

SSI prevention

L&R solutions for germ busters.



Addressing the challenge of surgical site infections (SSI)

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The number of surgical procedures performed in the industrialised nations of Europe is steadily increasing. Eurostat figures show an increase in the most common kinds of surgeries for the period from 2008 to 2016.¹ The prevention of surgical site infections (SSI, postoperative wound infection) is therefore becoming an increasingly important issue², all medical procedures being associated with an increased risk of infection. As a leading provider of pioneering medical devices and hygiene products, Lohmann & Rauscher has set itself the goal of supporting patients and healthcare professionals in SSI prevention – not only by offering appropriate solutions and products but also by providing information about SSI.

SSI is currently the second most common cause of hospital acquired infections in Europe.³ SSI prevention is therefore becoming an increasingly important issue. Appropriate preventive measures can largely prevent infections that occur during surgery.²

Nosocomial postoperative wound infection is mostly caused by pathogenic bacteria, in rare cases also in combination with fungi. However, the range of pathogens may vary depending on the operation area/type of operation. The bacteria most commonly associated with SSI include²:

- Staphylococcus aureus
- Enterococcus spec
- Escherichia coli
- Coagulase-negative staphylococci
- Pseudomonas aeruginosa
- Enterobacteriaceae
- Klebsiella

Successful SSI prevention in hospitals and outpatient ORs

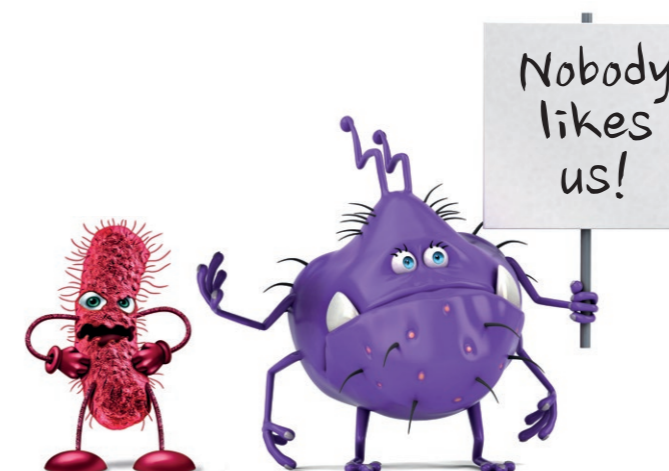
Although experts agree that it is not possible to reduce the infection rate to zero, SSI prevention is well worth the effort; for example, 40% of all nosocomial infections can be prevented by proper hand hygiene alone.⁴

The enemy is invisible but not insuperable.

SSI prevention requires systematic action; a marked reduction in the risk of infection can only be achieved with the proper implementation of infection prevention. Thus, to help ensure the successful implementation of preventive measures, health authorities have been issuing guidelines and recommendations for many years.

This includes the most recent recommendations from April 2018 of the Robert Koch Institute, Commission for Hospital Hygiene and Infection Prevention (KRINKO) on the Prevention of Wound Infection. The KRINKO guidelines cover pre- and intra- as well as postoperative measures and does not distinguish between outpatient and inpatient surgery with regard to SSI risk.⁵

The KRINKO guidelines on SSI prevention show how complex the subject is but also make it clear how many simple and readily implementable measures can effect an improvement. The following pages provide further information about key SSI preventive measures.



Surgical site infections (SSI) – a global problem

Time for a systematic approach.

SSI are increasing around the world. According to the WHO, which published its own guidelines on SSI prevention for the very first time in 2016, SSI are the second most common cause of hospital acquired infections in Europe and the USA. In fact, in low income countries they are the most common.³ Studies and publications in many countries stress both the urgent need for action and the various facets of SSI, as the following statements show:

“Hand hygiene continues to be by far the most effective measure in reducing hospital infection. The implementation of a reliable hand hygiene programme and uniformly high staff compliance is expected and required by hospitals.”⁶

“In the USA, the nursing costs for infections caused by pathogens such as MRSA are estimated to be over 20 billion US dollars a year. Preventive measures can reduce both the financial burden and the effects on the health of those who fall ill due to infected hospital clothing.”⁷

“Patient infection with gram-positive bacteria, particularly with multi-resistant staphylococcus aureus (MRSA) and vancomycin-resistant enterococci (VRE), is an increasing cause for concern. The key factor in pathogen transmission is the ability of microorganisms to survive on many surfaces commonly found in hospitals.”⁸

“Infection prevention and monitoring programmes are key to the systematic prevention and monitoring of hospital infections (...)”⁹

