

Magdeburg Clinic Support against invisible dangers

Each year about 400,000 to 600,000 patients fall ill with nosocomial infections in Germany. Affected patients have increased morbidity and mortality. According to the National Surveillance Center (NRZ) about 20 to 30 per cent of these infections could be prevented with suitable hygiene measures.¹



The aim of Dräger's infection prevention program is to reduce nosocomial infections. Aside from disposable materials, Dräger supports hospital hygiene teams with information and advanced training seminars. Dräger's hygiene expertise has been in place for years in the Magdeburg Clinic.

Nosocomial infections are infections that are related to a medical procedure. Apart from the actual basic illness, they pose an additional danger for the health of the patients concerned:

"These patients have a higher rate of complications, longer hospitalization and possibly a worse outcome, including death, because of the additional disease risk,"

confirms Prof. Dr. Guenter Weiss, who leads the Anesthesia and Intensive Care Unit at the Magdeburg Clinic together with Dr. Christiana Hesse. Multi-resistant pathogens ("MRP") pose an increasingly large problem. MRPs are not only an occasional life-threatening danger for the patients concerned. They also entail immense costs: each MRP-infected patient costs on average 17,500 euros. The majority of extra costs arise from extended hospital stays. A joint study by researchers at the University Greifswald and the Wissenschaftlichen Instituts der Techniker Krankenkasse (WINEG) demonstrated this.² They evaluated the data of 11,000 TK-(insurance body) insured who had been infected with hospital germs.

NOSOCOMIAL INFECTIONS STABLE

According to data from the NRZ approximately 400,000 to 600,000 patients in Germany get sick annually with a nosocomial infection. Around 10,000 to 15,000 of them die; that corresponds to 2.5 per cent of the total. Most cases occur in the intensive care unit.

"The portion of seriously ill patients who have a nosocomial infection is in line with the national average of 15 to 20 per cent," says Dr. Weiss, quoting the infection statistics from the Magdeburg Clinic.

Despite the average numbers however, these infections have extensive consequences: "A quarter to a third of the beds in the intensive care unit are occupied with such patients," says Weiss.

"We have higher costs that build up from the cost of isolation, as well as from personnel and medicines," explains Weiss. The effect of the dangerous germs on the hospital are nevertheless considerable.

At your side in



¹ Gastmeier, P et al. Deutsche Medizinische Wochenschrift. 2010; 135(3): 91-93

² Oberdörfer H, Hübner C, Linder R, Fleßa S. Gesundheitswesen 2014; DOI: 10.1055/s-0034-1387709



The WHO model for hand disinfection was developed for the in-patient treatment sector.

INCREASED DEMANDS ON PHYSICIANS

“A patient with a cerebral or cerebrovascular accident experiences a disturbance of the entire system, and therefore, the respiratory system is also affected by head trauma. The respiratory system influences the progression of head trauma. Optimal treatment of the lungs also means treating the brain as well.”

“Hygiene comes first out of all the measures or activities we must carry out, also for physicians,” emphasized the hygiene specialist. According to NRZ about 20 to 30 per cent of the infections could be prevented if suitable hygiene measures were carried out.

HOSPITAL HYGIENE AS PROPHYLAXIS

In order to implement this, the Hygiene Department and the head of the Intensive Care Unit created a special hygiene plan for the ICU. It dictates the measures that are required in this high-risk area in order to reduce nosocomial infections:³

- Hand hygiene
- Use of personal protective clothing
- Correct cleaning/disinfection of the patient environment
- Correct handling and preparation of contaminated medical devices

Carla Stuermer, a specialized technician and deputy intensive care unit nurse, also considers that preventing nosocomial infections is the top priority of her job:

“Hospital hygiene is prophylaxis, it's not a therapeutic measure.” In the Intensive Care unit, the patient's immune system is often compromised.

“We nurses must use hygienic measures to protect them so they don't get yet another nosocomial infection,” explains the specialized anesthetic/ICU nurse. “Hand hygiene is thereby the Alpha and Omega, and more is always better.”

The necessary hand disinfection procedure in the Magdeburg Clinic is defined according to WHO guidelines:⁴

- before contact with patients,
- before aseptic procedures,
- after contact with infectious material,
- after patient contact and
- after contact with the patient's immediate environment.

HYGIENE MEASURES AS A CENTRAL TOPIC

The main aim of all hygiene measures is patient safety. “Hygiene has become extremely important in recent years. Today every worker knows that hygiene provides protection for himself, not only for the patient,” explains Marion Meiner, head of ICU nursing.

