

Hygiene *for the* World

Cutting-edge expertise in hygiene and infection control

Issue 3 / September 2014

EDITORIAL

Hospital-acquired infections kill 16 million people a year worldwide. Many of these infections stem from poor hand hygiene, so Professor



Didier Pittet has devoted himself to what can only be described as a crusade to improve patient safety in this area. Since 2005 he has been working with the World Health Organization (WHO) to run the "Clean Hands Save Lives"

campaign that has now been implemented by 170 of the 194 UN member states.

This year Pittet spoke at various events including Latin America's biggest infection control confer-



ence, the IX Congreso Panamericano de Infecciones Intrahospitalarias – I Congreso Internacional de Infecciones Asociadas a Cuidados de la Salud. During his presentation he singled out a young doctor, Dr. Carmen Soria, who also

has special ties to our company. Prof. Pittet praised her efforts to improve hand hygiene at Hospital Luis Vernaza in Ecuador. The Dutch infection control practitioner and consultant Gertie van Knippenberg-Gordebeke went so far as to say that Carmen Soria is fighting the same fight as her on the Latin American continent and swiftly moved to crown her as the region's "Bedpan Queen"!

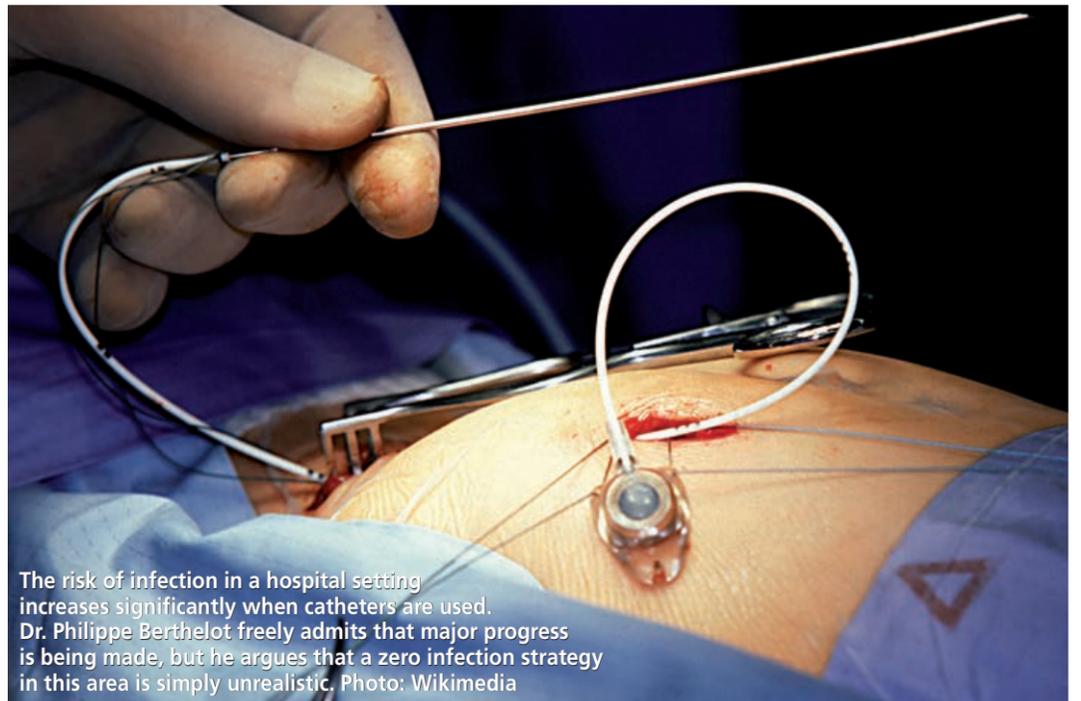
We know how much Dr. Carmen Soria deserves this praise because we at Meiko worked with her on a project, too – in our case supplying her hospital with its first washer-disinfector for reprocessing care utensils.

The conference is one of the most successful events of its kind in Latin America. Having attended it ourselves in the past, we know what a rich variety of topics it deals with. Multidrug-resistant bacteria, *Clostridium difficile* and gram-negative organisms feature heavily on the agenda here, too, posing key challenges to participants from the realms of hospital infection control and infectious diseases. Gertie van Knippenberg gave three presentations – and was swamped with questions after each one. As always, she was right to hammer home the argument that these pathogens occur in large quantities in human excreta. This issue is still woefully neglected. All we can do is keep trying to raise people's perception of the importance of dealing with excreta hygienically, and to offer our support to Bedpan Queens and Bedpan Kings wherever they may be!

