



# **Nosocomial infections in Germany: a tolerated disaster.**

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## **Abstract**

While the global community has been struggling to contain the Sars-CoV-2 pandemic, another equally deadly enemy of humankind has been out of the general public's focus for years: iatrogenically caused infections and, as a result, deaths in alarming numbers. With this White Paper, we remind the medical community that this epidemic must also be brought to an end. As a prominent and abhorrent example we chose Germany.

## Discussion

Every year in Western Europe (with the exception of the Netherlands), about ten to twenty times more people die from hospital-acquired infections than from road traffic. The belief that these can rarely be avoided, that their occurrence is more or less a matter of fate, is a severe misconception. Nosocomial infections are preventable, almost completely, but this endeavor is expensive. In a healthcare industry increasingly driven by profit, hygiene is therefore one of the first casualties. No doubt, a large proportion of pathogens are brought into the clinics by the patients and their visitors themselves, but also by medical staff. In gastrointestinal surgeries, this is hardly avoidable, but in aseptic surgeries, for example operations for a hip joint replacement, infections are always the result of sloppy hygiene.<sup>1-3</sup>

Three groups of patients are particularly at risk of developing a nosocomial infection:

- the very young
- the very old
- the very sick

But also older or immunocompromised patients do not get dangerous germs into their new hip joint out of nowhere. Even if the patient is already colonized with methicillin-resistant *Staphylococcus aureus* (MRSA) prior to his/her hospitalization, the question must still be asked as to how this germ finds its way from the doctor's nose into the open wound. If, for example, no surgical mask is used when placing venous catheters, or if the masked is not pulled over the nose, the risk is obvious. It's about sloppy work and hunger for profit. The National Reference Center for Surveillance of Nosocomial Infections at the German Charité Hospital in the country's capital city Berlin uses a system called KISS and data from the Federal Statistical Office to make projections. According to these, there are still roughly 500,000 nosocomial infections per year in Germany alone, up to 15,000 people die directly from these iatrogenically caused infections, and up to 50,000 in total per year if slowly progressive cases are included. The neglect of the topic can also be seen in small details, such as counting the number of Google hits for searches suggesting a connection between doctor's actions and hospital infections in Germany. The KISS figures, however, are being challenged. Some consider them to be too low, since it is precisely those hospitals for which hygiene is a priority anyway that are participating.<sup>1,2,3,7</sup>

Specifications for good hygiene quality are one thing, but implementing them is another. The human factor and greed for profit play a central role in hygiene, not just because patients bring pathogens with them or employees transmit germs. Managers have to model the correct behavior and ensure that it is implemented. They should demonstrate correct behavior and not ignore, tolerate or even encourage misconduct just because it is cheaper. In discussions with German physicians, we learned that it is very unlikely to see hygiene protocols that include computer keyboards or telephones, items known to be easily contaminated with all types of infectious material. This also applies to doorknobs and clipboards used by patients to fill out forms, etc.

In sonography, the situation seems to be even worse. A peculiarity of German medical practices is that many of them are equipped with ultrasound machines (general practitioners, internists, urologists, gynecologists, etc.). The question as to the quality of the examinations when any physician performs sonography after a brief instruction is left untouched in this paper. So, while there are hygiene guidelines, ultrasound equipment is a large investment for a medical practice, and the owners of such equipment are usually concerned about their investment and fear the possibility of damaging it with disinfectants. Disinfection is also costly, and in the German statutory insurance system, the reimbursements for performing an ultrasound are not very high. This could also contribute to a reduced budget for hygiene equipment. Even though it contradicts the legal requirements, it is very common in Germany to just wipe the ultrasound heads with paper. However, it is not unusual to see probes that still have the same gel on them from the patient who was examined before. Awareness of the problem does not seem to exist in this regard. Ultrasound equipment in hospitals is to be seen differently than those in a physician's office, because hospitals usually have a hygienist on staff and procedures are more standardized. However, whether physicians adhere to them in the daily hectic and usually understaffed environment is questionable for a device such as ultrasound that is categorized as "low risk," and disinfection is rarely adhered to. Regional outpatient medical centers ("MVZ") do normally have a hygiene plan, but ultrasound equipment is usually not included in it. The reason why remains open.<sup>9</sup>

In times of increasing nosocomial infections and multi-drug-resistant strains, one would expect awareness measures to be taken and strict controls to be implemented. However, this is not the case. Lack of staff is no excuse for poor or incorrect hygiene. Putting on a surgical mask correctly takes five seconds and proper hand disinfection takes 45 seconds. Nosocomial infections can also not be thought about in isolation from the issue of antibiotic therapy. Resistant germs are a particular problem. According to projections, there were >150,000 MRSA cases in German hospitals in 2018. The number is at a relatively high level, but remains constant. Meanwhile, there has been a marked increase in resistance in the gram-negative sector - including the extended spectrum beta-lactamase (ESBL)-forming strains of *Klebsiella*, *Escherichia coli* and other *Enterobacteriaceae*. They no longer respond to third-generation cephalosporins. The reasons for the development of resistance are obvious: the use of antibiotics in Germany is often not targeted, in terms of its type and duration. In the Netherlands, which has always been considered a role model in infection prevention, hardly any oral cephalosporins and quinolones are used in the outpatient sector. In Germany, however, an non-scientific overestimation of the resistance situation and the refusal to use highly sensitive CRP point-of-care tests leads to therapies with too many antibiotics, often outlandish in nature. In fact, fluoroquinolones are frequently prescribed for uncomplicated urinary tract infections in the outpatient setting, a strategy that is not acceptable any longer; especially since these antibiotics are associated with considerable side effects. The use of quinolones also influences the spread of MRSA despite the fact that these class of antibiotics are unsuitable for treating such germs. More than 97% of hospital-acquired MRSA do not respond to ciprofloxacin. However, the more frequently the broadly acting quinolones are used, the greater the selection advantage for MRSA over other pathogens.<sup>1-4,8,9</sup>

## Conclusions

Just as road safety is constantly being improved and smoking has been greatly decimated, the poor hygiene that causes death and suffering in hospitals and surgeries in the G7 nations and beyond must now be improved sustainably and as quickly as possible. The situation in Germany is totally unacceptable.

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## Ethical standards, data safety compliance and patient's rights

This article is about scientific facts. It is not reporting on a clinical trial (or anything similar) in its legal definition, especially not a prospective one. Our work was conducted in accordance with the Declaration of Helsinki.

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