

# IAHCSMM in Wonderland

45<sup>th</sup> annual conference of the International Association of Healthcare Central Service Materiel Management (IAHCSMM) in San Diego on 1 – 5 May 2010

*Gudrun Westermann, Wiesbaden*

More than 800 delegates travelled to sunny California to attend the 45<sup>th</sup> IAHCSMM annual conference, exchange viewpoints with other specialists and gain valuable insights from the talks.

The first day was devoted to hands-on sessions: in numerous workshops reprocessing was put to the test, while practising on certain instruments ranging from those used for hip and knee interventions through instruments that are difficult to reprocess, such as laparoscopy accessories, to flexible endoscopes.

The 2 May began with a discussion group already at 7 in the morning. In these Early Bird Discussion Groups different topics were addressed such as e. g. tracking systems, inventory management or care of instrumentation. The day continued with two concurrent sessions always held in parallel, one Technical Update and the other aimed mainly at CSSD managers.

## Wet Packs

Lisa CLEMENT spoke about residual moisture on and in packaging (wet packs) and the reasons for this. She gave an insightful description of the various ways in which residual moisture could be caused, stating that what was particularly important was to document the occurrence of residual moisture, including the time, as that could possibly give some clues as to the cause. For example, in situations where steam was being supplied to other users a drop in pressure in the steam supply could occur at certain times. That could be the reason for the residual moisture. But the potential causes could also be linked to the internal organisational structures and to the composition of trays, e. g. too heavy or too small trays, packing moist instruments or too short a drying phase.

If residual moisture is detected in trays only in the operating room (OR), delays will occur. In the event of complaints from the OR, exact information has to be obtained and recorded (e. g. where was the residual moisture detected).

Clement went on to state that with the introduction of non-woven materials the problem with wet packs had increased. What is important is to select the correct size for packaging and not to use too many layers on top of each other.

How the steriliser is loaded is also decisive. It should not be overloaded and attention should also be paid to correct positioning of packs and trays. Creativity is not necessarily called for in this respect!

To summarize, Clement said that it was not always easy to identify the cause of wet packs. Precise documentation and appraisal of each individual procedural step is useful. With proper tray composition and packing techniques, correct operation of the steriliser and observance of the drying properties of the different materials, most of the problems with wet packs can be avoided.

## Requirements addressed to staff

In a concurrent talk, Julie HAMMERSLEY spoke about the changes in the requirements addressed to staff in the course of reorganisation of departments, but also resulting from the generally more stringent quality demands. But essentially the underlying problems had not changed over the years: how did one find, and in particular retain, competent personnel, how did one find the time to train new personnel properly? Client satisfaction and service, organisational procedures and communication are suboptimal in many departments. Often, the OR does not have enough confidence in the CSSD, and CSSD staff perceive themselves in an equally poor light. Hammersley described how long-term solutions could be found to these problems. The main focus is on standardisation of processes as well as on improvement of service to the clients. A working group composed of members of the OR, CSSD and materials procurement department can help identify and solve problem areas. Examples of this entail standardisation of documentation and creation of quality indicators that can

be regularly monitored. The composition of trays should be standardised and optimised. Procedures for handling loaned instruments should be clearly defined.

Continuing professional development of staff and clear communication of working procedures between the respective departments were important preconditions for the success of all new initiatives. All these organisational improvements ultimately paved the way for certification of the department and would also be translated into economic benefits.

## Instruments: what do they cost?

Gregg AGOSTON spoke about cost saving opportunities in the care and handling of surgical equipment. He began by outlining the factors contributing to the overall costs of an instrument. Apart from the purchase price, the costs incurred for reprocessing, including packaging material, indicators, etc., repairs and servicing, tracking systems, storage and waste disposal had also to be factored in. Accordingly, before purchasing a new instrument a number of issues had to be clarified. It was not a matter of what the surgeon would like to have, but rather of whether the instrument was actually put to use, as well as the predicted service life of the instrument and whether major technical changes were likely to occur during this period. If that was the case, then opting for loaned or leased instruments could be a better alternative. For different instrument groups certain patterns could be predicted, e.g. damage could be expected relatively often in the case of rigid endoscopes; but the repair costs were also relatively low. Conversely, while damage occurred relatively less frequently in video equipment, the repair costs were comparatively high. Single-use instruments could also be an alternative but one had to bear in mind that they could also differ in some technical respects from reusable instruments.