Very best regards, Markus Braun

Any difficult situation can be seen as an opportunity

Philippe Berthelot works as an infection control practitioner at St Etienne University Hospital in France and is the president of the French Society for Hospital Hygiene (SF2H). We spoke to him about the quality of epidemiological data in his area of specialisation and about the feasibility of achieving the ultimate goal of zero infections.



The risk of infection in a hospital setting increases significantly when catheters are used. Dr. Philippe Berthelot freely admits that major progress is being made, but he argues that a zero infection strategy in this area is simply unrealistic. Photo: Wikimedia

Question:

As the president of the SF2H you have probably heard that the German equivalent to your organisation – the German Society of Hospital Hygiene (DGKH) – is

currently debating whether the figures for patients with hospital-acquired, or nosocomial, infections in Germany actually equate to the facts on the ground. What's your assessment of the situation in France? Are you confident that you're working with accurate figures? And if so, why?

Philippe Berthelot:

France has been conducting its five-yearly national survey on the prevalence of nosocomial infections (NIs) since 1996, and the most recent survey in 2012 covered 90 percent of occupied beds in French hospitals. The data collected so far provides a basis for estimating the scale of this problem and gives us some idea of how trends are evolving, obviously bearing in mind the limitations associated with this type of survey. There's certainly been plenty of progress in regard to how the surveillance networks keep track of NIs, but we're still stuck with the problem of whether the institutes that choose to take part voluntarily are actually sufficiently representative of the sector as a whole. The 2012 survey on the prevalence of NIs, which was based on a common methodology,



Dr. Philippe Berthelot

enabled us to compare France with other European countries and to estimate the global risk of nosocomial infections at about one in every 18 patients. The data from that survey yielded an estimated annual figure of 324,344* (confidence interval 95 %: 194,130 - 487,897 NIs in France). Thanks to the monitoring data gathered on these cases by infection control teams, the epidemiology of highly antibiotic-resistant bacteria detected in healthcare settings is closely tracked by the French Institute for Public Health Surveillance for both individual cases and epidemics.

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- [2] **Operating theatre shoes are not medical devices**, but they are often treated as if they were. To find out why the Swiss Paraplegic Centre gave up using wipe disinfection and reprocessing in its central sterilization unit to clean theatre footwear, turn to page 2.
- [3] **Infection control in Latin America** is an issue that is still handled very differently from one country to the next. Silvia Guerra is a realist – and she manages to put her finger on some very sore spots!
- [4] **Masthead (Impressum)**

Questions & Answers

Question:

Why are bacteria becoming increasingly resistant?

Answer:

Bacteria develop resistance when they are exposed to antibiotics too frequently. This causes them to develop defence mechanisms against the drugs. One of the reasons for this situation is that doctors prescribe antibiotics too often, even when they are not necessary. Factory farming is another practice that has come in for criticism because antibiotics are added to animal feed to prevent illness and infection. And now German researchers have discovered yet another reason why bacteria develop resistance. "Resistance builds up when competing bacteria live together in large numbers and in confined spaces," explains Dr. Daniel Lopez from the Research Center for Infectious Diseases at the University of Würzburg. The researchers experimented with non-resistant *Staphylococcus aureus* bacteria under biofilm-like conditions of limited space and nutrients. In this environment the bacteria began competing with each other and underwent a form of evolution. Individual bacteria were suddenly able to produce antibiotics through spontaneous mutations. And instead of surrendering to this antibiotic attack, other bacteria actually became resistant!

Perfect hygiene from top to toe

Wiping operating theatre footwear with disinfectant, carrying them to a central sterilisation unit for reprocessing, and returning to pick up a new pair is something that infection control practitioner Vittoria La Rocca sees as an unnecessary addition to people's already heavy workloads. That's why the theatre changing rooms at the Swiss Paraplegic Centre have now been equipped with special washer-disinfectors from Meiko which are designed to quickly reprocess theatre footwear to ensure each and every pair is perfectly clean.