“The daily challenge with hygiene begins with the personal care of the patient and covers diagnostics, patient transport, and patient enrollment,” explains Meiner. Here in Magdeburg, Dräger is no longer only a competent partner for the preparation of devices and disposable material, it is also a partner in the transmission and dissemination of all hygiene matters. Together, they have created quality standards, for example, for all the artificial respiration technologies, including for compatible accessories:

³ Hübner, Kramer, Hauer et al. 2012, 2013

⁴ WHO guidelines on hand hygiene in health care. <http://www.who.int/gpsc/5may/tools/9789241597906/en/>, last accessed: 6.11.2015



Non-Touch technology should minimize the transmission of pathogens, for example via wound care with dressing material.



Discussion among colleagues in hospital central sterilization.

“The standards required for the preparation of artificial respiration accessories are displayed in the rooms, and are attached to the equipment as well. If a patient is transferred, the nurse must document that all reusable materials were also changed.”

SCREENING IS THE FIRST STEP

Since the introduction of the 2011 Infection Protection Law, nosocomial infections become the focus of perception in the public eye. Structures and measures were devised to prevent these infections, including at the Magdeburg Clinic. Accordingly, the Magdeburg Clinic nursing staff perform infection screenings and isolation measures for certain patients in the ICU.

“We isolate patients who’ve come from rehab, we do them first, when they’re of a certain age and have a certain medical history,” describes specialist nurse, Carla Stuermer.

Transmission to other patients is thereby prevented. Screenings help to identify promptly which patients are carrying multi-resistant infections and who is developing an infection. If the suspicion of infection is confirmed, those patients are strictly isolated. In order to prevent the germs being transmitted further, the affected patients are treated by a single nurse per shift. In accordance with the hygiene plan, every person entering the isolation room requires a protective gown, mask and hood. The area is also regularly disinfected in order to reduce the risk of contamination.

On top of this, all surfaces and devices, monitors and equipment in the direct patient area are disinfected. This is to drastically reduce the number of infectious agents in the patient’s environment.

WITH DISPOSABLE MATERIAL THERE IS NO INCREASE IN NOSOCOMIAL INFECTIONS

The handles at the patient and in its environment do not only take place according to strict rules. Disposable materials also play a crucial role: “In the past, we have used a lot of reusable material. It turned out however that cables, devices, technology and tubing can’t be 100% disinfected,” explains Dr. Weiss. Always assume that some risk remains. An investigation from the Institute for Hygiene and Environmental Medicine in Greifswald showed, for example, that disinfected reusable EKG cables had an enormously high bacterial contamination.⁵

“For improved safety and to avoid infections and transmissions we’ve changed to single-use disposables, which are medically more favorable” clarifies Dr. Weiss. The hospital’s infection statistics prove this right. “Despite the rising portion of high-risk patients from rehabilitation centers and care facilities, as well as patients with very serious illnesses, we haven’t seen an increase in multi-resistant infections and nosocomial infections in recent years—contrary to other hospitals—,” according to the expert. “This is probably also due to the introduction of single-use disposables.”

⁵ Lestari T, Ryll S, Kramer A. GMS Hyg Infect Control. 2013 Apr 29;8(1):Doc07



Disposal of single-use material.

DISPOSABLE MATERIAL FOR BETTER PATIENT CARE

Magdeburg uses, among others, disposable electrocardiogram cables, blood pressure cuffs and disposable oxygen sensors. “Whenever we transfer patients, we dispose everything in the room, which stops the chain of infection and prevents from further infections. The next patient moves into a clean room,” explains Carla Stuermer. “This way we can fight nosocomial infections and make a difference here in the intensive care unit.” Using disposable materials facilitates patient handling and also saves time for nurses.

“We no longer have to recycle anything. We use this time for patient care.”

ECONOMY OVER PURE COSTS

Disposable materials are however associated with higher costs than reusable materials. The Purchasing Department of the Magdeburg Clinic checked whether that is still true: “We implement bidding proposals for medical consumables in order to supply our patients with economical and high-quality products and to ensure optimal supply,” explains Brigitte Hecht, head of the Purchasing Department. Therefore absolute cost is not the only influence on the decision. “We also consider the concrete value and other qualitative parameters.” This always occurs in arrangement with the appropriate departments, says Hecht. Special needs, such as hygiene requirements are of high priority. “We always make the most economical decision, never the most inexpensive.”

A COMPREHENSIVE DECISION

The Purchasing Department was also intensively involved in the conversion to disposable materials in the Intensive Care Unit and in the operating area: “We decided on the use of disposable materials primarily for hygiene reasons,” explains Hecht. In addition, the costs are important.

“Disposable materials appear more expensive than reusable materials at first glance. But if you consider the total process costs, the preparation costs of central sterilization, the logistics costs and personnel expenditure—then disposable material is more favorable.”