Staff and staff training, of course, also played a pivotal role because incorrect use could give rise to more frequent damage.



Lisa Huber, IAHC-SMM  
President



Linda Clement



Gregg Agoston



Natalie Lind



Thomas Winthrop



Dale Vegter

Looking towards the future, Agoston pointed out that proper reprocessing also had financial implications because plans were already underway to link cost reimbursement for hospitals to the rate of healthcare-associated infections. This was also a reason why reprocessing should be carefully organised, whether conducted in-house or outsourced to an external service provider.

#### Effective decontamination: a case study

Cindy MOLKO spoke about a case study on effective decontamination. In 2007 the Mayo Clinic in Rochester, a hospital with more than 1,000 beds, had launched a quality decontamination programme covering training, quality management, staff involvement and consistent observance of industrial requirements. The prime goal here, stated Molko, was to ensure that all patients received the same standard of treatment and that decontamination was definitely carried out in accordance with the state of the art.

She described various problem areas encountered while implementing the programme, e. g. how to manage personnel sluices or documentation. Hence one of the most important components of the programme was mandatory continuing professional development (CPD) of staff because after all it was the staff who had to implement these measures in the long term.

#### Case carts – between art and science

Natalie LIND, Education Director at IAHC-SMM, spoke about the interplay between art and science when it came to assembling case carts, while describing the balancing act that staff had to master on a daily basis. New instruments are a constant challenge. If an instrument is missing from the case cart or does not func-

tion properly, an entire procedure can be brought to a halt. Good personnel also has to be sufficiently flexible to respond to changes in emergencies, while adopting a professional and meticulous approach. After all, such changes do not arise for malevolent reasons and can ultimately prove to be life saving.

Astute planning of surgical schedules is an important precondition for proper assembly of case carts. An instrument of which five samples were available cannot be used concurrently for six different procedures. This calls for good communication between the OR and CSSD. Despite all technical advances, to cite Lind, what ultimately matters are "soft skills" such as communication and teamwork. Long-term planning and approaches are thus the art underpinning surgical support. To round off, Lind went on to say that it was "soft skills" that accounted for the difference in the question "What do you want?" and the question "How can I help you?"

#### Unique coding for instruments

Jean SARGENT's talk dealt with unambiguous identification of instruments and their bar coding. Pursuant to FDA regulations, a medical device should feature a unique code permitting its identification throughout its entire service life and use. There are myriad numbers or codes, some provided by the manufacturer, others by the supplier, and yet more by the different hospitals. It is thus difficult, or even impossible, to identify an individual device. This is particularly important when it comes to recall of a medical device, if undesired events occur or the device has to be traced back to an individual patient. Sargent explained how unique coding of instruments could be implemented. Global Standards Initiative (GS1), a worldwide network of country-based

organisations that develop joint standards for identification of products throughout the entire value-added chain, is also trying to create standards for the healthcare setting. Accordingly, medical device packaging, for example, would no longer need more than six different barcodes or Data Matrix codes. One uniform code could enhance care and tracking, thus ultimately reducing the rate of errors.

To finish off, Sargent spoke about Global Trade Identification Numbers (GTINs), which should be introduced up until 2012 in healthcare; a product can then be traced by means of the same number from the time of manufacture through purchase and use to disposal. Further information on this subject can be found at [www.fda.gov/cdrh/ocd/udi/](http://www.fda.gov/cdrh/ocd/udi/).

#### Critical parameters on the dashboard

Thomas WINTHROP and Dale VEGTER spoke about depicting critical parameters in the CSSD in the form of a dashboard. The aim of this is to permit easy identification of factors that are of critical importance in a temporal context, while enabling all persons, even new staff members, to easily recognise and understand these.