Patients at the Swiss Paraplegic Centre (SPC) in Nottwil are people whose lives have changed forever. For many of them, the burning questions are: How much of my former life do I still have left? And: Can I still lead an independent, self-sufficient life, or will I always be dependent on other people? Paraplegics are people who have lost function in their lower extremities due to spinal cord injury or disease. They typically suffer from a combination of symptoms including paralysis, inability to regulate blood pressure effectively (including hypertension), and changes in muscle tone and muscle reflex. Patients who are fortunate enough to be treated at the SPC in the small Swiss municipality of Nottwil know they are receiving some of the best and most professional care for this condition anywhere in Europe.

Guido A. Zäch developed the SPC's concept of holistic rehabilitation for paraplegics. He understands that rehabilitation starts from the moment an accident victim with a spinal cord injury first enters hospital – and doesn't end until a long time after they leave. A patient who returns home continues to require job-hunting advice, pastoral care, and support from the Swiss Paraplegics Association, all of which should be up and running during their hospital stay rather than waiting until after they are discharged. The SPC treats emergency and intensive care patients and performs surgical interventions. Its medical facilities include three operating theatres staffed by surgeons specialising in orthopaedic surgery, plastic surgery and urology.

Step into the theatre changing rooms and it immediately becomes clear that top-to-toe hygiene is an absolute must. The theatre shoes are neatly arranged on the shelves next to the washer-disinfector used to reprocess them. "We used to wipe the shoes with disinfectant to clean them," says the SPC's infection control specialist Vittoria La Rocca, emphasising that this solution was far from being satisfactory: "We shouldn't be creating more work for people. They have

plenty of better things to do than manually clean footwear," she says, echoing the arguments she used to convince SPC management to purchase a Meiko washer-disinfector to ensure top-quality, perfectly hygienic footwear reprocessing. The new machines replaced the previous method of disinfectant wipes: "Now that the footwear is cleaned in a Meiko TopClean 60 we've set up a process where everyone who takes off their shoes puts them straight in the machine in the changing room. The



The operating theatre changing room at the SPC is the perfect location for the Meiko washer-disinfectors used to reprocess theatre footwear.

theatre cleaning personnel start the machine, empty it, and return the footwear to the shelves provided."

The SPC operating theatres are like ORs everywhere in the sense that, "all kinds of body fluids and bone fragments can potentially end up on the theatre floor during surgery", says La Rocca. That's why careful disinfection of theatre footwear is essential, especially since the shoes are typically used by multiple people in turn.

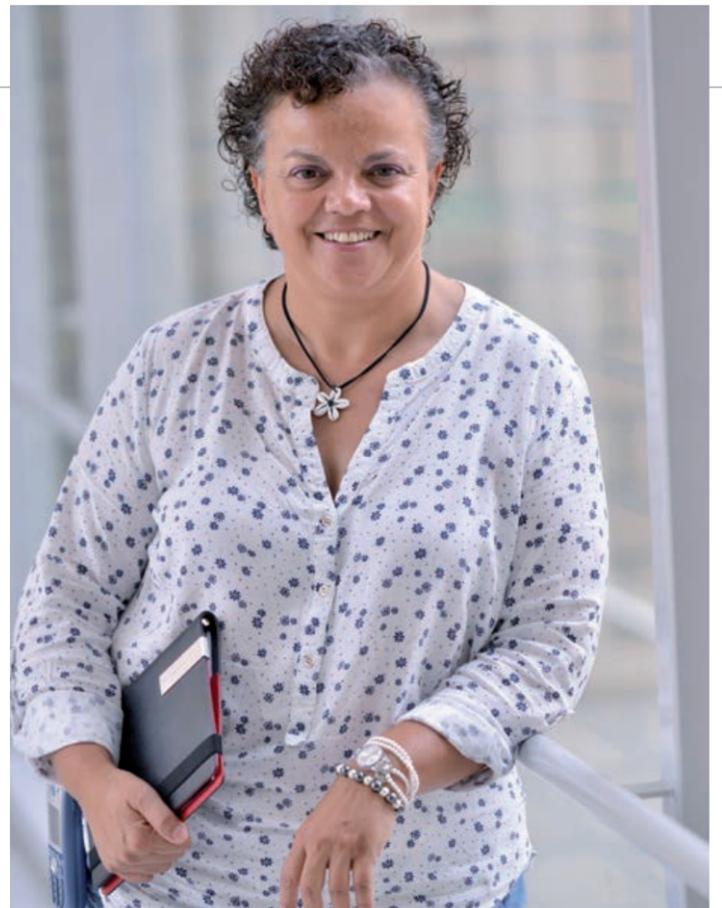
La Rocca freely admits to being "obsessed" when it comes to drawing up precise specifications for procuring consumables and care utensils, and especially when it comes to capital goods, so the theatre footwear used at the SPC can naturally be disinfected using both chemical and thermal methods and is ideally suited to reprocessing in the Meiko machine. La Rocca was equally determined to get outstanding after-sales service and 24-hour support for whatever machine the SPC chose. The fact that she used to work for a company that produces washer-disinfectors means that she is familiar with

