity to the Member States to give them more freedom to take care of their health systems, I believe that some issues, such as certain cross-border health threats, should be coordinated at a central level.'

Another bone to contend with in the Commissioner's agenda is the migration of healthcare professionals both within and outside the perimeter of the European zone. The Commissioner, however, is clear in his stand where freedom of movement is concerned. 'In my opinion full freedom of movement in the EU should be allowed, namely for people, goods, capital and services; it is after all, a core principle, enshrined in the EU treaties,' he asserts.

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Long-term managed lab automation

Dutch lab sets high workflow standards through a service partnership

The University Medical Center in Utrecht (UMCU), The Netherlands, is in the process of creating a multidisciplinary centre of excellence, able to manage resources efficiently while delivering the highest level of patient care and clinical research.

As part of this, it fosters a collaborative and multidisciplinary approach across the staff, academic researchers and partners. An efficiently run laboratory service is integral to its success.

UMCU created one of Europe's most innovative lab automation configurations when it became The Netherlands' first academic hospital to install a Beckman Coulter total

'Fast Service' delivers greater efficiency

Demands on the lab have become increasingly diverse and complex. Workloads have increased exponentially with the central laboratory operating 24/7, with 200 full time equivalent staff. On average, it processes around 16,000 tests a day, 3.4 million a year, of which 1.5 million alone are for chemistry and immunoassay. One of the significant challenges to turnaround time has been the distance between wards in the different hospitals. Sample collection meant that they were coming into the lab in peaks, causing unpredictable bottlenecks.

Coulter to show how well they could meet the high demands from UMCU. With their present solution, and its Dutch office support, the company has been able to prove it.

To enhance the fast service, a 'dedicated tube post' service from Dutch Telecom was installed to improve the peaks of sample arrival. Instead of large batches arriving together, samples arrive every five minutes with a maximum of 20 tubes per carrier. Beckman Coulter's automation solution had the flexibility to incorporate this third party supplier's system without undermining promised TAT and throughput. The company worked with

dies up to 2,900 tests an hour. The AU5811 processes STAT and routine tests simultaneously. Three sample processing lanes are built into this AU system, with one designated a priority rack port. The installation of the Remisol Information System completed the package.

'The AU5811 has enhanced reliability, with minimal downtime and maintenance,' explained Mr den Hartog. 'There is less need for manual dilution, fewer analyser flags and we need less sample volume to achieve accurate and reliable results. This is especially important for our extensive pediatric service.'

The 3,060-capacity refrigerated



Jan den Hartog is Laboratory Manager for the Department of Clinical Chemistry and Hematology at the University Medical Center Utrecht. He is an expert in lean six sigma thinking and led the project management team responsible for the design of the Fast Service and the total automation of the core lab.

capability for any special tests done elsewhere in the UMCU.

Partnership also includes the staff

'Once members of staff have been trained and have adjusted to the new approach, they are able to trust a system which delivers results with minimal manual involvement,' Jan den Hartog explained.

The members of staff are encouraged to play an active role in decisions. One example was the particular challenge presented by the large quantities of microtubes from the Children's Hospital.

These are always difficult to handle, with a small sample amount and a tube that normally can neither be placed directly on the analysers nor on the track. A solution was needed to integrate microtubes into the new high-speed sample sorting and other automated solutions.

Once the staff understood how the new Beckman Coulter systems worked, they devised a 'pedi-tube' within a special 13 by 75 mm container that enables microtubes to be handled, throughout the whole process, as if they were standard tubes.

The Utrecht Medical Center is now in the third phase of its long term plan to create a multidisciplinary centre of excellence and, from the start, looked for a diagnostic partner that shared its values to improve patient outcomes.

As that long-term partner, Beckman Coulter's aim is to continue moving the lab forward to achieve its objectives.

Jan den Hartog concluded: 'This is a process of continuous improvement and, right from the start, the Beckman Coulter team were willing to adapt and be flexible, working with us to find the right long-term solutions.'

Source: Beckman Coulter



Panoramic view of the Utrecht University Medical Center lab and the Beckman Coulter's total automation solution

automation solution. The laboratory has worked with the company since 2006 to consistently expand and enhance its service.

Laboratories from around Europe, including the NHS, have been visiting UMCU to see first-hand how Beckman Coulter operates as a long-term managed service partner. Like NHS labs, Utrecht required a partner that could help move the lab forward by delivering workflow improvements and innovative systems, within ever tighter budget controls.

The modern UMCU was formed in 1999, when the existing medical faculty merged with the Academic Hospital and the Wilhelmina Children's Hospital.