“Tears or punctures in OR gloves during surgery represent a risk for infection with bloodborne pathogens. Double gloving and double gloving with indicator glove systems can provide additional protection in this regard.”¹⁰

“The appropriate selection of a phase-appropriate hydroactive wound dressing during medical care and nursing is an important measure that considerably supports physiological healing processes.”¹¹

“The number and changes of personnel in the operating room should be kept to a minimum just as the duration of the operation itself (...)”¹²

- **PHASE 1**
Preoperative
- **PHASE 2**
Intraoperative
- **PHASE 3**
Postoperative

Experts agree that hospitals should have practical and compliance-promoting hygiene regulations and appropriate monitoring programmes in place for effective SSI prevention. Pre-, intra- and postoperative hand and surface disinfection is of the highest importance. In the preoperative phase, OR scrub suits also play an important role; in the intraoperative phase, sterile OR gowns, sterile OR drapes and surgical instruments required for the operation support the measures for infection prevention in the operating room. After surgery, the primary focus is on hygienic dressing changes and the selection of appropriate wound dressings and wound care.

Key measures for SSI prevention

Preoperative, intraoperative and postoperative.



PHASE 1 Preoperative

1



Preparing the patient

- Recommendation: perform a full body wash on the evening before or on the day of surgery.⁹
- If it is necessary to remove hair use a clipper rather than a razor.⁹
- Depending on the indication, perform *S. aureus* screening and where applicable decolonisation (mupirocin, nasal).⁹



Disinfection

- Follow the hygiene regulations applicable in your department for
 - surface disinfection
 - hand disinfection
 - hand washing



OR clothing & gloves

- Medical single-use gloves are primarily designed to interrupt infection chains.⁹
- Don scrub suits, hair cover and OR shoes before entering the surgery department, also don mouth/nose cover before entering the OR.⁹
- Change the mouth/nose cover before every procedure and when there is visible contamination.⁹



Antibiotic prophylaxis (PAP)

- Use antibiotics only when recommended.⁹

2

PHASE 2 Intraoperative



Surgical hand disinfection

- Is performed by all those in the OR to eliminate transient skin flora and to reduce resident flora as much as possible.⁹



Skin disinfection of the patient

- Perform thorough antisepsis of the skin of the operating area with an alcohol-based skin antiseptic.⁹



Wear two pairs of gloves (double gloving)

- Recommendation: wear two pairs of gloves in operations in which there is an increased risk of glove damage.⁹



Normothermia

- Maintain normal body temperature in the patient, using active warming if necessary, unless hypothermia is clinically required.^{9,5}



OR clothing

- Don sterile OR gowns.⁹
- Recommendation: wear goggles/face protection when there is risk of spurring body fluids or irrigation fluids.⁹



Environment

- Ensure use of sterile OR drapes following antisepsis of the surgical field.⁹



Sterile instruments

- Instruments coming into contact with the wound or deeper tissue layers must be sterile.⁹
- The antiseptic coating on sutures should reduce biofilm formation along the suture.⁹

3



Wound dressing

- Perform the first dressing change after 48h, unless there is evidence of a complication requiring an earlier dressing change.⁹



Controlled negative pressure therapy (CNP)

- CNP therapy can be used prophylactically for high-risk wounds with primarily closed incisions and for SSI prevention.⁹

PHASE 3 Postoperative

Before the OR is before SSI

Preventing SSI in the preoperative phase.



- L+R handwash soft***
pH-skin neutral, fragrance free and colourant free washing lotion
- For gentle cleaning of stressed skin
 - High skin compatibility
 - Alkali and soap-free
 - Dermatologically tested



- L+R handdisinfect***
Reliable hygienic and surgical hand disinfection
- No remanent agents
 - High skin compatibility
 - Effective antimicrobial protection even against noroviruses (MNV) and adenoviruses in 30 seconds (EN 14476)



- L+R surfacdisinfect***
Ready-to-use surface disinfection
- No preparation required prior to use
 - Wide range of material compatibility
 - Rapid and effective antimicrobial protection



Sentinex Scrub Suits

- Synthetic single-use clothing, Sentinex and Sentinex soft
- Effective pathogen barrier, breathable
 - Set of scrub shirt and pants or separately available
 - Consistent material quality every time

SSI prevention is worth the effort:

SSI are currently the second most common form of hospital infection in Europe and the USA.³

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- Sempercare/Sentina Examination Gloves Latex***
- Premium latex glove with synthetic inner coating
 - Extra wearing comfort