both sides of the medical devices industry, so she knew exactly what to look for.

La Rocca, who is Swiss but of Italian extraction, is passionate about infection control and says she could never work anywhere that didn't offer the SPC's superb standards of infection control: "We have so-called 'link nurses' on every ward, plus the Centre has an



Vittoria La Rocca drew up a detailed list of requirements for the SPC's new washer-disinfectors.



Vittoria La Rocca is an infection control specialist at the Swiss Paraplegic Centre. Photos: Stephan Hund

Infectious Diseases Board and an infection control response team to deal with any incidents." Fortunately, however, incidents are rare. La Rocca's commitment to infec-

tion control extends well beyond her workplace. As well as being an active member of a group dedicated to infection control in inpatient and outpatient nursing and geriatric care/rehabilitation at the German Society of Hospital Hygiene (DGKH), she also gives courses at other hospitals and care facilities and works as a lecturer at CURAVIVA (the Swiss Association of Care Homes and Institutions) as well as at two schools run by the Swiss Institute for Rescue Medicine and at the EMERGENCY training centre. She explains one of the key lessons she has learned working as an infection control practitioner: "You need to have a good reputation at the institution you work for. It's important that your colleagues trust and respect you and see you as a source of support rather than as some kind of hygiene police!"

No more allergies from theatre footwear in Baden-Baden

It takes just a few minutes for the machine to clean theatre footwear in Baden-Baden.

At least in Germany, most operating theatre shoes are reprocessed in the hospital's central sterile supply unit as if they were medical devices which, strictly speaking, they are not. Germany has clear guidelines on operating theatre footwear, specifying that it must be impervious to fluids, anti-slip, suitable for disinfection, and anti-static.

Baden-Baden City Hospital used to clean its theatre shoes in an instrument washer situated in a room used by anaesthetists. The problem was that the reprocessing method left a chemical residue on the shoes which caused allergies. Udo Hollerbach, who heads up the infection control centre at the Klinikum Mittelbaden regional hospital network which runs Baden-Baden City Hospital, explains how they solved this issue: "What we have now is a chemical-thermal reprocessing method which ensures no chemical residues are left on the shoes which could trigger any allergies among staff, but which still reprocesses the footwear properly."



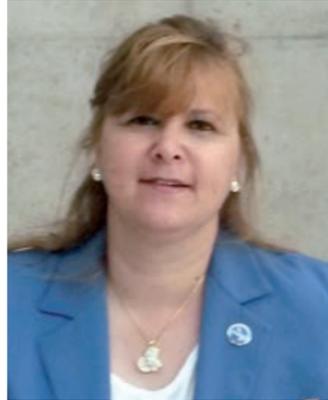
Udo Hollerbach



Hollerbach developed the new solution for reprocessing theatre footwear in collaboration with the company Meiko. Markus Braun, the head of sales and marketing in Meiko's Medical Technology division, describes how it works: "We worked closely with Baden-Baden City Hospital to develop a device with a low temperature programme, and we worked with the chemicals manufacturer to find a solution which would guarantee optimum reprocessing results, a short programme cycle, and a hassle-free experience for the people who wear the shoes. This kind of close collaboration with our customers motivates and inspires our R&D team, and it's a key part of who we want to be as a company."