Of its 1,000 beds, a fifth are exclusively for children. Areas of expertise in Utrecht include oncology, transplantation, diseases of the central nervous system, immunity and infectious diseases, vascular diseases, heart surgery as well as trauma.

Pre-automation Lean analysis also showed that performance was being affected by having too many suppliers offering different, incompatible analysers. This also reduced staff efficiency and created unnecessary training issues. The decision was taken to create the 'Fast Service' – integrating workflow for chemistry and immunochemistry as well as the pre-analytical phase for haematology, coagulation, blood gases and HbA1c testing.

Once the samples arrived in the lab, turnaround time (TAT) had consistently to be within one hour for both routine and stat samples. Samples coming into the lab from whatever location still had to meet the same TAT commitment. In addition, the solution had to be effective, without requiring extra staff or facilities for STAT samples. The labour-intensive pre-analytical phase, with its high error rate, also had to be resolved.

As lab manager Jan den Hartog explained: 'There were some critical moments which required Beckman

both the UMCU as well as Dutch Telecom to ensure this new 'tube post' integrated successfully.

Streamlined workflow

Utrecht chose Beckman Coulter's Power Processor, with dynamic inlet and automated sample handling track to streamline workflow and increase capacity.

'A track with integrated centrifuges reduces manual steps, making a guaranteed TAT much more of a reality. We now have the capacity to deliver our promised "Fast Service", but more importantly the variation in TAT has dropped significantly,' Jan den Hartog added. 'We are achieving a faster and more consistent turnaround time, with our own metrics showing that we consistently hit a chemistry TAT of under one hour for at least 95% of test results.'

The track links two Dxi 800 immunoassay systems (each handling up to 400 tests an hour) with two of the highest throughput clinical chemistry analysers available, forming an AU5811 configuration. Each han-

storage unit offers fast and automatic traceability for sample retrieval. Pre-analytic sample sorting is carried out by the high-speed AutoMate 2500, able to handle 1,200 samples per hour. From a single point of entry, the system manages all tubes, from sample receipt to archiving.

With a second sorter, the AutoMate 1250, the lab has additional aliquot

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New lamps from Italy

Hygienic and sympathetic yet sharply focused

The new NX series of Starled7 operating lamps produced by ACEM SpA are reported by the firm to produce 'a perfect IR-free light, with an excellent colour temperature and low consumption suitable for every situation. The Made in Italy design grants visual comfort, practicality of use and compatibility with laminar flows'.

The special optics of its LEDs, ACEM continues, 'generate a shadowless, clear and homogeneous light assuring visual comfort and best working conditions both for the surgeon and medical staff. Thanks to its next generation LEDs, the lamp can produce a perfect illumination under every condition generating an IR-free light, an excellent colour temperature and a practically endless life cycle at low consumptions.'

The lamp is composed of 57 next generation LEDs circularly placed and split into seven reflectors (with seven LEDs each) and another eight LEDs radially positioned around the handle.

'Starled7 NX produces a high illumination level of 160,000 lux. The colour rendering index of 95 and colour temperature of 4,500 °K allow reproduction of the exact chromatic scale of colours of the human body.'

The lamp is provided with ACRIS, the innovative system realised by ACEM that ensures, by the use of a microprocessor, the control of electrical curves typical of LEDs to

remain unaltered over time but maintaining a long life cycle of about 50,000 hours.



ACEM reports that Starled7 NX includes the firm's ACRIS smart system; a special system to adjust the light field dimension without mechanical parts through an optical-electronic management; an I-SENSE control system; innovative LIGHT-

UP system with light beams from the upper part of the lamp assuring adjustable illumination levels – focused or ambient light and spot diameter – according to various needs, including minimally invasive surgery.

France reacts to antimicrobial resistance

Exploring the mechanisms to control nosocomial infections

France, like all European countries, is concerned about the increasing spread of multi-antibiotic resistant bacteria but, as Professor Philippe Berthelot, infection control practitioner at the St Etienne University Hospital, South-East France, says: 'Although the over prescription of antibiotics in medicine has, without doubt, contributed to the problem we are facing today, there are many other factors involved, which include the widespread use of antibiotics in agriculture, poor hygiene and the complexity and type of care and treatments given. They have all contributed to this rise and this complex picture needs careful consideration in order to control the emergence of resistance.'

France is a major consumer of antibiotics ranking 4th in the European hospital environment according to the latest data available, and 5th for community use. A recent press release from the French National Authority for Health (HAS) shows that, despite a programme initiated in 2011 to achieve a 25% reduction in antibiotic use by 2016, medical use is rising again in 2014, meaning France has an antibiotic consumption 30% higher than the European average. However, its figures for antibiotic resistance 'are good compared with those from most European countries but, however, significantly poorer than those of Scandinavian countries' Professor Berthelot points out.