- Sempercare/Sentina Examination Gloves Nitrile***
- Excellent sense of touch with optimised wall strength
 - Protects against infection in accordance with EN 455-1
 - Viral impermeability in accordance with ASTM F 1671



Sentinex Surgical Caps

- Wide product range
- Tailored to specific requirements and different needs in high infection risk situations
- Prevent the transfer of hairs and skin particles in a hygienic environment



Sentinex Surgical Face Masks

- Wide product range
- 3-layer construction for effective protection against infection in patients and OR personnel
- Meets DIN EN 14683, type II requirements
- The Sentinex Safety and Sentinex Safety Shield surgical face masks are classified as type II R masks

No opportunity for pathogens

SSI prevention in the OR.



Sempermed Surgical Gloves*

All from one source – R&D, innovation and production

- Maximum wearing comfort thanks to the fully anatomical fit
- Sustainable premium quality from Austria



Raucodrape OR Drapes

Convince with a large range of sets and single sterile products

- Fully absorbent and impermeable to fluids
- High tensile strength
- Low linting



Sentinex Surgical Gowns

Available in Basic, Standard, Special and Special Plus versions

- Fluid-repellent material
- Minimise transfer of infectious material during direct contact between surgical team and surgical wound

Single-use products:

The use of single-use OR gowns and drapes ensures a lower infection rate than reusable products, particularly in operations with a high infection risk.^{14,15}



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Sentina Single-use Instruments

Single-use instruments for use on wards, in outpatients and in the OR

- Single use eliminates risk of cross-contamination and infection transmission
- Perfect hygiene and functionality at all times



OR dressing materials

- Comprehensive range of laparotomy swabs, gauze swabs, gauze balls and dissecting swabs
- Double protection by having each counting card both inside the inner wrapping for sterile materials and in the peel pouch
- With X-ray detectable thread or chip



Kitpack – the L&R OR Custom Procedure Tray

All single-use medical devices required for surgery, e.g. Raucodrape OR drapes, Sentinex surgical gowns and OR dressing materials

- Individually adjustable pack composition
- More than 8000 components available for selection
- Reduces the risk of contamination associated with opening and handover of sterile products
- Minimises error in preoperative assembly of materials

Hygienic wound care in focus

Postoperative SSI prevention.

Focus on wound care:
Primarily closed wounds with persistent exudate require special care.⁵



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Wound Care

Everything for phase-appropriate wound care, e.g.:

- Debrisoft
- Suprasorb (X/X + PHMB / G Dressing / F/C/P silicone / P + PHMB)
- Curapor
- Lomatuell Pro
- Gazin
- Vliwasorb Pro



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Suprasorb CNP P3*

The user-friendly, flexible and economic therapy system with many therapy options for optimisation of healing processes

















- Intuitive operation of the therapy unit
- Container and exudate pouch in two sizes
- Precise, tailored innovative components, e.g. deep drains, drainage film, EasyDress

Your allies in the fight against pathogens

Solutions and products for SSI prevention.