" Doctor, do you know where the nurses take those dirty bedpans? "

Silvia Guerra is a key figure in the field of hospital infection control in Uruguay. A licensed nurse, she also has a Masters in epidemiology and specialises in infection control in hospital settings. Guerra has a wealth of experience in epidemiology and the sterilisation of medical materials and has worked as a consultant on infection control issues both in Uruguay and in other Latin American countries. She has also worked as a nurse in operating theatres and central sterilisation units and was responsible for setting up the infection control committee in a private hospital in Uruguay. Guerra lectures at the university and provides consulting services to the Pan American Health Organization. She has also published several manuals on infection control and was the driving force behind the implementation of Uruguay's national hospital-acquired infection surveillance system. She currently works as a consultant to the Epidemiological Department at the Uruguayan Ministry of Health. She is also the founder and current chairperson of the Asociación de Esterilización in Uruguay.



As well as working as a qualified nurse, Silvia Guerra also conducts and publishes research and gives lectures on infection control in her native country of Uruguay.

Question:

The study by Renata N. Pires et al. on *Clostridium difficile* in Brazil, which was published in the *AJIC Journal of Infection Control* (Vol. 42, No. 4), was one of the first to address this issue. The authors chose the title "Clostridium difficile infection in Brazil: A neglected problem?" And I. T. Balassiano et al. have gone so far as to describe *C. difficile* as "a mystery in Latin America". How do you feel about that?

Silvia Guerra:

I think it's a fairly accurate description of how many specialists in Latin America see the current situation. Hospital-acquired infections are a serious problem, but when you look at the initiatives for monitoring hospital-acquired infections in each country and see which countries even have those kinds of systems in place, you quickly realise that only Chile and Uruguay have established any kind of surveillance system on a national level. That shows how the topic is regarded as important, but perhaps not essential!

As far as *Clostridium difficile* goes, the people responsible for this issue in Uruguay have recognised that there is a problem. Recording and surveillance of these infections has been underway in certain hospitals since January 2012, so there are now figures available on a national level to help quantify the problem. Of the nine hospitals that participated in the Sentinel Surveillance Project, all but two reported outbreaks of infection. That clearly shows how active surveillance can help us determine the frequency of infections and even detect epidemics. In fact the most serious outbreaks occurred in those hospitals in which the people responsible failed to realize until it was too late that they were dealing with an epidemic, and so failed to take the necessary containment measures.

Uruguay still has lots of hospitals that don't even test for *Clostridium difficile* and therefore have no idea of the extent of the problem in their own backyard. That's also true of hospitals in many other Latin American countries, as Renata N. Pires et al. have illustrated.

Question:

You published some guidelines on designing fit-for-purpose dirty utility rooms in a publication on hospital-acquired infections. What role do these rooms play in hospitals when it comes to preventing nosocomial infections?

Silvia Guerra:

That's a good question! Hospital directors often go to great pains to maintain the appearance and cleanliness of their hospitals in the publicly accessible areas which are most visible. But they forget about the dirty utility rooms, or "dirt rooms" as we call them in Uruguay. Recently I was in a hospital which had a problem with Carbapenemase-producing enterobacteria. As part of the overall action plan I suggested setting up a dirty utility room to ensure proper cleaning and disinfection of the bedpans. The director was unwilling to take my advice until I asked him: "Doctor, do you actually know where the nurses take those dirty bedpans?" He stared at me without saying anything, so I asked him to walk the whole route with me. He was reluctant at first, but he soon realized that my recommendation made sense.

And that's simply the reality we are faced with. We constantly see high-tech solutions deployed in the diagnostics and treatment of infections, but what about new technologies for infection prevention? Some people think it requires huge investments, but I believe that the benefits always outweigh the costs. When we visit dirty utility rooms

in hospitals, we often find that they live up to their name all too well and fall far short of the recommended guidelines. A normal utility room should have four separate sections: an area for dirty items (with a stainless steel



Some dirty utility rooms are astonishingly neglected. Silvia Guerra argues that using cutting-edge technologies for diagnostics while minimising investment in infection prevention is false economy.

surface or storage table) which is separated from the clean areas of the room and designed for the temporary storage of dirty care utensils, a hand wash basin, a washer-disinfector for bedpans, and an area for cleaned utensils. Often these rooms feature nothing more than a slop sink and a tap and it's impossible to follow even the most basic recommendations on how to prevent infections.