So what measures have been put in use to control the spread of drug-resistant bacteria in the hospital environment? All French hospitals have a medical committee to deal with nosocomial infections and antibiotic use, respectively named Comité de lutte contre les Infections Nosocomiales (CLIN) and Comité des Anti-infectieux. These now almost always include, as part



Professor Philippe Berthelot, an Infection Control Practitioner at the University Hospital of Saint-Etienne, is also president of the French Society for Hospital Hygiene (SF2H)

of the team, an infection control practitioner. However, the background training profile of the infection control practitioner in France varies explains Professor Berthelot. To become an infection control practitioner a doctor can come from a background in microbiology, infectious diseases, Public Health, pharmacy, or clinical care. This type of multiple training allows the infection control practitioner to work in more than one department, as Professor Berthelot does. He is part of the hospital's Infectious Disease Department and also part of the Microbiology Laboratory, which allows him a 'transversal view of hospital infections'.

Hospitals develop protocols based on recommendations drawn up by one of the major national bodies in infection control, such as the French Society for Hospital Hygiene (SF2H), French Society of Infectious Diseases (SPILF), French Society of Microbiology (SFM) or those outlined by the HAS. However, individual hospitals are free to adapt the recommendations for best use in their particular establishment.

One way these recommendations have been proved effective in reduc-

ing infection is in the preventive use of antibiotics before surgery. Professor Berthelot explains that, 'working in conjunction with the surgical team providing prophylactic antibiotics guided by the microbiology laboratory, and with reinforced hygiene measures, has seen a substantial decrease in nosocomial infections in surgical patients over the past five years.'

'Additionally,' he added, 'measures that isolate patients who are already known, or recently identified as carriers of resistant organisms, although seemingly onerous and expensive have been shown to be highly effective in reducing the transmission of resistance.'

Some hospitals are also creating the role of 'antibacterial therapy expert', often a medical practitioner, who has a clear idea of the epidemiology of infections and the correct use of antibiotics.

In the absence of such experts in every hospital, there are guidelines for the prudent use of antibiotics that demand that the situation should be re-evaluated two to three days after the initial prescription, in order to confirm a response to the treatment and prevent the emergence of resistance.

A change in antibiotic is recommended if there is any sign of resistance to the first-line treatment, which should be as targeted as soon as possible. It is of course, Professor Berthelot emphasises, 'extremely important that sufficient antibiotic is given for the correct length of time to achieve complete eradication of the infection'.

However, one thing we should remember he points out: 'Antibiotics have saved and continue to save millions of lives, with few new molecules on the horizon it is our duty to ensure they remain able to do so, we must use them wisely.' (JMD)

Now available: ESBL-Tool kit for handling beta-lactamase resistant Enterobacteriaceae

Jane MacDougall

Doctor Véronique Mondain from Nice explains the ambitious project she and colleagues have put in place to help combat the rise of these resistant pathogens. Extended spectrum beta-lactamase (ESBL)-producing organisms pose unique challenges to all those involved in the treatment and control of infection. The beta-lactamase enzymes produced by these bacteria are capable of hydrolysing penicillins, broad-spectrum cephalosporins and monobactams. Because the gut is a major reservoir of these bacterial species and the genes encoding for the ESBLs are often located on plasmids, transfer from strain to strain and between species is very rapid and patient to patient transmission, particularly in regions of poor hygiene is easy. In many parts of the world 10-40% of strains of *Escherichia coli* and *Klebsiella pneumoniae* express ESBLs. A recent study conducted in a nursery in France found that 6-4% of babies were carrying ESBL *E. coli* and also evidence for transfer of plasmid DNA between the microflora of different infants within the same centre.

Despite the widespread nature of the problem, community physicians and other healthcare professionals are insufficiently trained to control the spread of this community-based resistance. A plan to educate, report and inform all the players involved was



Dr Véronique Mondain is an expert in infectious diseases at the Nice University Teaching Hospital, France

implemented in the Nice University Hospital between 2010 and 2012. During this time the use of IT and the creation of a toolkit containing specific advice have enabled a patient's treating physician to be alerted and helped with advice within a day of the laboratory results. This intervention clearly shows that when the necessary tools to treat and prevent infection spread are in place, accurate information on epidemiology is collected and the quality of antibiotic treatment and information in the community improves.

Launched nationally in March this year the site has been visited nearly 1,000 times. In August, the toolkit will be available in English and Italian with more versions to follow for pan-European use. See <http://www.chu-nice.fr/kitblse/index.php>.

