

# How clean is your knife?

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A new fast-acting disinfectant that is effective against bacteria, viruses, fungi and prions could help to reduce the spread of deadly infections in hospitals, according to research published in the February issue of *Journal of General Virology*.

Researchers from the Robert Koch Institute in Berlin, Germany have optimised a rapid-acting, practical formula for disinfecting surgical instruments. The treatment works against a wide range of pathogens, including those that tolerate ordinary [disinfectants](#), such as the bacterium *Mycobacterium avium* that causes a tuberculosis-type illness in immunocompromised individuals and enteroviruses that may cause polio.

In previous studies the team had identified a simple alkaline detergent formulation that was effective at eradicating prions from the surfaces of surgical instruments. Prions are misfolded proteins that cause BSE in cattle and CJD in humans. They are a particular problem to eliminate because they are very resistant to inactivation and can even become 'fixed' on surfaces by some conventional disinfectants.

In their new study, the researchers mixed the original alkaline detergent formulation with varying amounts of alcohol and tested its ability to rid surgical instruments of bacteria, viruses and fungi in addition to prions. They found that the original mixture made in 20% propanol was optimal for disinfecting instruments without fixing proteins to their surfaces.

Disinfectants are the first line of defence against the spread of hospital-

acquired infections and effective treatment of surgical instruments is vital. [Prion](#) expert Dr. Michael Beekes who led the research, together with Prof. Martin Mielke from the hygiene department of the Robert Koch Institute, explained the difficulties of finding a suitable disinfectant. "Eliminating a broad range of pathogens with one formula is not easy. Some micro-organisms such as [mycobacteria](#), poliovirus, [fungal spores](#) and not least prions are particularly resistant to inactivation. Prions are also known for their ability to stick to rough surfaces. In addition it's a real challenge to disinfect complex instruments used in neurosurgery for example because they are heat-sensitive".

Dr. Beekes believes the new formulation could have a huge impact on hospital safety protocols. "Standard formulations that eliminate prions are very corrosive. The solution we've come up with is not only safer and more material-friendly but easy to prepare, cheap and highly effective against a wide variety of infectious agents".

Provided by Society for General Microbiology

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