In those cases hospital staff tend to underestimate or even be oblivious to the fact that enterobacteria are being transferred by people's hands, by inadequately disinfected objects such as bedpans, on contaminated clothing, and by contaminated surfaces in dirty utility rooms and patients' bathrooms. Most of the problems with nosocomial infections in Uruguay involve enterobacteria and *Clostridium difficile*, yet some

people seem to think that patients' intestinal tracts are sterile and that the care utensils don't pose any risk at all! If you visit Uruguay or one of its neighbouring countries and ask to see a dirty utility room, they'll often take you to a room which is poorly equipped to dispose of waste in any kind of responsible way. The hygiene conditions that typically prevail almost certainly pose a risk to patients. You just have to think how often the hospital personnel are going in and out of this area without washing their hands – the worldwide average is 60 percent, so the idea that there's no risk of infection is nonsense! Probe a bit deeper and it becomes clear just how many mistakes people are making when they manually reprocess bedpans, including the ways in which they are transported, emptied, cleaned, disinfected and stored. And don't even think about asking who is

and other solutions designed to bring infections under control. That increases a hospital's costs which means it has even less money to spend on infection prevention measures. And so it goes on, spiralling out of control!

That's why it's so important to make hospital operators understand that it's more economical to invest in preventing infections rather than treating them. And that kind of investment has to include utility rooms and bedpan reprocessing strategies. The more careful and cautious you are in handling bedpans, the fewer infections you get and the lower your costs – and that means you have more money left to spend on additional infection prevention methods.

Some countries still haven't integrated those aspects in the list of 'structural indicators', in other words the basic conditions that hospitals have to meet in order to receive an operating licence. On top of all this, continuous evaluation is also essential. Some hospitals had quite sophisticated utility rooms when they first opened, but with little effort put into maintenance and continuous improvement these rooms tend to slip far



actually responsible for these tasks! If a hospital doesn't have any infection control protocols then the consequences can be frightening. I've carried out quick protein tests on the waterproof aprons of hospital personnel after they finish reprocessing bedpans manually, and the results almost always come back positive. The reason people are unaware of the dangers of manually cleaning bedpans is that it has never been properly researched.

Question:

So what needs to happen?

Silvia Guerra:

All sorts of things. Unfortunately the hospitals that have most deficiencies in this field are also the poorest ones. It's a vicious cycle. The higher the risk of infection, the more outbreaks occur and the greater the use of antibiotics

behind the requirements after a few years.

Of course this problem is exacerbated by the lack of guidelines and responsibilities for implementing and monitoring procedures and improvements. And in addition to suitable structures and standards you also need proper ongoing staff training. Generally speaking all these areas need work, though there are obviously certain hospitals in some countries that have already risen to the challenge.

Question:

The health care system in Uruguay is regarded as one of the most modern in South America. Where do you see the greatest resistance to improving infection control practices?

Silvia Guerra:

That's a tricky question. Uruguay

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"Doctor, do you actually know..."

took a pioneering role when the Uruguayan health minister announced that infection control would take top priority four years ago. The first step we took was in 2010 when we provided hospitals with the translation of a manual on infection control issued by the Brazilian Health Surveillance Agency (ANVISA). But we soon realized that didn't go far enough. We saw that our infection control assessments needed to be stricter, so the ministry published guidelines on how to conduct infection control assessments and developed an application for mobile devices which hospitals can use to check hygiene conditions, enter the results, and then identify the high-contact areas in their facility that are most urgently in need of cleaning. That data allows hospitals to train their cleaning personnel in a much more targeted way.

So where did the most resistance come from? Well, it was difficult to persuade the people

responsible for infection control to accept responsibility. Properly reviewing and addressing this topic requires a lot of work, and some hospitals don't even have anyone assigned as the head of a department of infection control and hygiene who could take on this task.

In tandem with the initiatives run by the ministry, I organized courses on a national level through two channels: firstly as part of the initiative popularly known as URU-HYGIENE and secondly in

the form of workshops combining both practical and theoretical aspects for a network of hospitals in Uruguay (FEMI). That gave me an opportunity to travel across the whole country, and what I noticed was that the people responsible for cleaning and fighting against infections are genuinely keen to learn more about this topic, especially since so little information has been published on it.

In terms of resistance, very little of that came from the people charged with implementing the guidelines, apart from perhaps the resistance I encountered in relation to people being compensated fairly for what



Bedpans are categorised as a medical device, so this method of storage is not exactly best practice...

Continued from page 1

Every setback can be seen as an opportunity

Overall the epidemiological data has become more comprehensive over the last 20 years and France now has a fairly reliable global stock of data which enables us to objectively assess the prevention efforts that are being implemented.