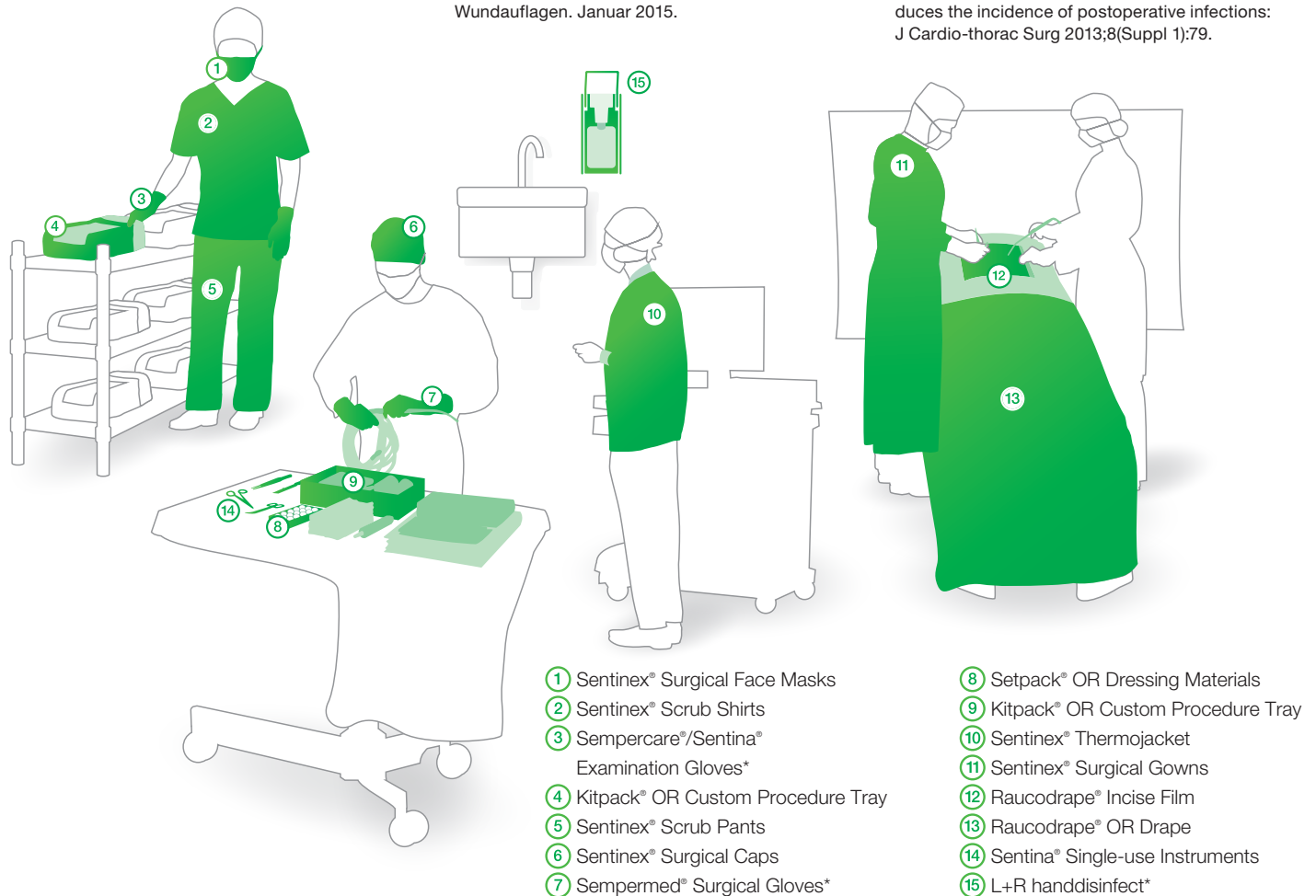
The Robert Koch Institute (KRINKO) recommends specific measures for SSI prevention for all three phases of surgery. As a leading provider of pioneering medical devices and hygiene products, L&R supports you with reliable solutions and products for SSI prevention, preoperatively, intraoperatively and postoperatively.

	PREOPERATIVE	INTRAOPERATIVE	POSTOPERATIVE
Disinfection/ pH-skin neutral washing lotion L+R handwash soft* pH neutral, fragrance free and colourant free washing lotion 	■		■
L+R handdisinfect* Reliable hygienic and surgical hand disinfection 	■	■	■
L+R surfacedisinfect* Ready-to-use surface disinfection 	■	■	■
OR and examination gloves Sempercure/Sentina Examination Gloves Latex* comprehensive range of latex examination gloves 	■	■	■
Sempercure/Sentina Examination Gloves Nitrile* Comprehensive range of nitrile examination gloves 	■	■	■
OR and examination gloves Sempermed Surgical Gloves* All from one source – R&D, innovation and production 			■
OR clothing Sentinex Surgical Caps Comprehensive product range for different requirements 	■	■	
Sentinex Surgical Face Masks Meet the DIN EN 14683, type II and Type IIR requirements 	■	■	
Sentinex Surgical Gowns Available in Basic, Standard, Special and Special Plus versions 			■
Sentinex Scrub Suits Synthetic single-use clothing, Sentinex and Sentinex soft 	■	■	
OR drape system Raucodrape OR Drapes Convince with a large range of sets and single sterile products 			■
Single-use Instruments Sentina Single-use Instruments Offer single-use instruments for use on wards, in outpatient area and in the OR 	■	■	■
OR dressing materials L&R offers you a comprehensive range of laparotomy swabs, gauze swabs, gauze balls and dissecting swabs 			■
OR custom procedure tray Kitpack – the OR custom procedure tray from L&R All single-use medical devices required for surgery, e.g. Raucodrape OR drapes, Sentinex surgical gowns and OR dressing materials 			■
Wound Care Everything for phase-appropriate wound care, e.g.: 			■
Negative pressure therapy Suprasorb CNP P3* The user-friendly, flexible and economic therapy system with many CNP therapy options 			■

Use L&R's comprehensive range for SSI prevention to protect your patients and staff against SSI. **We are happy to advise you.**

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* Products not available in all countries.