Key areas of the CSSD include e. g. hygiene, equipment supplies, safety, instruments, quality control and personnel. In turn there are key elements governing each area which have to be regularly or continually monitored. Certain functional tests have to be carried out on a daily basis and in unclear situations it is important that impeccable functioning, e. g. of a steriliser at a certain point in time, can be demonstrated.

The dashboard also helps evaluate the role of different instruments. For example, some instruments are more important than others for a particular procedure. Key elements in hygiene and infection

prevention are supervision, reporting and monitoring. The dashboard can make it easier to manage critical parameters.

#### Central Service Investigation

In a lecture entitled "CSI: Central Sterile Investigation", Rick SCHULTZ, managing director of Spectrum Surgical Instruments, gave a plethora of practical tips on how to deal with instruments, while citing a number of examples of common misconceptions.

Schultz said that instruments were new only on the first day; from that time onwards the stainless steel was continually adversely affected by daily handling, use in the OR as well as by exposure to water and chemicals. The role of the CSSD is to control and counter these effects.

Money should be invested in servicing and care – the amount needed is small if a suitable servicing plan is in place; if instruments are not properly maintained, a large sum of money might later be needed.

Dried blood is a problem; in this regard better cooperation with the OR is needed so that instruments are transported to the CSSD immediately after use.

Ultrasound is an important adjunct for cleaning – but one has to ensure that the ultrasonic equipment is fully functional.

Schultz went on to provide a number of specific tips on how to handle particular instruments: in the case of needle holders with hard-metal inserts, the latter can be replaced if necessary; that prolongs the overall service life and is more economical than having to completely replace instruments without hard-metal inserts.

Scissors should not be sharpened too frequently. Scissors with hard-metal inserts (recognisable through their gold-plated handles) last longer; the manufacturer should be asked when and how frequently these should be sharpened.

When testing scissors one should ensure that they can cut well as far as the tip, because the tip is the most important part for the surgeon.

Regular functional tests should be gradually introduced; there is no need to check everything at the same time. Photographs should be taken of damaged or incorrectly handled instruments.

Staff CPD is of paramount importance to assure proper functional testing. Staff should also be conversant with the price of instruments – this will help them understand the significance of good maintenance.

#### Good customer service

The day was brought to a close with a talk on the issue of "What is good customer service?" Joyce BURRIS outlined the aims. One should endeavour to not only give the customer what he expected, but rather give more. This meant that one had to know one's customers and their needs and requirements, and work in a farsighted manner rather than reacting to demands. To provide for continuous improvement of working practices, they



John Nance

Michelle Alfa

Mark Lawley

had to be checked and analysed. Negative feedback could be transformed into good customer service if one was ready to see one's own role from the customer's perspective. This was important not only for promoting and retaining customer satisfaction but also contributed to the patient's wellbeing.

#### Coaching management personnel

Lil ARQUETTE reported on her experiences of coaching management personnel. For a team leader, understanding the team dynamics was vital. While it was not possible to control occurrence of an event, the response of different parties to this could certainly be controlled – and, according to Arquette, that varied from one person to the next. One could react immediately and without much reflection, or one could first of all weigh up the different options. In particular in the workplace, a successful outcome depended primarily on the strategy chosen, in particular in situations where teamwork was needed. Moreover, the different approaches taken to situations often lead to – also hidden – conflicts that in the long term could undermine cooperation and a harmonious working environment. Arquette described how understanding different personality types could improve the team dynamics and how long-standing conflicts could be overcome through appropriate strategies and astute team compositions.

After this very informative day the delegates were able to relax for the evening; at the Hawaiian Beach Party organised by SPS Medical the long evening melted into a short night for quite a number of people.

#### Why hospitals should fly

Monday began with a lecture by keynote speaker John NANCE. The former pilot and aviation expert described in an impressive and lively talk how teamwork could contribute to reducing the rate of nosocomial infections and to avoidance of negative clinical events. Skilfully, he mastered the trajectory from near catastrophes in aviation to survival of patients, for which perfect cooperation between all parties involved and above all good communication were decisive.