* Estimated number of patients per year who contracted a nosocomial infection in an emergency hospital unit on at least one occasion, ECDC PPS 2011–2012.

Question:

What targets does the SF2H have in regard to nosocomial infections?

Philippe Berthelot:

SF2H's mission is to help promote infection control in the care environment. To achieve this, our multi-disciplinary association, which comprises both medical and paramedical specialists, issues recommendations on good practices, creates slide presentations, training videos and vocational training programs, and encourages research efforts in the fields of NI prevention and infection risk management. Our work also focuses on incorporating the nursing and care home sector as well as outpatient and home care. We recently completed an update of the standard hygiene measures which form the critical hub in preventing and fighting against NIs as well as a review of some of the supplementary hygiene procedures. We now need to bring our recommendations fully up to date to reflect the incredibly rapid

changes in scientific knowledge. We're hoping to continue SF2H's work by further developing the training tools we offer – such as healthcare sector simulations – and by enhancing people's knowledge of psychosocial aspects and improving medical/economic assessments in the field of infection control. The inexorable spread of antibiotic resistance is also a major challenge. One of the goals of infection control measures is to curb this extremely worrying development, specifically by reducing the risk of these multi-drug-resistant and highly antibiotic-resistant bacteria spreading even further.

Question:

Do you think goals such as the zero infection strategy pursued by your German colleagues are realistic?

Philippe Berthelot:

Absolutely not, and I have to say I'm slightly surprised by this rather exaggerated optimism, which is echoed in the American work on catheter infections, even though I freely admit that some remarkable progress is being made. Evidence has shown that a certain proportion of NIs, even endogenous infections, can be avoided by putting a series of infection control measures in place as safeguards, particularly at the most critical points in the sequence of care. We certainly need to be working towards reducing patients' risk of infection in care settings, but slashing that figure to zero is

impossible because patients are inevitably faced with ever-increasing risks, particularly due to higher life expectancy, comorbidities and the necessity of using invasive devices as part of the care process which can act as a gateway for infections.

What we can do, however, is to consider the "zero infections" goal as a desirable concept that reminds us how we should never trivialize any complications or simply ascribe them to fate. Any situation or setback that is analysed thoroughly can be seen as an opportunity to improve safety in the care environment.

Question:

You and many other experts have stated in interviews that we are already well into the post-antibiotic era. What do you think is the best way to tackle this issue?

Philippe Berthelot:

I don't think I expressed myself in exactly those terms. I certainly stated in several articles that we should be ringing the alarm bells because the majority of the world's population, and indeed some health experts, continue to be unaware of the potential consequences of bacteria becoming totally resistant to antibiotics. Going back to the situation we had before the introduction of antibiotics would be disastrous and would result in a return to high mortality rates due to infectious diseases. Fortunately the SF2H is working with many other organi-



Silvia Guerra and her Dutch colleague Gertie van Knippenberg-Gordebeke are driven by the same principles when it comes to best practices for managing patient excreta. Photos: Daniela Bischler/personal

they do. That comes down to hospital administrators, and in many cases the pay they offer is less than optimal, essentially because they underestimate the importance of cleaning when it comes to preventing the spread of infections. The high prevalence of infections caused by *Clostridium difficile*, MRSA, vancomycin-resistant enterococci and *Acinetobacter baumannii* is an indication of the inadequacy of infection control measures in many countries.

Some people think cleaning a hospital is like cleaning your house – they don't understand what's so special about it. In a hospital setting it's the busiest

areas and the ability to monitor and give feedback that mark the difference between acceptable performance and the kind of poor-quality cleaning that creates a significant risk of spreading hospital bacteria.

CALENDAR

15–16 October 2014
10th Hospital Hygiene Congress, Villach, AT

21–22 October 2014
Fürth/Erlangen/Nuremberg Hygiene Days, Fürth, DE

21–24 October 2014
IFAS, Zurich, CH

30–31 October 2014
FKT Anniversary Event, Hamburg, DE

3–7 November 2014
ICAN, Harare, ZW

12–15 November 2014
MEDICA, Düsseldorf, DE

16–18 November 2014
HIS, Lyon, FR

24–26 November 2014
Freiburg Congress of Infectious Diseases and Hygiene, Freiburg, DE

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