Besides this, you are independent of internal processes and capacities, for example in central sterilization: “The supply with disposable materials is absolutely important, to ensure that patients have a constant and punctual supply of materials.”

MORE CAPACITY IN CENTRAL STERILIZATION

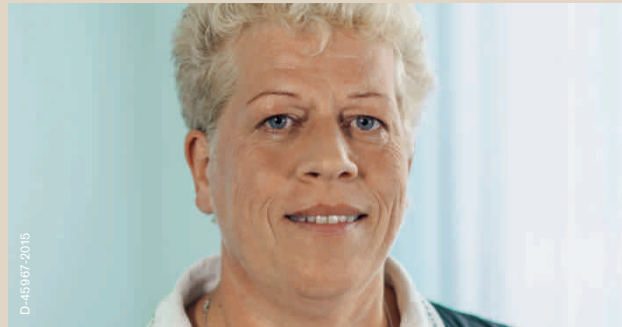
Actually, the reduced load on central sterilization at the Magdeburg Clinic—aside from the priority hygiene aspects—was also an important decision criterion for the use of disposable materials. “Our daily challenges are the rising OR-numbers. We must prepare instruments even faster so that they’re available for the next OR,” explains Elke Maenecke, chief of the central sterilization department. In addition, increasingly more fastidious operating methods and techniques lead to the following: “The preparation of delicate medical products from minimally-invasive procedures and robotic surgery is a daily, time-intensive challenge.” Single-use products, particularly in the intensive care unit and in the OR, in addition to the rest of the clinic, work very well. “It has freed up space in our sterilization equipment so we can prepare medical products faster.”



Preparing delicate medical products in the central sterilization unit.



Prof. Dr. Günter Weiss is one of the head doctors in the Anesthesia and Intensive Care Clinic. “As head of department, it’s my job to prevent nosocomial infections wherever possible,” clarified Dr. Weiss. The number of these infections has been stable for some years, despite rising numbers of risk patients at the clinical center. Weiss attributes this success to the consistent introduction of disposable materials such as electrocardiogram cables, blood pressure cuffs and oxygensensors. According to Weisse, this is because the general transmission rate of germs and nosocomial infections was specifically reduced through the use of disposable materials.



Marion Meiner has been the head of nursing in the intensive care unit for 11 years. A special hygiene plan is applied here in order to prevent the spread of nosocomial infections. “It confirms, among other things, how dressing changes and hygienic measures lead to success and indicates what must be kept in mind when putting in place a ZVK,” explains Meiner. Preparation standards, e.g. for artificial respiration technology, were compiled with the Dräger company. “The entire well-being of the patient depends on hygiene.” Important aspects of this are correct hand disinfection, surface disinfection in the patient environment as well as the disinfection of the devices and materials.



Specialized Nurse Carla Stuermer has been interim nursing lead for the intensive care/emergency medicine department since 2012. She is responsible for educating her coworkers about hygiene measures: “Owing to their close contact with the hospital hygiene department, our coworkers are always up to date with the latest hygiene information.” Stuermer knows many positive reasons for using disposable materials: Apart from effectively interrupting the chain of infection by throwing away materials, this would also save time. “We use this time for patient care.”



Brigitte Hecht leads the Inventory and Purchasing Department. This department supplies all units, operating rooms, functional departments and institutes with consumables. Questions are constantly being asked about how to economize. “We always decide the respective range for a certain product together,” says Hecht. It is supposedly about the most economical offer instead of the most favorable price. Disposable products for example would save personnel costs, optimize and ensure more patient security. In the end they are the hospital’s more favorable option.



Elke Maenecke leads the Central Sterilization Unit (ZSVA) at the Magdeburg Clinic. Reusable medical devices are prepared here according to validated procedures as required by current standards and laws. The value of the ZSVA in the hospital has grown substantially in recent years because of new operating techniques. "These and the rising operation numbers demand increasingly faster work from us," says Maenecke. The use of disposable materials in the OR and in the intensive care unit relieves the ZSVA, because free machine capacities for operating instruments can be used.



Magdeburg Clinic
The Magdeburg Clinic belongs to the 75 largest German hospitals in the country. It is the third biggest hospital in Saxony-Anhalt. Approximately 1,600 workers care for outpatients and hospitalized patients. Each year about 85,000 treatments take place, of which approximately a third are for inpatients. The clinic has a stroke unit, a chest pain unit and a large tumor center apart from the usual spectrum of surgical and health maintenance activities. The intensive care and emergency medicine unit belongs to the Anesthesia and Intensive Care Hospital and has 44 beds. Physicians and specially-trained medical personnel care for all the clinic's intensive-care patients here.

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