Nance said that 100,000 patients died each year from avoidable errors. No single individual could ever control all the factors determining a successful outcome. Therefore he is a proponent of "interactive teamwork". In such a setting, each team member, possibly even any person who had completed their very first day in the department, can at all times express their opinion or draw attention to perceived problems. Only in that

way can the team ultimately perform better than the sum of its individual constituents. A good team leader has to be capable of recognising the strengths of his team members and be able to exploit these.

Checklists and standard operating procedures (SOPs) are also decisive whether it was a matter of landing an airplane on the Hudson River or of ensuring that the requisite instruments and medications are to hand for a major operation, also when, and this particularly so, there was a deviation from normal procedures. While standardisation might appear to be boring, it can save life in emergencies.

Nance gave the audience a few important tips on communication in the everyday work setting. Everyone should ask himself as well as others how his statements are interpreted by others. If certain persons have a negative attitude, this can adversely affect the cooperative spirit of the entire team; such problems have to be therefore addressed directly by the management so as to identify the origin of such an attitude and determine how it can be changed. And just hearing what the other person said is not enough – one has to really listen.

To finish off, Nance elaborated on the role of the CSSD: the CSSD is the fulcrum of the hospital because without it no surgical procedure could be successfully performed. Staff should bear that in mind and should also celebrate their accomplishments because, after all, despite the profusion of SOPs, one should not forget the fun.

#### Residuals – where do they come from?

After that motivating talk, Michelle ALFA, Canada, spoke about a commonly encountered problem in the CSSD: residuals after reprocessing. In that respect, one thinks first of all about living microorganisms from previous patients but also organic residuals play a role. Following sterilisation, these may also be sterile but that does not mean that they did not pose a risk to patients because, among other things, they have a pyrogenic effect and can trigger life-threatening reactions. For example, toxic anterior segment syndrome (TASS), a form of eye inflammation, is triggered by toxic organic material. As demonstrated by tests, such residuals originate not only from previous patients but also from the water or from enzymatic detergents. Despite strict monitoring of tap water, it can contain several types of bacteria, e. g. pseudomonads, legionellae and mycobacteria. Alfa reported by way of example on a stomach biopsy harbouring unusual microorganisms. It turned out that these came from the water since the reprocessing solution had not been changed over a 14-day period.

It is also important to recognise the limitations of enzymatic detergents. Since these contain protein, they also serve as a source of nutrients for microorganisms. If instrument are immersed in such detergents, especially over night, bacterial growth ensues with biofilm formation. Not all detergents are able to remove this; rather, the degree of removal depends largely on the composition of the detergent. Furthermore, over time there is accumulation of biofilm, i. e. it becomes more difficult, if not impossible, to remove this.

Alfa reported on her own investigations on patient-used instruments. These were investigated for protein, haemoglobin, carbohydrate and endotoxin residuals before and after



cleaning. While proteins and haemoglobin were largely removed by cleaning, surprisingly it emerged that the burden of carbohydrates and endotoxins had actually increased after cleaning. That could be due to inadequate water quality; it could also be imputable to biofilm formation in the washer-disinfector (WD) or in the water-supply pipes. That shows how important it is to bear in mind the water quality as well as the WD cleaning performance. Verification of the cleaning performance at regular intervals should be part of the quality management system. Alfa stated that one could not assume that the WD was functioning correctly just because it was switched on and the water was flowing.

Mechanisms have to be in place to ensure that the test systems used, e. g. for verification of the cleaning performance, really produce relevant results. Staff has to be trained accordingly. And Alfa finished off by saying that unacceptable re-

sults had to be reported again and again – only in that manner could the necessary changes be introduced.

#### **Simulation models – how to design a CSSD**

In the afternoon Mark LAWLEY from Purdue University explained how simulation models could be used when designing a CSSD. What is important for workflow patterns is to define the most important parameters. There are various problem areas in a CSSD which have to be borne in mind. For example, trays do not reach the CSSD at regular intervals but rather several come at one time depending on when surgical procedures are terminated. That impacts on all sub-steps of the reprocessing chain because there is a build-up of instruments before each procedural step. That calls for storage space, among other things. Furthermore, staffing rosters should be organised such that peaks in operations can be dealt with. It is also difficult to measure the efficiency of a

CSSD because successful performance is determined by myriad factors.

