

Human Papillomavirus – the New Challenge for Infection Prevention

Commonly Used Disinfectants Do Not Kill High-Risk HPV

Multiple guidelines recommend high level disinfection (HLD) of ultrasound probes between patients to reduce the risk of cross contamination.¹⁻³ However, recent research shows high level disinfectants commonly used on ultrasound probes do not kill cancer-causing, high-risk human papillomavirus (HPV).¹

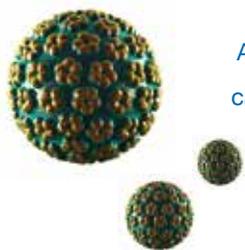
Glutaraldehyde (GTA), *ortho*-phthalaldehyde (OPA) and instrument grade peracetic acid (PAA) are not effective against HPV. With the exception of trophon there are currently no instrument grade disinfectants shown to be effective against HPV.⁴⁻⁵

HLD is required for semi-critical devices because of its broad spectrum of efficacy including non-enveloped viruses. Low level disinfectants such as quaternary ammonium compounds and alcohols are generally not effective against non-enveloped viruses.

Ultrasound Probes Are a Potential Source of HPV Infection

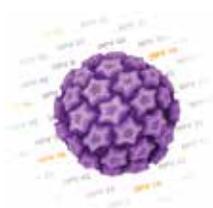
Clinical studies have shown that up to 7% of endocavity ultrasound probes remain contaminated with high-risk HPV DNA after ultrasound examinations and routine disinfection.⁶⁻⁸

HPV can be spread from one person to another via direct contact with skin or mucous membranes. We also know that HPV is a very stable virus and can remain infectious on objects and surfaces for days, even when treated with common disinfectants. Evidence shows that transmission may occur through non-sexual contact via medical devices and equipment.⁹



About **3,100 cases** of cervical cancer are diagnosed in the UK each year.
Nearly all are related to HPV.¹⁰

trophon® EPR



HPV is the most important infectious cause of cancer. It is associated with **99.7%** of cervical cancers and **5% of all cancers worldwide.**¹¹⁻¹²

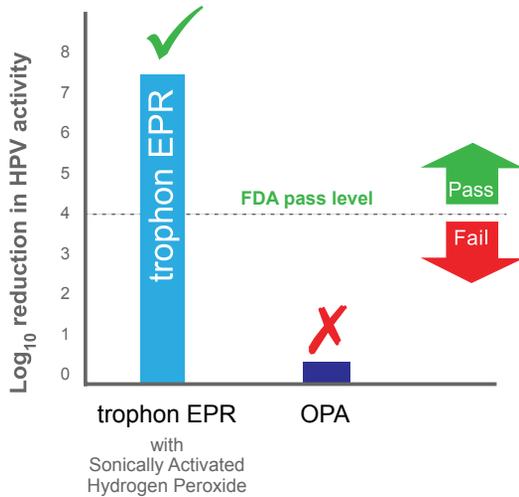
trophon EPR is Proven To Kill High-Risk HPV

Research has demonstrated that trophon is proven to kill high-risk HPV.⁵ The study used “real” natural, infectious HPV16 and HPV18, which are the major cancer-causing types of HPV. A stringent test method, in line with FDA requirements for virucidal testing, and manufacturer’s recommendations for testing were followed. The same study also retested OPA and confirmed it to be completely ineffective against HPV. For more information visit www.hpvdisinfection.co.uk.

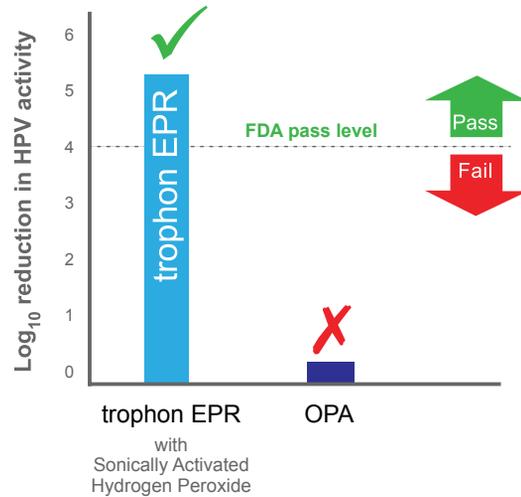
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Infection Prevention. For Life.

trophon is Proven To Kill High-Risk HPV

Efficacy against HPV16



Efficacy against HPV18



Adapted from Ryndock E, Robison R, Meyers C. Susceptibility of HPV16 and 18 to high level disinfectants indicated for semi-critical ultrasound probes. Journal of Medical Virology. 2016;88(6):1076-80.

Caution These results do not apply to any other hydrogen peroxide based product.

Why Has Testing Against HPV Not Been Done Before?

Due to the difficulties of producing natural, infectious HPV for research, disinfectant efficacy testing against HPV has not previously been possible. This changed recently when the world's first method to produce sufficient infectious HPV for research was developed and the first HPV disinfectant efficacy study was published in 2014.⁴

Why Does trophon Work Whereas Other Disinfectants Do Not?

The patented trophon technology is unique in that it uses a proprietary disinfectant containing a high concentration of hydrogen peroxide that is sonically activated to form a sub-micron particle mist. This mist generates a high number of free radicals with superoxidative properties that destroy the virus.

References

- Health Service Executive (HSE) Quality Improvement Division – Decontamination Safety Programme. Ireland, January 2017. HSE Guidance for Decontamination of Semi-critical Ultrasound Probes; Semi-invasive and Non-invasive Ultrasound Probes. Document: QPSD-GL-028-1.
- Health Facilities Scotland, NHS National Services Scotland, Health Protection Scotland. Scotland, March 2016. NHS Scotland Guidance for Decontamination of Semi-Critical Ultrasound Probes; Semi-invasive and Non-invasive Ultrasound Probes. Document: HPS/HFS Version 1.0.
- Welsh Health Technical Memorandum WHTM 01-06. Wales, 2014. Decontamination of flexible endoscopes Part C: Operational management (Including guidance on non-channelled endoscopes and ultrasound probes).
- Meyers J, et al. Susceptibility of high-risk human papillomavirus type 16 to clinical disinfectants. The Journal of antimicrobial chemotherapy. 2014;69(6):1546-50.
- Ryndock E, et al. Susceptibility of HPV16 and 18 to high level disinfectants indicated for semi-critical ultrasound probes. Journal of Medical Virology. 2016;88(6):1076-80.
- Casalegno JS, et al. High risk HPV contamination of endocavity vaginal ultrasound probes: an underestimated route of nosocomial infection? PloS One. 2012;7(10):e48137.
- Ma ST, et al. Transvaginal ultrasound probe contamination by the human papillomavirus in the emergency department. Emergency medicine journal : EMJ. 2013;30(6):472-5.
- M'Zali F, et al. Persistence of Microbial Contamination on Transvaginal Ultrasound Probes despite Low-Level Disinfection Procedure. PloS One. 2014;9(4):e93368.
- Ryndock EJ, et al. A risk for non-sexual transmission of human papillomavirus? Expert review of anti-infective therapy. 2014;12(10):1165-70.
- Cancer Research UK. HPV and Cancer. Sep 2016. <http://www.cancerresearchuk.org/about-cancer/causes-of-cancer/infections-hpv-and-cancer/hpv-and-cancer> [Accessed 28 Feb 2017].
- Parkin DM. The global health burden of infection-associated cancers in the year 2002. International journal of cancer. 2006;118(12):3030-44.
- Walboomers JM, et al. Human papillomavirus is a necessary cause of invasive cervical cancer worldwide. Journal of Pathology. 1999;189(1):12-9.



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