It became clear just how much information had to be fed into the simulation model in order to create a valid model of the actual department. Lawley demonstrated the final model for a CSSD in a 750-bed hospital in Indianapolis. Using simulation, one could demonstrate how different changes affect working practices; from the demonstrated model it became clear that staff shortage was the biggest problem. Creation of two additional full-time positions greatly improved throughput times. Furthermore, the reprocessing plan for case carts had to be changed; there was neither enough storage space nor machine capacity available to clean all case carts as originally planned after the second instance of use.

Simulation also permitted a look into the future: if it proved to be a good reflection of the department, needs, such as increased capacity, could be easily demon-

strated and directly integrated into planning when designing a new construction.

#### AAMI recommendations

In a parallel talk, Sue KLACIK spoke about the current state of the recommendations by the American Association for the Advancement of Medical Instruments (AAMI), while addressing, inter alia, the current recommendations for servicing and routine checks of WDs, indicators, in particular Class 6 chemical indicators.

It is not possible to verify sterility on the basis of the final product. Therefore sterilisation processes have to be validated. Recommendations for validated reprocessing processes are formulated by the manufacturer of instruments as well as of packaging materials or sterilisers.

Risk analysis is an important instrument of quality assurance; it should be carried out on an annual basis or at all times when significant changes have been made. Risk analysis entails not only documentation of the risk but also how to deal with arising risks and, finally, communication. This has to be agreed in negotiations between the CSSD, OR and infection control team.

#### Six Sigma: how can it improve procedures?

Mary KUNDOS and Tammy TORBERT spoke about using the quality management method six sigma in combination with lean management to improve procedures in the CSSD. Both approaches – quality orientation and streamlining of processes – are needed to achieve the best results in the interest of the patient. That approach includes identifying areas where resources are regularly wasted. This can be e. g. due to overproduction, unnecessary transportation or inefficient staff movements, possibly because of poor layout of the workplace. It also includes long periods of inactivity or failure to fully exploit staffing capacity. Using an example, the speakers explained how the six sigma method could be used to optimise the time needed to assemble a tray for minimally invasive vascular procedures. Following error analysis, working practices were optimised by means of various plans and standardisation of workflow patterns. The trays were also checked for completeness and functional capacity of the instruments. Within a period of three months

marked improvements could be achieved and it became clear in which areas procedures could be improved by purchasing new equipment (new case carts in the particular instance) and what modifications of standard procedures resulted in the greatest time saving and quality improvement.

#### Successful marketing: not only for consumer goods

Robert ROSENBERG outlined in his talk ways of successfully marketing a CSSD. He said that today marketing was important not only for the manufacturer of consumer goods but in the healthcare sector, too, relationships had changed. For example, in the present day a CSSD often reprocesses supplies not only for its own hospital, but it has different customers and has to compete with external service providers. Hence one can no longer simply depend on long-standing business relationships.

It is important to position oneself versus existing and potential customers as a unique enterprise. The key questions to be raised here are: what do customers expect, what do they know about the department? What are their experiences of working together? And finally: does cooperation produce the desired results?

Rosenberg described the reciprocal relationships between the various departments in the hospital, while highlighting how these could be used to devise a marketing plan for the CSSD. In some hospitals the CSSD has positioned itself as a strategically important partner between the hospital management and the remainder of the hospital; its implications for the quality of patient care as well as its economic significance are generally recognised by the "business partners". In other hospitals the existence of the CSSD is scarcely noticed. Rosenberg went on to say that the reality in both cases was that the hospital could not function without the services of the CSSD. Good marketing also entails having that fact recognised outside the department.

Tuesday morning was devoted to the industrial exhibition. In addition to the usual booths, there was also an opportunity to attend workshops organised by various companies, where not only their products were demonstrated but also valuable information was given on everyday CSSD routines.

#### Are your lumens clean?

In the afternoon Oonagh Ryan from Ireland asked the question: Are Your Lumens Clean? She explained the concept of process validation. What is important during validation are not only the results, i. e. a successful sterilisation outcome, but also reproducibility of results. She then described three studies carried out in her hospital. In the first study reprocessing of narrow-lumened instruments that had been contaminated with *Geobacillus steatothermophilus* spores was investigated. The results showed that in a significant number of cases reprocessing of these narrow-lumened devices was unsatisfactory. Ryan concluded that sterility could not be assured and such devices should be replaced with disposable instruments whenever possible. The results of that study underline the importance of effective cleaning: instruments that cannot be cleaned, cannot be sterilised either.

A second study on reprocessing of a biopsy forceps produced similar results: despite the fact that the bacterial count had been greatly reduced, a high protein and particle load was found after reprocessing. This could generate a pyrogenic effect on patients and, as such, was not acceptable.

In the last study reprocessing of a piece of tubular bandage was verified. Satisfactory results were obtained here, hence the existing processes could be used further.

#### Joint commission: current requirements

Chuck HUGHES reported on the current requirements of the Joint Commission which is responsible for accreditation and certification of more than 17,000 health-care establishments in the USA. Recently, the Joint Commission in cooperation with various specialist organisations has reviewed the requirements for proper steam sterilisation and some of their decisions will influence interpretation of standards and monitoring. Cleaning, sterilisation and storage are critical parameters for sterility and in future inspections particular attention will be paid to them in order to assure proper conductance of the entire reprocessing process. Citing a few examples, Hughes explained what inspectors looked for during inspections.



Using photos from audits, he showed common errors, e. g. in storage and called upon delegates to pay special attention to such drawbacks and eliminate them already before an inspection. Queries can also be addressed to the Joint Commission at <http://jcwebnoc.jcaho.org/SigSub/onlineform.asp>. In this way, unclear issues can often be resolved in a timely manner.

#### Infection prevention: role of the CSSD

Three more lectures were given in the morning of the last day of the conference. Jacqueline DALEY spoke about the role of the CSSD in infection prevention. She listed the components in the chain of infection and stressed that infection prevention was the duty of each and every individual. The chain of infection has to be broken by eliminating as far as possible the microbial reservoir and transmission of microorganisms. Here the CSSD plays a pivotal role because if reusable medical instruments are not properly decontaminated, they pose a risk of infection to patients and personnel.

Nosocomial infections rank among the ten leading causes of death in the USA. Failure to comply properly with hygiene regulations has repeatedly led to outbreaks. It has therefore to be ensured that the guidelines, ranging from those governing hand hygiene through surface disinfection to proper reprocessing, are observed at all times. Daley emphasised that of these, hand hygiene was the easiest and least expensive measure for infection prevention.

One has to carefully scrutinise the existing system to ensure that it is optimally tailored to infection prevention. Standardisation and automation can help avoid errors during reprocessing. Risk

analysis should therefore be carried out at regular intervals to identify potential sources of error.

#### AORN recommended practices

Ramona CONNER summarised the role of the American peri-Operative Registered Nurses (AORN). She listed the AORN recommended practices – 30 documents on various topics ranging from sterilisation and disinfection to patient and occupational safety – and described the process on which these recommendations are based. During the 30-day commentary period, everyone can register their comments at [www.aorn.org](http://www.aorn.org) – this opportunity should be availed of by as many people as possible who work in this area

#### Share the knowledge

In a final talk entitled "Puzzle Pieces" Natalie LIND and Nola BAYES described how after the conference the newly acquired knowledge could be applied in one's own department. New ideas are not always embraced with enthusiasm, but most staff members want to produce work of a good quality and have a positive attitude to new information. If one starts by taking small steps, one creates targets that can be reached and can thus win the support of staff for further changes. Of paramount importance are good planning, patience and perseverance. The involvement of members of the OR team should always be sought to improve cooperation and ensure implementation of changes at all levels. Even the smallest improvement always amounts to improvement.

In that spirit was brought to a close a conference that bestowed a cornucopia of information on beginners as well as on management, both with regard to theory as well as practical exercises in the workshops. The high attendance at lectures despite the pleasant weather and many attractions in and around San Diego attested to the quality of this event. Next year's IAHCSMM congress will be held from 1 to 4 May in Louisville, Kentucky. ♦